REPORT ON THE INVESTIGATION OF FOUR ARCHAEOLOGICAL SITES AT PATERNOSTER BAY, SOUTH WESTERN CAPE

Prepared for

Paternoster Strand (Pty) Ltd

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Prepared by

Archaeology Contracts Office
Department of Archaeology
University of Cape Town
Private Bag Rondebosch
7700

Phone 650 2357
Fax 650 2352
Email djh@Beattie.uct.ac.za

1. INTRODUCTION

In 1992 the Archaeology Contracts Office was approached to conduct a Phase 1 study of Paternoster Bay (Halkett & Hart 1992). Six sites were located within the boundaries of the property and an additional site just outside. While the initial six sites were likely to be directly impacted by building operations, the proximity of the additional site, which we called the "Fisheries Midden", to the development was likely to place it at risk from secondary impacts from increased human use. The location of the sites is shown in Figure 1 and can also be seen in Plate 1.

Recommendations highlighted three sites which in the event of development would require mitigation in the form of excavation. These sites were PNB 4, PNB 5 and the "Fisheries Midden". One other site, PNB 6, required mitigation in the form of a controlled surface collection.

The recommendations have now been carried out and this report summarises the results.

2. BACKGROUND

Prior to 1800 years ago the south western Cape was inhabited by hunter/gatherers (San) people whose economy was based upon exploitation of a wide range of terrestrial animals and indigenous plant foods, supplemented by various marine animals when it was possible to make use of them. This changed with the arrival of Khoi herding groups who introduced domestic animals (sheep and later cattle) into the Cape. They also seem to have introduced ceramics to the area.

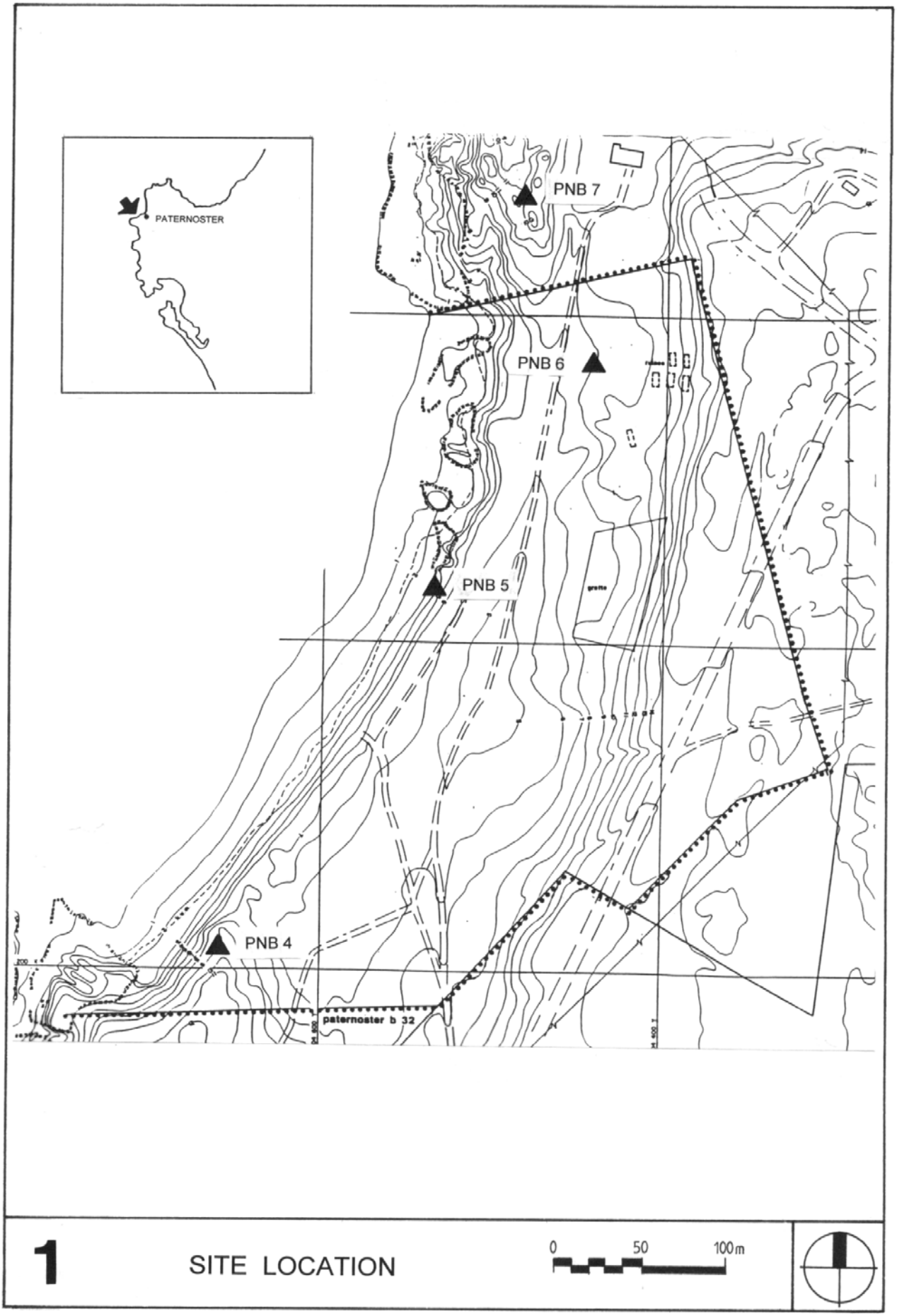
The Vredenburg peninsula subsequently became one of the centers of precolonial stock herding - the local shales and granites providing vital nutrients in the grazing for domestic stock that are not available on the Cape Peninsula or the sandstone mountains of the Cape Fold Belt.

