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Binneman, Johannes Nicolaas Francois

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The creation of new symbolic markers of identity will take place in response to an established tradition of material culture when populations settle in uninhabited regions. I suggest that the Kabeljous Industry represents such a symbolic expression. By practising a system of inclusion the Kabeljous groups were able to transmit information about themselves and their territory, monitor movements of other groups in their area and thereby avoid competition for the same resources.

I also suggest that there were several periods of accelerated production followed by 'relaxed' periods of production during the Later Stone Age. The Kabeljous Industry represent a 'relaxed' period in which the Wilton Industry was being replaced by a quartzite industry, similar to the transition between the Robberg and Albany Industries at ca 12 000 BP.

Key words

Later Stone Age - Wilton Industry - Kabeljous Industry - south-eastern Cape - symbolic construction of communities - material culture production - communicating information - power relations - boundary maintenance - system of inclusion - symbolic group identity.

ABSTRACT

The main concern of this study is the investigation of the events which initiated the symbolic construction of communities in the south-eastern Cape during the Holocene Later Stone Age. To understand and to explain the relationships which existed between different groups in this region a social approach was followed.

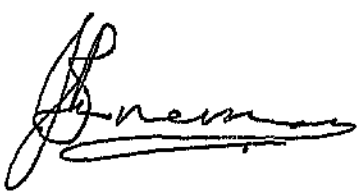
The data presented in this thesis are a summary of the results obtained from a large number of open-air shell middens, a coastal shelter, Kabeljous River Shelter 1, two coastal caves, Klasies River Caves 1 and 5 along the Cape St Francis coast and The Havens Cave, one of several sites excavated in the adjacent Cape mountains.

Lithic evidence from the coastal sites indicates that during the past 4500 years two distinctly different stone tool industries co-existed side by side along the south-eastern Cape coast. Caves were first occupied between 5800 and 4200 BP by groups with a typical Wilton Industry. At ca 3000 BP the Wilton Industry was 'replaced' in the caves by a macrolithic quartzite cobble industry, named the Kabeljous Industry, but was still present in open-air shell middens until ca 1900 BP. At Klasies River Cave 5 both industries were present in the cave from 4200 BP to ca 3000 BP.

There are no marked differences in the subsistence activities between the two different lithic industries and therefore it is argued that the Kabeljous industry does not reflect technological adaptation to a coastal environment. Instead I argue that the stone tools, as part of material culture production, played an active role in communicating information between groups. Central to the understanding of these social relationships are the concepts of power relations and inclusion. Style was the medium through which groups expressed symbolic group identity and maintained social boundaries. Important however, is the fact that the power relations generated by symbolic identity expression was not aimed at excluding other groups from their territory, but rather at inclusion.

Declaration

I declare that this thesis is my own unaided work. It is submitted for the degree of Doctor of Philosophy in the University of the Witwatersrand, Johannesburg. It has not been submitted before for any other degree or examination in any other university.



Johannes Nicolaas Francios Binneman

18th day of December 1995

SYMBOLIC CONSTRUCTION OF COMMUNITIES DURING THE HOLOCENE LATER STONE AGE IN THE SOUTH-EASTERN CAPE

Johannes Nicolaas Francois Binneman

A thesis submitted to the Faculty of Arts, University of the Witwatersrand, Johannesburg, in fullfilment of the requirements for the degree of Doctor of Philosophy.

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for the south-eastern Cape (Binneman 1985). In model 4, "no transhumance is involved, and the original 'Albany culture' is simply changed by the irresistible spread of the 'Wilton culture".

DISCUSSION

The interpretation that the Wilton microlithic toolkit originated as a result of the invention/introduction of the bow and arrow is not convincing. Humphreys (1979) and J. Deacon (1984b:243) have previously made similar suggestions about bone replacing stone as arrowheads during the Robberg and Albany periods. Bone points occur only at coastal sites like Nelson Bay Cave and Matjes River Rock Shelter (Louw 1960) during the Albany period. Therefore if Inskeep is correct, then the bow and arrow was invented/introduced at Nelson Bay Cave but did not reach the adjacent inland areas before the mid Holocene.

It is clear in model 1 that cultural change must be introduced by other populations from another region. Inskeep also regards the 'Albany people' and 'Wilton people' as two separate populations which either displaced one another, introduced their cultural traditions to each other or even lived together and shared the same resources for short periods. However, from the archaeological record of the southern and eastern Cape, it is apparent that the Albany Industry was in the process of being replaced in the Cape Fold Belt by the Wilton Industry at ca 8000 BP. If Inskeep is correct, then the Albany people at Nelson Bay Cave survived as the only example of their kind for 12 000 years. It is also clear from Inskeep's models that environmental conditions were the determining factors of population movement during the mid to late Holocene. However, Inskeep does not explain why environmental conditions would cause people from the inland regions to occupy the coast for only two months of the year. Neither does he explain the sudden improvement in environmental conditions after 3300 BP which made it possible for populations to remain inland all the year round.

In model 2 Inskeep fails to explain the reasons why the 'Albany people' adopted a microlithic

multi-barbed spear used during the Robberg was replaced by the bow and arrow during the Albany period. According to Inskeep (1987:293), the 'bow and arrow scenario' provided the basic framework to explain the technological changes and also allowed him to "integrate the evidence with demographic considerations in an attempt to view the data in terms of human socio-economic behaviour". He suggested that initially a heavy bow and arrow was used for "traumatic wounding" rather than a light-weight bow and composite arrow. Inskeep speculated that the effectiveness of the impact of the arrow was increased by the addition of segments/backed blades some 8000 years ago. According to him the light-weight bow and arrow may have developed later, but could have preceded the adoption of the stone armature. To substantiate these suggestions Inskeep discussed several selected examples of bows from rock art scenes from the southwest Cape and in the northern Cape. With this background, Inskeep (1987:303-306) proposed four models as possible explanations for the changes observed at Nelson Bay Cave.

First, the Albany people (quartzite industry) were permanent occupants of the coast. Around ca 6000 BP inland Wilton people (microlithic industry) began to visit the coast seasonally due to "environmental constraints". The Wilton people shared the coastal resources with the Albany populations until 4500 BP. After this date visits of the Wilton people to the coast became less frequent due to "environmental amelioration in the interior". Around 3300 BP these visits ceased altogether "leaving the coast for the sole (year-round) occupation of the descendants of the original 'Albany' populations". According to Inskeep (1987:303) this model explains the "apparently abrupt" introduction of a microlithic industry to the existing macrolithic quartzite industry.

In model 2, the Albany people were also essentially coastal occupants. However, the difference is that they followed a pattern of seasonal transhumance to the mountains where they came into contact with the "spreading 'Wilton' complex". The Nelson Bay Cave Albany people adopted the Wilton material culture and brought it back to the coast. In model 3, Wilton people were seasonal visitors to the coast and settled there from about 3300 BP. A similar suggestion was put forward

as "man's adaptation" or maladaptation to the environment. As a 'tool' to investigate at 'close range' small scale, short term change or stability in the archaeological past it fails simply because people are regarded as adaptive animals.

Of major importance to this study is the research of Inskeep (1987) at Nelson Bay Cave. Although Inskeep's research was also conducted within an ecological paradigm, he rejected the cultural systems ontogeny model. According to Inskeep the cultural systems ontogeny model merely indicates what may have happened over a period of time, but it does not explain why or how it happened.

The first major changes at Nelson Bay Cave took place soon after 5890 BP (Inskeep 1987:273, fig. 81). *Donax serra* disappear as a part of the shellfish diet at 5860 BP. Drills, segments and type 3 pendants were the first cultural items to disappear between 5890 and 5320 BP (Inskeep 1987:277). These were followed by other changes between 4500 and 3300 BP. Perforated *Donax* disappear at ca 4500 BP, sinkers make their appearance at ca 4300 BP and small scrapers and bladelet cores disappear at ca 3300 BP. Backed scrapers (crescents) made a brief appearance at ca 4500 BP and quartz as a raw material is virtually absent after ca 4520 BP (Inskeep 1987:275).

After 3300 BP heavy duty quartzite tools dominated the lithic element. All other raw materials, except for shale, were virtually absent. Battered pieces (*pieces esquillées*) appeared in large frequencies and bored stones and reamers were also well represented (Inskeep 1987:275). Tanged stone points made a brief appearance between ca 2500 and 2450 BP. Among the other cultural remains there was an increase of worked bone, tortoise shell and marine shell. The weight of fish remains doubled and large numbers of seal yearlings and second year old seals were present in the deposits after 3300 BP. Less emphasis was placed on the procurement of terrestrial mammals (Inskeep 1987:279). Pottery and sheep remains were present by 1100 BP.

To interpret these changes Inskeep relied on a suggestion of Mitchell's (1988:247) that the

seen as "successive adaptive plateaus, which can be linked to subsistence subsystems, and major changes in adaptation should logically be linked to changes in the habitat" (Deacon, J. 1978:105). Therefore the scale of change between these industries "is expected to be functional rather than stylistic" (Deacon, J. 1978:104). Further to this, technological changes are also guided by the "nature of the stone artefact technology prevalent at the time" (Deacon, J. 1978:108). In other words, technological changes during the Later Stone Age are seen as a twofold process, "with the environment acting as an external stimulus to change, and the direction of the artefact change governed by the selection of a range of possibilities offered by the technology of the Later Stone Age" (Deacon, J. 1978:84).

In recent years this punctuated equilibrium model was criticised by Parkington (1980), Mitchell (1988) and Mazel (1989b). Both Parkington (1980) and Mitchell (1988) argue for a more continuous process of change during the Later Stone Age instead of short bursts between stable plateaux. A major criticism against the use of systems theory is that as a form of functionalism (based on organismic and physiological analogies) it implies that social systems have needs, goals and seek homeostatis. Systems themselves do not have needs, however, but individuals do. Indeed systems theory rejects "human beings as reasoning agents who know a great deal about what they are doing in their social conduct" (Giddens 1981:17). In effect it means that individuals are irrelevant and "screened out" of the analysis of social change. The individual is treated as an innocent bystander directed by outside influences such as the environment, unable to determine its own destiny (Giddens 1979, 1981, 1984). Furthermore, explanations based on the notion of cultural/social evolution are flawed because they pressume that there are universal laws governing social change and that theories of social change should be organised around such laws (Giddens 1984).

In summary, biological systems theory allows for broad general 'safe' statements regarding the macro picture of the archaeological past. Change, or for that matter stability is simply explained

CHAPTER TWO

PREVIOUS RESEARCH IN THE EASTERN AND SOUTHERN CAPE

INTRODUCTION

Ecological models have dominated the interpretation of the southern and eastern Cape Holocene Later Stone Age archaeological past (H.J. Deacon 1972, 1976; J. Deacon 1972, 1978, 1982, 1988; Inskeep 1987; Leslie-Brooker 1987). These models view both human behaviour and cultural and subsistence changes as merely adaptations and adjustments to changing environmental conditions. Although these models have played an important role in shaping our thoughts about the Later Stone Age archaeological past, we need to adopt a more critical approach towards them. In recent years the validity of ecological models has been questioned, and there is increasing pressure to replace them with alternative models (Lewis-Williams 1982, 1984; Wadley 1986, 1989; Mazel 1989b; Hall 1990). The results of my own research in the south-eastern Cape revealed that ecological models are inadequate to explain the archaeological past, and I have therefore turned to social models. As background to the introduction of my theoretical models in chapter three, I briefly outline previous research in the southern and eastern Cape.

PART ONE: ECOLOGICAL APPROACHES

As Mazel (1989b) has made a detailed critical discussion of the Deacons' research, I will merely briefly summarise some main points. For the Deacons, social systems (in this case the different Later Stone Age industries) remained in homoeostatic equilibrium until inputs from outside the system transformed them into something else. An important 'force' in transforming human behaviour, culture and subsistence during the Later Stone Age (i.e. the spread of the microlithic Wilton Industry from west to east along the Cape mountains) was the environmental change at the end of the Pleistocene. The different stone artefact assemblages (Robberg, Albany and Wilton) are

They negotiated, produced and reproduced social relations, group identity and boundary maintenance through power relations, signification and exchange practices. Material culture, notably style, played a major role in communication and was a strategy of information exchange between groups. This, however, took place within a system of inclusion to ensure that these social information networks were received and understood by other groups to reduce stress and competition for resources.

In chapter four I outline the research approaches and methods used during the study. Chapters five, six, and seven deal with the archaeological investigation along the Cape St Francis coast and adjacent Cape Mountains. In the final chapter I present a model to explain the Holocene record in the study area.

Unlike ecological approaches, social theory holds that most action may be regarded as social action (Bender 1985; Hodder 1985). Instead of viewing the Later Stone Age as different 'stages' or "homeostatic plateaux" of human adaptation to the environment, it is conceived as a continuous process of change. The close relationship between power, signification and exchange allows us to examine of the role material culture played in the constitution of group identities and provides the basis for the examination of the social relations which may have persisted between different groups along the Cape St Francis coast and adjacent mountains during the mid/late Holocene.

The study consists of eight chapters. Chapter two comprises two parts. In part one, I briefly summarise the research approaches and critically discuss the validity and use of biological systems theory used by H.J. Deacon (1972, 1976) and J. Deacon (1972, 1978, 1982). Also included in this part is the research conducted by R. Inskeep (1987) at Nelson Bay Cave. A discussion of the models he proposed as explanation for the systematic changes observed at Nelson Bay Cave is important and forms the basis of my explanation of similar changes along the south-eastern Cape coast. In the second part I discuss the incentives to include social theory in the explanation of the archaeological past. Of special importance here is the research of Hall (1990) in the Koonap River valley in the eastern Cape Midlands. This is followed by a critical discussion of the concept of 'intensification' as presented by Hall (1990) for the eastern Cape Midlands and Mazel (1989a, 1989b) for the Thukela Basin. 'Intensification' as used by these researchers is no different from J. Deacon's (1972) cultural ontogeny model with its evolutionary notions. Furthermore, the evidence produced to substantiate the process of intensification in both areas is highly debatable, and therefore the suggestion of a similar situation for the Cape mountains (Hall 1990) is equally questionable.

In chapter three I formulate a social model to explain the symbolic construction of communities in the south-eastern Cape. The model recognises that people of the past were social human beings and that they, through complex social actions and strategies, were the agents of cultural change.

descriptions in the early 1960's witnessed the rise of problem-orientated research in which ecological models played a central role, notably biological systems theory. The emphasis was on the re-construction of palaeoenvironments and how people related and adapted to environmental changes. These approaches viewed cultures as adaptive systems. By insisting that they were homeostatic in nature, cultures were subject to change only from exterior influences. As a result this approach ignored the dynamics of social change created by human actions (Brumfiel 1992).

More recently, notably through the search for the meaning of rock art (Lewis-Williams 1981, 1982, 1983; Lewis-Williams & Dowson 1988, 1989), these very ecological models have been questioned and replaced with more social approaches (Wadley 1986, 1989; Mazel 1989b; Hall 1990). Following Giddens (1979), archaeology is unquestionably social because it is produced and is the product of social practices. Therefore the archaeological past was created by and is the product of active social beings within the realm of their symbolic world. Material culture was produced within the social context as a communicative medium and played an important role in creating relations of power. For these reasons I regard the role of the environment and climatic changes as peripheral. People are social beings and their life styles in the past must be explained accordingly. According to Shanks and Tilley (1987b), the question is not whether social theory should be used in archaeological explanation, but rather which set of social theories is the most suitable.

In place of the ecological approaches which hitherto have dominated the interpretation of the southern and eastern Cape archaeological past, I attempt a social perspective to investigate and to explain the social changes visible in these regions. The social approach calls for the elimination of evolutionary notions in archaeological explanation and for archaeology to be history, as they are both concerned with context and meaningful action across time and space. In the historical approach social order is constituted in the actions of individuals, and these actions relate to historical context. Therefore it is possible to study the relationships between structure, material culture and meaning content (Hodder 1987a & b).

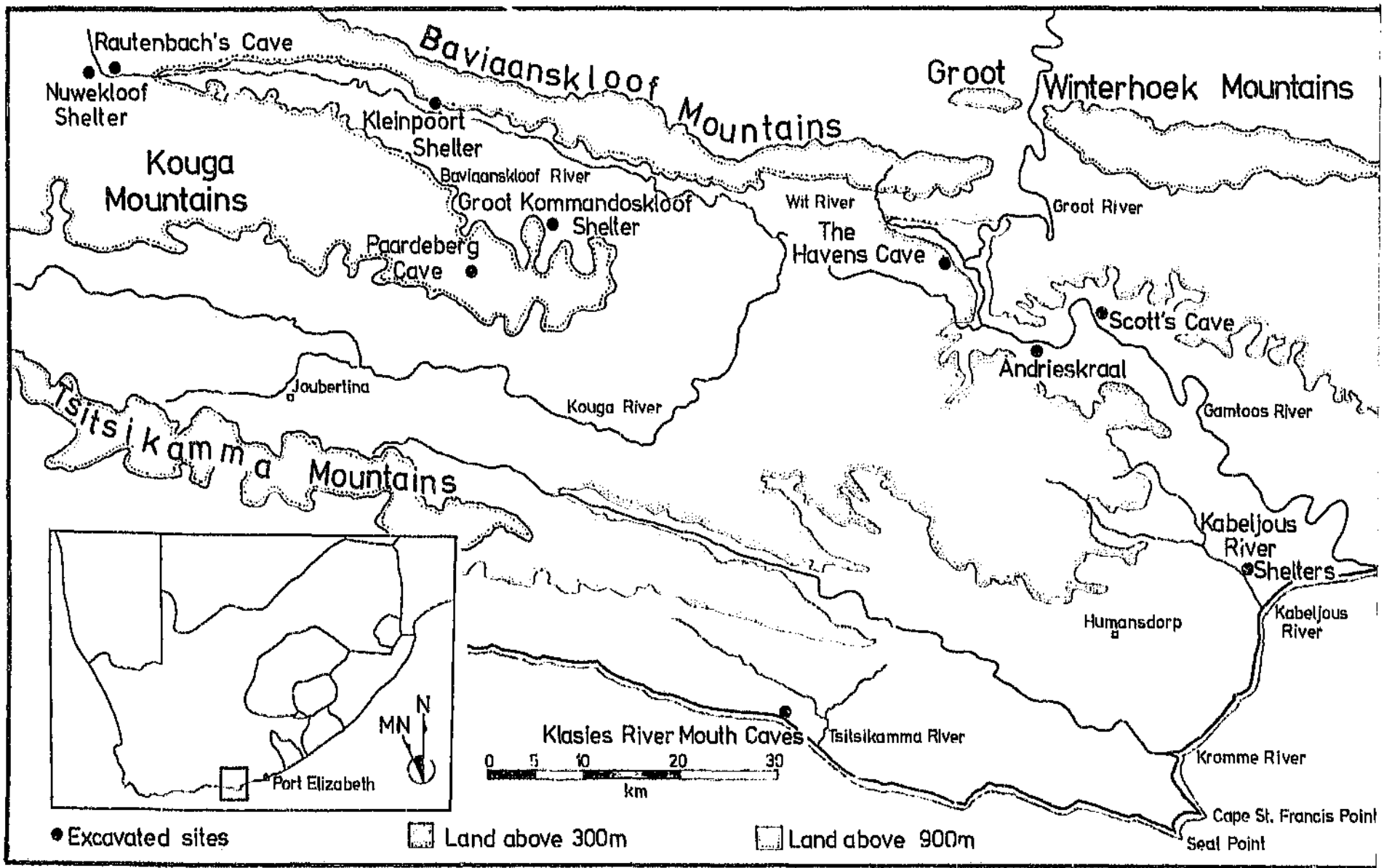


Figure 2. Detailed map of the research area.

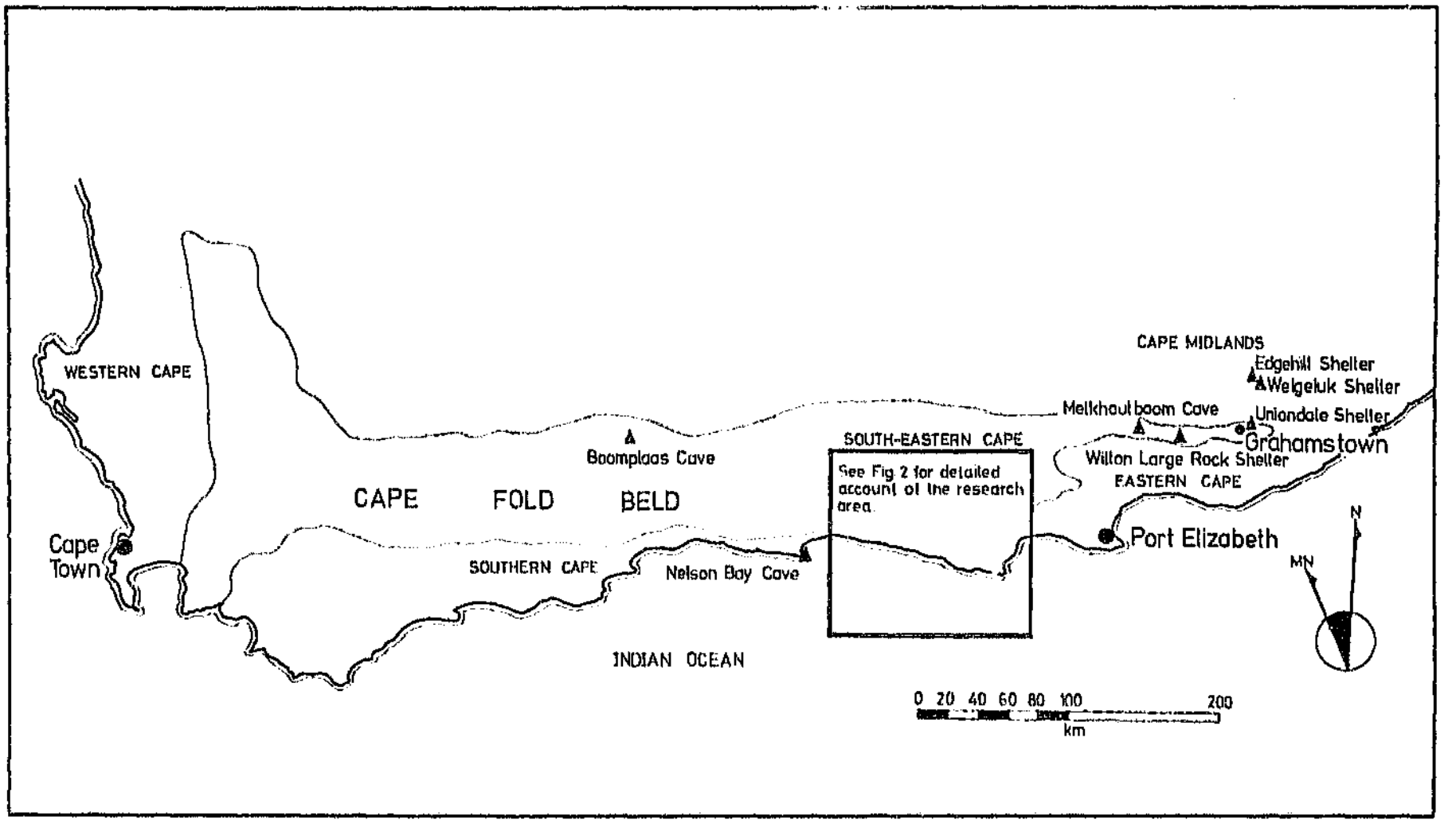


Figure 1. Orientation map of the research area in relation to the southern and eastern Cape.

CHAPTER ONE

> The past is over, completed, and so much of it is lost in the distance. There are still traces with us; the problem is how to use these to enable us to see the past, to visit the distant past. The traces of the past which we find in the present 'belong' to time other than the present. The problem is how to relate to this otherness. The traces belong to a time in the distance we cannot see clearly. In this way time is conceived spatially, as distance. Spatial time is at the centre of the problematic past (Shanks & Tilley 1987a:9).

INTRODUCTION

The objective of this study concerns the investigation of the social relationships which existed between different social groups occupying the south-eastern Cape coastal foreland and the adjacent Cape Fold Belt during the mid to late Holocene. The south-eastern Cape as defined in this thesis is the intermediate region between the southern and eastern Cape proper (Fig. 1). The data presented in this study have been obtained from two coastal cave sites, Klasies River Caves 1 and 5, a rock shelter near the coast, Kabeljous River Shelter 1, a large number of open air shell middens along the Cape St Francis coast and one cave, The Havens Cave, in the adjacent mountains (Fig. 2).

For almost 3000 years two groups with distinctly different lithic traditions shared the same space and resources along the south-eastern Cape coast. My main concern with this study is to gain some insights into the symbolic construction of these communities during the Holocene and how they communicated and maintained their identity and living space. I believe that the manner in which this was accomplished was through active social interaction via signification and information exchange generated through relations of power across time and space (following Giddens 1979). Although power relations, signification and exchange practices "may have ecological or biological adaptive features they are primarily about social relations and reproduction" (Bender 1985:52).

Except for Hall (1990), past explanations of the eastern and southern Cape archaeological past have been dominated by ecological approaches. The departure from traditional lithocentric site

Table 36. Frequencies and percentage frequencies of stone artefacts from Klasies River cave 5A 229

Table 37. Mammal, tortoise, marine fish and bird remains from Klasies River Cave 5B 231

Table 38. Shellfish frequency percentage per species and percentage meat mass contribution from Klasies River Cave 5B 232

Table 39. Frequencies of stone artefacts from Klasies River Cave 5B 234

allows people to control their scarce resources by guiding groups to other areas where they can collect and hunt. In other words, territoriality is a mode of communication, the aim being to 'advertise' the location of people and resources on the landscape (Ingold 1986). According to Lee, people consciously strive to maintain a boundaryless universe (Lee 1979:335). Their world is "constituted by relations of incorporation rather than exclusion" (Ingold 1990:130).

My argument against the concept of intensification is not against the fact that there appear to be periods of accelerated subsistence resource exploitation, cultural material manufacture and moderate population increases during the mid/late Holocene. I am, however, opposed to the impression that the mid/late Holocene was the only period of accelerated production and that this acceleration was inevitable because the landscape was being filled by rapidly expanding populations.

Reciprocity may not necessarily be linked with "pooling risk" or "risk management", but rather with "space and presence" in social relations (Giddens 1979). *Hxaro* ties represent the need for face-to-face social interaction between individuals and groups in the production of social relations. It is important for people to position themselves in space in order to interact socially. *Hxaro* ties are avenues along which people can communicate through space. The basis for this communication is constituted in material culture which forms an integral part of social interaction. Material culture, in the form of *hxaro,* is an important force in the generation of recursive power relations (Hall 1987). The need to reciprocate is the process of 'acting out deeper meanings' and in honour of the social exchange relation itself (Blau 1964:93), rather than a mechanical economic strategy. Therefore reciprocity should instead be viewed as subtle recursive power relations of autonomy and dependence between individuals and groups.

People of the past had no written contracts of ownership over land and resources and it was through social relations via the concepts of power relations, signification and exchange practices that space and resources were shared. Co-operation and competition for land and resources must also be viewed in the light of prevailing structures of social relations "that can be understood only in the context of extended social processes" (Wilmsen 1989:164). The concept of 'ownership' in real terms here does not refer to a division of access to resources, but rather to the power relations between 'hosts' and 'visitors' and conditions of generosity, and for the satisfaction and prestige of playing host to neighbours (Ingold 1986). The visitors will be in a similar power position later. Thus 'ownership' of resources constitutes social relations between people and simultaneously creates a basis for social relations of production and the development of an own social identity. Ownership entails the obligation to share (Ingold 1986:134). People need social interaction. The fact that permission is sought to exploit resources can be interpreted as purely for the sake of interaction and not for economic reasons. A system of inclusion is a way of "surveillance" (Giddens 1979, 1981), in other words, it enables people to monitor movements of groups in their area thereby controlling visitors and avoiding competition for the same resources. Thus inclusion

forces of social relations were regarded as having "been attributed to principally ecological imperatives centred on resource procurement necessities" (Wilmsen 1989:160).