To this day unresolved questions about the origins, ecology and lifestyle of early pastoralists in southern Africa have attracted the interest of historians, archaeologists and anthropologists alike. The Vredenburg area is at present one of the few areas of the Cape where both pastoralist and hunter/gatherer sites have been recognised, making the preservation, recording and study of archaeological sites all the more important. A number of research excavations that have taken place in the area will be mentioned during the course of this report.

3. EXCAVATIONS AT PATERNOSTER BAY

3.1 METHOD

The excavations and subsequent analyses of the Paternoster sites were conducted according to standard archaeological procedures. A meter square grid system imposed on the surfaces of the sites was used to record the horizontal provenance of artefacts and features. Excavations proceeded by the removal of natural stratigraphic units. Recognisable occupation layers, made up of variable concentrations of artefacts, shell and other food debris, were assigned names, removed separately, sieved through a 1.5mm and



1 SITE LOCATION

3mm mesh and bagged according to provenance. The 1.5mm (fine) fraction was kept separate from the 3mm material. The volumes of deposit were recorded for each layer. One full bucket of sieved deposit was bulked for each square and sorted back in the laboratory at UCT. The remaining sieved deposit was sorted on site, and bone, stone, ostrich eggshell (OES) were removed prior to discarding the shell. Charcoal has been collected from the layers to enable radiocarbon dating to take place[1]. As no individual hearths were found, the charcoal consists of scattered fragments. Detailed section drawings were made to enable the process of site formation to be reconstructed. The sites were recorded on colour print film and video.

The excavation of an archaeological site is followed by a lengthy period of laboratory analysis. In the case of the Paternoster sites, material was sorted into a series of separate components, namely stone artefacts, bone, ostrich egg shell and shellfish. The stone artefacts have been analysed in terms of raw material, tool or waste type. Bone has not been subjected to a detailed analysis but a summary of the broad species present is available. While bone was found at all of the sites, only two contained reasonable amounts. Shellfish sub-samples have been sorted by species and counted. All other bulk samples have been sorted and the non-shell components removed. These have been included in the analysis results.

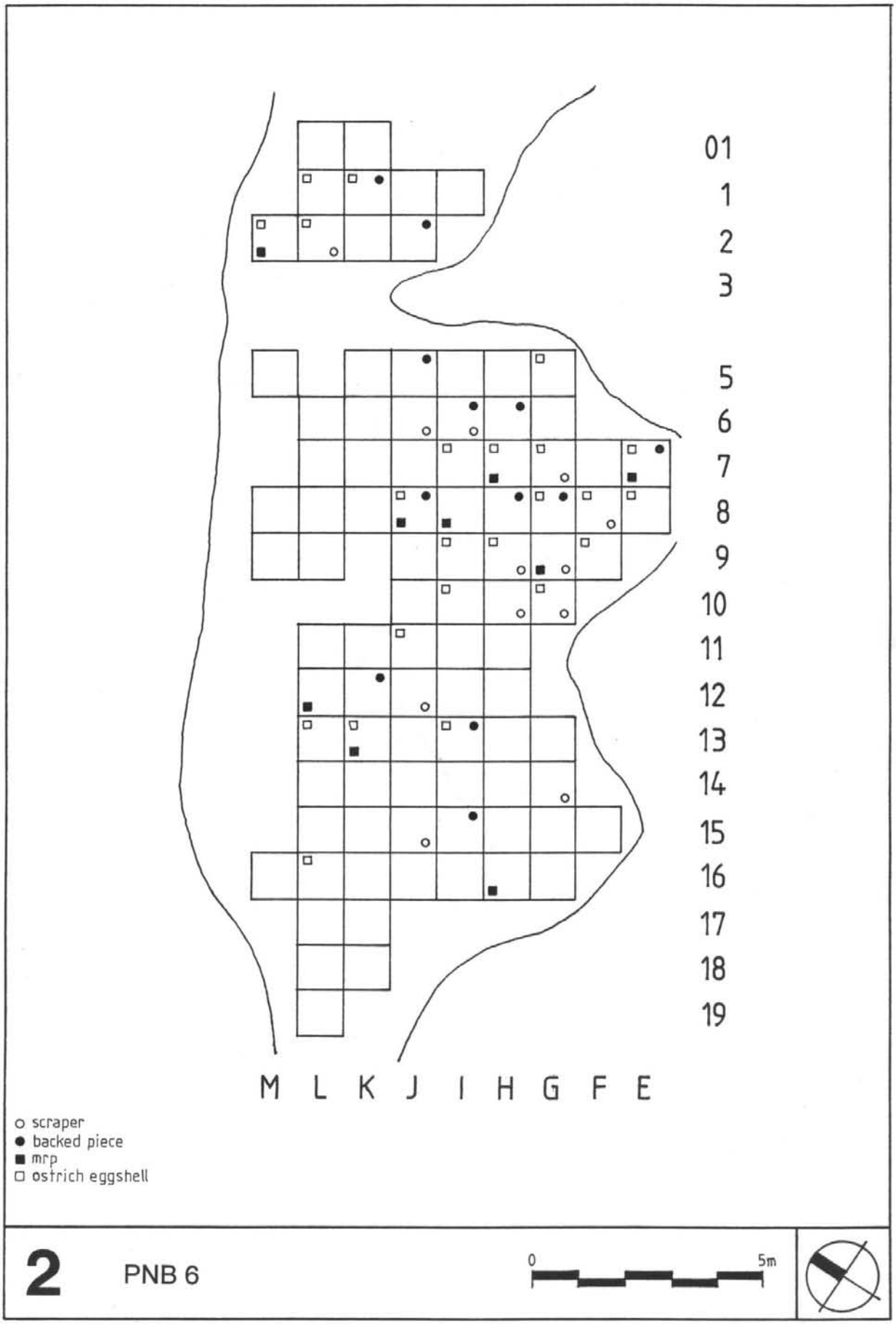
The accumulated observations of these components have been analysed for their spatial and chronological patterning as a basis for the reconstruction of the behaviour of pre-colonial people and the environment in which they lived. These observations, besides being the basis for our report, form an addition to the body of regional information available to archaeologists doing research in the future.

3.2 PNB 6: EXCAVATION RESULTS

PNB 6 consists of a surface scatter of stone and other artefacts accompanied by some shellfish. The site is located in a small deflation hollow set back some way from the beach. While most of the deflation has remained open, some areas, particularly along the southern end, have seen encroachment of aeolian sand resulting in the partial coverage of the scatter. A view of the site can be seen in Plate 2. Even though there has been partial cover, 90m^2 were sampled. A deeper test pit revealed that artefactual material was limited to a band less than 5 centimeters thick at the surface. Sampling was achieved through gridding the site into one meter squares and scraping the top few centimeters of deposit away and passing this through a 1.5mm sieve. The grid layout is shown in Figure 2.

It was noticed that some intrusive modern material occurred at various places in the deflation. Given its proximity to the current settlement of Paternoster as well as to some demolished houses, this was not unexpected. As the archaeology is not dense or particularly recognisable to the untrained eye, it is not expected that any major damage has occurred through this later use. Of more concern was the presence of fresh looking shell and bone on the surface. Shells, such as the white and black mussel, have probably been dropped here by gulls but recent human agents cannot be entirely excluded. As a result of this problem, no attempt has been made to quantify the shell at this site. As there is very little bone anyway no major loss is experienced.

[1] Radiocarbon dates will form part of the research component of the project and will be financed from elsewhere. The dates will not be available to be included in this report but a sheet has been attached at the back of the report for their inclusion at a later stage.


01
1
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M L K J I H G F E
○ scraper
● backed piece
■ mrp
□ ostrich eggshell
2
PNB 6
0
5m

A rough plot of artefactual material such as ostrich eggshell and formal tools shows what appears to be some patterning to the discard. The plot records only presence/absence of artefacts and not quantity and is shown on Figure 2.

3.2.1 Stone

A breakdown of the stone artefact assemblage is presented in Table 1. It is quite clear that the dominant raw material is silcrete. While the greatest portion of the assemblage is made up of waste (84.9% including cores), a fairly high formal tool count is also noticed (12.3%). Scrapers are by far the most common formal tool form represented and these are almost exclusively end scrapers. Numerous backed pieces also occur with backed blades predominating.

3.2.2 Ostrich Eggshell

The ostrich eggshell is presented in Table 2. Unmodified fragments are most common and only 1 bead was recovered. One partial water container opening was found.

3.3 PNB 4: EXCAVATION RESULTS

The site occurs on a small dune behind a granite promontory at the southern end of the bay. While a large part of the site has been deflated, a single lens of shell was observed in the side of the dune. This lens, apparently *in situ*, lies below sterile aeolian sand approximately 900mm thick. Some 14m^2 of this lens was excavated as the shell was not particularly dense and was patchy. No individual hearths were observed. A section drawing and photograph of the excavation are shown in Figure 3. A view of the site is shown in Plate 3.

3.3.1 Stone

A breakdown of the stone artefact assemblage is presented in Table 3. The predominant raw material is quartz. Most of the assemblage is made up of waste (98.6% including cores). While a number of scrapers are present, no other formal tools have been observed. Scrapers are all made on quartz and are almost exclusively side scrapers.

3.3.2 Marine Shell

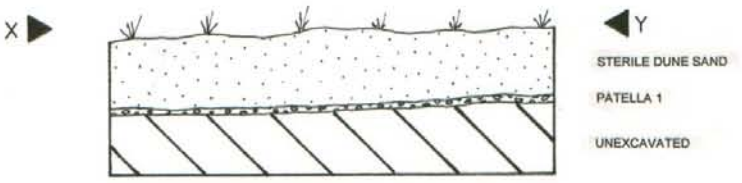
The composition of the shell sample is presented in Table 4 and is based on the analysis of one square (G2/Patella 1). *Patella granatina, Patella granularis, Patella argenvillei* and *Choromytilus meridionalis* make up the largest part of the sample.

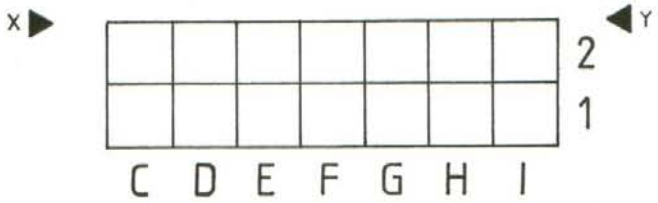
3.3.3 Ostrich Eggshell

There is very little OES at this site. One bead and two unmodified fragments were recovered. The information is presented in Table 5.

3.3.4 Bone

Virtually no bone was recovered. Several crayfish mandibles were collected but not measured.





3 PNB 4

0 5m

3.4 PNB 5: EXCAVATION RESULTS

This shell midden lies on the crest of the dune ridge immediately adjacent to the beach at the northern end of the bay. A granite outcrop slopes down to the beach just to the north of the site though it seems unlikely that this had anything to do with the location. A jeep track has disturbed one end of the site but has not affected the sampling.

The site consists of a single dense shell lens approximately 450mm below surface. The seaward side is truncated probably by the erosion of the dune. The shell seems to lie in a slight depression which is seen in the section drawing in Figure 4.