When a group practices a system of exclusion and ignores all *lxaro* ties with other groups and refuses other groups access to their territory and resources, they also deny themselves the opportunity to call on other groups in times of need. Other groups will not honour *lxaro* ties if they are prevented from calling on their ties in other territories. Therefore it would seem that the system of exclusion is not a strategy for 'reducing risk', but rather is 'creating risk', a form of committing social and economic suicide. By practicing a system of exclusion, a group denies not only strangers access to its territory and resources, but also its own family members and close friends who are living in adjoining territories. It also restricts the availability of marriage partners through which the kinship bonds of different bands are reinforced and band alliances strengthened (Silberbauer 1981; Wilmsen 1989). A denial can lead to disputes and a situation whereby groups may enter another group's territory and take resources without asking (Ingold 1986). The question is, how would people effectively exclude or prevent others from entering their territory, since signification through signs and symbols will hardly keep intruders out? On the other hand, for signs and symbols to have any meaning outside the group, it must be 'received' by outsiders (Shanks & Tilley 1987b). Groups who practice a system of exclusion will not be able to 'project' or 'receive' meanings because of their strategy of isolation. Thus a group practicing exclusion and not communicating through social interaction has only one option, and that is to physically patrol their borders and defend them through aggression. It does not appear to be a sensible strategy for people already working harder to make a living to expend energy on defending their territory and resources as well. It would be more sensible to enter into more extensive social relations as has been suggested by Wadley (1989).

To conclude, I argue that the interpretations of both Wiessner (1982a, 1982b) and Cashdan (1983, 1985) of the system of *lxaro* as 'pooling risk' reflects a western economic point of view.

will change from open networks to more closed networks during times of resources stress. This exclusive behaviour was signalled by means of raw material and other cultural materials. This would imply that groups owned exclusive rights to territories and could, by merely signifying group identity, have prevented other groups from entering their territory. This generates important questions such as whether groups own exclusive rights to territories and resources and the role of reciprocity in social interaction. These issues have been much debated in recent years (Ingold 1986; Barnard & Woodburn 1988; Wilmsen 1989). San ownership of land and resources (both materially and symbolically) was not directed by ecological or economical factors, but was an integral part of their social universe which was negotiated by individuals and groups in their day-to-day relationships with others. According to Bicchieri (1983:56) "human foraging populations rely primarily on social strategies for transgenerational stability in relation to space and resources". Hunter-gatherer groups shared the same geographical space and resources (and were also vulnerable to the same environmental conditions) and therefore developed "structures for organising these negotiations" both within the group and between groups (Wilmsen 1989:162). The important point here is that it is not the land *per se* which is inherited, but rather a network of social obligations between individuals and groups which associate people to geographical space (Wilmsen 1989:170). These social networks, initially inherited at birth, were reinforced through marriage and exchange practices. From the ethnographic evidence it is clear that at birth a person inherited the rights to two territories (!nore, nexus etc.), and owned the right to exploit the resources with others who inherited similar rights (Lee 1979; Siberbauer 1981). Access to exploitation of resources in other areas was negotiated with the 'owners'. If individuals could obtain these rights by merely asking, why would people create *!xaro* ties for economic reasons? Cashden's (1983) analysis of territoriality among four Bushman groups in the Kalahari Desert, like most other observations concerning territory among contemporary hunter-gatherers in southern Africa (Heinz 1966; Lee 1979; Siberbauer 1981; Tanaka 1980; Hitchcock 1982), took place within an ecological framework and concentrated on productivity and means of production. In other words the underlying motive

The evidence from several sites in the Cape Fold Belt indicates that the numbers of freshwater mussel are too low to have been of any significant food value. The suggestion that freshwater mussel were used as raw material for cultural use seems to be more appropriate (Leslie-Brooker 1987:264). The only site which yielded 'abundant' freshwater mussel is Scott's Cave. However, the sample of 132 may represent "a group of perhaps 4-6 individuals havin , fed at this meal" (Deacon, H.J. & Deacon, J. 1963:119).

The exact age and appearance of storage pits in the Cape Fold Belt is still highly speculative. At Boomplaas Cave their age has been estimated at ca 2000 BP (Deacon, H.J. 1979; Deacon, J. 1982:103). The majority of pits at Melkhoutboom Cave were "in as far as can be established" dug from the sub-surface levels, and a date of younger than 2870 years BP is suggested (Deacon, H.J. 1976:32). The storage pits identified at Welgeluk and Edgehill Shelters (Hall 1990) have not yielded any seeds which would prove beyond doubt that they were storage facilities. The opening of the pit at Edgehill Shelter could not be determined, but an age of ca 2000 BP is reasonable (Hall 1990:52). The pit at Welgeluk dates between 3300 and 2519 BP.

Food storage implies a resource (or resources) sufficiently ab ndant to be harvested and stored on a scale large enough to feed a group until the next harvest (Testart 1982:524). However, the bulk of the seeds found in the pits at Melkhoutboom Cave were *P. falcatus*, *C. capense* and *P. capensis*. H.J. Deacon (1976:33) suggested that these seeds were not stored for food but rather as a source of vegetable oil. All the 'sealed' pits at Melkhoutboom Cave, Boomplaas Cave and in the Baviaanskloof contained mainly or only *P. capensis* seeds. These seeds are inedible and therefore their presence must have some cultural significance. If storage in the Cape Fold Belt was practised as a subsistence strategy, why were underground bulbs such as *Watsonia* sp. that can be stored for several months (A. Jacot Guillarmod pers. comm.) not stored?

An important aspect of this thesis is the explanation as to how people of the past related to the land they occupied and their relationship towards neighbouring groups. Hall suggested that populations

1966:36; Palmer & Pitman 1972:327; E. Brink & A. Jacot-Guillarmod, pers. comms), have no apparent human use or are bitter and not generally eaten by animals (Watt & Breyer-Brandwijk 1962:912).

The process of 'intensification' did not take place every where. For example, it was only present north of the Thukela Basin and not south. Even where sites are situated a few kilometres from each other in the Koonap River valley, opposite patterns are evident. Mazel argues that the hunter-gatherers "progressively extracted more food resources from the environment" between 7000 and 2000 BP. Although this may be the case for the number of species, it is definitely not the case as far as the quality (mass) of food is concerned. Certainly microfauna cannot substitute the meat mass lost from larger bovids, nor can shellfish. Osborn (1977) notes that it takes 10 593 clams to equal the same amount of protein as a whitetail deer of 63,6 kilograms.

The third issue which needs closer examination is Hall's (1990:13) suggestion that several indicators exist for 'intensification' in the Cape Fold Belt region, for example the exploitation of 'new' food resources such as *Cyperus usitatus* and freshwater mussel (*Unio caffer*), and storage facilities in the form of *Boophone disticta*-lined pits.

The only site in the eastern Cape where the time depth of *C. usitatus* has been established is Melkhoutboom Cave (Deacon, H.J. 1976). From the available evidence it is clear that *C. usitatus* is present only in deposits younger than 2000 years and is associated with the appearance of pottery. At present no other site in the eastern Cape has yielded well-preserved plant remains older than 2000 years to test this observation. However, research has shown that *C. usitatus* was not present at all sites in the Cape Fold Belt region. These remains were absent from two of the five sites investigated in the Baviaanskloof which contain well-preserved plant remains dating to younger than 2000 years (Binneman in prep.). Therefore, to argue that *C. usitatus* is an indicator for 'intensification' in the Cape Fold belt during the past 2000 years is highly questionable.

or presence/absence of body parts in the different units may play a major role in the outcome of the statistical analysis, especially when displayed as density per volume. The fragmentation of the bone makes it even more difficult if not impossible to establish bone density per volume. Furthermore, to express data in density per volume creates problems, because in most cases frequencies are reduced to less than one individual per volume. However, when these frequencies are plotted and graphically displayed they show impressive patterns.

Uniondale provides an example of the more serious errors with this method. Leslie-Brooker (1987:262) reported a dramatic increase of freshwater mussel in unit EF. However, the minimum number of individuals for this unit is only five. Hall (1990:88) uses this misleading information to draw similarities in freshwater mussel exploitation between Edgehill, Welgeluk and Uniondale.

The density per volume statistics, especially for plant material (corm bases) and ostrich eggshell remains, is also invalid because these remains cannot be quantified effectively. For example, geophytes such as *Dierama*, *Gladiolus*, *Watsonia* spp. and *Moraea* spp. in general have several corm bases attached to one individual plant (Lewis & Obermeyer 1972; Goldblatt 1986, 1989; Hilliard & Burtt 1991; pers. obsev.).

For a food resource to be regarded as a new addition to the diet, it must at least make some noticeable contribution to the diet. Several of the food resources mentioned by both researchers as evidence for 'intensification' were insignificant. This is clearly the case with fish (only nine fish vertebra reported), freshwater mussel and crab from the sites in the Thukela Basin. At Welgeluk freshwater crab are represented by less than one crab per volume for the entire excavation. Even Hall (1990:92) does not regard freshwater mussel as a staple food, but rather as complementary to the diet in terms of mineral, vitamin and protein supplements.

A similar argument can be made in the case of the seed remains. The bulk of the seeds listed by Mazel (1988:368, fig.26; 1989a:35, fig. 2, 1989b:62, fig. 12) have negligible food value (Leistner

that there was a dramatic 'de-intensification' which follows immediately after the peak of the 'intensification' process at ca 2500 BP. Many sites seem to have been abandoned at 2000 BP or soon after, for example Uniondale Shelter (Leslie-Brooker 1987). What happened to the so-called 'complex' hunter-gatherers, especially if the landscape was "saturated" with people? Why did the more 'advanced stage' not follow after the period of 'intensification'? J. Deacon (1972:37-38) suggested that the arrival of food producers to the Cape Fold Belt "caused the exodus of the existing population". The question remains, where did they move to?

The concept of intensification is therefore similar to Marx's (1965) materialist interpretation of the history of society. Although dialectical, his evolutionary scheme tends to view the development of human society as 'stages'. Each stage is seen as a "progressive epoch" in the economic formation in society. This contains some of the 'ghosts' of adaptation and functionalism and shares certain common features with social evolutionism (Giddens 1981).

The second aspect which needs closer examination is the validity of the individual indicators presented as evidence for 'intensification' (see also Mazel 1989a, 1989b). The most obvious problem is methodology. Different approaches are employed by both researchers for graphical displays of data, for example, mass per excavated unit is applied to present mammal remains (total bone mass is divided by the number of buckets excavated from a unit), while other remains such as tortoise, fish, mussel, crab and ostrich eggshell remains are expressed as frequency per volume. Important aspects which complicate this type of statistic are the method of sampling, for example, stratigraphically or spits, the size of spits, the size of the excavation, the horizontal distribution of remains (activity areas), the context of the activity areas and the presence of hearths and sterile layers. The decision to combine certain layers in the final analysis is mainly a subjective decision.

The approach of dividing total mass by volume excavated is statistically incorrect because it provides no standard deviation or standard error. The validity of the results can be questioned especially in the case of faunal remains (J. Brink, pers. comm.). The reason is that the distribution

DISCUSSION

Of particular importance to me here, in constructing a model to explain social relations during the Holocene in the south-eastern Cape, is the assumption that the Cape Fold Belt was exposed to similar 'intensification' and social relation processes as suggested for the Cape Midlands. I believe this not to be the case and will discuss briefly the evidence for 'intensification' and the changes in social relations it was supposed to have caused.

It would appear that the evidence for 'intensification' during the mid to late Holocene is well founded (see also Mazel 1989a, 1989b) and that the concept of intensification is a useful 'tool' for the investigation and interpretation of social relations of Holocene populations. However, when this approach is more closely examined several assumptions are debatable. First, the concept of intensification in hunter-gatherer prehistory is an evolutionary approach (Lourandos 1984) which is little different from the cultural ontogeny model introduced by J. Deacon (1972). Furthermore, the concept of intensification can also be linked to other evolutionary theories such as optimal foraging (MacArthur & Pianka 1966; Pianka 1978) which is widely used in anthropology and archaeology (Winterhaler & Smith 1981). The concept of intensification has its roots firmly imbedded in the mature phase of the cultural ontogeny model. In other words, the 'intensification' process is also regarded as a 'stage'. The underlying concept of the 'intensification' process is that there was also a series of 'sub-stages', such as a 'birth stage' or beginning phase (initiated and accelerated by population growth), a peak or mature phase and a 'death phase' or decline (the latter is comfortably ignored by the intensificationists). Hall (1990:4) shares Lourandos's (1985) views that 'intensification' is a continuous process of increasing cultural complexity from simple hunter-gatherers to food producers, and that these processes are all nodes on a continuum. However, there is little evidence in the archaeological record to suggest that hunter-gatherers were or became more 'complex' during the mid to late Holocene than during the period preceding 5000 BP. In fact, Hall's 'intensification' model and J. Deacon's cultural ontogeny model indicate clearly

of the Koonap River in the eastern Cape Midlands, some 40 km north of the eastern extension of the Cape Fold Belt. His new approach focuses on settlement changes and hunter-gatherer strategies for managing and reducing risk over the last 5500 years. A key concept here is subsistence intensification, an extension of similar suggestions made by H.J. Deacon (1972:39, 1976:81, 163) and J. Deacon (1972, 1978). However, Hall (1990:15) regards a direct correlation between environment and intensification as too simplistic and sees "hunter-gatherer strategies for risk reduction as embedded in social relations both between and within groups".

According to Hall, the first occupation at Edgehill was due to population increases in the adjacent Cape Fold Belt that over-flowed into "less optimal habitats". The continual occupation of new areas initiated a change from "open networks, inclusive social systems to more closed networks, restricted settlement ranges and increasingly exclusive social behaviour wrought by competitive self interest". This exclusive behaviour is similar to that observed among the !Ko San of the southe Kalahari (Cashdan 1983). Furthermore, this exclusive social behaviour was expressed by signifying group identity through the manipulation of lithic raw materials, storage pits and burial grounds. Hall also argues that reciprocity (in the form of *hxaro* networks) also lost its value as a strategy to cope with risk with the introduction of exclusive behaviour. The "saturation of the landscape" caused a greater degree of sedentism, and mobility as a means of reducing economic risk became less effective. Changes in risk management can be recognised by a shift towards more intensive exploitation of small-package resources such as freshwater mussel, fish, crab and tortoise from ca 4300 BP. The exploitation of these small-package resources and the development of storage pits from ca 3300 BP allowed for the occupation of sites for extended periods. The development of storage pits is also a sign of reduced mobility, increase in population and territorial expression (Hall 1990:114). Hall also claims that a similar intensification process was present in the eastern Cape Fold Belt.

integral part of decorative production and were probably used as cutting tools (penknives hafted in mastic) (Binneman & Hall in prep.). But even more important is the fact that small segments lost their value and meaning as a symbol in the new information networks of the coastal populations.

It is also interesting that most of the items which disappeared at Nelson Bay Cave were traditionally associated with inland groups. This implies that immigrant groups slowly began discarding stylistic markers with which they had been formerly associated. At the same time they introduced new stylistic markers to distinguish them from the inland groups. The disappearance of perforated *Donax* and type 3 pendants indicates that all decorative items associated with inland groups were discarded. In other words marine shell ornaments, made by inland groups during their stay at the coast, were discarded to avoid any misunderstandings concerning group identity. This explains the decrease in marine shell at Wilton Large Rock Shelter towards the late Holocene (J. Deacon 1972:38). This decrease was not due to changes in access to the coast or greater competition along the coast, but due rather to people changing information symbols about themselves.

PART TWO: SOCIAL APPROACHES

Leslie-Brooker's (1987) work at Umhlatuzana Rock Shelter also utilised an ecological model. Notwithstanding, she made several attempts to interpret material culture remains from a social perspective. For example, she suggested that the changes in raw material, stemmed bone 'arrowheads' and Kasouga flakes "may be indicative of social groupings specific to this area". She also suggested that there was no correlation between the animals hunted and lithic technology (Leslie-Brooker 1989).

A different approach by Hall (1990) provides a fresh interpretation of the Holocene past in the eastern Cape. He excavated two rock shelters, Edgehill and Welgeluk, both located on the banks

toolkit. The main problem with Inskeep's models, especially models 1 and 2, is that if there was a hiatus between 8000 BP and 6000 BP as he claims, there would simply have been no 'Albany people' living at Nelson Bay Cave. Nor could they have moved between the coast and the mountains during this period. Furthermore, the two groups could not have lived together or shared resources unless Albany groups had re-settled there. The question is what happened to the 'Albany people' between 8000 BP and 6000 BP and why would they only return after 2000 years with Wilton material? There must have been other reasons for the changes that were observed at Nelson Bay Cave.

I do not share Inskeep's view that change must come from outside a population and preferably from another region. Nor do I believe that populations during the last 18 000 years along the Cape Coastal region and adjacent mountains displaced each other periodically or that populations simply disappeared. Rather I suggest that populations continuously transformed social information about themselves through relevant signification. Populations accomplished this by positioning themselves socially in the landscape which enabled them to enter into social relations with other groups. Thus the changes observed at Nelson Bay Cave and elsewhere in the southern and eastern Cape came about through active social interaction between prehistoric groups within their symbolic perception of the world. In other words, people acted towards situations which were created by the symbolic world which supplied the information on which they based their interpretation of the situation.

The first items to disappear from Nelson Bay Cave were drills at approximately 5500 BP. Significantly, the first item to be discarded was a tool type which was an important decorative producer. The tool was most probably used to manufacture ostrich eggshell beads. This was followed by the disappearance of technological items such as segments and scrapers as well as more decorative products such as type 3 pendants and perforated *Donax*. The slow but systematic decline in decorative production indicates a re-organisation of group identity and/or social networks. Former stylistic markers were replaced by new ones. This may suggest that segments were an

To study the shellfish collecting patterns of the different groups, I divided the coast into five ecological habitats, namely sandy beaches, bench coasts, boulder coasts, wave coasts and high energy coasts. Material was excavated or sampled from all the different types of shell middens in the direct vicinity of each habitat. Observations were made within each of these habitats to establish which shellfish species were available and which could be collected at different tidal conditions.

Sandy beaches

Long half moon sandy beaches, such as Slangbaai, Thysbaai, Seal Bay and St Francis Bay, are poor in *Donax serra* (white mussel). *D. serra* is only to be found in great abundance from approximately Jefferey's Bay eastward to Port Elizabeth. This species can easily be collected during all tidal conditions by either digging or by twisting ones feet into the sand and 'feeling' for them. *D. serra* contains a relatively high meat mass per individual and a large number can be collected within a few minutes.

Bench coasts

Flat rocky areas exposed extensively during low tides (upper balanoid zone) support abundant *Oxystele* spp. in the numerous shallow pools. *Patella oculus* are also abundant and small to medium large *Turbo sarmaticus* are often found in relatively large numbers. Large *T. sarmaticus* and *P. longicosta* are present along the neap tide low zone. Most of the larger shellfish species occur along the lower balanoid zone which is exposed during spring and neap tide lows. The so-called *cochlear* zone is also exposed during this period for three to four days during low tide. As the name indicates, *P. cochlear* are super abundant in this zone. *P. argenvillei* are also present in large numbers. Other species present are *Haliotis midae*, *H. spadicea*, *P. tabularis*, *P. barbara* and *T. sarmaticus*. Small fish are abundant and the occasional octopus may be found in the shallow pools.

Boulder beaches

Large round boulders with intertidal sand support shellfish species similar to those of the bench coast except that *Dinoplax gigas* are also present, often in fair numbers under the boulders.

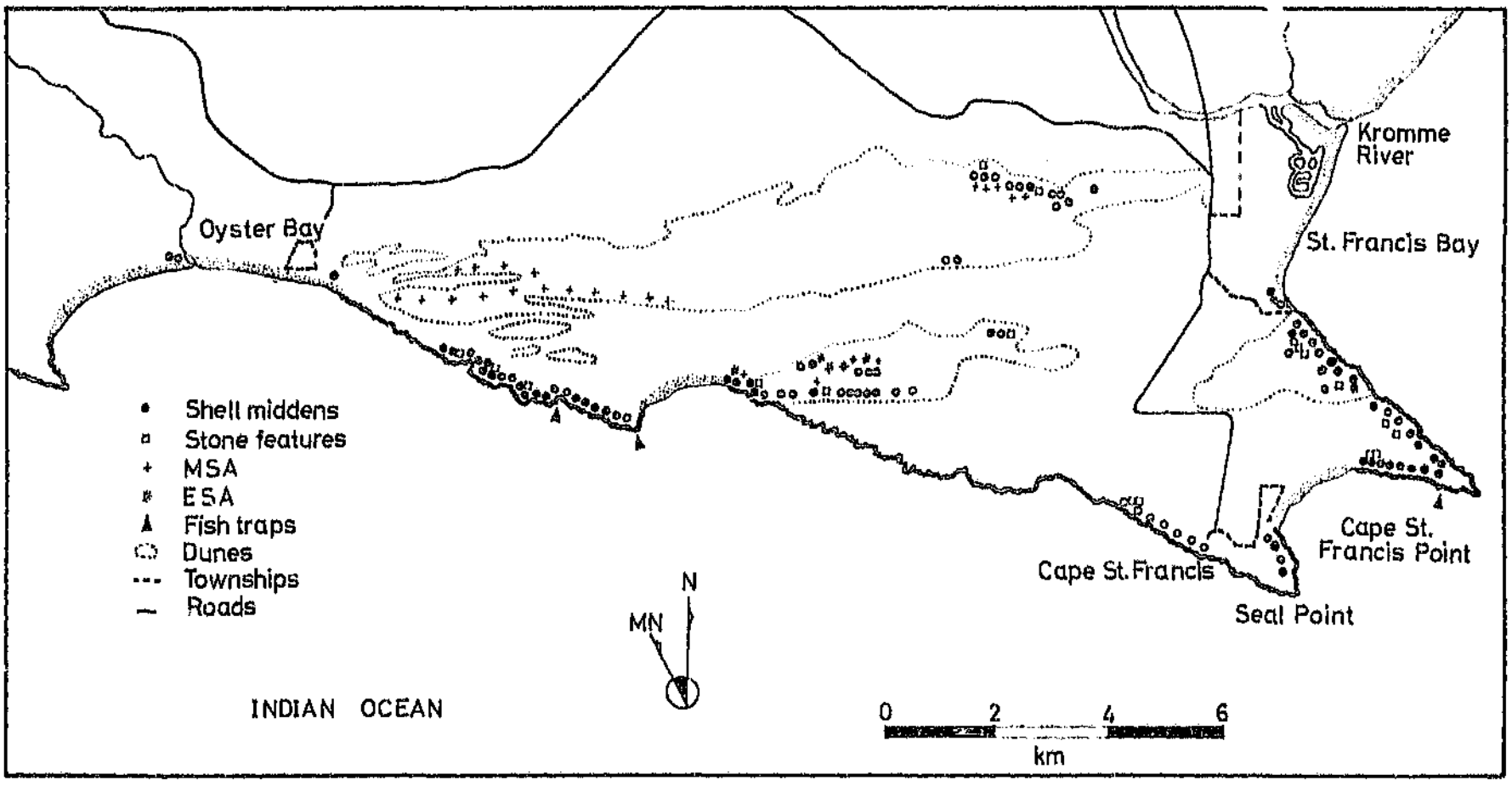


Figure 4. Map of the distribution of archaeological sites along the Cape St Francis coast.

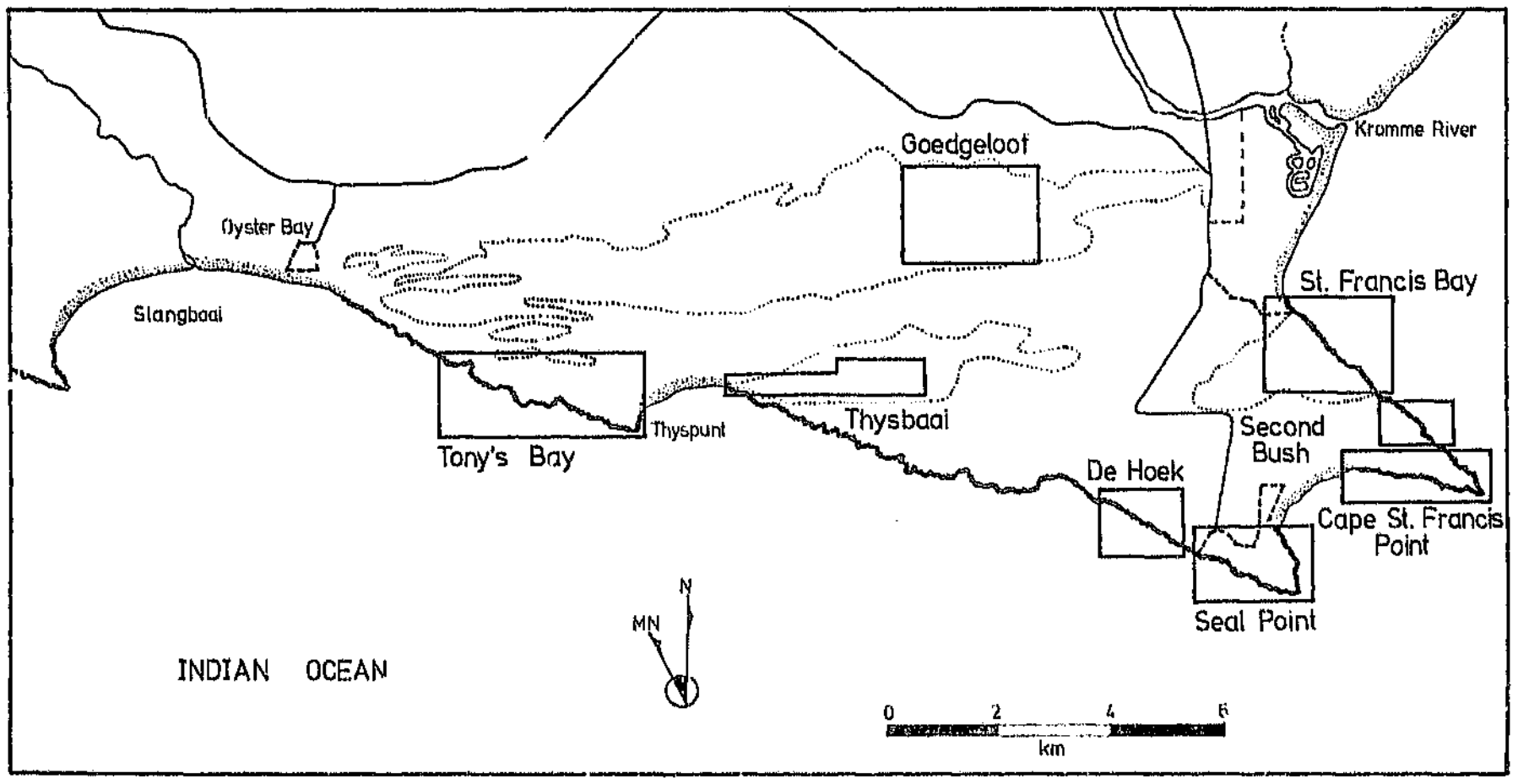


Figure 3. Map of the different locations sampled along the Cape St Francis coast.

The bulk samples were sorted into different categories similar to those described by H.J. Deacon (1976:212). Identification of plant remains took place under the supervision and assistance of the staff of the Selmar Schonland Herbarium at the Albany Museum. Individual species were then weighed and quantified where possible. All other sieved plant remains were sorted for 'special finds' or remains which were absent from the bulk samples. Non-botanical remains were also recorded.

COASTAL RESEARCH

I worked along the Cape St Francis coast between the Kabeljous River Mouth to the east and Klasies River Mouth to the west (Fig. 2). The coastal project initially started as a rescue operation in 1981. I noted that many shell middens in the area were damaged while others were close to demolition by building operations. At first a small number of damaged and threatened shell middens were excavated, sampled and dated (Table 1). Seventeen new radiocarbon dates for the coast were obtained in addition to the existing seven. These 24 dates provide a time scale for the four different socio-economic expressions and are considered sufficient for the interpretations reached in this study. Because open air shell middens represent single moments in time and therefore provide limited information, a large number of these features were investigated to gain more information in terms of settlement strategies and social and economic patterns.

In order to do a systematic archaeological study of the area, I divided the Cape St Francis coast and adjacent shifting dune area into eight areas according to concentrations of archaeological features (Fig. 3 & 4). On a macro-scale, open air shell middens within 300 m from the coast were contrasted with those up to 5 km from the coast. I followed the same strategy with cave and shelter sites. Secondly, on a micro-scale, selected shell middens which showed distinctive features such as the presence or absence of pottery, or the absence of formal stone artefacts were sampled to establish different economic patterns. Thirdly, also on the micro-level, individual shell middens at different ecological settings were sampled to gain insight into collecting strategies.

includes fynbos, valley bushveld, spekboomveld, renosterveld, grassland, Karoo scrubland and remnants of Knysna forest in the deeper valleys (Vlok 1989). The area receives an annual rainfall of between 200 mm and 600 mm. The temperatures can reach as high as 45° C in summer and drop well below 0° C in winter, with snow on the higher mountain peaks.

INLAND RESEARCH

The initial aims of the inland project were to find and excavate sites with long time sequences to test H.J. Deacon's assumption that the colonisation of the eastern Cape by hunter-gatherers during the Later Stone Age was somewhat retarded. The aim was also to find sites with well-preserved plant material to contrast subsistence patterns at sites such as Melkhoutboom Cave and Scott's Cave. Most of the sites located in the Baviaanskloof only contained well-preserved plant material from the past 2000 years. This finding forced me to sample these recent deposits rather than to concentrate on long time sequences. Although five sites were excavated, this study will only report on one, The Havens Cave.