3.4.1 Stone

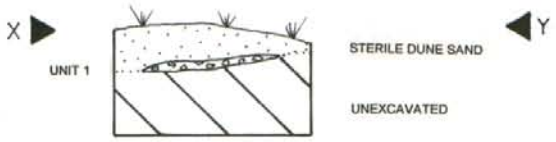
The breakdown of the assemblage is presented in Table 6. Quartz is the dominant raw material and waste makes up the greatest portion of the sample. The formal component is very small made up of only 2 side scrapers and 2 backed pieces.

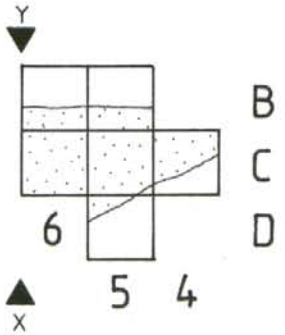
3.4.2 Marine Shell

The composition of the shell sample is presented in Table 7 and is based on the analysis of one square*. Choromytilus meridionalis* was the most commonly collected species. *P. granatina* is also reasonably well represented.

3.4.4 Bone

Bone is present in reasonable quantities but has not been quantified or subjected to a detailed identification. Tortoise is most common in the sample but other species noted were bird and seal. A number of crayfish mandibles have also been collected but not measured.





4 PNB 5

0 5m

3.5 PNB 7 (FISHERIES MIDDEN): EXCAVATION RESULTS

Originally called the Fisheries Midden because of its location close to the factory at the northern end of the bay, the overall site is large and is made up of several midden patches. Two of the patches can be seen in Plate 4. Some of these have been deflated while others, such as the patch selected for excavation, show evidence of stratification. The excavated area, known as area A, was initially recognised as possibly 2 stratified shell lenses eroding out of the side of a small dune hummock and appeared to continue over a face several meters in length. The visible lenses prior to excavation are shown in Plate 5. A badly preserved and partially disturbed human burial was also recovered from the site and will be discussed in Appendix 1. Robertshaws' excavations (Robertshaw 1977) were located some 300-400 meters to the north-east in the same dune system.

Excavation was conducted over 12m^2 although shell was only present in stratified context in 9 of these. The layout of the excavation as well as the relationships between the various layers can be seen in Figure 5. The stratigraphy while it may appear straightforward was anything but. The main lens, Shell Lens 1, was very thick in the initial square and resolved later into 2 separate units SL1A and SL1B. The very steep dip of the lenses toward the east made excavation difficult in the soft soil matrix. The patchiness and lack of consistency of certain lenses particularly toward the south, probably indicates some prior deflation or other form of disturbance.

3.5.1 Stone

The breakdown of the stone artefact assemblage is presented in Table 8. Waste predominates although some retouched pieces and a number of side scrapers are noticed in the formal category. Quartz is the most common raw material with most of the formal pieces being produced in this material.

3.5.2 Marine Shell

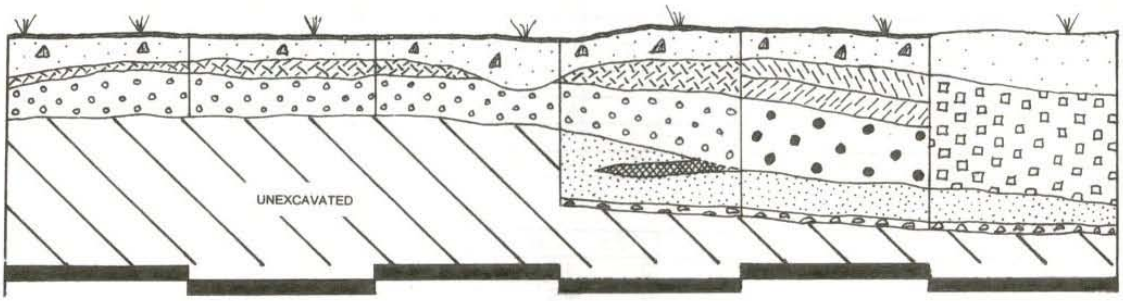
Two square meters were analysed for shell species composition (G13 and G14). The results of the analyses are presented in Table 9 and Table 10 respectively. *Choromytilus meridionalis* was the most commonly collected species in all layers in terms of individual numbers. *P. granatina* and *P. granularis* are also well represented.

3.5.3 Ostrich Eggshell

Compared to the other sites, PNB 7 contains a lot of ostrich eggshell. Included are numerous finished and unfinished beads. Many small fragments of this material show evidence that were going to be made into beads. The assemblage is summarised in Table 11.

3.5.4 Bone

A good bone sample has been collected but has not been quantified or subjected to a detailed process of identification. The presence and relative quantities of different types of bone have been noted on Table 12. Bone implements in the form of 2 bone awls are present. Seal bone has been noted.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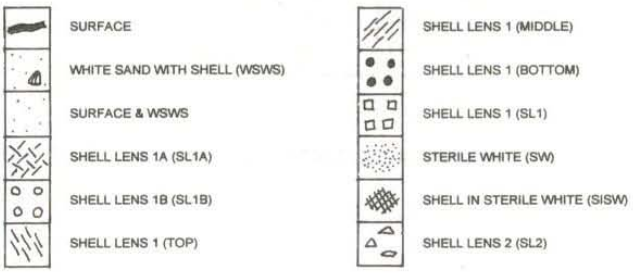
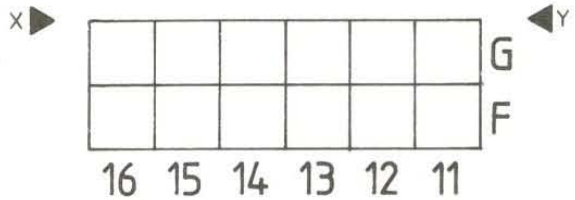