Sampling, processing and identification of the plant remains

Plant material at The Havens Cave was sampled in much the same way as at Melkhoutboom Cave (Deacon, H.J. 1976:85). One bucket of unsieved bulk deposit was taken from occupation layers and bagged for analysis in the laboratory. A second method of sampling was to remove a feature or thick compacted patches of plant material *in toto* for analysis. This method makes it possible to study the material in more detail in more comfortable conditions.

All the bulk samples were weighed before being sieved through a 1 mm mesh to remove the fine sand. This removed between 60% and 80% of the inorganic component. The samples were weighed again before being passed through a 3 mm sieve to remove most of the grit and fine unidentifiable grass material. All fragile, potentially identifiable material was removed from the sieve to avoid damage. The finds from the 3 mm mesh were checked for possible identifiable material that might have passed through, such as small *Rhus* sp. seeds.

The coast is characterised by a series of halfmoon sandy bays facing eastward. Adjacent to the coast, stretching from Oyster Bay to the mouth of the Kromme River, are extensive fields of parallel longitudinal dunes which run west to east in the direction of the prevailing winds. The large shifting sand dunes are underlain by ferricretes, calcretes and fossilised dune sands on top of Table Mountain Sandstones. Due to the continuous movement of the dunes, many new sites appear all the time while simultaneously others are covered.

Cowling (1982) recognises four major plant communities along the coast. The dune fynbos, which is restricted to the immediate coastline, consists of three elements: fynbos, dune thicket and dune grassland. The dune fynbos is typical of the south western Cape, excluding the large leafed proteas. The dune thicket comprises the large leafed tall shrubs with numerous climbers and is related to many tropical species along the east coast. This dune thicket, when in protected areas, may develop into thick low forest. The dune grassland comprises a mixture of tropical and temperate grassland species and numerous bulbs. The grasses usually occur between the parallel dune ridges on waterlogged sites.

The region experiences a warm temperate climate with mild temperatures. Although rainfall may occur at any time of the year, the highest downfall occurs during the winter months, ranging between 500 mm and 800 mm annually. It is prone to strong winds, mostly during spring, with the prevailing wind direction from the west and south-west (Tyson 1964).

Inland, between the coast and drier Karoo region and almost parallel to the Tsitsikamma coast are three high mountain ranges of the Cape Supergroup, the Tsitsikamma, Kouga and Baviaanskloof, separated by the Langkloof and Baviaanskloof valleys. Although most of my inland research was conducted in these mountains and valleys, this study reports on only one site excavated in the Cambria valley adjacent to the Baviaanskloof (Fig. 2). The valley is drained by the Groot and Wit Rivers. The area is composed mainly of Table Mountain quartzite with outcrops of Bokkeveld shale and Enon conglomerate in the lowlands (Rust & Illenberger 1989). The vegetation is diverse and

CHAPTER FOUR

RESEARCH APPROACH AND METHODS

PREVIOUS RESEARCH

The area defined here as the south-eastern Cape includes the coastal and adjacent mountain regions between the Storms River Mouth and Gamtoos River Mouth (Bruton & Gess 1988; Lubke *et al.* 1988). The area is intermediate to the southern and eastern Cape proper (Fig. 1).

Prior to this study, relatively little archaeological research had been conducted in the south-eastern Cape. Inland only two sites, Scott's Cave (Deacon, H.J. & Deacon, J. 1963) and Paardeberg Cave (unpublished), were excavated, while J. Deacon had analysed material rescued from a shelter during the construction of the Paul Sauer dam at Andrieskraal. Amateur archaeologists were responsible for some work along the Cape St Francis coast (Hewitt 1925; Laidler 1947; J. Rudner 1968). In 1965 and 1967 H.J. Deacon excavated at Storms River Mouth in the Tsitsikamma National Coastal Park (Deacon, H. J. 1970). At St Francis Bay Thackeray & Feast (1974) removed a burial, Cairns (1976) excavated a stone feature and Singer & Wymer (1982) excavated several of the caves and shelters at Klasies River Mouth.

PHYSICAL ENVIRONMENT

The coastal foreland comprises a gently undulating plain deeply incised by rivers such as the Tsitsikamma, Kromme, and Seekoei. A striking feature of the coastal foreland is the gravelled terraces at various contour intervals (200 m, 100 m, 60 m and 30 m) which are related to a descending sequence of high sea levels (Butzer & Helgren 1972). The coastal foreland is dominated by rocks of the Cape Supergroup, and Table Mountain quartzites and sandstones underlie most of the area.

order to create an own identity which will distinguish them from other groups. In other words, the group is more concerned with creating their own identity (doing things differently) than with creating inter-personal ties on a large scale. Once the autonomous group identity has been established, more energy will be directed towards creating inter-personal and inter-group relations.

It is predicted that in the archaeological record a period of accelerated activities will be visible by an increase in food waste and material culture production. During this period large scale changes may occur in material cultural production, such as new traditions or identity items, aimed at creating social boundaries. It is also predicted that during this period splitting of groups will occur. A 'relax' period, visible as a decline in food waste and cultural remains densities, will follow, in which little new material culture will be produced.

This will however, be executed under controlled conditions or what Giddens (1981) calls "surveillance", meaning that visiting groups will be allowed to exploit resources in certain . s. The idea here is that the resident group, by controlling access to their territory and resources, will be able to monitor movement of other groups and the exploitation of their territory. This will enable them to limit competition for resources, thereby avoiding social pressure and conflict. A system of inclusion enables an effective exchange of information regarding territory and the meaning of signs and symbols.

The effective development and 'functioning' of the new group requires that members share a common imagery, in other words, a common course, values, attitudes and expectations. Each individual's presence in the new group is determined mainly by his or her affiliation with other members of the group, repertoire of past group experiences and present anticipation of expectations of what the new group will provide and what he or she can contribute. The existence and development of the group will depend on the ability to create and establish an identity which is commonly shared by all the members (Cohen 1985). It is out of this commonality of expectations that stability, order and 'style' will develop which will promote the continuity of the group. Among the contemporary hunter-gatherers of southern Africa, band cohesion is the direct result of several factors, such as marriage, kinship ties and common territory and inheritance rights to the resources and social networks (Heinz 1966; Lee 1979).

It is predicted that during the early stages of the development of a new group not many ornaments for gift exchange would be produced. The reason for this is that the formative stages of the new group will be a 'relaxed' period because it will still be largely dependent on the social relations it has with the mother group. In other words, the newly formed group will not experience much social or economical pressure in the formative stages. The mother group will also experiences a more 'relaxed' period due to a decrease in group size. However, much energy will be spent on technological production (items which will eventually become symbols and signs through use) in

symbols may constantly be re-evaluated, changed, combined with others or replaced by new ones with fresh meaning when they loose their meaning in contexts of power relations and socio-political strategies (Shanks & Tilley 1987b). These information networks are embedded and reflected by the production of form or style. Style is created within different social and historical circumstances in relation to social, political and ideological contexts. To understand its meaning, style must be related to the social context in which it was created (Shanks & Tilley 1987a:144). In other words, style is "an indispensable component of the communication system, along with the messages themselves. Just as there can be no style without communication, so communication when it occurs generates or utilises style" (Renfrew & Cherry 1986:vii).

Thus, the archaeological record is more than just a random collection of artefacts, and it simply cannot be view only in terms of biological needs. There are deeper underlying meanings which go beyond morphological features and function. Technology not only consists of stone tools and ornaments but also includes division of labour, resource specialisation, exchange networks and distribution of food. This is no simple response to the environment. It is structured by social relations and reproduced within contexts of symbolic and ideological meanings. Even straightforward marriage and biological reproduction are socially constituted and mediated (Bender 1985).

Fundamental to this thesis is the conclusion that when populations settle in uninhabited or new geographical regions, they will establish their own distinctive identity through active social interaction which will be manifested by power relations in the form of signification. The way in which power was exercised by groups in the south-eastern Cape was linked to the use of signs and symbols on the one hand and the access and availability of resources on the other.

The scale of the identity modification to that of the mother group or the manifestation of the 'new' identity will depend on various factors. The new group will most probably practice a system of inclusion, meaning that they will allow neighbouring groups to exploit resources in their territory.

relationships which are moulded together through committments. People use symbolic capital to produce and reinforce power relations which again constitute the structure of social space. Symbolic capital produces relations of dependence and enables people to build up capital of obligations - keeping others in debt thus ensuring that they will maintain social relations. This is a form of 'soft domination' by imposing their needs and desires on others. People may also manipulate genealogy to enter in relations of power. Domination, as a structural feature of social systems, always operates in conjunction with signification (Giddens 1981) which in turn plays an important role in the generation of distinctive group identities and territorial maintenance.

Humans are creative and innovative agents and the world of reality becomes known to them mostly in the symbolic form in which it is perceived (Mead 1964). Social life is shaped by our unique capacity to use symbols, and therefore social reality changes as humans develop new perceptions of it. This enables individuals or groups not only to monitor their activities and those of others on a regular day-to-day basis, but also to interpret different activities. It is this monitoring and interpretation of activities which gives meaning to communication and which actors draw upon in the production and reproduction of interaction (Blumer 1969; Giddens 1984). In this regard material culture played an important role in the creation of power relations, signification and exchange practices of the past.

Material culture production is not a random process, but is meaningfully constructed in relation to networks of significations. It plays an active symbolic role in social relations and is structured according to the system of meanings of particular social groups (Hodder 1982a, 1982b). It takes place in relation to material culture that already exists, and new material culture production is always in response to an established tradition. To maintain social boundaries and a viable group identity in the presence of other groups, social groups create information networks about themselves in the form of signs and symbols (Wobst 1977; Conkey 1978; 1989; Pollock 1983; Wiessner 1983, 1984, 1985, 1989; Stevenson 1989). The meaning of these signs, codes and

CHAPTER THREE

TOWARDS A SOCIAL MODEL OF GROUP IDENTITY MAINTENANCE

Central to this study is the concept of power as discussed by Giddens (1979, 1981, 1984). Power is not regarded as a resource which is either possessed or exercised in a negative manner to gain control over people and resources. It is rather conceived as a bilateral relationship (Goldhamer & Shils 1939) and the medium through which the social world is produced and reproduced (Giddens 1979, Foucalt 1980, Miller & Tilley 1984). Power is conceived as an integral part of all social interaction, including how the "less powerful manage resources in such a way as to exert control over the more powerful in establishing power relations" (Giddens 1984:374).

Power, then, is interwoven throughout the entire spectrum of social activities and the structural ordering of society. Power is the intent or capacity to achieve desired and intended outcome or to bring about effects, almost like notions such as compliance and bargaining. Power relations are always two-way relations of autonomy and dependence which exist or become operational when real or symbolic differences are created. It is the dynamics of these differences which provide the platform from which to understand and view power as a general social relationship (Millot 1988). Closely related to the exercise of power between groups is the use of signs and symbols on the one hand, and availability/supply and demand/need/desire of resources on the other. A most important aspect of power relations is resource capital or "economical capital" (Bourdieu 1990, 1992). It operates, produces and reproduces effects and outcomes through the resources drawn upon by individuals and groups in their interrelationships with each other and the environment. Resources are the media through which power is exercised and structures of domination reproduced (Giddens 1979). Without resources or "economical capital" there can be no symbolic power relations. According to Bourdieu (1992), for symbolic power relations to exist, economical capital must be converted to "symbolic capital", which he describes as a network of affines and

FEATURES

Features included hearths, ash bodies, a storage pit and a burial hollow. The storage pit was removed *in toto* for study in the laboratory.

Hearths and ash bodies

The hearths at The Havens Cave were small circular concentrations of black ash and abundant lumps of charcoal. The hearths were smaller than 300 mm in diameter and usually not deeper than 50 mm. The hearths were essentially isolated features with no stones or any other visible preparation and probably represent one-off occurrences.

A considerable part of the deposit at The Havens Cave was made up of ash bodies of different colours and textures. Essentially three types of ash bodies were identified. These consisted of thick, hard and soft white ash, compacted, stony orange-red ash and soft, brown and grey mottled ash.

Storage pit

A grass lined pit with a diameter of 300 mm and a depth of 100 mm deep was found in the bedding unit. The pit was made in the plant rich top layer and the bottom rested on white ash (Unit WAG). Thick grass allowed the complete removal of the lining and the contents with little loss or disturbance to the feature. The feature was removed *in toto* for study in the laboratory (Table 3).

The pit was filled in with dark grey soil and a wide range of food waste and cultural remains. The opening of the pit was not sealed like some other storage pits found elsewhere in the Baviaanskloof. This fact, together with the contents, suggests that the pit had most probably been emptied of its original contents and filled in by natural accumulation of organic and cultural material.

The grass lining consisted of a fine wiry type of grass. Only the above ground grass stems were used for lining the pit. The bases and roots of the grass were removed before the pit was lined. Because grass leaves and even grass bases are extremely difficult to identify in an archaeological context, it is not known what type of grass was used as lining.

thin dark grey ashy lenses. Two similar soft compacted white ash layers separated by a thin carbonised parting comprised unit WAG which underlaid OGA. This unit was followed by unit BOW, a brown carbonised organic layer with thin mottled ash and thin black ash lenses and soft grey deposits with white mottled ash. Unit WGA, composed of hard white leached ash (WLA) and yellow loams with mottled ash underlaid unit BOW. The next unit, VOG, consisted of black carbonised organic material and grey leached ash with a small ash feature. Layer VOL also marks the reappearance of *Nassarius kraussianus* shell and beads and has been radiocarbon dated to 6190 ± 80 BP (Pta-3917). VOG was followed by unit KOW which comprised stony oxidised sands with abundant stone artefacts and hard white leached ash. Underlying unit KOW was unit GHA which consisted of grey humified organic material, mottled ash and hard white leached ash. The underlying unit, SBA, signalled the beginning of the Wilton Industry and was composed of soft brown humified organic material, mottled ash and soft black carbonised organic material with abundant charcoal. Unit SBA dates to 6610 ± 90 BP (Pta-3913).

Unit OOA represented the end of the Albany Industry and consisted of thick layers of stony oxidised orange and white ashes. This was followed by unit BOA which was composed of soft brown humified organic soils and a thick layer of hard stony oxidised orange ash. The next unit, GOW, included soft grey carbonised organic material and a thick layer of hard white leached ash. Layer GOL was radiocarbon dated to 9790 ± 90 BP (Pta-4620). Large quartzite scrapers were the only formal tools. The botom unit ROL was sub-divided into ROL 1-4 during excavation and comprised a thick layer of orange oxidised stony sands which overlay sloping bedrock. A radiocarbon date of 5820 ± 80 BP (Pta-3915) for ROL 4 has been discarded because it was too recent for the associated Albany Industry. Oxidation and leaching probably caused the incorrect result. This unit did not yield any formal tools. The stone artefact assemblage consisted mainly of quartzite flakes.

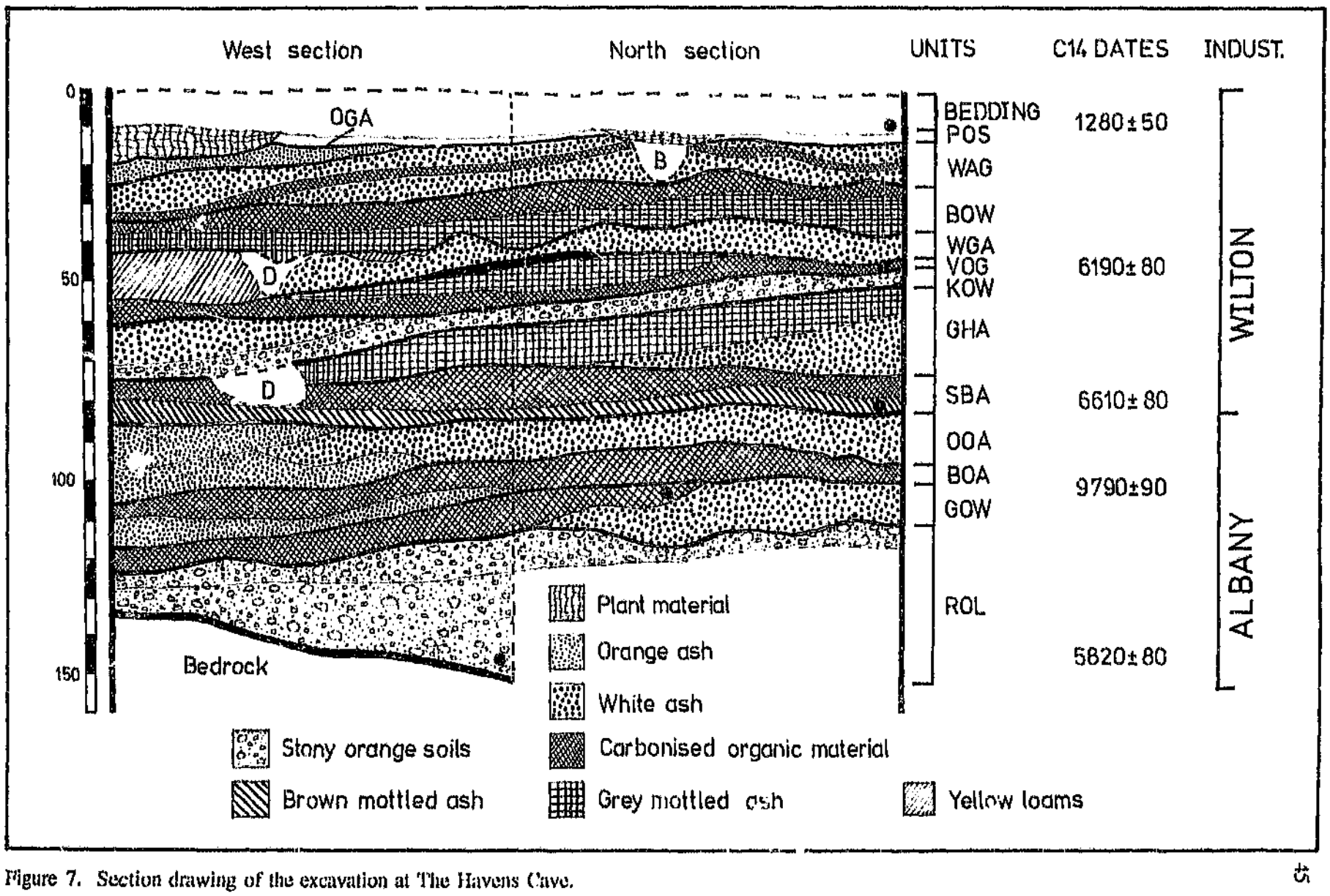


Figure 7. Section drawing of the excavation at The Havens Cave.

remains have been destroyed by trampling. Goats have used the cave from at least 1910 to 1969 both to sleep in and as shelter against bad weather (owner, pers. comm.).

The cave deposits were well stratified with alternating colourful soft and hard ash and humified and carbonised organic-rich layers. The deposits were, to a large extent, free from major disturbances. Small scale disturbances had however been caused by wasps nesting in the soft deposits. Only the bottom 0,20 m resting on bedrock contained numerous angular pieces of rubble, giving it a stony appearance. A number of the layers and features did not extend over the excavated area, making interpretation difficult. Well preserved plant remains was restricted to the top 0,20 m of the deposit. Apart from charcoal, only a few carbonised seeds were found in the lower layers. The absence of macroscopic plant remains in the lower levels was probably due to a high degree of leaching, oxidation, humification and combustion.

Thirty two features, horizons and layers were identified and grouped into fourteen units for analysis. These are summarised from the surface to bedrock (Fig. 7).

The surface was trampled and therefore the *in situ* bedding material was kept separate from other surface material because of possible mixing. The Bedding unit (BED) consisted of a thick layer of plant remains, mostly grass, between 150 and 200 mm thick. A storage pit in this unit has been dated to 1280 $\pm$ 50 BP (Pta-4610).

Other surface material (Unit POS) consisted of surface dust and loose grey ashy deposits with fine grass, burnt and carbonised grass, bark, sticks, a few corm tunics and cultural material, including potsherds. It also included three shallow, circular depressions lined with fine compacted grass remains, some 50 mm thick. Underneath the hollows were dark grey ashy deposits with burnt and carbonised grass material and stone artefacts. A burial (B), located underneath one of the bedding hollows, most probably also belongs to Unit POS.

POS was followed by unit OGA which consisted of hard, stony orange and white oxidised ash with

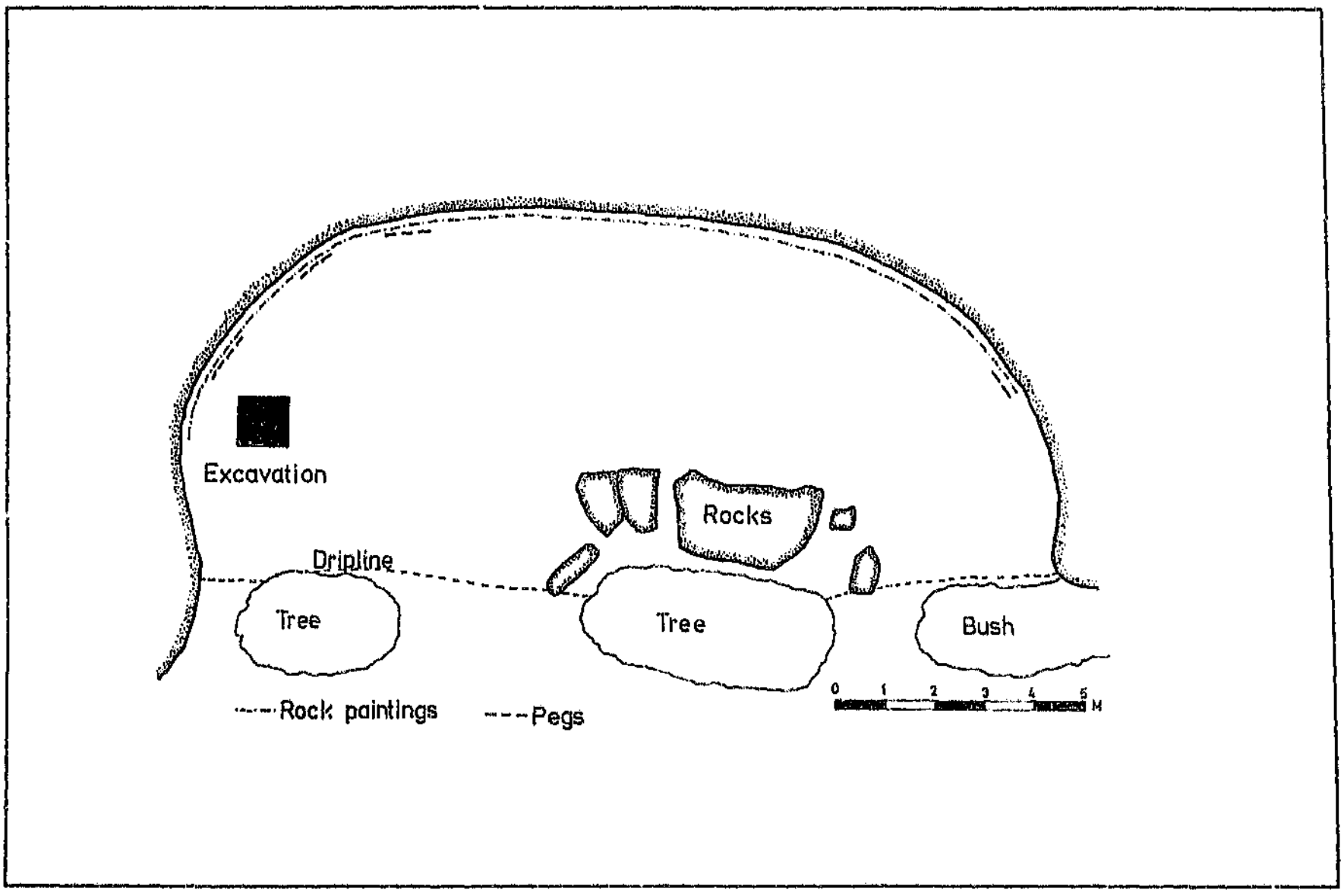


Figure 6. Cave plan and excavation at The Havens Cave.

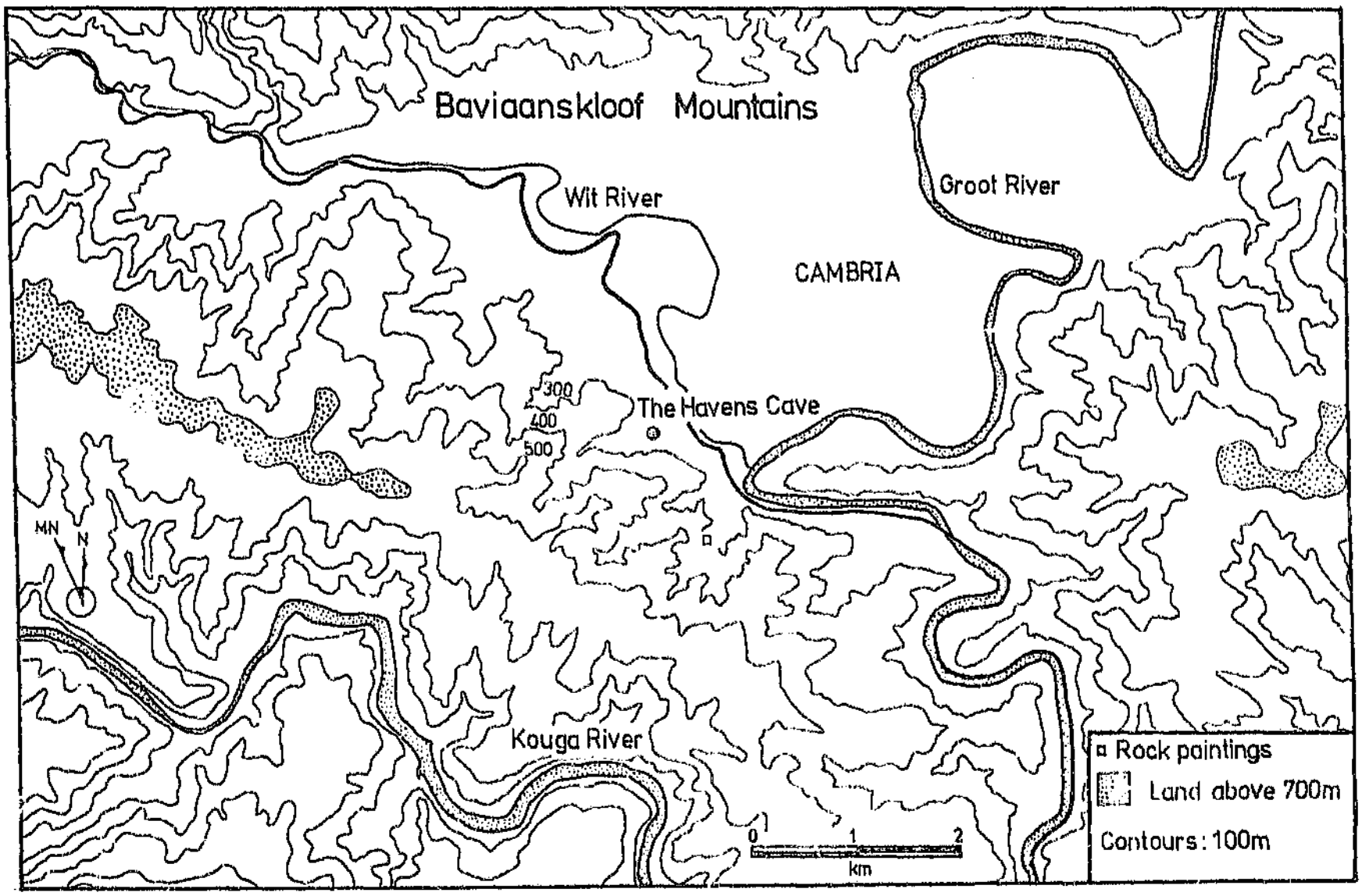


Figure 5. Location of The Havens Cave.

CHAPTER FIVE

ARCHAEOLOGICAL DESCRIPTIONS: INLAND RESEARCH

THE HAVENS CAVE

INTRODUCTION

The Havens Cave (33.41 S; 24.34 E) is located in the Cambria valley, some 40 m above the confluence of the Groot and Wit Rivers (Fig. 5). The cave is located approximately 20 km north-west of Scott's Cave (Deacon, H.J. & Deacon, J. 1963) and some 40 km north-east of Paardeberg Cave, excavated by H.J. Deacon (unpublished) during 1972. The cave is situated in a fold along a Table Mountain Sandstone cliff facing north-east with a scenic view of the meandering Groot River and Cockscombe, the highest mountain peak in the south-western Cape.

The cave floor is 17 m across along the dripline, 8 m deep and the domed roof is some 6-8 m high (Fig. 6). Numerous rock paintings, most faded beyond recognition, are visible along the domed back wall of the cave. There are also stubs of pegs still visible in cracks along the wall which were most probably used to hang bags and equipment.

The vegetation on the hillside and in the immediate vicinity of the cave is composed mainly of small trees, scrubs and grasses and is similar to what Acocks (1975:58) describes as Succulent Mountain Scrub, or Spekboomveld. Along the Wit River and in sheltered kloofs in the vicinity of the cave remnants of forests are still to be found. Species such as *Podocarpus latifolius*, *Ficus burtt-davyi* and *Sideroxylon inerme* are common. The average rainfall measured since 1965 by the owners of the farm was 440 mm per annum.

EXCAVATION, STRATIGRAPHY AND DATING

A one square metre was excavated in the southern part of the cave to a depth of 1,40 m. The deposit slopes steeply down over the length of the cave and it is evident that most of the plant

stones, grindstones, rubbers, cores, cobble adzes and scrapers, flakes and large segments. Sites with this industry date from 4700 BP. The large segments seem to be restricted geographicaly. They have only been found along the coast from Klasies River Mouth in the west to the Fish River Mouth in the east, but they may extend further east. They date between approximately 3000 and 1800 years BP. In general, these sites were also dominated by *P. perna* (it is the most abundant shellfish species in the research area) and *Patella* spp. Species of the lower balanoid zone were usually also well represented. The people responsible for this industry are referred to as hunter-collector-fishers (HCF) or Kabeljous groups. These were mobile groups who lived permanently on the coastal foreland.

Shell middens, without pottery, associated with a silcrete or quartz microlithic Wilton Industry.

The people responsible for this Wilton Industry are referred to as hunter-gatherers (HG) or Wilton groups. These were mobile groups presumably from the adjacent Cape Fold Belt mountains (CFB) who visited the coast occasionally. Wilton deposits in caves and open-air shell middens contained high frequencies of quartz or silcrete microlithic stone tools similar to those found in the adjacent mountains. Segments, however, were absent from the open-air middens that also contained silcrete. The open-air silcrete sites date between 5180 BP and 1900 BP. The shellfish species in these sites are similar to those represented at sites of the Kabeljous Industry.

Large stone features

Circular and irregular stone features were abundant along the coast. The stones were fire cracked and associated with large amounts of charcoal. Shellfish and fish remains were also associated but in small quantities. Although some of these features contained pottery, they were also associated with the Kabeljous Industry. They may represent cooking platforms for shellfish. The shellfish were cooked on top of the hot stones to prevent the meat from gathering sand. One of these features was dated to 290 $\pm$ 50 BP (Pta-3908).

A problem encountered early in the study was how to distinguish between true Khoi pastoralist and Khoi non-pastoralist sites. Pastoralist occupation refers to open-air shell middens which contain 'convincing' numbers of domesticated fauna, pottery and occasional quartzite stone flakes. 'Ceramic' occupation refers to open-air shell middens which contain pottery and occasional quartzite stone flakes. These sites may also contain the occasional remains of domesticated animals. 'Ceramic' occupation also refers in general to groups which seem not to have possessed stock, but possessed pots. These groups may have been pastoralists dispossessed of their stock, pastoralists living at the coast but keeping their stock somewhere else, hunter-collector-fishers (HCF) who lived at the coast and possessed pots or acquired the skills and knowledge to make pots, or hunter-collector-fishers and pastoralists living together as a group, with or without stock. In addition to 'convincing' numbers of domesticated animals, shellfish species found in the sites were also used to establish origins. This distribution may not be a true reflection of reality, but it did help to categorise the middens.

Features

During the study several classes of features could be identified.

Shell middens with pottery and domesticated fauna and those with pottery only.

Both types of sites usually yielded few stone tools and apart from pottery, contained little other cultural material. The Khoi pastoralist middens contained or were dominated by shellfish species that yielded relatively high meat mass per individual species, for example, *Solen capensis*, *Perna Perna* and *Donax Serra*. 'Ceramic' middens on the other hand, contained high frequencies or were dominated by shellfish species from the upper balanoid zone, notably *Oxystele* spp. and *P. perna*. Species from the lower balanoid zone were as a rule not well represented. The oldest radiocarbon date for pottery in the south-eastern Cape was 1770 $\pm$ 50 BP (Pta-9311), and the oldest date directly associated with sheep and cattle remains was 1560 $\pm$ 40 BP (Pta-5982).

Shell middens, without pottery, associated with a quartzite stone industry

For convenience in future discussions this quartzite industry is referred to as the Kabeljous. This industry contains a number of quartzite cobble stone tools, for example, hammerstones, bored

capensis (63%) followed by *Haliotis spadicea* (59%), *Haliotis midae* (55%), *Donax serra* (42%), *Perna perna* (35%), *Patella argenvillei* (26%), *Patella miniata* (25%), *Patella oculus* (24%), *Patella barbara* (21%), *Patella tabularis* (21%), *Turbo sarmaticus* (20%), *Patella longicosta* (20%), *Patella cochlear* (19%) and *Oxystele* spp. (17%). As an aid to the discussion of shellfish remains, I report relative frequency percentage without brackets and meat mass in grams frequency percentage within block brackets. No attempt has been made to estimate the composition of other food resources to the diet (*cf.* Buchanan 1988) because this seems to be a dubious procedure (Wilson 1990).

As discussed in chapter two, mammal bone mass densities per volume are an unreliable measure of economic activity/intensity. Using the weights given by Smithers (1983) for individual species (mean of male and female), the potential mammal body mass per volume has been estimated from the MNI's identified at the different sites by J. Brink. The estimated potential mammal body mass per volume (PMM) provides a more accurate measure of at least the potential body mass. In other words, the PMM is an indication of the potential mass of the food parcel captured, transported and consumed. In this study both mammal bone mass and PMM densities per volume are given. In only one out of six cases is there a correlation between the two different measures.

Single open-air shell middens carry little information. This is specially true of food waste other than shellfish and of cultural material. Because small volumes of material were taken from the majority of the shell middens, they yielded very little apart from shellfish remains. Thus other food waste and cultural material will not be discussed in detail but only tabulated. Only the important aspects of the research for each zone will be discussed. Analysis of the fish remains, except for Klasies River Cave 5B, is still in progress and will not be discussed. In order to compare subsistence patterns from coastal and inland sites in the south-eastern Cape with the eastern Cape Midlands and the Thukela Basin, the methods used by Mazel (1987b) and Hall (1990) had to be followed despite my opposition to these methods discussed in chapter two.

the different groups in the different ecological habitats and whether distance from the resource area played an active role in the species collected. In order to investigate these aspects, wet shellfish mass (shell and meat), size and meat mass were chosen as criteria rather than measures such as energy (Joule). The reason for this choice was, as the ethnographic studies clearly indicate (Bigalke 1973; Meehan 1982), that people do not collect and transport energy. There are specific reasons for collecting specific species, such as taste, ease of collecting, size and abundance. People collected and transported shell and meat mass as wet shellfish, which may be an important consideration when it had to be transported over long distances. To establish meat mass for the different species and the total collecting weight, the shell of modern day species was measured, shell with the meat weighed and then only the meat. From this exercise it was possible to establish which shellfish species were the most 'economical' to collect in terms of shell mass *versus* meat mass. In other words, what percentage of the total collected mass of a species is edible (Table 2). I refere to this percentage as the economic return ratio (ERR).

It is clear from Table ? that the largest shellfish species or the most abundant or easy to collect are not always the most economical species. Although species such as *Patella tabularis* are large and contain a relatively high meat mass per individual, they contain a relatively low percentage of edible meat (21%) in comparison to the total collecting weight. The reason being that the species has a thick, heavy shell. In contrast, *Donax serra*, while being half the size of *Patella tabularis*, also contains half the meat mass but double the percentage of edible meat mass per total weight (42%). Ethnographic observations (Bigalke 1973; Meehan 1982) indicate that people tend to collect the largest available species. Where distance was not a factor total collecting weight may not have played a role. However, weight may have been an important consideration when shellfish had to be transported over large distances. These aspects will be discussed when the shellfish from different sites are analysed.

Table 2 indicates that the most economical shellfish species in terms of the EER proved to be *Solen*

Wave coasts

Rough stepped rocky outcrops in sheltered bays usually rise from a few metres of deep water to a few metres above the spring high level. Waves constantly break over the rocks and pools during high tide. *Perna perna* is often found here in large quantities along the high water level. *Oxystele* spp. and *P. oculus* are present in the pools and *Burnupena* spp. may also be present in fair numbers. The *cochlear* zone is exposed during spring tide low, but it is dangerous to collect shellfish from this zone because one can be washed from the rocks.

High energy coasts

Rugged rocks several metres above the water face the open sea in some places. Huge waves constantly break fiercely against the rock walls and numerous deep gullies with a brisk wash action. These coasts are extremely dangerous for collecting shellfish and one can easily be washed from the rocks. *P. perna* and *Patella* spp. are usually abundant along these coasts.

Collection of samples and methods of analysis

Shell middens were sampled by means of column excavation, grab samples and surface collecting. Columns were excavated in units of square metres or parts thereof, aimed at sampling the total range of archaeological remains. Grab samples consisted of one bucket (0,01 cubic metre) *in situ* material and was aimed at obtaining a representative sample of shellfish and/or other food waste or cultural material. Surface sampling consisted of either one bucket of slope material to obtain a representative shellfish sample or manual collections of bone remains and stone tools.

The shellfish remains from each midden, layer and feature were sorted into species (divided into left and right in the case of bivalves), counted and measured. This was done to convert shell size to meat mass. The different shellfish species were identified, counted and measured within the framework described by Maggs & Speed (1967) with some adjustments for my own requirements. Measurements on highly fragmented shell, for example, *Perna perna* followed Hall (1980). One of the points of the coastal study was to investigate the shellfish collecting strategies employed by

CHAPTER SIX

ARCHAEOLOGICAL DESCRIPTIONS: COASTAL RESEARCH

PART ONE: OPEN-AIR SHELL MIDDENS

KABELJOUS RIVER MOUTH

Four shell middens located along the western side of the Kabeljous River Mouth, all damaged in building operations, were sampled (Fig. 9). Two were of pastoralist/'ceramic' type and yielded pottery and sheep remains, and one was occupied by hunter-collector-fishers and yielded a Kabeljous Industry including large segments and bored stones. The shell middens were situated a few hundred metres from the estuary opposite a sandy beach with the nearest rocky shore some 1,5 km away. These sites are all built over.

KR/SM1A & B

KR/SM1A is a large windblown area previously leveled by earth moving vehicles. The area was littered with pottery, stone tools, other cultural material, and food waste and was one of only a few Khoi pastoralist sites in the research area. A surface sample of faunal remains yielded remains of six sheep (Table 9). Sheep remains identified by J. Brink have been dated to 1560 ± 40 BP (Pta-5982). A surface sample to establish the shellfish content at the site was also collected (Table 10). *Perna perna*, 49,3% [33,7%] was the dominant shellfish species. *Oxystele* spp., 19,2% [4,2%] and *Donax serra*, 18,4% [45,5%] were also present in fair numbers with *Turbo sarmaticus*, 6,5% [16,6%] the only other significant species. Although *Oxystele* spp. presented a high percentage frequency, its contribution in meat mass was insignificant in comparison with *D. serra* and *T. sarmaticus*. The economic return ratio (ERR) was 33,3%. A small collection of cultural materials was also made (Tables 11 & 12).

A small damaged shell midden, KR/SM1B, located in the same area was also sampled. One square

of sites used for aggregation, and that the location for aggregation changed regularly.

The densities of stone, bone mass, PMM and decorative items per volume in the Wilton units show that there were two periods of accelerated activities although the indicators are not fully synchronised. All the indicators except stone show a decline from the Albany to the bottom Wilton units. However, a marked increase in production is evident shortly after the Wilton Industry was introduced. Bone, stone and decorative items peak between ca 5500 BP and 4900 BP. As is the case in the Albany units, the PMM do not support this period of accelerated activities. The PMM is constant throughout the sequence except for a dramatic peak at ca 3700 BP. A marked decline in all three indicators is visible after 5000 BP. The PMM and decorative items peak at ca 3700 BP at the time when bone and stone show a steady increase. Stone artefact production peaks again at ca 1900 BP whereafter it declines sharply.

Furthermore, at Paardeberg Cave in the Langkloof, some 40 km north-west of The Havens Cave, silcrete was a major raw material (between 22% and 46%) (unpublished report), but here it was less than 0,5%. Silcrete was also virtually absent from other sites in the Baviaanskloof. This may represent a symbolic boundary between sites in the Langkloof and Baviaanskloof.

When the food and cultural densities from The Havens Cave are compared with these for the eastern Cape Midlands (Hall 1990) and the Thukela Basin (Mazel 1989b), it is clear that there are significant differences. Due to the small size of the excavation and the insignificant quantities or absence of certain food resources, such as freshwater mussel and fish remains at the site, only mammal bone, the PMM, stone tools and decorative items could be used. Nevertheless, the information displayed in Figure 9 suggests that there were at least three periods of increased production during the past 10 000 years. It is clear that there was a sharp increase in the densities of stone, bone mass and decorative items per volume in the Albany units starting sometime before ca 10 000 BP. These items peak simultaneously at ca 9800 BP and may indicate a period of accelerated activities at the site. The PMM per volume, however, shows an opposite trend. This indicates that a low quantity of meat mass entered the site during this period, but increases towards the Wilton/Albany transition. The relatively high density of decorative items per volume in units GOW and BOA in the Albany units suggests that the site was occupied on a regular basis for aggregation (living together in large groups; see Lee 1979 & Wadley 1986).

The transitional period is less clear, but there is a marked drop-off in the density of decorative items per volume in the bottom Wilton units, compared to the Albany units. This may suggest a reorganisation of social relations and settlement patterns. If ostrich eggshell and *N. krausslanus* beads are indicators of aggregation (Wadley 1986), then there are only two units that reflect this behavioral pattern during the Wilton, namely, BOW and VOG. Assumptions which can be drawn from this is that The Havens Cave was sporadically used for aggregation, and that aggregation was probably determined by social rather than economic needs. It is possible that there were a series

contrary may have brought back mainly the meat or prime meat-containing parts and less bone. What ever the case, the important conclusion reached from the mammal data is the fact that the Albany groups' faunal capture rate was higher than that of the Wilton groups without a microlithic toolkit. This gives rise to the question whether there was any relationship between microlith' backed tools, such as segments and hunting. Leslie-Brooker (1989) made a similar suggestion for Uniondale Shelter.

A wide range of plant species was exploited at The Havens Cave. Apart from the 'traditional' warmer month species, several colder month species were also present in the bedding units. These included plant species such as *Schotia latifolia* remains, of which the pods are available from April to August, *Oxalis stellata*, an underground bulb which flowers between April and June, *Hypoxis argentea* which flowers between Jui e and November, seeds such as *Olea africana* (mature between March and July), *Euclea natalensis* (late autumn and winter months) and *E. undulata* (February to September). From this evidence it can be argued that groups stayed for extended periods at the cave, or even all year round. On the other hand, it is doubtful whether any one of these plant foods, or even a combination of them, could support a relatively large group of people for any length of time. None of these plant species occurred in the bedding unit in any significant quantities, and therefore it would appear that small groups most probably occupied the site occasionally for short periods. It is also possible that these species were collected at the very end or beginning of their cycle and therefore offer no explicit evidence for winter occupation of the site.

The raw materials from The Havens Cave supplied interesting information. Quartz crystals were highly preferred in the manufacture of formal stone tools during the Wilton period (the Albany layers yielded no crystals). A fair number of quartz crystals were found in all the layers, specially in the units regarded to be periods of increased social production (units with relatively high numbers of ostrich eggshell remains and *N. kraussianus* heads, for example, BOW and VOG.

(2,2). Bead manufacturing in the Albany units appear to be more consistent than in the Wilton units. Ostrich eggshell remains are more abundant in the Albany units than in the overlying Wilton units. Decorative items per volume in the Albany units show a pronounced peak at ca 9800 BP (unit GOW). It is very low in the Wilton bottom units but increases markedly and peaks twice at ca 4900 BP (unit VOG) and 3700 BP (unit BOW) (Fig. 8).

Other artefacts

Thirteen pieces of pottery were found in the bedding unit. These include two rim pieces and one decorated piece. Only a few bone points, flakes and one pendant were recovered (Table 5 & 8).

DISCUSSION

The data from The Havens Cave generally supports observations made at other sites in the southern and eastern Cape proper. The bottom units at The Havens Cave are estimated to be 10 500 years old and display a typical Albany stone tool tradition, consisting of large quartzite scrapers as the only formal tool. Four sites, Melkhoutboom Cave (H.J. Deacon 1976), Rautenbach's Cave (H.J. Deacon & Brooker 1976), Kangkara Cave (Deacon 1982) and possibly The Havens Cave were all occupied continuously from this period to possibly historical times. Paardeberg Cave was probably also occupied during the same period (H.J. Deacon, pers. comm.).

The mammal species captured in these units were similar to those from the overlying Wilton units, suggesting that the physical environment was also similar. The faunal remains were dominated by small species like *Raphicerus* sp. and *Procavia capensis*. The minimum number of individuals, mammal bone and PMM densities per volume indicate that the Albany groups were more active in capturing mammals than the Wilton groups. This may suggest that the groups that stayed at the site during the Albany were marginally larger than the Wilton groups. On the other hand, the higher mean mammal bone density per volume in the Albany units may be due to larger bone-containing body parts or more complete animals returned to the site. The Wilton groups on the

The wood shavings consist mainly of chisel, and cut and tear shavings. Some rose shavings were also found (Binneman 1982). Many thick shavings, well polished with previous chisel marks still visible, are also present in the samples. These most probably came from resharpened digging sticks or pegs. The shavings were caused by sharp objects and closely resemble those created with experimental stone adzes (Binneman 1982; Binneman & Deacon 1986).

Shell remains

Marine shells, presumably used for decorative purposes, were present throughout the sequence (Table 5). *D. serra* was also present throughout, but none was turned into an artefacts. Other marine shells recorded include, *H. spadicea*, *P. perna*, *P. argenvillei* and *N. kraussianus*. These were present in the Albany units, but absent in the units which mark the start of the Wilton period (6610 ± 80 BP.). These shells re-appear again in the sequence at 6190 ± 80 BP. This pattern is similar to that observed at Melkhoutboom Cave (Deacon 1976), but the re-appearance of *N. kraussianus* shell at The Havens Cave is much earlier. It is possible that the The Havens Cave date is incorrect. A large number of *N. kraussianus* beads (730) were found with a burial. Ostrich eggshell beads and fragments were also present throughout the sequence, but only seven decorated pieces were found. Remains of ostrich eggshell water container apertures were only found in the Albany units. Beads and roughouts were more or less equally represented in both time periods, but were absent from some Wilton units. It is interesting to note that the units in the Wilton period which yielded the most roughouts (BOW, 9 and VOG, 15) were also the only other units which contained *N. kraussianus* beads.

The large number of *N. kraussianus* beads and ostrich eggshell beads found with the burial is responsible for a higher mean decorative items per volume in the Wilton units (7,8) than the Albany units (2,-). This creates the impression that substantial bead manufacturing took place in the Wilton units. However, if this somewhat artificial accumulation of beads is excluded, the mean decorative items per volume in the Wilton units (0,8) is notably lower than that of the Albany units

1984a:306). The width of the scrapers shows similar patterns, and are wider in the later units than the earlier units.

Other imports such as ochre, shale pieces and micaceous sandstone were well represented throughout the sequence. Edge grounded ochre pieces were only found in the bedding unit (Table 6).

The mean stone artefacts per volume in the Wilton units (169,8) is significantly higher than that of the Albany units (72,8). The stone artefact density per volume shows a pronounced peak at ca 9800 BP (unit GOW) in the Albany units (Fig. 8). In the Wilton units it peaks between ca 5500 BP and 4900 BP (units KOW and VOG) whereafter it declines markedly followed again by a steady increase to reach another peak at ca 1900 BP (unit POS). The surface unit (BED) displays a significant decline again.

Non-lithic artefacts

Botanical artefacts

A wide variety of botanical artefacts were recovered from the Bedding unit (Table 8). *Cyperus textilis* Thunb. (matjiesgoed) was recovered in fair amounts from the bedding samples, and is composed of fragments, cut pieces, and remains of mats and cordage. Some knots were found which may have been parts of a net. This plant grows in vast quantities along the Wit and Groot Rivers below the cave. Only one seed bead was recovered. The one end of a *Hypodiscus aristatus* (*RESTIONACEAE*) seed is ground down to expose the small hole which runs through the length of the seed.

Fair numbers of wooden artefacts were found. These included linkshafts, points, fire drills, pegs, worked and cut pieces and large numbers of wood shavings. The types of wood used for the different implements have not yet been established, but at Melkhoutboom Cave *Ficus capensis* was used for fire drills, and it is possible that the same wood was used at The Havens Cave.

CULTURAL REMAINS

Lithic artefacts

Since the conventional methods and descriptions as outlined by J. Deacon (1969, 1982) and H.J. Deacon (1976) have been followed for the analysis of the lithic artefacts from The Havens Cave, no further discussion is necessary. The only difference is that all battered pieces are classified as core reduced pieces, as they represent the same processes of bi-polar flaking (Barnham 1987).

A large number of stone artefacts (23 107) was recovered from the small excavation (Table 6). Formal tools only account for 1,3% (299) of the total. Scrapers are the most important formal tool (91,6% or 274). The waste category accounts for the majority of the stone tools (98,5% or 22 759).

The most important raw materials are quartzite and quartz. Other raw materials are virtually absent. Quartzite is the dominating raw material throughout most of the sequence, except for the upper four units where quartz dominates (from unit WAG). Hornfels shows a slight increase in the Albany units, but silcrete and chalcedony are absent in these units.

The scrapers are the only formal tools recovered from the Albany units. These are large and made of quartzite. Scrapers from the Wilton units are the only formal tool class on which statistical analysis could be performed (Table 7). The scrapers from The Havens Cave differ slightly from other assemblages from the eastern Cape proper and the southern Cape. The mean size of the scrapers was in general smaller than any other Wilton assemblage. The majority of the scrapers were manufactured from quartz (91,6%). Of these, 85,6% were quartz crystal. The smallness of the crystals determined the smaller size of the scrapers.

At the beginning of the Wilton period (unit SBA), the scraper length is slightly longer than in the overlying units. From unit GHA the scrapers are shorter, but the size increases with the largest measurements in units BED and POS. This corresponds with observations elsewhere (J. Deacon

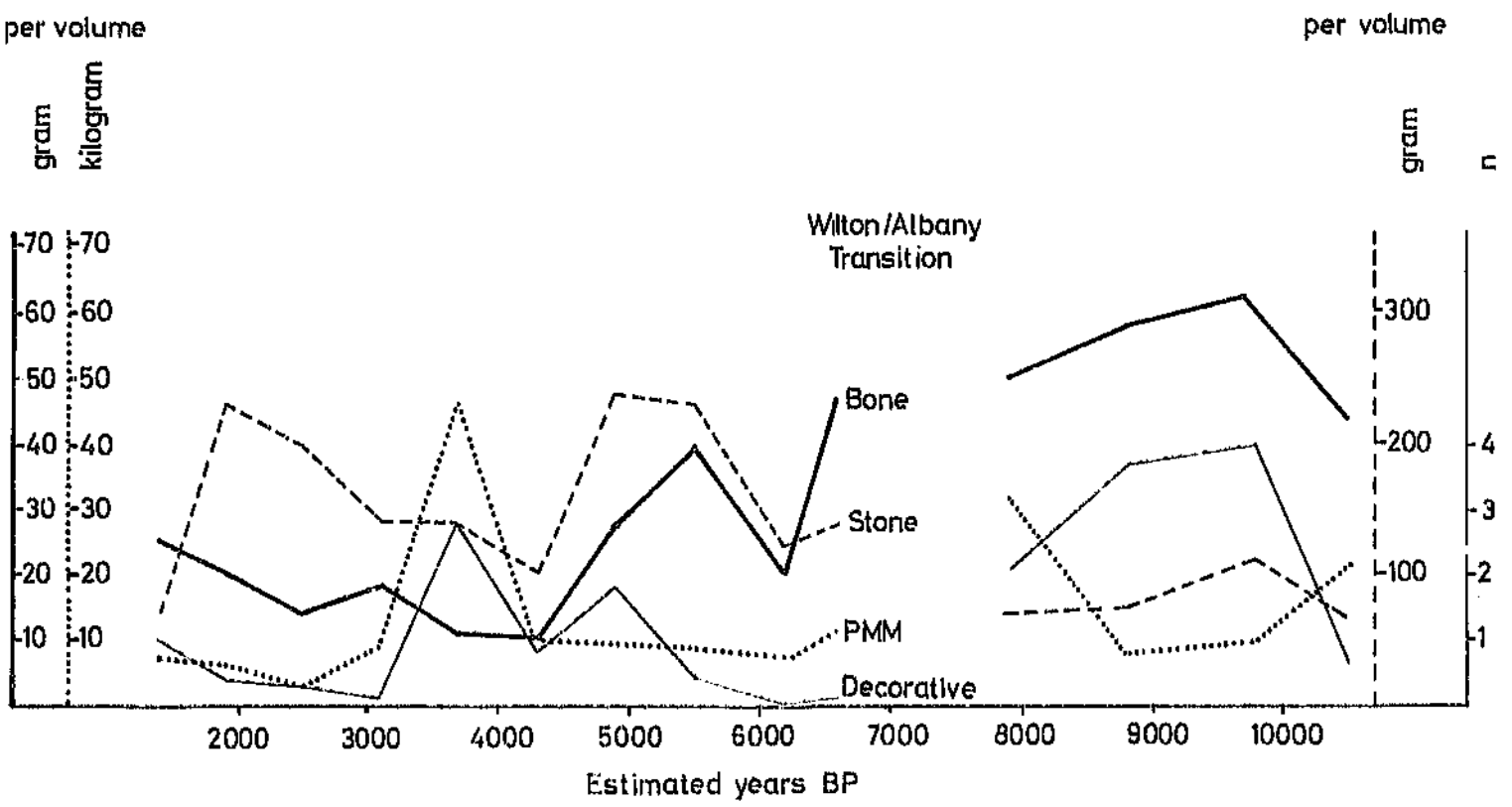


Figure 8. Food waste and cultural remains densities from The Havens Cave.

is *Potamochoerus porcus*. Other faunal remains such as tortoise, other reptiles and crab are insignificant.

Although the species captured are similar for the Wilton and Albany units, the mean mammal bone weight per volume for the Albany units (52 gram) is significantly higher than that of the Wilton (24,2 gram). The mean individuals per volume for the Wilton units is less than one (0,5) and for the Albany units 1,0. However, when the mean PMM per volume is taken into account, the difference between the two industries is less significant. Although the Albany units still have a higher mean (19,9 kg) than the Wilton units (13,6 kg) the difference in body mass is equivalent to approximately two *Procavia capensis*. The marked difference in the mean mammal bone mass per volume may be due to sampling, or larger parts of the animals were brought into the cave during the Albany than during the Wilton.

The mammal bone density per volume and the PMM density per volume show marked differences (Fig. 8). Mammal bone shows a sharp decline from the initial Wilton occupation units followed by a peak at ca 5500 BP (unit KOW). Thereafter it declines steeply and stays consistently low for the upper units. The PMM, on the other hand, shows little change throughout the sequence except for a brief pronounced peak at ca 3700 BP (BOW). The difference in the densities per volume for the Albany units is even more conspicuous. The two indicators show opposite trends.

Other food remains

Unio caffer (freshwater mussel) is present in the layers, but appears not to have been exploited in any significant quantity (Table 5). Freshwater fish vertebrae are also present in the bedding samples, but the numbers are insignificant and fish were probably not important in the diet (Table 3). The fish were caught during summer (S. Hall, pers. comm.).

(Chippindale 1955). The other grasses identified from their florescences were *C. validus*, *E.* cf. *curvula* and *K. capensis*. All these grasses flower between early and mid summer (Chippindale 1955). The economical value of grasses, except for bedding and to line pits, was probably of limited importance. In the Transkei *E. curvula* is used as food in times of famine (Fox & Norwood Young 1982:301).