SURFACE
WHITE SAND WITH SHELL (WSWS)
SURFACE & WSWS
SHELL LENS 1A (SL1A)
SHELL LENS 1B (SL1B)
SHELL LENS 1 (TOP)
SHELL LENS 1 (MIDDLE)
SHELL LENS 1 (BOTTOM)
SHELL LENS 1 (SL1)
STERILE WHITE (SW)
SHELL IN STERILE WHITE (SISW)
SHELL LENS 2 (SL2)


X
Y
G
F
16 15 14 13 12 11

5 PNB 7

4. DISCUSSION

The earliest interest in the Vredenburg area was limited to site location (Bateman 1945, Cronin and Thackeray 1975)while surface collections from shell middens were also made at various places between St Helena and Saldahna (Rudner 1968). Robertshaws' excavations at Paternoster (Robertshaw 1977) and later excavations at Dyker Eiland (Robertshaw 1979) marked the change to more detailed examination of individual sites to quantify and describe content and to assess chronology. This trend has continued with the work of Smith at Kasteelberg and other sites (Smith et al 1991). Excavations at Kasteelberg have produced remains that have been ascribed to herding people while many other sites having somewhat different content have been ascribed to hunting and gathering groups. The debate around the differences between the cultural signatures of herding and hunting groups is ongoing (Schrire and Deacon 1989, Smith et al 1991, Yates & Smith 1993, Schrire 1993) and seems unlikely to be carried forward without more excavations being conducted both in the area of the Vredenburg peninsula and further afield.

The fairly recent addition to the archaeology of the Vredenburg peninsula and many other locations in the south western Cape is that of Cultural Resource Management (CRM). The rapid urbanisation of the established towns as well as the increase of leisure developments along the shoreline have seen many archaeological sites threatened directly by building or indirectly through increased human use of areas accompanying new developments. The sites that have been excavated and are under discussion in this report have been studied as a result of impact mitigation. They are potentially the first of a number of sites that will be investigated in this way in the future.

While "rescue archaeology" is enabling more sites to be excavated, prohibitive costs and limited time often make it impossible to fully detail assemblages from one site, let alone several at one time. Generally the approach that is followed is to characterise the site through a limited analysis. Hopefully, the information derived from this will be sufficient to provide future researchers who are interested in picking up and conducting more detailed analyses of the remaining material, with a basic means of assessment. The four sites under discussion here are cases in point.

The limited analyses of the Paternoster sites have highlighted a number of interesting issues which I will discuss in relation to observations from other excavated sites on the Vredenburg peninsula.

The first observation that is of interest is the complete lack of ceramics from all of the sampled sites. It has been clearly demonstrated that both on the Vredenburg peninsula and at other places in the Cape, that ceramics were introduced at about 2000 BP (Sealy and Yates 1994). The absence or presence of this material is often used to infer chronology when dates derived from other materials are not available.

Absence of ceramics at all the Paternoster sites could be due to factors other than chronology but it seems unlikely that these would be the same across all four sites. PNB 7 has considerable amounts of deflated material amongst which during 10 days on site not a single potsherd was observed. At the site of Robertshaw's excavations a few hundred meters to the north, potsherds are relatively abundant on the surface and are reported in layers 1 and 2 of the excavation, although most are found in layer 1 which has a radio-carbon date of 870±50 BP (Robertshaw 1977:64). It would therefore seem logical to assume that all the

sampled sites predate the introduction of pottery. In the case of PNB 6 the nature of the stone assemblage is different from other sites both in terms of the amounts of formal tools and raw material. There seems little doubt that this site is older than all the others.

This leads to the second observation regarding the content of the sites. PNB 4, 5, 7 are all shell middens containing either single or multiple shell units. PNB 6 however, although it does contain some shell, cannot be classified as a true shell midden. This site could rather be classified as a stone scatter with some associated shell. Its location in a small deflation hollow differs from other sites which are located on the tops or sides of dunes and resembles inland deflation sites seen at other parts of the coast such as Elands Bay (Manhire 1987) and Brand Se Baai (Halkett & Hart 1994). The consistent element which characterises all these sites is that they contain stone scatters with formal tools, particularly backed forms. It is accepted that these sites probably predate 3000 BP (Jerardino, pers com). Recently two sites in open coastal middens have shown backed tools in stratified units dating to c4000 BP, namely BSB 6 (Halkett & Hart 1993) and DSP 16 (Parkington et al, in prep). It has been shown that there is a fairly high percentage of formal tools at PNB 6. Amongst the formal element are a number of scrapers which in terms of form could be described as end scrapers. All the other Paternoster sites contain scrapers, although in form, these would virtually all be described as side scrapers. Whereas the formal component at PNB 6 is all made on silcrete, quartz dominates at all other sites. As the sites are not geographically far removed from each other, it seems likely that the artefact and raw material differences reflect chronological and cultural differences. The artefacts from Robertshaw's site show trends similar to PNB 4, 5 and 7 both in terms of forms and raw materials (Robertshaw 1977:67) and generally seem to be in layers predating 3100 BP.

Ostrich eggshell ornaments in the form of beads can also give some indication of age through the assessment of the exterior diameters (Yates in prep). Briefly summarised Yates concludes that beads with small exterior diameters (5mm and less) are generally associated with hunter/gatherer sites while larger beads are associated with herder sites or sites with more recent dates. One site, PNB 7, contained several finished beads and a number of partially finished beads. Out of a sample of 34 measurable specimens, 4 are slightly larger than 5mm. The average external diameter is 4.3. These observations as well as the absence of pottery seem to place the site chronologically preceding the advent of pastoralism.