A wide variety of seeds, remains of underground bulbs, other edible plants and medicinal plants were recovered from the deposit (Appendix I). *Pappea capensis* were the most abundant seeds found in all the samples. Other important seeds include *Schotia afra* and *S. longifolia* pods and seeds, *Euclea* spp. and *Olea africana*. *Cyperus usitatus* accounts for the bulk of the underground plant remains. Other underground plant remains include *Oxalis stellata*, *Hypoxis* cf. *argentea*, *Freezia* cf. *corymbosa*, *Watsonia* sp.and *Moraea* sp. *Dioscorea elephantipes* remains are also well represented in the bedding unit. *Boophone disticha* is the most common medicinal plant found at The Havens Cave. Another interesting medicinal plant found was *Agathosa puberula* (buchu).

Most of the botanical remains found at The Havens Cave are known to have been used among Bantu-speaking people, and they may have had similar uses among the inhabitants of The Havens Cave. The majority of the edible plant remains were collected during early and mid summer, but there are other species present which suggest that the site may have been occupied during autumn and early spring. *Schotia latifolia* (available between April and August) and *Oxalis stellata* (April to June) are two plant foods which suggest that people occupied the cave through the winter months. On the other hand, both these species could have been collected at the very end or beginning of their availability.

Mammal remains

The mammal remains from the Wilton units at The Havens Cave are mostly of small to medium small animals, mainly *Raphicerus* sp. and *Procavia capensis*. The Albany units show a similar trend (Table 4). The only species which occurs in the Wilton units that is absent from the Albany

Themeda triandra Forsk. (rooigrass) inflorescence were present in the pit, but this grass was not used for the lining. A limited collection of grasses in the vicinity of the cave revealed that *T. triandra* is absent from the hill side at present. It is a fire generated grass and needs to be burned in two year cycles to flourish. Lack of burning over the past 20 years is probably the reason for it being absent from the hill side. The most common grasses on the hillside and at the entrance of the cave were *Cymbopogan validus* Stapf ex Burtt Davy., *Eragostis curvula* (Schrad.) Nees, *Koeleria capensis* (Steud.) and *Enneapogon scoparius* Stapf. (dassie grass). *E. scoparius* resembles the lining and is the closest of all the modern day grasses growing on the hillslope. Inflorescence of *K. capensis* and *C. validus* were present, but not of *E. scoparius*. A characteristic red colour suggests that *T. triandra* probably constituted the bulk of the grass bases (infill).

The pit at The Havens Cave has yielded some 300 *P. capensis* seeds. Other seeds found were *P. falcatus*, *Olea europaea* L. subsp.*africana* (Mill.) P.S. Green (wild olive), *Schotia latifolia* Jacq. (bush boer-been), *Euclea* spp. Murray and *Rhus* spp. L.

Burial

Only one burial, that of an infant (possibly foetal) was found. A small shallow hollow, 140 mm in diameter and 100 mm deep, was dug into a thick layer of white ash (WA1). The burial shaft was most probably dug from the overlying bedding unit. The burial was covered by strings of *Nassarius krassianus* beads (730) and some ostrich eggshell beads (18). The carapace of a small tortoise (*Homopus areolatus*) was also found with the burial (see Hall & Binneman 1987).

SUBSISTENCE AND DIET

Plant remains

The bulk of the plant remains from The Havens Cave consisted of grasses (Table 3). Three species of grasses were positively identified from The Havens Cave. *Themeda triandra* seems to be the most common grass brought into the cave. The inflorescence is easily identified and the grass bases and stems have a distinctive red colour. This grass flowers between September and December

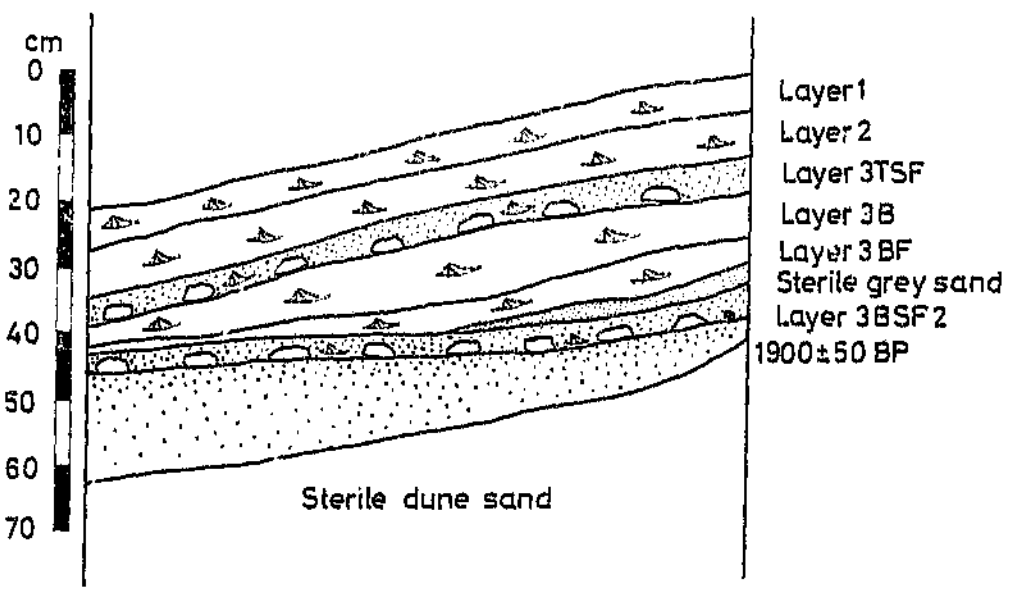


Figure 16. Section drawing of the excavation at shell midden SFB2/1C.

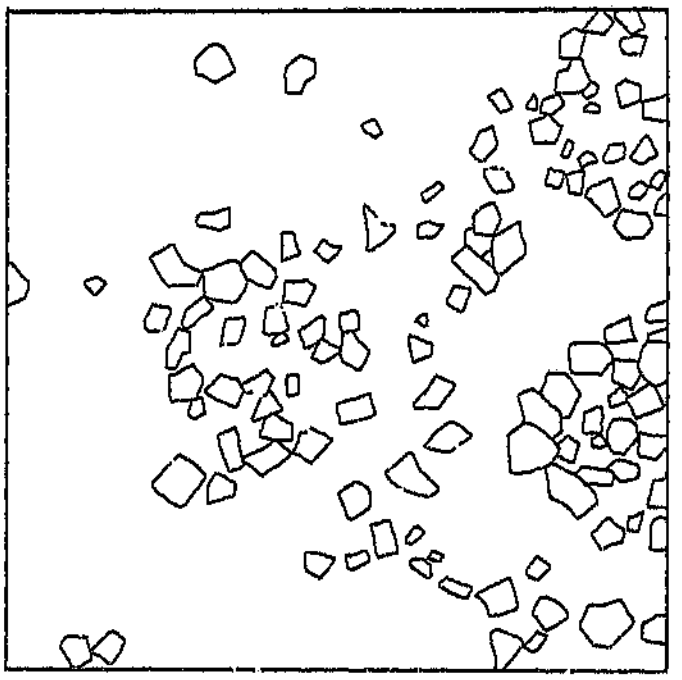


Figure 17. Mapped stone features in Layer 3BSF2.

The remains of a number of large animals were found, including *Bos taurus*, *Syncerus caffer* and *Hippopotamus amphibius* (Table 15). Few cultural remains were recovered from both excavations (Tables 11 & 12). Many potsherds were found in excavation 1A, but probably all belong to a single spouted vessel (Table 12). Only a few quartzite flakes and shell beads were recovered.

Layer 3 in excavation 1C did not produce any pottery and dates to 1900 ± 50 BP (Pta-3910) (Fig. 16). D. *serra*, which was absent from the overlying two layers, was present in layer 3 (Table 14). Although only representing 3,4% [6,1%] of the total species, its contribution in meat mass is substantially higher than that of *Oxystele* spp. which comprised 14,5% of the percentage frequency. The presence of *D. serra* indicates that HCF also exploited the sandy beaches. The 'ceramic' groups did not collect this species. This pattern was visible at most of the 'ceramic' middens. *D. serra* is not present in any large numbers along this part of the coast today and similar conditions may have prevailed during prehistorical times. *T. sarmaticus* provided the second highest meat mass although it only represented 7,5% [14,4] of the shellfish collected. The ERR for Layer 3 was 35,5% which is notably higher than that of the 'ceramic' layers. Layer 3 yielded two stone features (Fig. 17) and a few silcrete stone tools (Table 11).

SFB2/1B

This midden covered approximately 4 m^2 and was dominated by *P. perna* (86,0% [95,8%]) (Table 14). No pottery was recovered. The size of the midden and the presence of species from the lower balanoid zone (*P. cochlear* and *P. argenvillei*) suggest that the site was occupied for a short time, probably for only a few days during spring low. It would appear that HCF preferred shellfish species with a higher meat mass per species from the lower balanoid zone to the more accessible, easy to collect *Oxystele* spp. (1%) from the upper balanoid zone. The ERR was 35,4%.

SFB2/2

This midden was badly eroded by wind action. It was situated on a high dune and only 5 m^2 of the

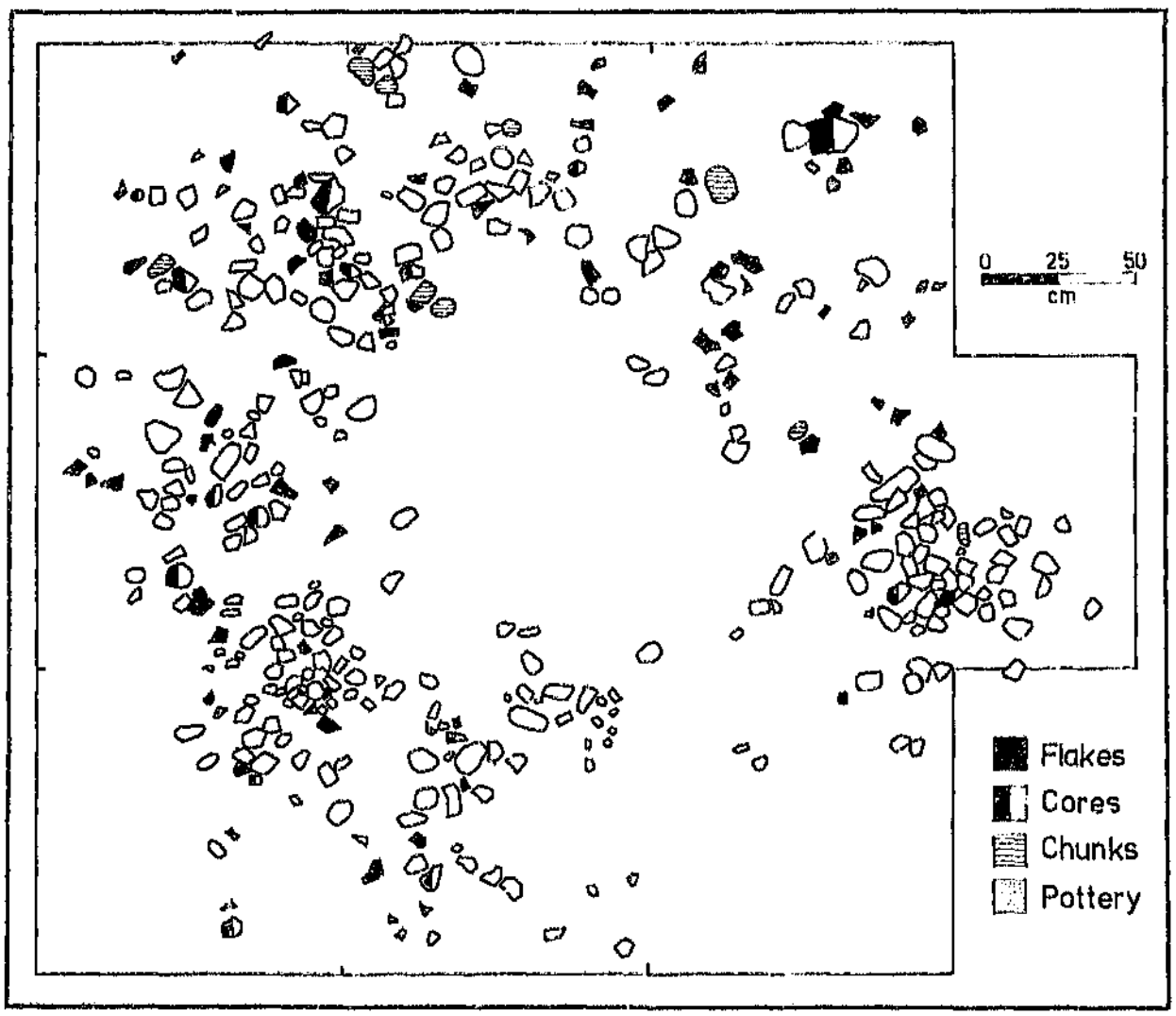


Figure 15. Mapped stone features in the SFB2 area.

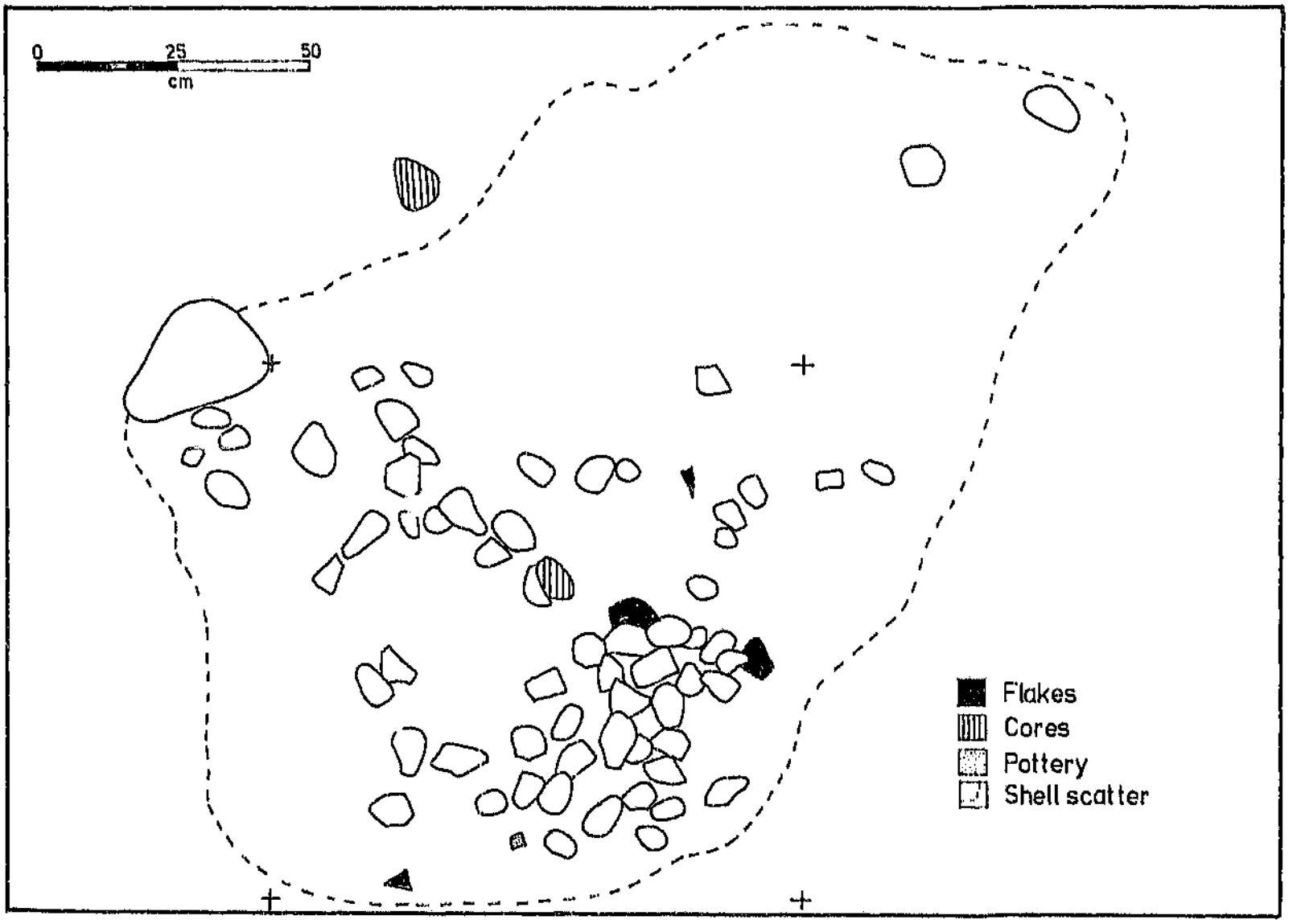


Figure 14. Mapped stone feature in the SFB2 area.

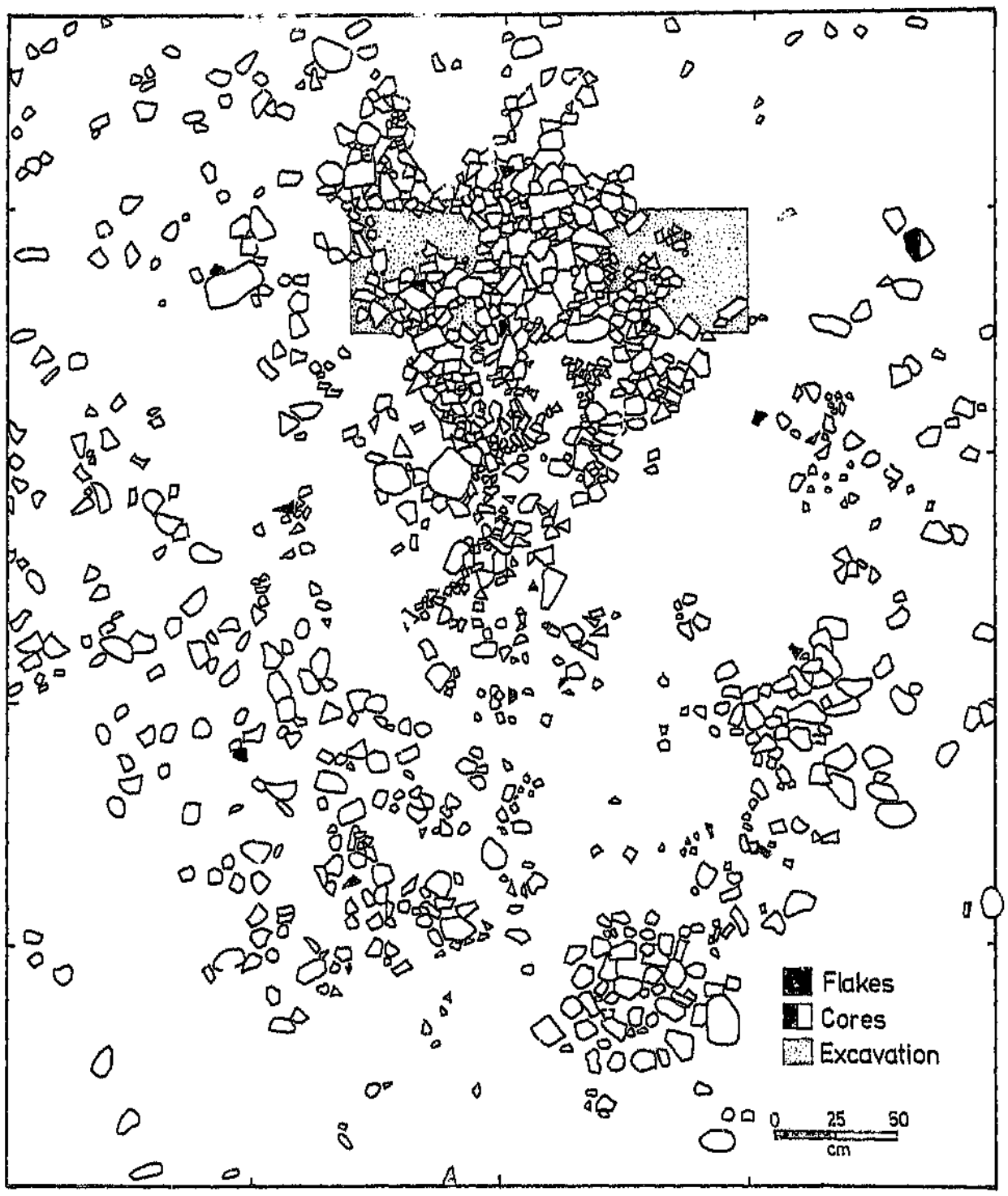


Figure 13. Mapped concentration of stone features in the SFB2 area.

SFB2 AREA

SFB2 was a large windblown dune area to the south of Santareme Bay (Fig. 10). This area comprised one of the largest concentrations of Holocene features in the research area. Several excavations and sampling of middens and other features were conducted opposite a wave coast adjacent to a small boulder coast. Extensive *P. perna* beds are present along this part of the coast.

During 1984, the entire area was covered with branches to stabilise the loose dune sand and it has since been developed into an exclusive holiday resort. The area covered approximately 40 000 square metres and 35 shell middens and more than 20 stone features . recorded. Only a few were still *in situ*. Most of these stone features were circular and consisted of heat fractured quartzite cobbles and pebbles. Large quantities of charcoal but little shell were associated with these features. Occasionally cores and flakes were also present. Three of these stone features in the SFB2 area were mapped. Two were fire places, probably hotplates for cooking shellfish and one was probably a windbreak (Fig. 13, 14 & 15).

SFB2/1

This was the largest shell midden in the area and covered approximately 50 m^2. Two small excavations of 1 m^2 each were conducted at different localities (SFB2/1A & 1C). A small midden (SFB2/1B) at the bottom of the dune was also sampled. Excavation 1A yielded two layers of 0,15 m each divided by a sterile layer of black organic sand. Excavation 1C on the western side yielded three layers some 0,40 m thick. The two top layers were similar to those exposed on the northern side and contained pottery. Pottery was absent from layer three. A fully flexed infant burial was found on the eastern slope of the dune. The burial was facing in a north-easterly direction lying on its left side.

P. perna (between 48% [73%] and 63% [83%]) and *Oxystele* spp. (29% [11%] and 35% [14%]) were the dominant species in the two top layers at excavations 1A and 1C (Table 14). Other species were insignificant. The ERR for Layer 1 was 24,6% and for Layer 2, 28,1%.

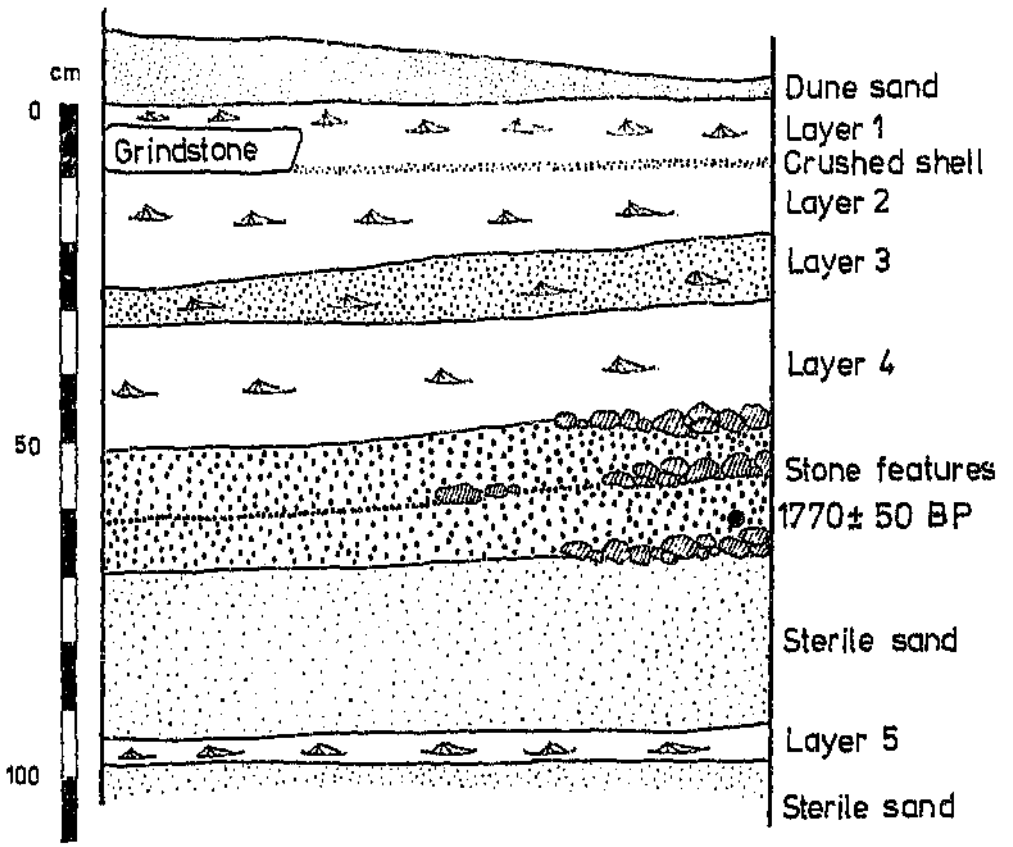


Figure 11. Section drawing of the excavation at shell midden SFB1/1.

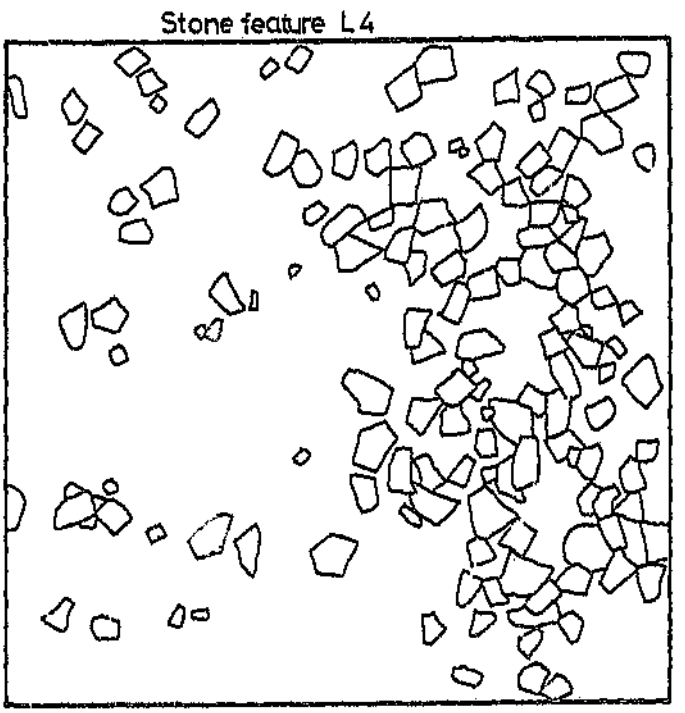


Figure 12. Mapped stone feature in Layer 4 of SFB1/1.

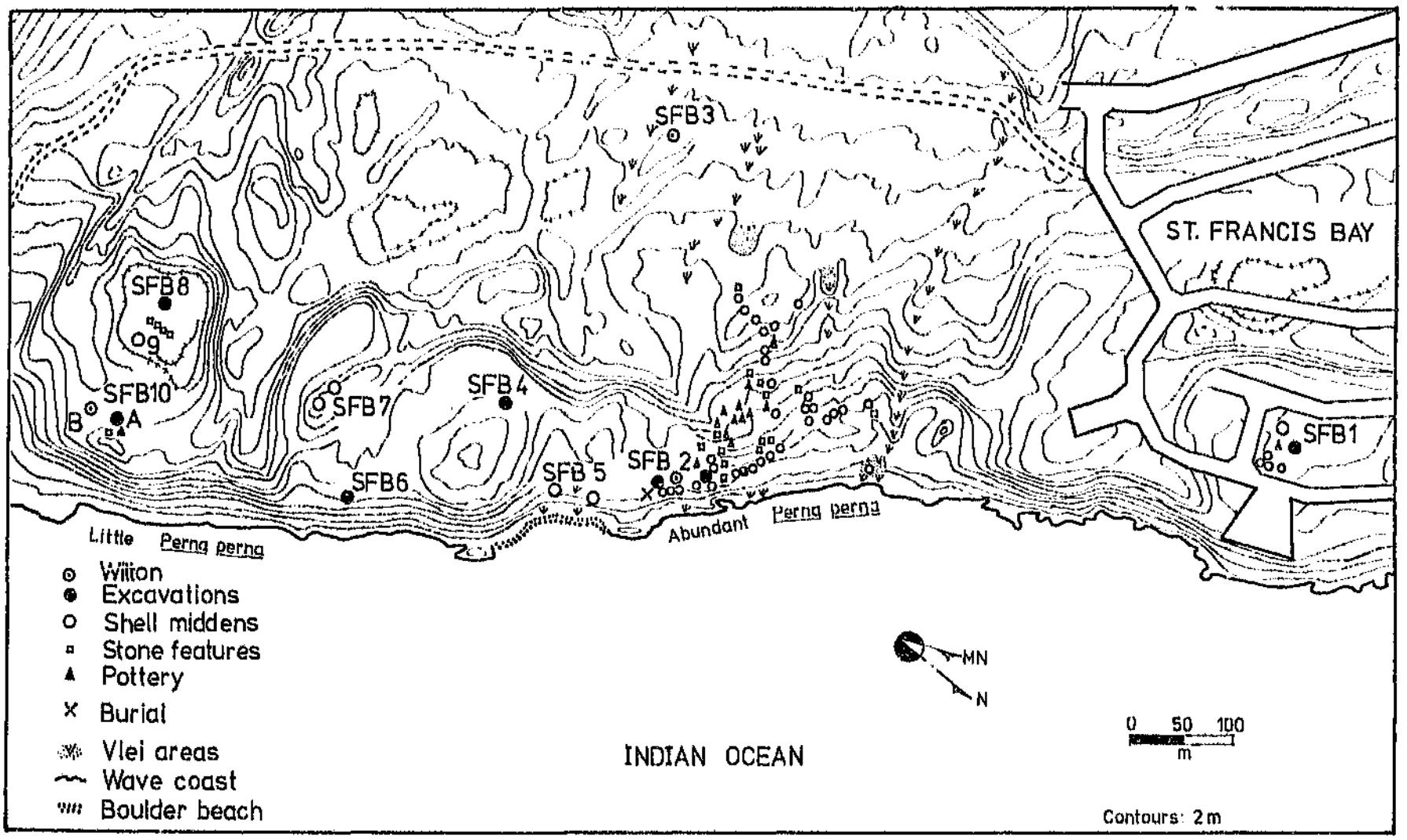


Figure 10. Detailed map of archaeological sites and features at St Francis Bay and Dune Field areas as recorded during 1982.

dune, opposite a rocky coast. The sandy beach and rocky coast were only a few hundred metres away. *P. perna* is the dominant shellfish species along this part of the Cape St Francis coast.

The midden was 1,1 0 m thick. Six occupation layers were excavated yielding pottery in five layers (Fig. 11). No sheep remains were recovered from this midden (Table 9). Layer four, a stone feature which must have been a fire place, has been dated to 1770 ± 50 BP (Pta-9311) and represents the oldest date for pottery found along the south-eastern Cape coast (Fig. 12). Few cultural remains were recovered from the excavation (Tables 11 & 12).

P. perna was the dominant shellfish species in all the pottery layers and comprised between 75% [84%] and 91% [96%]. *Oxystele* spp., between 6% [2%] and 14% [4%], were the only other species present in notable frequencies. Other species were insignificant (Table 13). The ERR's were: Layer 1, 34,6%; Layer 2, 32,8%; Layer 3, 37,6%; Layer 4, 36,0% and Layer 4SS, 35,8%.

Layer five was a thin shell lens 0,20 m below the stone feature. No pottery was present in this lens which probably represents HCF occupation. The shellfish content was markedly different from the overlying pottery layers (Table 13). *P. perna* (50,2% [47,9%]) comprised the largest percentage of the species and *Patella* spp. (25% [14%]) accounted for the bulk of the remainder. Notwithstanding, the total meat mass contribution was much lower than several other species. For example, *T. sarmaticus* (6% [28,3%] and *Haliotis spadicea* (6,3% [23,8%]) made a substantial higher contribution. The ERR was 45,5% which is notably higher than the pottery layers.

The presence of *Haliotis spadicea* in layer 5 indicates that the lower balaniod zone had been more extensively exploited than the overlying pottery layers. This illustrates the different collecting strategies between HCF and 'ceramic' groups. The latter did not collect from the lower balaniod zone while HCF collected from both the upper and lower balaniod zones. In doing so they obtained species with relatively high meat mass, such as *T. sarmaticus* and *H. spadicea*.

Oxystele spp. present in the site as well as the notably lower meat mass per volume and ERR provide the reason for this conclusion. The sheep remains present in the site may have been stolen from pastoralists or acquired by some other means. The HCF middens (KR/SM2A & B) and pastoralist midden (KR/SM1A) displayed a similar pattern to those observed in the Wilton and Kabeljous units inland at Kabeljous River Shelter 1 (high frequencies of *P. perna* and *D. serra* and low frequencies of *Oxystele* spp.) (chapter 7). The 'ceramic' midden on the other hand, displayed an interesting difference in the frequencies of shellfish collected. *Oxystele* spp. accounted for the bulk of shellfish with *P. perna* and *D. serra* present in low frequencies. *Oxystele* spp. are usually abundant in the upper balanoid zone and are also easy to collect during all tide cycles, but also provide little in return. It would appear that 'ceramic' people were not selective in their collecting strategy, but collected any species they encountered. The HCF on the other hand were more selective in the shellfish species they collected.

The different shellfish collecting strategies between the groups are clearly illustrated by the ERR's. The ERR for the 'ceramic' midden, KR/SM1B (25,5%), is notably lower than that for the pastoralist midden, KR/SM1A (33,3%) and HCF middens, KR/SM2A (37,7%) and KR/SM2B (39,6%). This pattern is also noticeable in the meat mass per volume; 1170,0 gram for the 'ceramic' midden (KR/SM1B) which is between 8% and 14% lower than that of the pastoralist midden (1415,1 gram) and the HCF middens (1873,0 gram and 1776,3 gram respectively.

ST FRANCIS BAY AND THE SURROUNDING DUNE FIELD AREA

The largest concentration of shell middens and other archaeological features occurred along the coast between St Francis Bay and Oyster Bay and in the shifting dune bypass system between the two coastal resorts (Fig. 4).

SANTAREME BAY (SFB1/1)

SFB1/1 and five other middens were situated on vacant plots in Santareme Bay, an extension of St Francis Bay (Fig. 10). The midden was located on top of a densely vegetated three metre high

metre was excavated to establish the percentages of shellfish species. The deposit was only 0,1 m thick and contained pottery and the remains of three sheep (Table 9). This midden is not considered to be of pastoralist origin because the shellfish content was similar to that of 'ceramic' middens sampled elsewhere along the Cape St Francis coast (see below). *Oxystele* spp. represented 58,4% [18,0%], while *Perna perna*, 16,3% [20,0%] and *Donax serra*, 14,8% [45,9%] were the only other species of significance (Table 10). Little cultural material was recovered (Tables 11 & 12). As in the case of KR/SM1A, *Oxystele* spp. was well represented but the contribution in meat mass was low. The ERR of 25,5% was notably lower than that of the pastoralist midden.

KR/SM2A & 2B

A second area, some 200 m west of KR/SM1B, was also investigated. Several middens had been badly damaged by building operations or crushed by earth moving vehicles. The area was sampled for important archaeological material. Several large segments and bored stones were recovered (Table 11).

Shell midden KR/SM2 was 0,20 m thick and consisted of two shell lenses separated by a lens of sterile white sand. *P. perna* was the dominant shellfish species in both layers (Table 10). Layer 2A consisted of 55,0% [49,5%] *P. perna*, 18,2% [43,4%] *D. serra* and only 16,0% [7%] *Oxystele* spp., and layer 2B of 57,2% [33,5%] *P. perna*, 29,1% [60,9%] *D. serra* and only 6,7% [1%] *Oxystele* spp. Both layers yielded abundant fish remains. The ERR for KR/SM2A was 37,7% and 39,6% for KR/SM2B.

A large quartzite segment was also found in layer 2B. This layer has been dated to 2570 $\pm$ 60 BP (Pta-3907). Five large quartzite segments, two bored stones and *D. serra* scrapers and pendants were also found near the midden (2C area) (Tables 11 & 12).

DISCUSSION

Although both KR/SM1A & 1B yielded sheep remains and pottery, the latter is not regarded as a true pastoralist site, but rather as been occupied by a 'ceramic' group. The high frequency of

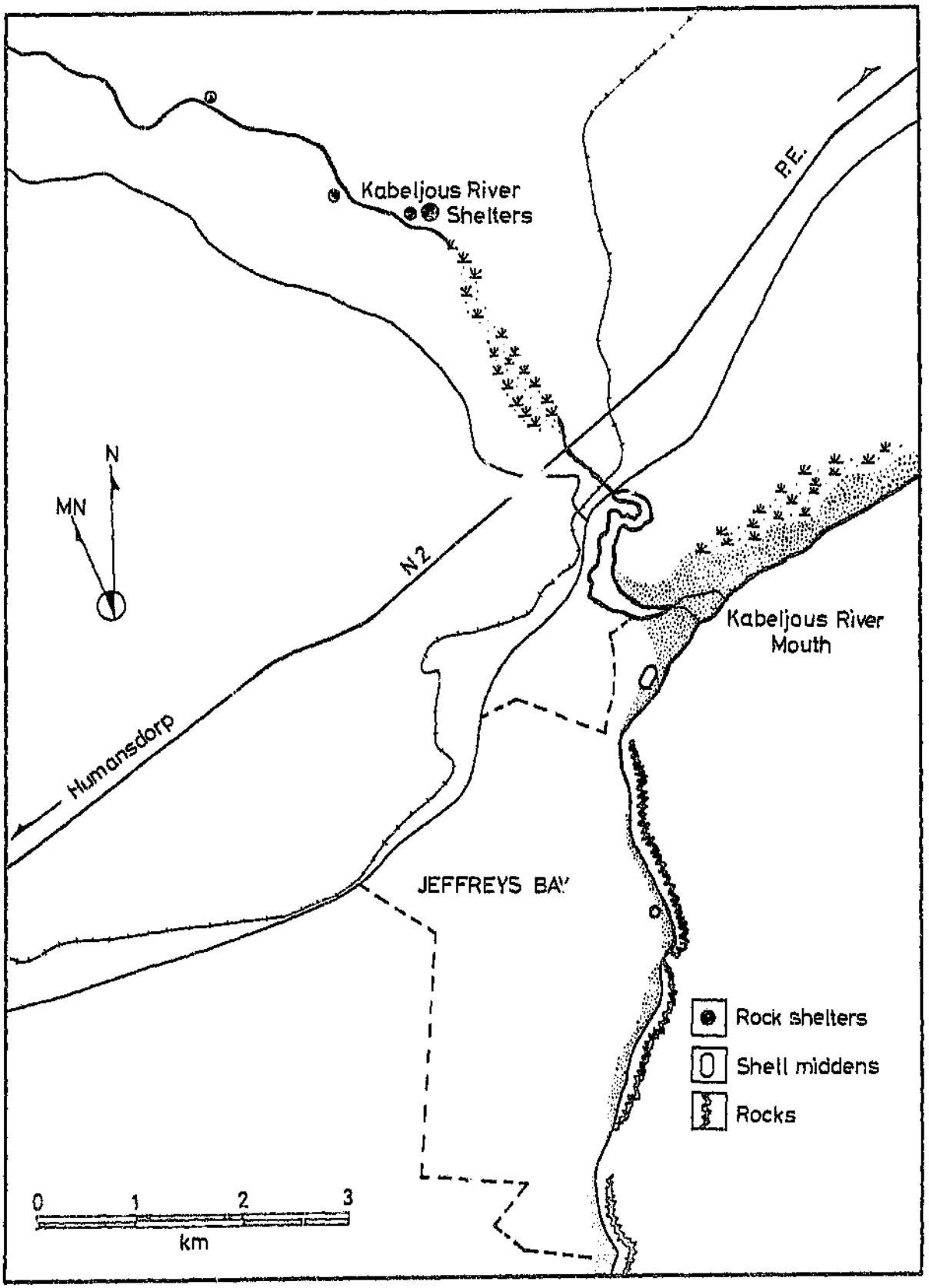


Figure 9. Location of archaeological sites at the Kabeljous River Mouth.

collecting strategies employed between HCF and 'ceramic' groups occupying a similar coastal habitat. At Second Bush the HCF collected extensively from the lower balanioid zone, indicating that they exploited shellfish only at certain times of the tidal cycle (spring and neap low). Although the 'ceramic' groups also collected from the lower balanioid zone, their use of this zone was substantially less than the HCF. They also concentrated more on collecting species from the upper balanioid zone. The ERR for the Kabeljous midden (SB1) is 32,3%, which is notably higher than that of the 'ceramic' midden (SB2) (25,9%).

The shellfish collecting pattern as observed from the 'ceramic' midden at Cape St Francis Point indicates that these groups mainly collected those species which were to be found in the shallow intertidal pools. They generally collected limpets such as *P. oculus*, but not limpets from the lower balanoid zone. They also did not exploit the *P. perna* beds on the eastern side of the Point (a few hundred metres from the middens). The HCF on the other hand, collected *P. perna* from this part of the co. would appear that 'ceramic' groups either preferred *Oxystele* spp. to *P. perna* when they had the choice, or they did not make the effort to travel a few hundred metres further to collect higher meat mass species. It is also anomalous that they collected certain limpets and not others. The ERR for the Kabeljous midden (CSFP1) of 29,6% was higher than that of the 22,7% of the 'ceramic' midden (CSFP2).

SEAL POINT AND DE HOEK AREAS

SEAL POINT

Most shell middens in this area were either destroyed or covered by houses and gardens, but a few were still visible between the houses in the holiday resort of Cape St Francis. On the northern side of Seal Point is a sandy beach and a boulder beach. The Point mainly consists of a high energy coast (Fig. 20). Two HCF middens (SP1 & 2) were excavated and one sampled (SPB). No suitable pastoralist/'ceramic' middens were found for sampling.

SB2 was a 'ceramic' midden situated on the southern side of the boulder beach and displayed different shellfish frequencies to that of SFB1. *Oxystele* spp., 29,4% [10,1%] was the most important species, followed by *P. perna*, 17,2% [35,6%] and *Burnupena* spp., 15,6% (Table 21). *T. sarmaticus* was represented by a low frequency (7,8%), but contributed 29,7% of the meat mass. The ERR was 25,9%.

CAPE ST FRANCIS POINT AREA

A large number of shell middens and stone features were situated in the small nature reserve at Cape St Francis Point (Fig. 19). No excavations were conducted here, but two middens, one with pottery and one without, were sampled for shellfish comparisons. The Point area is a high activity coast with a bench coast on the western side. Two possible fish traps were also found and may be those reported by Goodwin (1946).

CFP1 & 2

CFP1 (Fig. 19) was associated with pottery and the shellfish content was dominated by *Oxystele* spp., 66,1% [20,6], followed by *T. sarmaticus*, 17,7% [61,0%] and *P. oculus*, 12.1% [18,5%] (Table 21). The ERR was 22,7%. It is evident that the 'ceramic' group only exploited the upper balaniod zone. Several other 'ceramic' middens in the vicinity display similar patterns. Some of the 'ceramic' middens contain many large quartzite flakes.

Pottery was absent from midden CFP2 and the shellfish content was also different from the 'ceramic' midden. *P. perna*, 41,5% [52,0%], was the dominating species, followed by *Oxystele* spp., 18,4% and *T. sarmaticus*, 16,1% [35,5%] (Table 21). Although the HCF also concentrated mainly on the upper balaniod zone, they also exploited the lower. *Patella* spp. accounted for 23% of the total frequency, while in the case of the 'ceramic' midden, it only accounted for 13%. The ERR was 29,6%.

DISCUSSION

The middens sampled at Second Bush and Cape St Francis Point clearly indicate the different

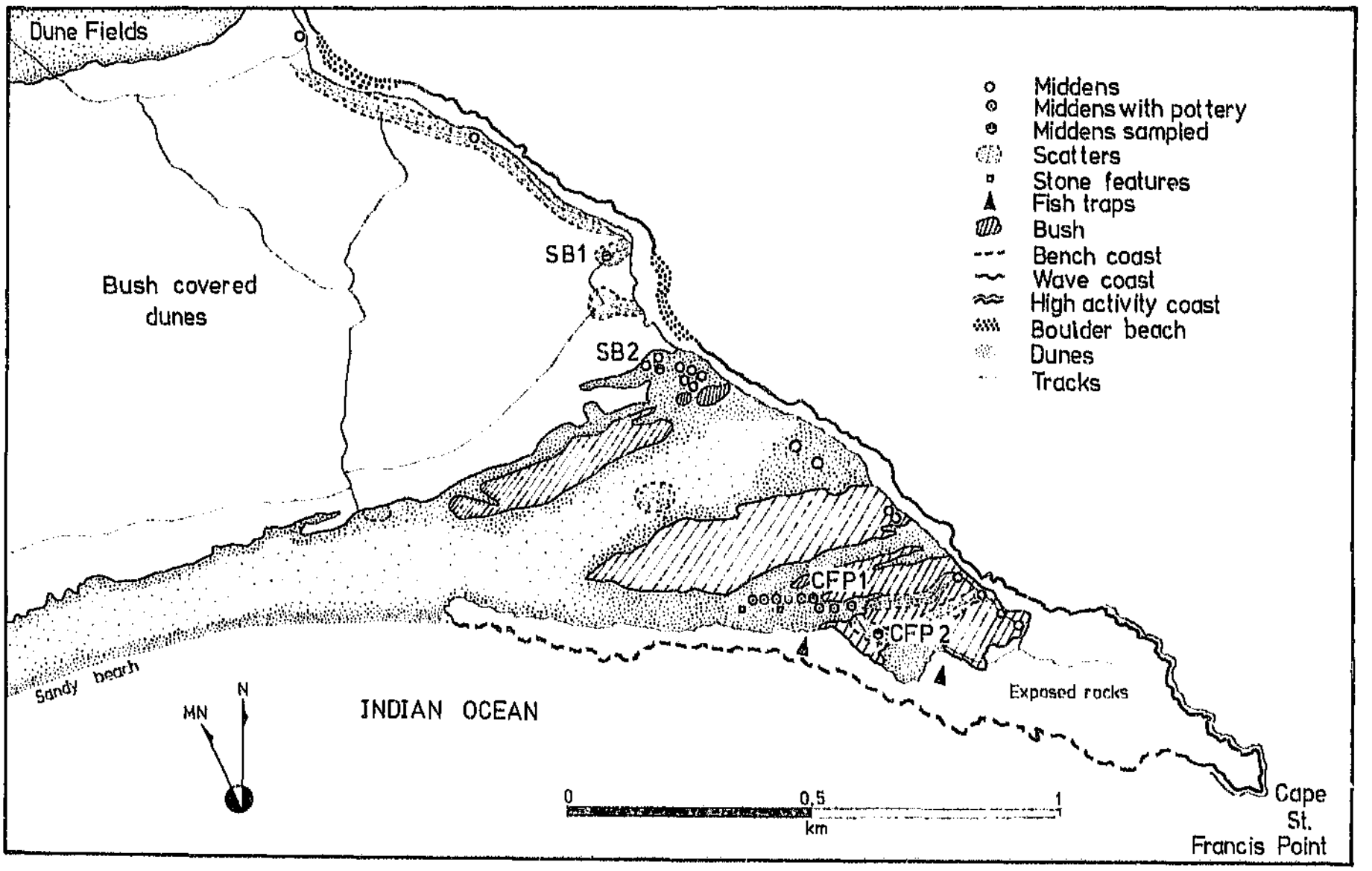


Figure 19. Detailed map of the archaeological sites and features at Second Bush and Cape St Francis Point.

SFB2/1C is important because it is the most recent date for a Wilton site along the coast. The charcoal sample submitted for radiocarbon dating was collected 0,25 m below the 'ceramic' layers from a fire place, and therefore rules out contamination. The microlithic silcrete industry which dates between 1900 BP and 4250 BP, indicates that hunter-gatherer groups, most probably from the Langkloof some 80 km due north of Cape St Francis, visited the coast occasionally. There are no known silcrete outcrops along the coast and therefore it is assumed that the silcrete was brought to the coast from the mountains where there are abundant known silcrete resources (W. Illenberger pers. comm., pers. obser.). This indicates that two different groups, the inland Wilton and coastal Kabeljous people, shared the same area and resources.

SECOND BUSH AND CAPE ST FRANCIS POINT AREAS

SECOND BUSH AREA

The Second Bush middens were situated between the Dune Field area and Cape St Francis Point and located at a large boulder beach (Fig. 19). Many middens were exposed in tracks crossing through former dune fields now covered by dense dune vegetation. The 'ceramic' middens in these two areas did not yield any remains of domesticated animals. Two surface samples were taken in this area (SB1 & 2). SB1 was situated on the northern side of a boulder coast (SFB area side), and SB2 on the southern side of the same boulder coast (Cape St Francis Point side) (Fig. 19). The samples were taken to illustrate the different collecting strategies between 'ceramic' groups and HCF in the same habitat.

SB1 & 2

SB1 was eroded from a road cutting on the northern side of the boulder beach and was dominated by species from the lower balaniod zone. *P. cochlear*, 27,4% [20,3%] was the most important species, followed by *Oxystele* spp., 14,6% and *P. tabularis*, 9,9% [17,8%]. However, *H. midae* (0,5%, [23,4%]) and *H. spadicea* (5,2%, [23,5%) contributed the highest meat mass (Table 21). The ERR was 32,3%.

The shellfish remains from all three complexes indicate that the collectors visited different coastal habitats on a regular basis. Collectors would have had to travel a minimum distance of 10 km each time they visited the Kromme River Mouth or the nearest rocky shore. It is also possible that they collected from all three habitats on each trip. A round trip would have been some 14 km, starting either at the river mouth or at the rocky shore. If they started at the river mouth, where they collected *S. capensis*, they would have had to travel another 4 km along the sandy beach to the nearest rocky outcrops. Along the sandy beach they would have collected *D. serra* and at the rocky shore mostly *P. perna* (as in the case of C1/M1). Virtually no *D. serra* was present at the other two areas. The high frequency of *P. cochlear* at C2/M2, indicates that the trips to the coast, or at least those to the rocky shore, were undertaken during spring tide low. The pastoralists at C3/M4 concentrated only on two species, *S. capensis* and *P. perna* and did not collect *Oxystele* spp. as the 'ceramic' groups did.

The remains of 117 sheep and nine *Bos taurus* recovered from complex 3 (mainly surface collections) place this area among the richest Stone Age pastoralist sites in southern Africa. Sixty one of the individuals were adults based on a tooth wear studies (J. Brink pers. comm.). This pattern is different from that found at other pastoralist sites in southern Africa. At Boomplaas Cave (Von den Driesch & Deacon 1985), Kasteelberg and Die Kelders (Klein 1986) most of the remains are those of young to very young animals. The sheep remains from complex 3 represent animals which were necessary to ensure flock viability. The reason for the slaughter of reproductively active adults is not known as yet, but it may be related to social practices. Apart from herding domesticated animals, the pastoralist also hunted a high number of terrestrial animals (Table 20).

The oldest date for the presence of pottery (1770 $\pm$ 50 BP) along the south-eastern Cape coast comes from SFB1/1 Layer 4. No domestic fauna were associated with this midden. The remains of one *Bos taurus* was recovered from SFB2/1, but this is not regarded to be a true pastoralist site. Only one Kabeljous site is dated (2890 BP) in the dune area. The date of 1900 $\pm$ 50 BP from

and *Oxystele* spp. The Kabeljous layer at SFB1/1 on the other hand, has an ERR of 45,5% which is notably higher than the 'ceramic' layers. This indicates clearly that the collecting strategy of the Kabeljous group was far more economical than that of the 'ceramic' groups for the same habitat. A similar pattern is visible in the SFB2 area. The ERR's for the 'ceramic' midden (SFB2/1 L1 & 2) (24,6% & 28,1%) are lower than that of the Kabeljous (SFB2/1B & SFB2/3) (35,4% & 35,8%) and Wilton middens (SFB2/1 L3 & SFB2/2) (35,5% & 31,1%) (Table 16). The same pattern is also visible at the Dune Field area. The 'ceramic' midden (SFB10A) has a ERR of 24,8% which is notably lower than that of the Kabeljous and Wilton middens which have ERR's higher than 30%.

The data collected from the Goedgeloof middens indicate that the distance from the coast played an important role in the choice of shellfish. The remains indicate that collecting trips were undertaken mainly during new and full moon phases to take maximum advantage of the low tide. *S. capensis* was the most important species collected by both the HCF and pastoralist groups. When the total collected shellfish weight, the edible meat mass and transport distance are taken into account, it is evident (Table 18) that the groups that lived far from the coast (5 km) were far more economical in their selection of shellfish species than those groups that lived along the immediate coast. Pastoralists (C3/M4) practised the most economic shellfish collecting strategy with 62,3 % of the total weight being edible. The Kabeljous groups, although notably lower than the pastoralists, also collected and transported a relatively high edible shellfish meat mass percentage. At C1/M1 (edible meat mass of 51,3%) a lower percentage of *S. capensis* was collected and a higher percentage of *P. perna* and *D. serra*. The latter two species were responsible for the lower percentage of edible meat mass per total weight. An even lower percentage of *S. capensis* was collected at C2/M4 (edible meat mass of 39,5%), but a higher *P. perna* percentage. *D. serra* is virtually absent and a higher percentage of *T. sarmaticus* was collected instead, which is responsible for the substantial lower edible meat mass per total weight.

(16,7% [12,0%]) (Table 18). The ERR of 62,3% was the highest recorded for the research area. The midden has been radiocarbon dated to 1270 ± 50 (Pta-4616) BP.

DISCUSSION

Several interesting aspects emerge from this area. There are subtle differences visible in the collecting strategies of the 'ceramic' groups, hunter-gatherer (Wilton groups) and hunter-collector-fishers (Kabeljous groups). However, these differences are not always consistent for the different groups. For example, SFB1/1 layer 5 (HCF occupation) (Table 13) yielded a high frequency of *Patella* spp., but none of the other HCF or HG middens in the SFB2 Area show a similar pattern (Table 14). On the other hand, none of the 'ceramic' middens show this pattern either, but the SFB2 area middens yielded high frequencies of *Oxystele* spp., while the SFB1/1 midden showed an opposite pattern. In general HG and HCF middens yielded low frequencies of *Oxystele* spp., with the HG middens the only sites which yielded relatively high numbers of *D. serra*. The species from the different types of middens in the Dune Field area show similar patterns to those in the adjacent SFB2 Area (Table 16). The 'ceramic' midden (SFB10A) yielded similar *Patella* spp. frequencies to the HCF (SFB8) and HG (SFB10B) middens, while the latter two middens show a similar pattern in the *Oxystele* spp. collected in the 'ceramic' midden. Although *D. serra* was present at SFB4, 6, 8 and 9, it did not contribute much to the meat mass, but indicates that HCF also exploited the sandy beaches. The same may be true for *Solen capensis* found in the deposits, which are only to be found at the Kromme River estuary some 5 km away.

Percentage frequencies and meat mass frequencies can be misleading and do not always expose the important differences between shellfish collecting strategies. Economic return ratio's (ERR's) on the other hand provide more reliable information because they can be used as a tool to compare collecting strategies between different middens in the same habitat. The ERR's from the 'ceramic' layers at SFB1/1 (Table 13) are the highest recorded for these middens in the research area and range between 32,8% and 37,6%. The reason is that 'ceramic groups' collected mainly *P. perna*

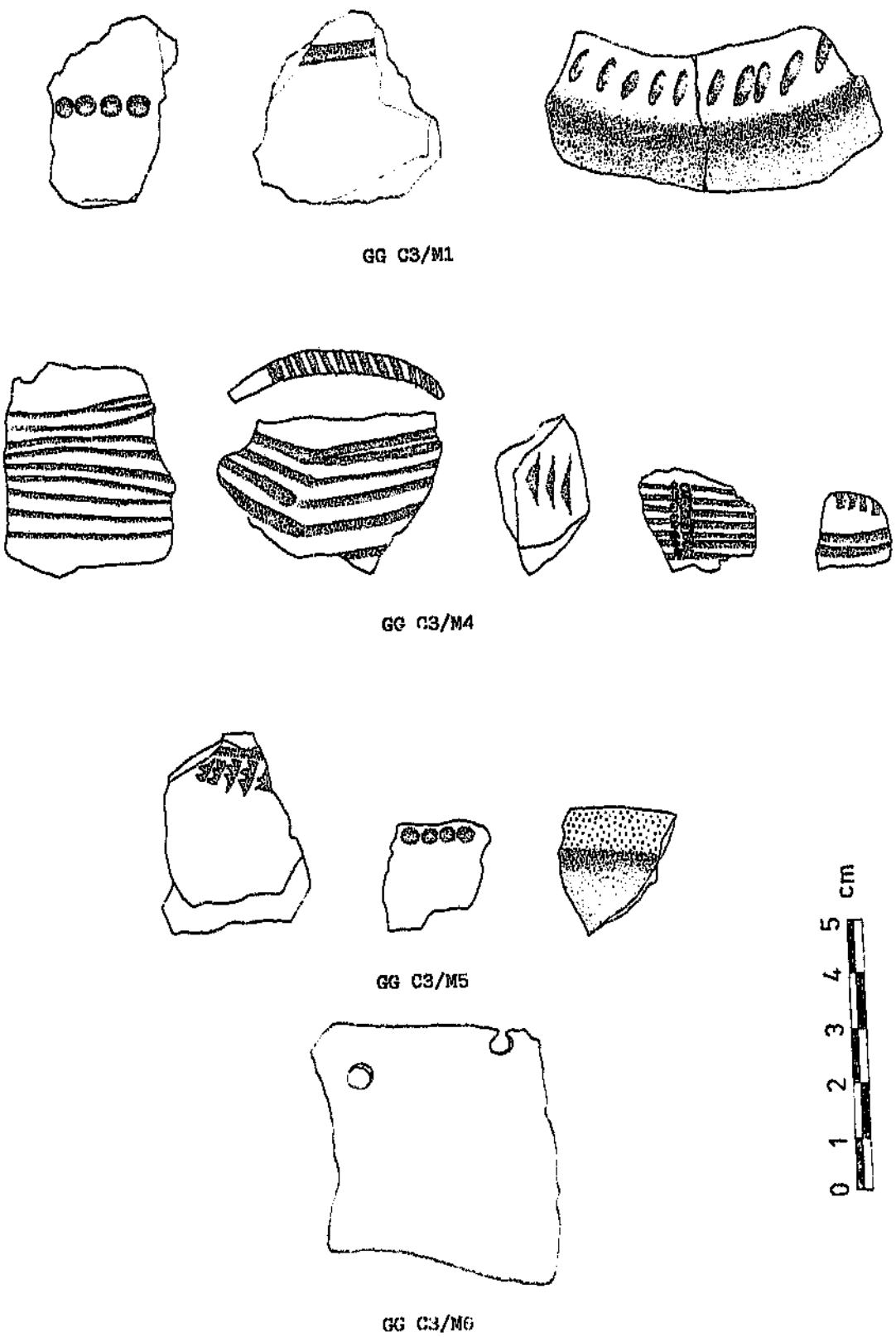


Figure 18. Decorated pottery from Goedgeloof Complex 3.

caused this midden to break-up in large blocks. A skeleton found in such a block has been radiocarbon dated to 2890 ± 60 BP (Pta-4066). The midden yielded a Kabeljous quartzite Industry with large segments and bored stones. A shell sample taken from this midden was dominated by *Solen capensis* (42,8% [62,7%]), followed by *P. perna* (20,7%, [17,5%]) and *D. serra* (13,6% [15,0%]) (Table 18). The ERR of 51,3% was the highest recorded for any Kabeljous midden in the research area.