Other components of the middens such as shell show similar trends in all the sites except PNB 6. The black mussel (*Choromytilus meridionalis*) is very common as is the limpet (*Patella granatina*). The shell component would therefore seem to be confirming the geographical proximity of the sites that have shell present. In other words, sites of similar age close to one another should reflect similar shellfish collection strategies since presumably the occupants were all exploiting the same piece of coastline. No major differences are noticed from layer to layer in PNB 7 to suggest major chronological differences. The shell content of PNB 6 can unfortunately not be compared to other sites.

5. CONCLUSIONS

While no radiocarbon dates have yet been undertaken, the artefactual content of the sites suggest some chronological sequence with one site, PNB 6, being older than the rest. None of the sites appear to contain any pottery and thus could be expected to predate 2000 BP.

6. RECOMMENDATIONS

While no further mitigation is necessary it must be mentioned that additional pre-colonial burials may be uncovered during the course of building or landscaping. In the event of this happening, an archaeologist should be contacted to remove the material. It is preferable that the bones are not disturbed before the archaeologist has inspected them as the position of the bones and associated artefacts are important.

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8. PROFESSIONAL TEAM

Fieldwork	Dave Halkett Harriet Clift Zukisani Jakavula Mzunzima Mjikaliso Belinda Mutti Mzwondile Sasa
Analysis	Dave Halkett Harriet Clift Belinda Mutti
Report	Dave Halkett

Plate 1 View of the coastline from PNB 7 showing the location of excavated sites

Plate 2 View of PNB 6. Corners of grid indicated by standing figures.

Plate 3 Location of PNB 5.

Plate 4 View of PNB 7. Excavated area indicated by markers. Burial was located to the right of the trestles.

Plate 5 View of the shell scatter at PNB 7 before excavation.

Plate 6 View of the north section of PNB 7 showing the dip of the shell lenses.

APPENDIX 1
HUMAN SKELETAL REMAINS AT PNB 7

The partially deflated remains of a single individual were found approximately 30 meters to the north of the excavation. Excavation showed that the body had originally been buried on its side in the foetal position but deflation had resulted in disturbance leading to disarticulation of most of the skeleton except for hands and part of the vertebral column. The bleached appearance of some of the bone suggests that they have been exposed for quite some time. One femur was found upslope from the burial and appears to have been moved either by human or animal agents. No cranium was found apart from two fragments and the rest may simply have disintegrated. The material will be housed at the Department of Anatomy, UCT.

No detailed analysis has been undertaken but a list and quantity of the skeletal parts recovered is presented below. Bone preservation is generally bad and some of the smaller bones from the hands and feet are difficult to identify although an anatomist will do a better job.

head	
cranium	2 fragments
mandible	half with teeth
teeth	4 loose (3 incisor 1 molar)
torso	
clavicle	2
scapula	1 incomplete
ribs	18 (with articular surfaces attached) and sundry frags
vertebrae	7 cervical 6 thoracic 6 lumbar
pelvis	
innominate	2 incomplete
sacrum	1
arms	
humerus	1
radius	2
ulna	2
hands & feet	
carpals	10
tarsals	10
phalanges	35 (mixed)
legs	
femur	2
fibula	1

APPENDIX 2

TABLES

PNB 6								
Surf & scrape								
All squares	**n**	**%**	SIL	QTZ	QZIT	L/ST	OCHR	TOTAL
chip	81	25.5	70	8		3		81
chunk	38	11.9	31	2		5		38
flake	137	43.1	122	4	5	6		137
bladelet	3	0.9	3					3
sub tot	259	81.4						
irr core	8	2.5	8					8
bp core	1	0.3		1				1
s plat core	2	0.6	2					2
sub tot	11	3.5						
mrp	11	3.5	11					11
mbp	3	0.9	3					3
scraper	15	4.7	15					15
bkd blade	9	2.8	9					9
bkd point	1	0.3	1					1
sub tot	39	12.3						
h/stone	0	0.0						
hef	0	0.0						
sub tot	0	0.0						
ochre	9	2.8						
sub tot	9	2.8						
total	318	100.0	275	15	5	14	9	318
%			86.5	4.7	1.6	4.4	2.8	100.0

Table 1: PNB 6 stone artefact assemblage

PNB 6	mm	mm			
surf	**diameter**	**aperture**	**frags**	**modified**	**TOTAL**
all squares	4	n/m	33	1	
TOTAL		1	33	1	35
%		2.9	94.3	2.9	100.0

Table 2: PNB 6 ostrich eggshell

PNB 4 *Patella 1* **All squares**	n	%	SIL	QTZ	QZIT	L/STON	OCHRE	TOTAL
chip	314	48.2	3	310	1			314
chunk	62	9.5	3	57		2		62
flake	238	36.6	9	225	3	1		238
bladelet	4	0.6		4				4
sub tot	618	94.9						
irr core	11	1.7	1	10				11
bp core	11	1.7		11				11
s plat core	2	0.3		2				2
sub tot	24	3.7						
mrp	0	0.0						
mbp	0	0.0						
scraper	8	1.2		8				8
bkd blade	0	0.0						
bkd point	0	0.0						
sub tot	8	1.2						
h/stone	1	0.2			1			1
hef	0	0.0						
sub tot	1	0.2						
ochre	0	0.0						
sub tot	0	0.0						
total	651	100.0	16	627	5	3	0	651
%			2.5	96.3	0.8	0.5	0	100.0