The nearest source of *S. capensis* is at the Kromme River Mouth. *S. capensis* prefers clean sands of estuaries or lagoons where it burrows down to one metre deep near the low spring tide zone. The populations in the Kromme estuary are one of the largest in the eastern Cape (Heydorn & Morant 1988:61).

COMPLEX 2

Several large middens similar to those at complex 1 were present in this area. All the middens yielded a Kabeljous quartzite Industry with large segments (Table 19).

C2/M4

The shell sample taken from this midden was also dominated by *S. capensis* (32,2% [52,7%]), followed by *P. cochlear* (22,0% [8,8%]) and *P. perna* (21,3% [20,6%]). *D. serra* was of little importance to the diet (Table 18). The ERR was 39,5%

COMPLEX 3

This area comprised mainly pastoralist sites. Large numbers of sheep remains and pottery (Fig. 18) were collected from a cluster of middens (Table 20 & 17). The area yielded remains of 117 sheep and nine *Bos taurus*. Several cooking platforms were also found between the middens.

C3/M4

This midden was some 70 metres long and 20 metres wide. A small sample was taken to establish the shellfish content. *S. capensis* (72,7% [88,0%]) was the dominant species, followed by *P. perna*

of *Patella* spp. No other 'ceramic' midden had more than 6%. The ERR of 24,8% is similar to other 'ceramic middens in the area and lower than that of the HG and HCF middens.

SFB10B yielded silcrete microlithic stone tools, again lacking segments (Table 11). A burial dating to 5180 ± 65 (Pta-1089) BP was found in the vicinity of this midden (De Villiers 1974; Thackeray & Feast 1974). A shell sample from SFB10B has been radiocarbon dated to 3640 ± 60 BP (Pta-5055) (true date).

The dominant species collected was *Patella* spp., 35%, of which only *P. tabularis*, 13,6% [29,7%] made a significant meat mass contribution. *P. cochlear*, 12,2%, accounted for only 3% of the meat mass. *P. perna*, 26,2% [13,8%] accounted for the single highest frequency. *Oxystele* spp., 12,0%, was also well represented, but its meat mass contribution [1%] was negligible. *Haliotis midae* which only accounted for 7,8% of the frequency collected, contributed the highest meat mass [48,7%] (Table 16). The ERR was 34,9%.

GOEDGELOOF AREA

Approximately five kilometres from the St Francis Bay coast a large number of sites occur dating from the Late Pleistocene to recent pastoralist/'ceramic' occupation. The archaeological features were located in three clusters separated by huge dunes which move slowly eastward (Fig. 3 & 4). The archaeological features were situated on old hard windswept deflation surfaces.

COMPLEX 1

This was a large windswept area with numerous archaeological features of different ages. Large areas with Middle Stone Age tools are regularly uncovered. Among these were several round caches of flaked stone. Other features included shell middens and round stone structures, probably of pastoralist 'ceramic' origin.

C1/M1

This midden as well as others in the vicinity was all hard and consolidated. Wind erosion had

sampled to establish the shellfish content. *P. perna* was the dominating species with 44,5% [65,8%] and 49,5% [614,7%] respectively (Table 16). *Oxystele* spp., 16,3% [4,1%] and 20,4% [4%] accounted for the second highest frequency, but the meat mass contribution was minimal. *T. sarmaticus*, which only accounted for 7,6% [26,0%] and 6,1% [23,5%] of the frequencies, contributed the second highest meat mass. Although *D. serra* was present at SFB4, 6, 8 and 9, it did not contribute much to the meat mass, but again indicated that HCF also exploited the sandy beaches. *D. serra* may have been collected opportunistically when the beach was searched for wash-ups such as fish, marine birds, seals etc. The same may be true for *Solen capensis* found in the deposits, which are only to be found at the Kromme River estuary some 5 km away. Pottery was absent from these middens. Only a few quartzite flakes were found at both middens (Table 11). The ERR's for SFB4 was 30,7% and for SFB6 34,2%.

SFB8 & 9

Both middens were dominated by *P. perna* (37,0% [50,9%%]) and *P. cochlear* (32,4% [18,2%]) (Table 16). *P. tabularis* (4% [1[illegible]2%]) also made a useful contribution to the meat mass. *Oxystele* spp. only contributed 1% of the total frequency. The shellfish species collected at these two middens illustrates that HCF ignored the small species such as *Oxystele* spp. in favour of species with a higher meat mass. The ERR was 31,3%

The stone tools recovered from the surface of these middens consisted of a typical quartzite Kabeljous industry, including flakes, cores, grindstones, rubbers and hammerstones (Table 11).

SFB10A & B

This was a large midden of some 40 m in length on top of a high dune ridge and consisted of two middens. SFB10A yielded pottery (Table 17). *P. perna* (52,2% [60,6%]), *Oxystele* spp. (18,5% [9,4%]) and *P. cochlear* (14,8% [10,8%]) were the most important species (Table 18). Although *T. sarmaticus* only accounted for 7,8% of the total frequency, it contributed the second highest meat mass [19,2%]. This was the only 'ceramic' midden which displayed such a high percentage

deposit remained. A large number of silcrete microlithic stone tools were collected from both the surface and a small excavation (Table 11). All the elements from the inland Wilton Industry were present except for segments. Several *D. serra* pendants were also recovered (Table 12). A shell sample from this site has been radiocarbon dated to 4250 ± 70 BP (Pta-5042) (true date). *P. perna* (60,2% [59,4%]) and *D. serra* (15,1% [22,0%]) were the most abundant species (Table 14). It is evident that HCF also exploited the nearby sandy beach and ignored *Oxystele* spp. (4,6% [1%]). The ERR was 31,1%.

SFB2/5

This small midden covered approximately fifteen square metres and was 0,20 m thick. Rough, large surface quartzite (coarse grained silcrete) stone tools which were probably from hunter-gatherer origin were recovered (Table 11). *P. perna* (70,3% [84,0%]) and *Oxystele* spp. (16,5% [3,7%]) were the dominant species (Table 14). *Haliotis spadicea* accounted for only 2,4% of the percentage frequency, but provided the second highest meat mass [9,0%]. The ERR was 35,8%.

SFB3

A large number of silcrete stone tools were collected from the surface of this eroded midden. All the microlithic elements of the Wilton Industry were present except for segments (Table 11).

DUNE FIELD AREA

The middens in the Dune Field area were located opposite a wave coast flanked by two small boulder beaches (Fig. 10). *P. perna* is not abundant along this part of the coast and only increases in number near Cape St Francis Point. It is assumed that collecting of this species took place in the SFB2 Area some 0,5 km away. This area has also been subject to large scale development since 1984.

SFB4 & 6

Both these middens were badly damaged by illegal digging and off road vehicles. They were

often travelled between two to three kilometres from their campsites to the nearest sandy beach to collect *D. serra*.

As mentioned earlier, pastoralist sites reflect a collecting strategy similar to that of the HG and HCF. It is clear from the large number of sheep, presence of cattle (and other resources such as milk) and terrestrial faunal remains present at Goedgeloof that they had no 'shortage' of food. In addition to these resources they probably also built and maintained fish traps. Thus although shellfish were only supplementary to the diet, pastoralists still collected species with high meat mass per individual. The pastoralist middens in the Goedgeloof area also display the highest ERR recorded for the research area. The fact that HG, HCF and pastoralists collected shellfish only at specific periods (spring and neap tide low) when the larger species were available, may indicate that these groups were less dependent on shellfish than the 'ceramic' groups. Shellfish were collected to add variety to the diet, but at the same time the variety had to be supplied to provide large numbers of people. In the case of HG and HCF, shellfish were most probably collected during periods of aggregation. Pastoralists, it is presumed, always lived in relatively large groups. 'Ceramic' groups most probably consisted of smaller numbers of people and they collected shellfish more regularly than the other groups, and therefore collected whatever species were available irrespective of size and species.

Alternatively, it can be argued that pastoralist, HG and HGF have been more dependent on shellfish than 'ceramic' groups. In order to be able to stay in large groups for extended periods, for example during periods of aggregation, groups had to rely on large species as supplement to their diet. *P. perna* and *D. serra* were collected because these species provided the most substantial and profitable return of species available for exploitation. Only those species which were 'socially' to their advantage were collected; in other words, those which made it possible for groups to aggregate. The small species collected by the 'ceramic' groups may indicate that shellfish played a minor role in their diet and were only collected to provide variety. Whatever the case may be,

a similar shellfish collecting strategy. In general they collected those species with the highest meat mass available, and/or those which were abundant, providing they had a relatively high meat mass per species. This pattern is also observed among contemporary shellfish collectors (Bigalke 1973; Meehan 1982). These groups also collected extensively from the lower balanoid zone where the larger shellfish species are to be found, although these species do not necessarily provide the highest ERR's. In general this strategy was practised at all the different habitats. Although not clearly evident in all the middens investigated, it would appear that HG, HCF and pastoralists collected shellfish mainly during the new moon and full moon phases. The distance between campsite and collecting place also played an important role in the species collected. In the cases where the campsites were far from the coast, for example the Goedgeloof sites, small numbers of small species were brought back. Only those with relatively high meat mass were brought back to the campsites in quantity. The collecting strategies at the Goedgeloof sites are of particular interest because it would appear that these groups collected mainly those species which provided them with the highest ERR's, such as *S. capensis*, *D. serra* and *P. perna*. They also exploited three different habitats.

The 'ceramic' middens, on the other hand (predominantly those without domesticated fauna), reflect a different collecting strategy. Groups that occupied these sites collected mainly abundant small, easy to collect species with a low meat mass per individual from the upper balanoid zone. In general they practised this strategy at all the different habitats. This collecting strategy was less economical than that of the other groups as is illustrated by the ERR's. This strategy may indicate that 'ceramic people' collected shellfish regularly irrespective of the tide cycle, species or size, which suggests that they in general were more dependant on shellfish than the other groups. It may be argued that the pastoralists/'ceramic groups' had containers in which they could boil large quantities of *Oxystele* spp. However, there is no historical or ethnographic evidence that shellfish were boiled in pots. Pots were used mainly to boil fat (L. Webley, pers. comm.). 'Ceramic' groups also collected in the immediate area of their campsites. HG, HCF and pastoralists seemed to have

occupied by large groups for extended periods of time. It is interesting that this area was also used by E rly and Middle Stone Age people.

Similar to all the other 'ceramic' middens, FTS was also dominated by *Oxystele* spp. and therefore has a low ERR of only 23,4% (Table 25). However, one of the Kabeljous middens at White Point (WP1) (Fig. 22), dominated by *Patella* spp, has only a marginally higher ERR of 25,1%. Similar results were obtained from another Kabeljous midden sampled at Thyspunt (TP) which has a ERR of 32,1%. The reason being, as pointed out earlier, that although *Patella* spp. are relatively large the ERR was lower than mussels, but on the other hand higher than *Oxystele* spp. This is well illustrated by midden WP2 where *D. serra* were collected which increased the ERR to 30,1% (Table 25). The interesting point at this Kabeljous midden is that *Oxystele* spp. account for the highest frequency collected. This is the only Kabeljous/Wilton open-air midden found where *Oxystele* spp. were collected in such a high percentage frequency (39,3%). However, the other middens in the same area contained virtually no *D. serra*. In general, the Tony's Bay sites displayed similar patterns as observed elsewhere for shellfish collecting between 'ceramic' and HG/HCF groups.

DISCUSSION OF THE OPEN-AIR MIDDENS

The survey of open-air shell middens along the Cape St Francis coast revealed that approximately 80% were located within 300 m of the coast. More than 95% were situated along the rocky coasts. This pattern is similar to that experienced elsewhere (Avery 1976). However, this is the type of pattern expected for this part of the coast, because the sandy beaches do not have any significant *Donax serra* populations as elsewhere along the eastern Cape coast. Large middens were also found up to 5 km from the coast which indicates that people did not depend on shellfish as a staple food and their resources did not dictate where they could stay.

The shellfish remains recovered from the different types of middens seem to follow two distinct patterns and can be explained in different ways. The HG, HCF and pastoralist middens displayed

WP2 yielded interesting information. This is the only open-air HCF midden investigated which was dominated by *Oxystele* spp. (39,3% [16,6%]) (Table 25). *P. longicosta*, 15,8% [13,4%] accounted for the second highest number. Another interesting aspect is that *D. serra*, 9,7% [35,1] was also represented at the midden, which suggests that the collectors had to travel at least 3 km to either Thysbaai or Slangbaai to collect them. The ERR was 30,3%.

FTS

This midden was situated at a boulder beach which also housed a large fish trap. The midden yielded pottery, a few quartzite flakes (Table 17 & 19) and a large quantity of fish remains. The sample taken from this midden was totally dominated by *Oxystele* spp. (65,9% [17,6%]). Three other species were also important as far as the meat mass was concerned, namely, *T. sarmaticus* (8,7% [40,9%]), *P. oculus* (9,5% [23,3%]) and *P. perna* (7,6% [18,2%]) (Table 25). The ERR was 23,4%

TP1

This midden was situated at Thyspunt near a bench coast and a small fish trap. A sample was taken to contrast a hunter-gatherer midden near a bench coast with that of FTS. As expected, *Patella* spp. dominated the sample, with *P. longicosta*, 21,6% [11,6%], accounting for the highest frequency, followed by *T. sarmaticus*, 16,8% [40,0%], *P. oculus*, 13,8% [12,1%], *P. cochlear*, 9,9% and *P. argenvillei*, 9,1% [16,0%]. *Oxystele* spp. only comprised 10,8% (Table 25). The ERR was 32,1%.

DISCUSSION

The shellfish remains confirmed the different collecting strategies between HCF and 'ceramic' groups. The HG and HCF middens were dominated by *Patella* spp. and the 'ceramic' middens by *Oxystele* spp. Samples from large Wilton (TBW2) and Kabeljous (TBK2) middens provided ERR's of 28,2% and 27,8% respectively, which are higher than the 'ceramic' midden which has a ERR of 22,7% (TBH3) (Table 24). The enormous middens in this region may indicate that this area was

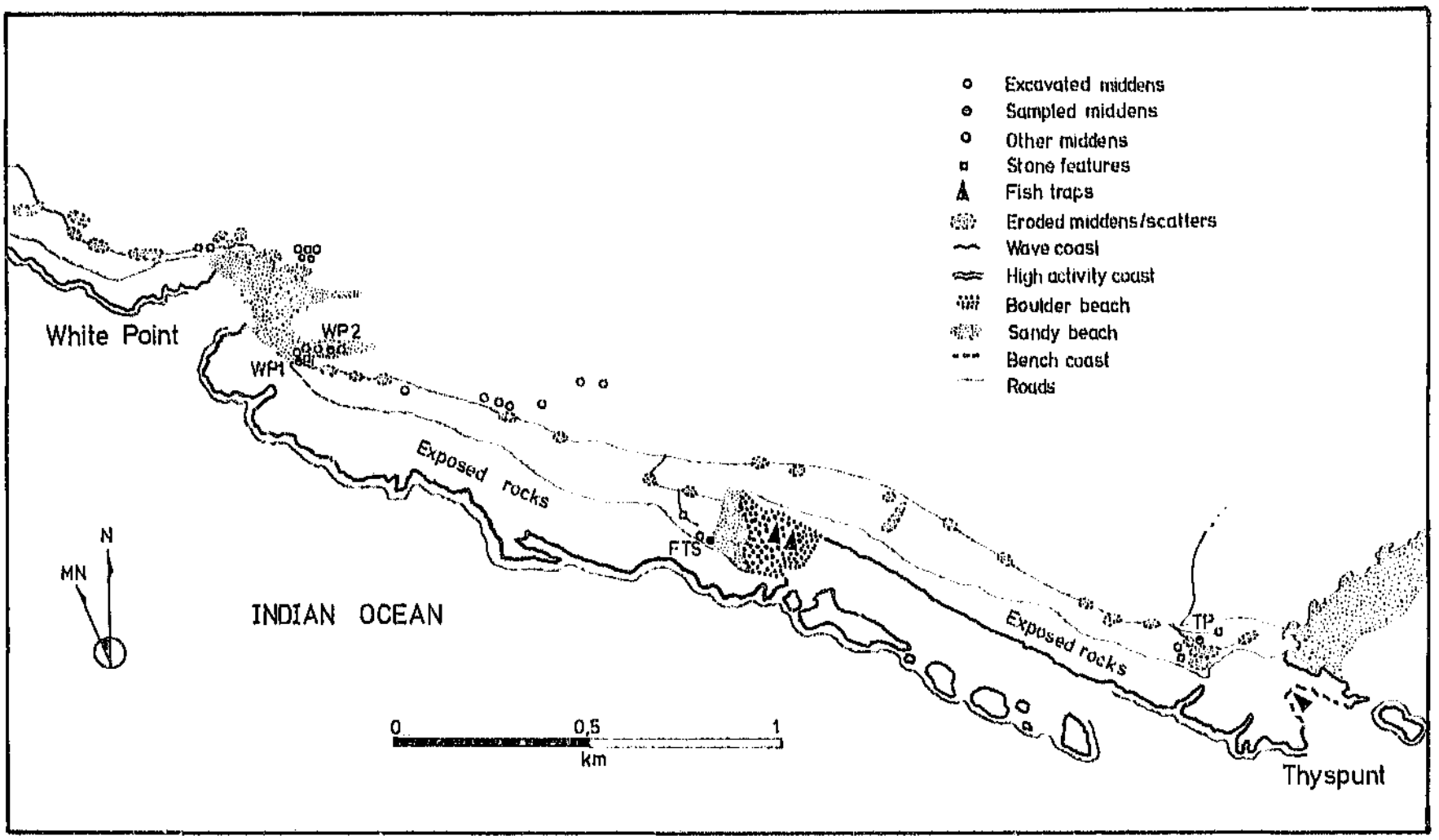


Figure 22. Detailed map of the archaeological sites and features at Tony's Bay and Thyspunt.

TBH3

This midden was one of a few 'ceramic' middens situated among HCF middens. The shellfish sample again illustrates the differences between 'ceramic' groups and HCF collecting strategies. *Oxystele* spp., 48,4% [13,8%] and *T. sarmaticus*, 29,8% [75,8%] were the two most important species (Table 24). Neither of these two species were collected in any great numbers at any of the HCF middens. The ERR was 22,7%.

TONY'S BAY AREA

The coastline between Oyster Bay and Thysbaai was rich in shell middens (Fig. 22). The dune field adjacent to Tony's Bay contained a large number of Middle Stone Age sites with well preserved bone. Most of the sites were situated on old deflation surfaces, calcretes and fossilised dunes. A complete survey of the visible archaeological features along the coast was conducted.

The middens along the coast were mainly visible in road cuttings, except for a large accumulation at White Point. A few middens were sampled to establish the shellfish content of the different types of middens. The middens associated with stone features did not contain pottery as did those at De Hoek. Middens were also sampled between White Point and Thyspunt. Two fish traps are present along this part of the coast, a small one at Thyspunt and a large one between Thyspunt and White Point. A small midden (FTS) which contained abundant fish remains and pottery was sampled at the large fish trap.

WP1 & 2

A large concentration of middens associated with stone features were situated at White Point, near a small sandy beach flanked by high activity wave beaches (Fig. 22). Two HCF middens were sampled here, one associated with a stone feature (WP1) and one which displayed an interesting content of shellfish remains (WP2). The shellfish sample from WP1 consisted mainly of *P. longicosta*, 28,2% [37,1%], followed by *P. perna*, 16,5% [25,5%] and *P. cochlear*, 14,6% (Table 25). The ERR was 25,1%.

adjacent to the coast (Fig. 21). This dune system, now separated by vegetation, was once part of the main bypass system that stretches between Oyster Bay and St Francis Bay. On the eastern side of the sandy beach were a large number of shell middens, Middle Stone Age and Earlier Stone Age sites. A very dense mixed M.S.A. and E.S.A. site stretches along the crest of a fossilised dune over a distance of a kilometre. Three types of middens occurred in the dunes, namely, those with pottery, those with a Kabeljous Industry and those with a microlithic silcrete Wilton Industry. The middens sampled were between one and 1,5 km from a high energy coast.

TBW1

Only a surface collection of silcrete stone tools was made from this badly eroded midden. The collection revealed a high number of cores, while segments were absent (Table 19).

TBW2

This was a large midden measuring approximately 65 x 15 m. The midden was situated on top of a high fossilised dune some 1,5 km from the coast. The midden carried a vast number of microlithic silcrete stone tools (Table 19). A sample of the shellfish was taken and a 15 minute surface collection of stone tools was also carried out. The assemblage also lacked segments, but yielded a large number of cores. A shell sample has been radiocarbon dated to 3760 $\pm$ 60 BP (Pta-5050) (true date). The sample was dominated by *P. cochlear*, 37,5% [22,3%] and *P. argenvillei*, 26,3% [27,2%] (Table 24). The ERR was 28,2%.

TBK2

This midden was part of a complex of middens stretching over a distance of some three hundred metres, and was situated about one kilometre from the coast. Apart from a few 'ceramic' middens, all revealed a Kabeljous Industry. The shellfish sample was dominated by *P. cochlear*, 49,1% [55,6%], *P. perna*, 11,4% [25,2%] and *T. sarmaticus* 5,1% [19,2%] (Table 24).The ERR was 27,8%

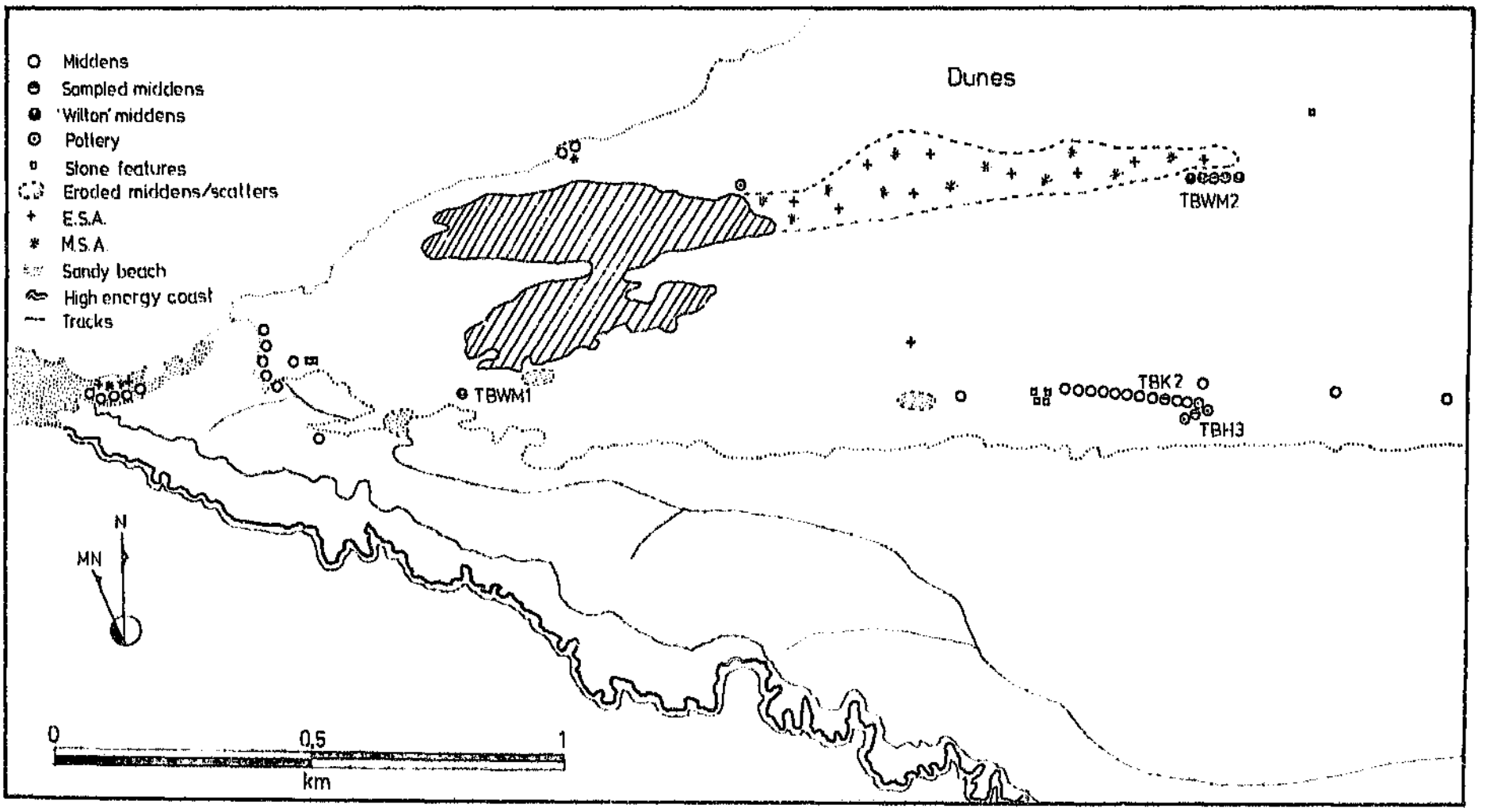


Figure 21. Detailed map of the archaeological sites and features at Thysbaai and adjacent dunes.

pottery middens to establish the shellfish content. The midden consisted mainly of *Oxystele* spp. (82,6% [45,0%]) and *Turbo sarmaticus* (7,7% [32,0%]) (Table 22). The ERR was 25,7%.

DH/SS6

This was a large stone feature eroding from a dune. A small excavation was carried out to investigate the feature. Little shellfish, mainly *Oxystele* spp., 80,7 [34,7%]% and *T. sarmaticus*, 11,5% [53,0%], were recovered (Table 22). The ERR was 21,9%. Large quantities of charcoal were found between and underneath the fire cracked stones. This stone feature was probably a large hotplate for cooking shellfish. The feature has been radiocarbon dated to 290 ± 50 BP (Pta-3908).

DISCUSSION

The ERR's of both middens at Seal Point are low (SP1, 25,2% and SP2, 28,9%) and are similar to that of 'ceramic' middens, for example, DH/M8 (25,7%) (Table 22). The reason being that *Patella* spp. contain a relatively low meat mass in relation to the shell size and weight. Large frequencies of *P. cochlear*, *P. longicosta* and *Oxystele* spp. are responsible for the low ERR's.