Table 3: PNB 4 stone artefact assemblage

PNB 4 *Patella 1* **G2**	n	countable wght (g)	fragment wght (g)
P granatina	269	1441.4	1001.6
P granularis	163	492.6	177.6
P argenvillei	55	1092.4	123
P barbara	3	104.9	20
P cochlear	15	94.9	0
P compressa			
C meridionalis L	200	162.4	
C meridionalis R	159	156.8	1361
A ater	1	1.1	
D serra	10	49.2	19.3
Barnacle			
Whelk	30	38.3	60.9
Oxystele sp			
T sarmaticus			
H Midae			
Crepidula sp	2	1.3	0

Table 4: PNB 4 marine shell

PNB 4	mm	mm			
Patella 1	diameter	aperture	frags	modified	TOTAL
all squares	5	0	2	0	
TOTAL		1	2	0	3
%		33.3	66.7	0.0	100.0

Table 5: PNB 4 ostrich eggshell

PNB 5								
Unit 1								
All squares	n	%	SIL	QTZ	QZIT	L/STON	OCHRE	TOTAL
chip	104	50.0		104				104
chunk	20	9.6		19		1		20
flake	70	33.7	1	66	2	1		70
bladelet	3	1.4		3				3
sub tot	197	94.7						
irr core	3	1.4	1	2				3
bp core	1	0.5		1				1
s plat core		0.0						
sub tot	4	1.9						
mrp	1	0.5		1				1
mbp		0.0						
scraper	2	1.0	1	1				2
bkd blade	1	0.5		1				1
bkd point		0.0						
sub tot	4	1.9						
h/stone		0.0						
hef	1	0.5			1			1
sub tot		0.0						
ochre	2	1.0					2	2
sub tot		0.0						
total	208	100.0	3	198	3	2	2	208
%			1.4	95.2	1.4	1.0	1.0	100.0

Table 6: PNB 5 stone artefact assemblage

PNB 5			
Unit 1		countable	fragment
C5	n	wght (g)	wght (g)
P granatina	228	987.4	717
P granularis	38	117.4	28.8
P argenvillei	13	356	42.1
P barbara	9	194.4	0
P cochlear	5	12.8	0
P compressa			
C meridionalis L	326	752.7	
C meridionalis R	357	739.1	3653
A ater			
D serra			
Barnacle			
Whelk	8	14.5	84
Oxystele sp			
T sarmaticus			
H Midae			
Crepidula sp			

Table 7: PNB 5 marine shell

PNB7	*SC*	*WSWS*	*SL1*	*SL1(a)*	*SL1(b)*	*SW*	*SISW*	*SL2*
	n	n	n	n	n	n	n	n
chip	23	40	75	27	22		1	3
chunk	6	12	18	7	6			2
flake	34	22	61	12	19			2
bladelet		2						
sub tot								
irr core	1		2					
bp core	1		4	1				1
s plat core								
sub tot								
mrp	1	1		1				
mbp								
scraper	5	4	8	3				
bkd blade								
bkd point								
sub tot								
h/stone	1	1						
hef				1				
sub tot								
ochre			4					
sub tot								
total	72	82	172	52	47	0	1	8

	QTZ	SIL	QZ	LST	n
SC	95.8	1.4	2.8	0	72
WSWS	96.3	1.2	2.4	0	82
SL1	94.2	0.6	3.5	1.7	172
SL1(a)	92.3	0	5.8	1.9	52
SL1(b)	85.1	5.3	10.6	0	47
SISW	100	0	0	0	1
SL2	87.5	12.5	0	0	8

Table 8: PNB 7 stone artefact assemblage

PNB 7			*WSWS*				*SL1A*				*SL1B*				*SISW*				*SL2*	
			countable	fragment			countable	fragment			countable	fragment			countable	fragment			countable	fragment
G13	n	%	wght (g)	wght (g)	n	%	wght (g)	wght (g)	n	%	wght (g)	wght (g)	n	%	wght (g)	wght (g)	n	%	wght (g)	wght (g)
P granatina	216	23.4	1145.1	261.5	163	19.6	809.7	135.8	270	25.3	1310.4	180.2	8	12.9	39.6	5.6	201	32.7	1304	46.7
P granularis	76	8.2	202.4	22	67	8.1	218.9	8.7	148	13.8	463.1	21.6	1	1.6	3.1		26	4.2	123.7	1.8
P argenvillei	11	1.2	274	22.7	9	1.1	209.4	3.9	1	0.1	3.7		1	1.6	13.2	0.6	44	7.2	1529.6	6.5
P barbara	6	0.6	126.2	7	6	0.7	83.3		6	0.6	148.9						20	3.3	438.4	
P cochlear	20	2.2	164.5		31	3.7	193.4		15	1.4	98.3						30	4.9	294.9	
P compressa																				
C meridionalis L	266	28.8	445.8		265	31.9	623.4		277	25.9	515.4		26	41.9	79.6		139	22.6	442.6	
C meridionalis R	302	32.6	540.2	2980	266	32.0	701.6	1830.8	332	31.1	675.7	1922.3	26	41.9	45.1	102.2	150	24.4	426.7	979.6
A ater																				
D serra	3	0.3		0.8	1	0.1	0.6		1	0.1	0.2									
Barnacle		0.0		2.9													1	0.2	0.2	
Whelk	19	2.1	4.9	69.3	20	2.4	20.6	37.1	15	1.4	5.3	41.3		0.0		2.3	4	0.7	4.2	11.5
Oxystele sp	1	0.1	0.1	1.6						0.0		2.5						0.0	0.6	
T sarmaticus																				
H Midae																				
Crepidula sp	5	0.5		0.7	3	0.4	1.7		4	0.4	0.8									
	925	100	2903.2	3368.5	831	100	2862.6	2016.3	1069	100	3221.8	2167.9	62	100	180.6	110.7	615	100	4564.9	1046.1

Table 9: PNB 7 marine shell (G13)

PNB 7			*WSWS*				*SL1A*				*SL1B*				*SL2**	
			countable	fragment			countable	fragment			countable	fragment			countable	fragment
G14 (*F13)	n	%	wght (g)	wght (g)	n	%	wght (g)	wght (g)	n	%	wght (g)	wght (g)	n	%	wght (g)	wght (g)
P granatina	223	26.2	1097.6	114.3	259	26.8	1467.4	124.6	301	34.8	2133	111.4	46	19.0	268	15
P granularis	90	10.6	230.6	19.9	102	10.6	358.5	17.2	75	8.7	299.1	2.9	15	6.2	112.7	0.4
P argenvillei	9	1.1	251.2	5.5	16	1.7	474.4		10	1.2	286.9	5.5	7	2.9	223.3	2.7
P barbara	3	0.4	34.5		10	1.0	210		13	1.5	291	13.5				
P cochlear	11	1.3	86.8		20	2.1	168.3	3.7	3	0.3	33.8		5	2.1	53.9	
P compressa																
C meridionalis L	238	27.9	446.6		251	26.0	473		203	23.5	360.7		99	40.9	144.5	
C meridionalis R	249	29.2	507.1	2236.9	285	29.5	667.6	2207.9	254	29.4	357.8	1596.9	66	27.3	286.4	651.4
A ater				0.8				0.9								
D serra								0.8								
Barnacle				1												
Whelk	23	2.7	19.6	105.6	19	2.0	15.7	59	4	0.5	4.1	15.9	3	1.2	1.8	8.2
Oxystele sp				1					1	0.1		5.5	1	0.4	0.4	
T sarmaticus																
H Midae																
Crepidula sp	6	0.7		1	4	0.4	1.2									
	852	100	2674	2486	966	100	3836.1	2414.1	864	100	3766.4	1751.6	242	100	1091	677.7

Table 10: PNB 7 marine shell (G14)

PNB 7	mm	mm			(brok)	partial	(brok)	(brok)	
	diameter	aperture	frags	unfin	unfin	ream	unmeas	meas	TOTAL
F11 SW	4.03	1.74							
	3.5	1.72							
F12 SC	4.99	1.44	2		2				
F12 SL2	3.71	1.49							
F13 SC	3.85	1.66			3	1		5.16	
F13 SL1(B)			2		1				
G11 SC	3.73	1.42	2		5		1	5.28	
								4.81	
G11 WSWS			3		1				
G11 SL1	3.86	1.94	53		19	1	4	4.37	
	5.08	1.58						4.99	
	4.79	1.65						5.43	
	5.12	1.59							
	4.02	1.64							
G12 SC			10		2				
G12 WSWS			2		2				
G12 SL1(TOP)			9	1	3				
G12 SL1(MID)			14		8	1	2		
G12 SL1(BOT)	4.25	1.73	33	1	9	1	2		
G13 SC			3		1				
G13 WSWS			9		4	1			
G13 SL1A			10		6		2		
G13 SL1B	4.09	1.76	4		2	1			
G14 WSWS	4.01	1.94	1		1				
G14 SL1A	3.45	1.45	16		2	1			
	4.41	1.33							
G14 SL1B	4.76	1.43	3		1	1			
G15 WSWS			1						
G15 SL1A					1				
G15 SL1B			6		1	2			
G16 SL1A	4.56	1.93	9		3			4.27	
								4.92	
F/G14 SC	4.4	1.74	27		5		1		
F/G15 SC			3						
F/G16 SC	3.99	1.86	11		7	2	3		
SURF COLL	4.75	1.69			1				
	4.12	2.17							
	4.17	2.1							
	4.28	1.54							
	4.85	1.71							
	4.23	1.81							
TOTAL		26	233	2	90	12	15	8	386
%		6.7	60.4	0.5	23.3	3.1	3.9	2.1	100.0

Table 11: PNB 7 ostrich eggshell

PNB 7	mammal	bird	tortoise	fish	crayfish	special
F11 SC	x	x	x	x	x	
F12 SC	x		x			
F13 SC	x	x	x			
G11 SC	x		x			
G12 SC	x	x	x		x	
G13 SC	x	x	x	x		
G15 SC	x	x	x			
F/G14 SC	x	x	x		x	
F/G16 SC		x	x			
G11 WSWS	x		x	x		
G12 WSWS	x	x	x			
G13 WSWS	x	x	x		x	
G14 WSWS	x	x	x	x		otolith
G15 WSWS	xx	xx	xx	xx		
G16 WSWS	x		x			
F11 SL1	x	x		x		
F12 SL1	xx	xx	xx	xx		
G11 SL1	xxx	xxx	xxx	x	x	
G12 SL1(BOT)	xxx	xxx	xxx	x		
G12 SL1(MID)	xxx	xxx	xxx	x	x	
G12 SL1(TOP)	xx	xx	xx	x	x	
G13 SL1A	x	x	x	x	x	
G14 SL1A	xx	xx	xx		x	
G15 SL1A		x	xx	x		
G16 SL1A	xx	xx	xx	x	x	
F13 SL1B	x	x			x	
G13 SL1B	xxx	xxx	xx	x		bone awl
G14 SL1B	xx	xx	xx	x		
G15 SL1B	x	xx	xx	x	xx	bone awl
F11 SW	x	x	x	x		
G11 SW	x	x				
G13 SISW	x					
F11 SL2	x	x	x			
F12 SL2		x	xx		x	
F13 SL2	x		x	x	x	
G11 SL2	x	x				
G12 SL2	x	x	xx	x		
G13 SL2	x	x	x			

Table 12: PNB 7 bone