In the De Hoek area the shellfish samples from 'ceramic' and HFC middens indicated clearly that the two groups had different collecting strategies in the same habitats. 'Ceramic' groups preferred to collect easily available species from the upper balaniod zone such as *Oxystele* spp. and were generally not 'interested' in limpets or species from the lower balaniod zone. The HCF on the other hand, generally ignored small species and tended to collect from the lower balaniod zone that provided them species with higher meat mass per volume. This is evident from the ERR's (Table 22). The Kabeljous midden (DH/M6) has an ERR of 33,8% and the 'ceramic' midden (DH/M8) and stone feature (DH/SS6) 25,7% and 21,9% respectively.

THYSBAAI AND TONY'S BAY AREAS

THYSBAAI

A large number of archaeological features were present east of Thysbaai and in the dune system

DH1 & 2

Two samples were taken from HCF middens adjacent to a high activity coast (Fig. 20). Both were dominated by *Patella* spp., mainly *P. cochlear* (55,8% and 44,3% respectively) (Table 23). *P. perna*, 16,5% and *P. argenvillei*, 15,6%, were also collected in fair numbers at DH1. At DH2 however, *Oxystele* spp., 16,5% and *T. sarmaticus*, 13,7% account for the next highest species. This midden was close to a boulder coast, and this may be the reason for the high frequencies of *Oxystele* spp. and *T. sarmaticus*.

DH3 & 4

Both these middens were of 'ceramic' origin, situated near a boulder coast. *Oxystele* spp. (74,9% and 53,8% respectively) were the most important species (Table 23). *Patella* spp. and other shellfish species were only present in low frequencies.

DH5

This HCF midden was situated next to DH3 and 4 ('ceramic' middens), but displayed a different collecting strategy. The main shellfish species were *P. cochlear*, 26,8% and *T. sarmaticus*, 20,5% (Table 23). Other species from the lower balaniod zone such as *P. tabularis*, 10,0% and *P. longicosta*, 10,5%, were also present. *Oxystele* spp., 5,3%, were largely ignored.

DH/M6

A small excavation was conducted at this badly damaged HCF midden. The midden was situated near a boulder and bench coast. The two most important species were *P. perna* (43,1% [54,1%]) and *P. cochlear* (2,9% [12,3%]) (Table 22). *Oxystele* spp. only comprised 12,3% [3%] of the total frequency. The ERR was 33,8%.

DH/M8

Half a kilometre west of DHS2 a large concentration of middens and stone features associated with pottery were situated opposite a bench coast. A small excavation was conducted at one of the

SP1 and 2

The two excavated middens were situated on the northern side of the boulder beach (Fig. 20). Both middens comprised mainly *Patella* spp. (Table 22). In the case of SP1, *P. longicosta* (23,1% [17,6%]), *P. cochlear* (14,7% [10,4%]) and *P. oculus* (11,3% [19,8%]) represented the important species. *Oxystele* spp. accounted for 29,3% [11,1%] and *P. perna* only 4,3% [10,1%]. *T. sarmaticus*, although it only accounted for 8,4% of the total frequency, contributed the highest meat mass [25,6%].

P. cochlear (30,2% [23,3%]) was the dominating species at SP2, followed by *Oxystele* spp. (26,7% [12,3%]). *P. perna* (8,8% [15,5%]) and *P. argenvillei* (7,7% [14,9%]) were the other main contributors to the total meat mass (Table 22). Pottery was absent from both middens. The ERR's (25,2% & 28,9%) for both middens were low and fall within the 'ceramic' range.

SPB

The shellfish sample taken from this midden, exposed in a road cutting directly opposite the boulder coast, was dominated by *P. tabularis*, 26,7%, followed by *P. cochlear*, 15,2% (Table 23). This midden is an excellent example of HCF collecting strategies. They ignored the small *Oxystele* spp. 3,8%, and collected the larger species from the lower balaniod zone. Other high meat mass species included *P. argenvillei*, 7,6%, *Haliotis* spp., 4,8% and *T. sarmaticus*, 10,5%.

DE HOEK

A complete survey of all visible archaeological sites was carried out in this area (Fig. 20). A large number of sites occurred along three kilometres of coast, most only visible in road cuttings. Several middens were sampled to contrast shellfish content between 'ceramic' and HCF middens (Tables 22 & 23). Some three kilometres west of Seal Point was a large concentration of middens and stone features. Three small excavations were conducted there.

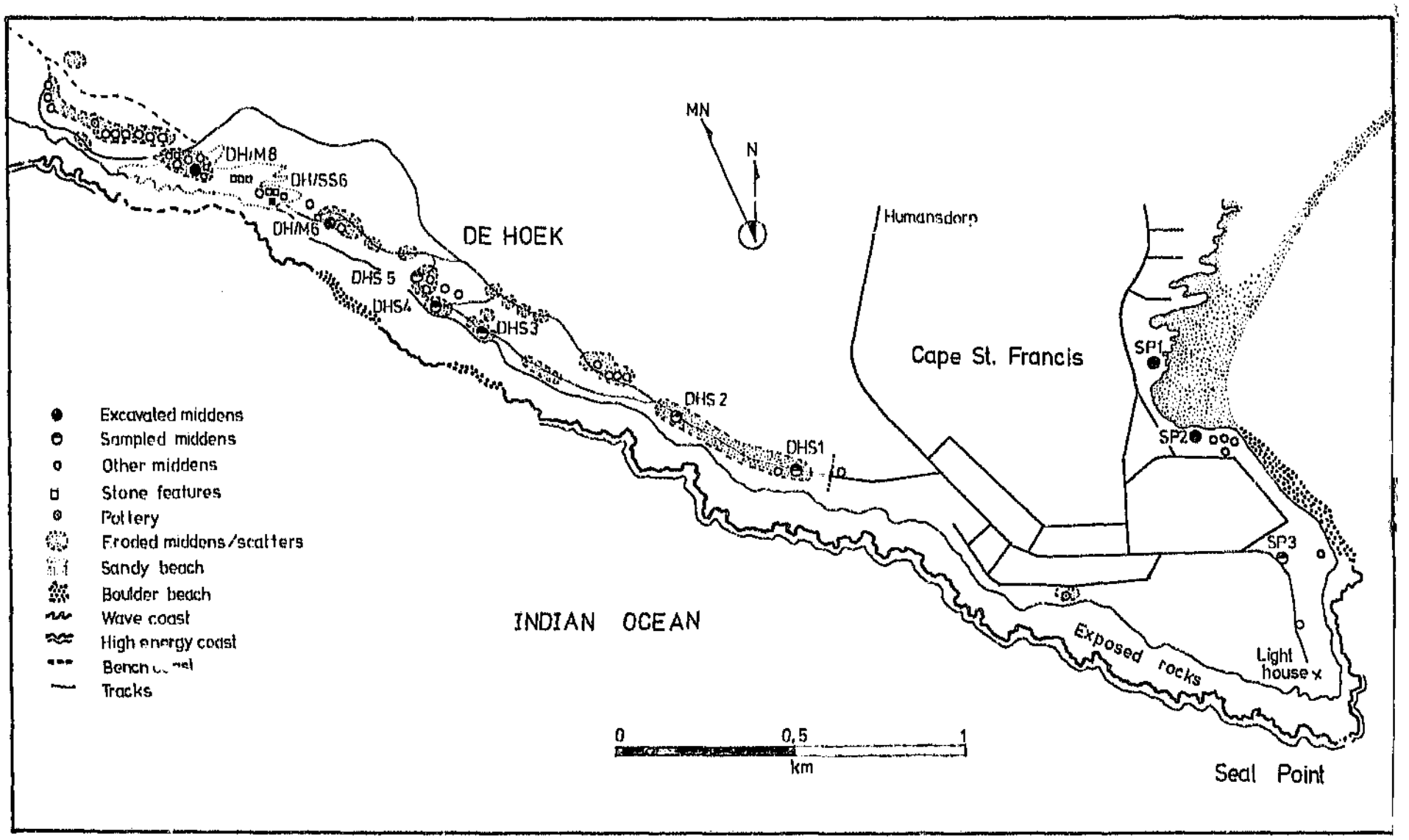


Figure 20. Detailed map of the archaeological sites and features at Seal Point and De Hoek.

CFC). The difference in the mean edible shellfish meat mass per volume for the two industries is 1,3% (Wilton 38,2% and Kabeljous 36,9%). This indicates that the Wilton groups collected and transported slightly less shell weight back to the shelter.

What ever the reason for the low frequencies of species from the lower balanoid zone, in general those species which were abundant and easy to collect with a relatively high meat mass per individual were collected, for example *P. perna* and *D. serra*. These two are also among the most economical species when the percentage edible meat mass *versus* total shellfish weight are considered (*P. perna* 35% and *D. serra* 42%) (Table 2). In the absence and/or scarcity of the big three (*S. capensis, H. spadicea* and *H. midae*), these two species are the logical choice. However, the presence of *P. tabularis, P. barbara, H. spadicea* and *T. sermaticus* nevertheless indicate that these relatively large species were collected when encountered irrespective of total weight and percentage meat mass return.

Marine fish

The fish bone weight per volume shows three pronounced peaks, at 4450 BP (unit GDS), 3250 BP (unit CFC) and 2150 BP (unit PSM) (Fig. 25). The mean fish bone mass per volume in the Kabeljous units (13,8 gram) is slightly higher than that of the Wilton units (9,1 gram) (Table 26).

Marine birds

The excavation yielded the remains of only 14 birds. These probably represent the occasional bird on the beach and were not important in the general diet (Table 26).

Reptile (tortoise) remains

Kabeljous River Shelter was the only site in the research area that yielded substantial quantities of tortoise remains (Table 26). Of the 91 tortoises recovered from the excavation, 75 were *Homopus areolatus* (padlopertjie) and 15 were *Chesina angulata* (rooipens). One turtle (*Pelmedusa subrufa*) was also found. Both tortoises are endemic to the eastern Cape. The numbers are too low to reach

in units OLA and CPS. In unit HWA, however, *T. sarmaticus* provided the second highest meat mass even though it only accounted for 5% of the total shellfish.

Meat mass per volume follows a similar pattern to that of mammal bone (Fig. 25). It increases dramatically from the bottom Wilton units (5750 BP) to peak at 4850 BP (unit CPS), then decreases and peaks again at 3650 BP (unit GCS), 2450 BP (unit ORA) and 1950 BP (unit DSM). The mean shellfish meat mass per volume shows an insignificant difference between the Wilton and Kabeljous Industries. Table 27 shows that a mean of 1613,7 grams of shellfish meat mass per volume entered the Kabeljous units and 1575,7 grams for the Wilton units. The difference between the two industries is only 38 grams.

The very low frequency and often total absence of species from the lower balanoid zone, for example, *P. cochlear* and *P. argenvillei*, may indicate that people did not collect shellfish at spring tides when these species are exposed and easily accessible, or that these species were simply ignored for some or other reason. As illustrated in Table 1, the large *Patella* spp., although containing relatively high meat mass per individual, is not the most economical species to collect in terms of total weight (shell and meat) *versus* meat mass return. Therefore, it may be possible that the occupants collected and transported only those shellfish species back to the shelter which provided them with the most economical return from the total weight collected. However, this is not true in the case of *T. sarmaticus* and *Oxystele* spp. On the other hand, *T. sarmaticus* contain the second highest meat mass per individual species (Table 27) and therefore would have been a logical choice if shellfish were collected on the basis of size alone. The percentage frequencies of both *T. sarmaticus* and *Oxystele* spp. are low throughout the sequence and would not have made a substantial difference to the total weight if not collected. *Oxystele* spp., on the other hand, may have been collected by children or collected in small quantities to add variety to the shellfish diet (*cf.* Meehan 1982). The ratio between total shellfish weight collected per volume and the actual edible shellfish meat mass per volume range from 33,3% (unit OLA and WGL) to 44,2% (unit

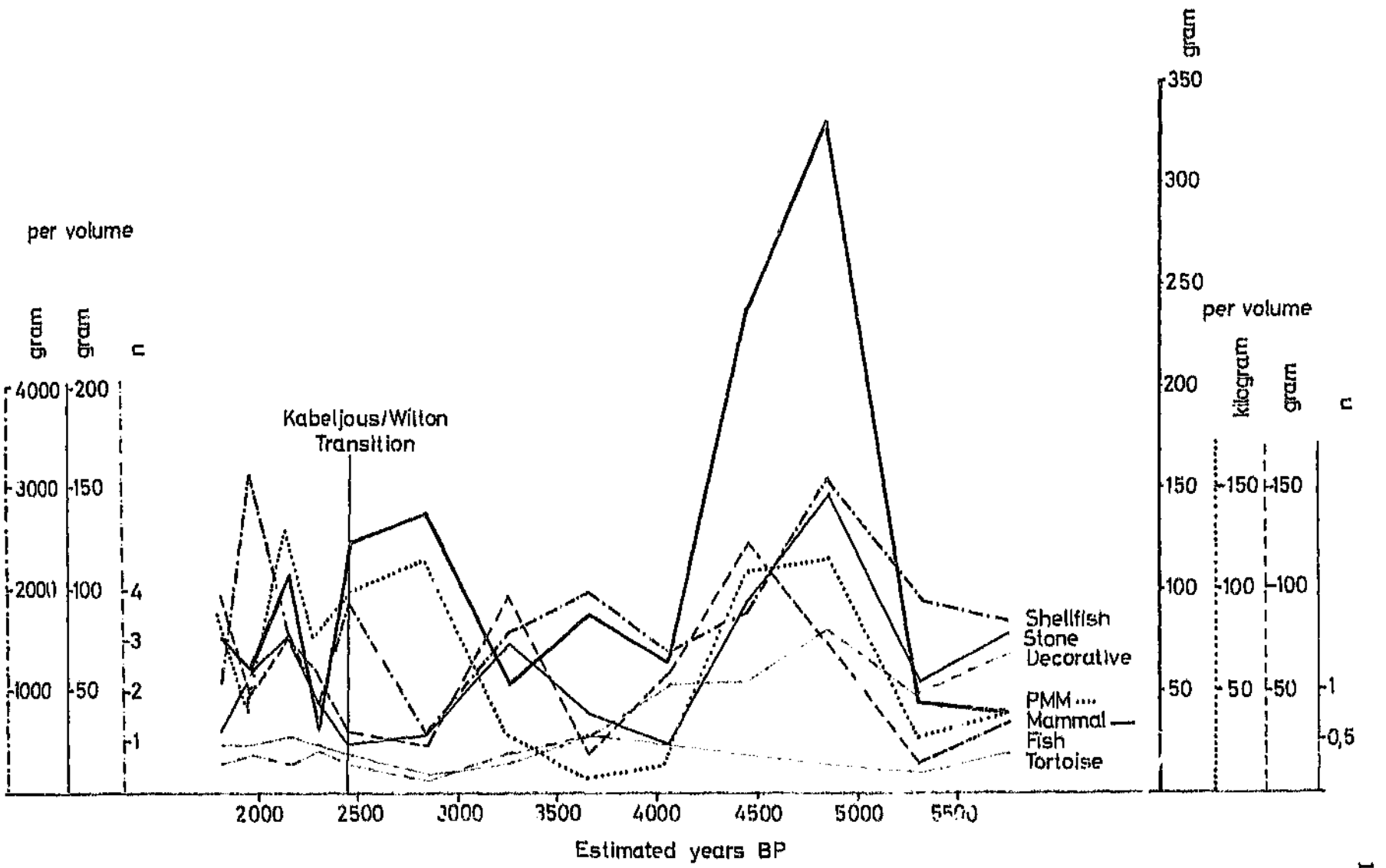


Figure 25. Food and cultural densities from Kabeljous River Shelter 1.

the Wilton units (14 424,4 grams) is more than double that of the Kabeljous units (6654,2 grams), the mean mass per volume between the two industries is small (98,1 gram for the Wilton and 87,6 gram for the Kabeljous). Mammal bone mass per volume dramatically increased from the Wilton bottom units (5750 BP) to reach a high peak between 4850 BP and 4450 BP (units CPS and GDS), whereafter it decreased equally dramatically (Fig. 25). It peaked again towards the end of the Wilton units at 2850 BP (unit CAF) and the beginning of the Kabeljous units at 2450 BP (unit ORA) and later at 2150 BP (unit PSM).

The PMM per volume, surprisingly enough, shows similar trends except for the period between ca 4000 BP and 3250 BP when it shows an opposite pattern from the bone mass per volume. However, when the mean PMM per volume for the different industries is considered, the real differences become apparent. Altough the total PMM for the Wilton (7042,8 kg.) is higher than of the Kabeljous units (6622,6 kg.), the mean PMM for the Kabeljous (87,1 kg) is significantly higher than the Wilton units (47,9 kg). Implications of this evidence will be discussed later.

Shellfish

Two species account for the bulk of the shellfish remains (Table 27). *P. perna* was the dominant species (frequency percentage and meat mass percentage), except for units DSM (Kabeljous units) and GDS (Wilton units) where it was outnumbered by *D. serra*. In the Kabeljous units *P. perna* accounted for 45,7% of the meat mass percentage and *D. serra* 37,3% followed by *T. sarmaticus* with only 14,1%. The situation is much the same for the Wilton units. *P. perna* with 53,4% had a marginally higher meat mass percentage than in the Kabeljous units. Both *D. serra* with 35,6% and *T. sarmaticus* with 8,7% were represented by slightly lower meat mass percentages.

Although *P. perna* outnumbers *D. serra* in most cases, the reverse is often true when meat mass is considered. For example, in unit GCS *P. perna* accounted for 70% of the total frequency of shellfish collected, but only 44% of the total meat mass. *D. serra* on the other hand, only accounted for 23% of the total frequency, but 48% of the total meat mass. This is also the case

shell here were also highly fragmented but packed in a grey ashy deposit.

A thin red brown ashy parting with fragmented *P. perna shell* separated unit GCS from the underlying unit, SGA. The shell remains of unit SGA were in excellent condition, loosely packed in soft grey ash. The next unit, GDS, was separated from GCS by a thin brown ashy parting. Unit GDS consisted of a *D. serra* dominated midden filled in by grey ashy soil. Unit CPS followed GDS and comprised highly fragmented *P. perna* shell also filled in with grey ashy soil.

The bottom units HWA and WGL consisted of stone-hard white leached ash with patches of soft dark grey and black carbonised organic soil and lenses of fragmented shell. Unit WGL has been radiocarbon dated to 5750 ± 80 BP (Pta-4061).

SUBSISTENCE AND DIET

Mammal remains

The inhabitants of the shelter captured mostly small to large medium terrestrial mammals (Table 26). Among the large animal remains were two individuals of *Syncerus caffer* and *Taurotragus oryx*, one of both in the Wilton and Kabeljous units. One *Equus* sp. was also present in the Wilton units. Marine mammals (4 seal) played an insignificant role in the diet (one in the Kabeljous units and three in the Wilton units). Only four mammal species in the Wilton units were not represented in the Kabeljous units. These include *Procavia capencis*, *Equus* sp., *Potamohoerus* sp. and *Pelea capreolus*. In general it would appear that the occupants in both industries acquired most species by hunting and to a lesser degree by trapping. The remains of a few carnivores were present (four larger carnivores in the Wilton units and two small carnivores in the kabeljous units), but these animals were probably not hunted for their meat. They may have been casual takings.

There are no significant differences between the Wilton and Kabeljous units in the range of species (J. Brink, pers. comm.). The capture rate for both industries was similar because both industries had 0,5 minimum individuals per volume. Although the total mammal bone mass per volume in

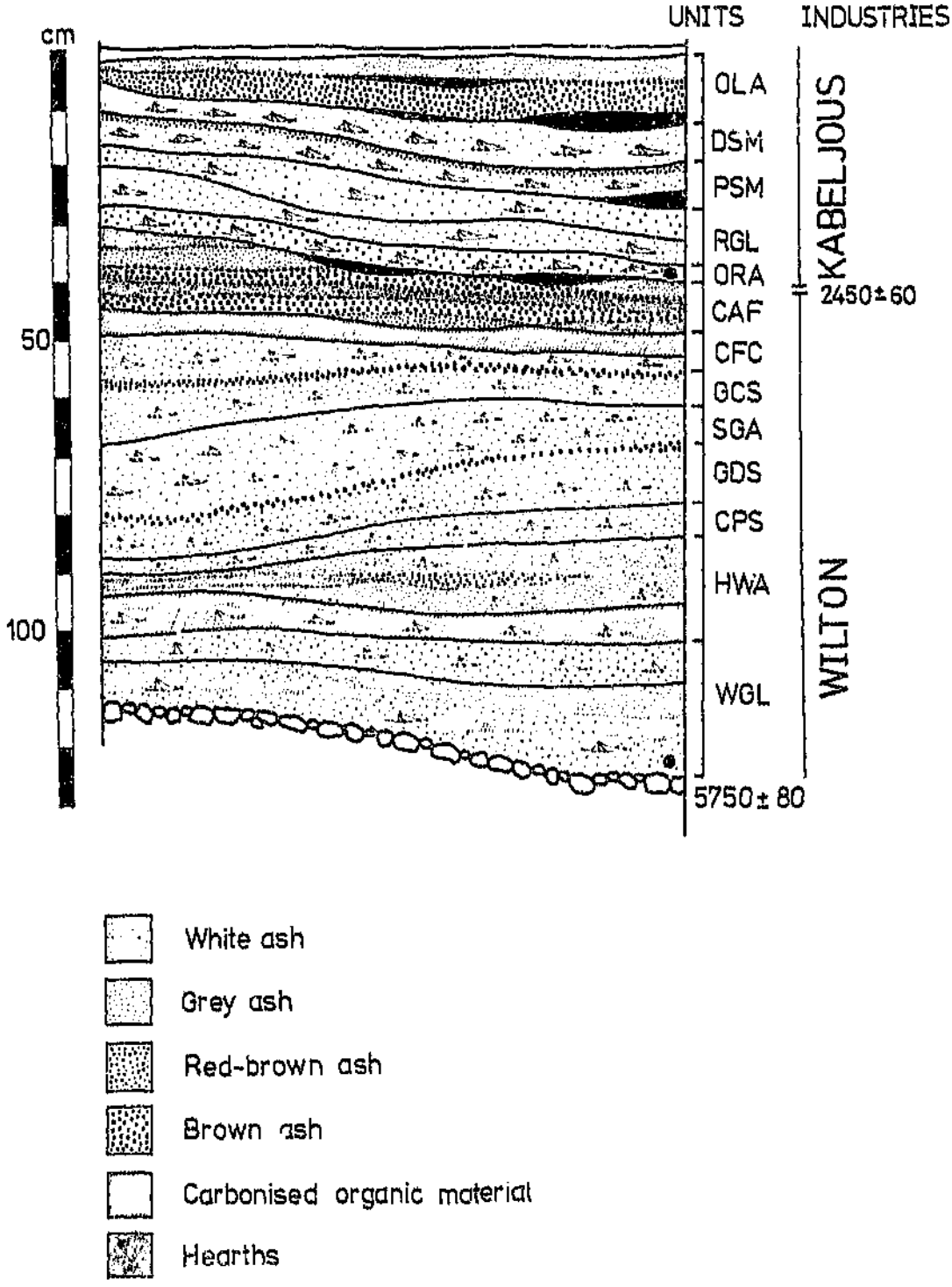


Figure 24. Section drawing of of the excavation at Kabeljous River Shelter 1.

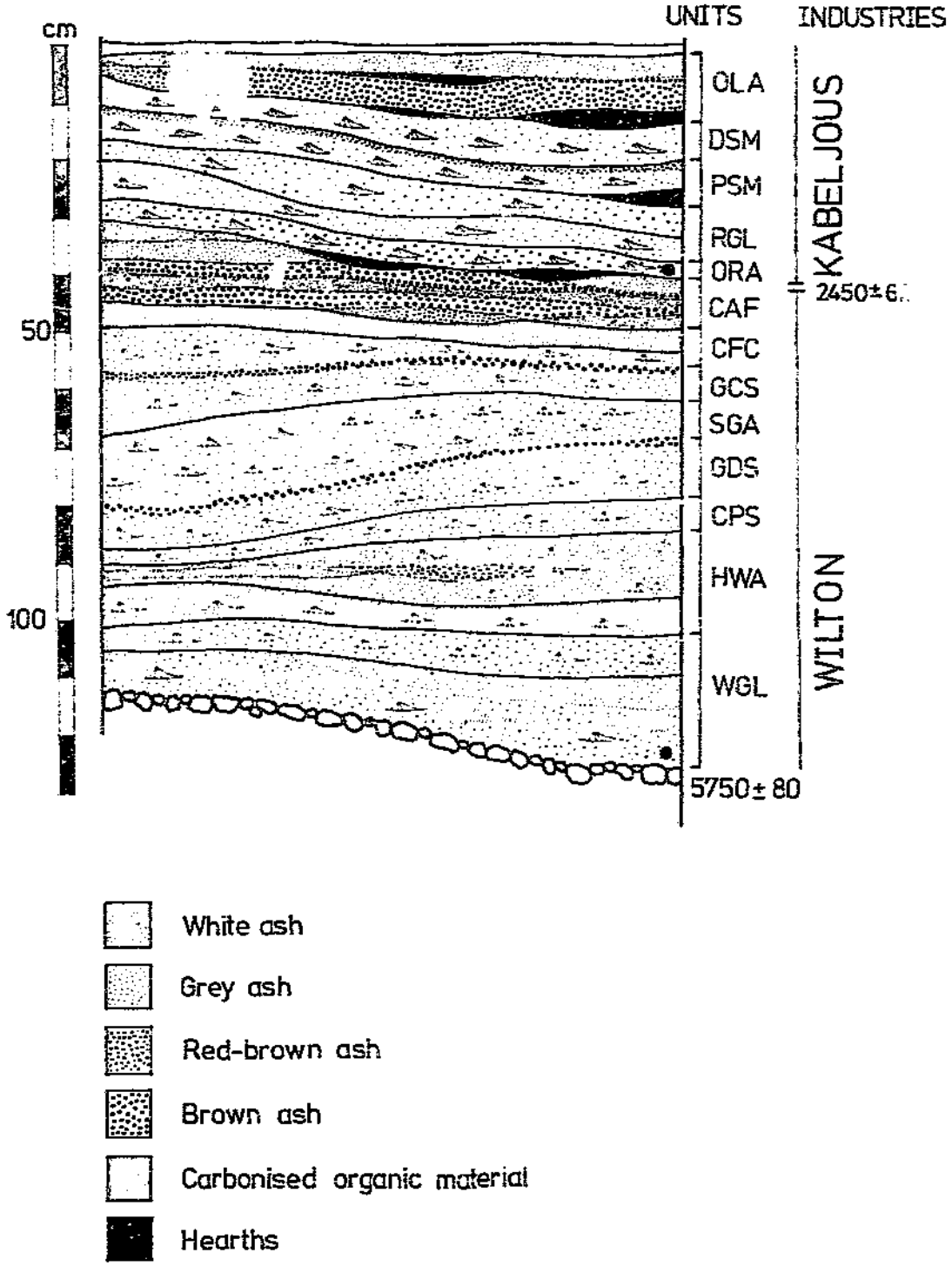


Figure 24. Section drawing of of the excavation at Kabeljous River Shelter 1.

excavation. A total of 23 layers and other features were identified during the excavations (Fig. 24). These were divided into 13 units, which are described here from the surface to the bottom.

The top unit, OLA, consisted of a series of interlocking soft and hard oxidised and leached ash of different colours. These deposits may represent redistributed ash and contained mainly fragments of burned shell and bone. Towards the front of the excavation, soft grey ash with loosely packed shells lay underneath these hard red brown, grey and pink ash. The remains of a small round fire place were found in the ash, extending into the unexcavated adjoining square. At the back of the excavation, was a thick hard white. This large ash feature probably represents the remains of a series of fires, hardened by percolating water. The bottom of the white ash contained an underburn of soft, powdery, orange, pink and red brown soil.

Underlying the surface unit was a relatively thick layer of loosely packed shell, mostly *D. serra* (unit DSM) in a matrix of coarse grained ashy soil. Unit DSM was followed by unit PSM which consisted of a loosely packed *P. perna* dominated midden and graded into a soft grey and coarse grained orange coloured soil towards the rear.

The next unit, RGA, consisted of two parts. The top part comprised reddish ashy deposits with occasional patches of white ash and loosely packed shell. The bottom part consisted of soft grey ash with patches of white ash. Underlying RGA was unit ORA which comprised loosely packed *P.perna* shell filled in by oxidised red and dark brown ashy soil. This unit also marked the begining of the Kabeljous Industry at the site and has been radiocarbon dated to 2450 $\pm$ 60 BP (Pta-4614).

The next unit, CAF, marked the end the Wilton Industry and consisted of thin lenses of carbonised organic material, white, grey, brown and red ash. Underlying CAF was unit CFC which comprised highly fragmented *P. Perna* shell, tightly packed in black carbonised organic and dark brown ashy soil. A thin brown ashy parting separated the next unit, GCS, from the overlying CFC unit. The

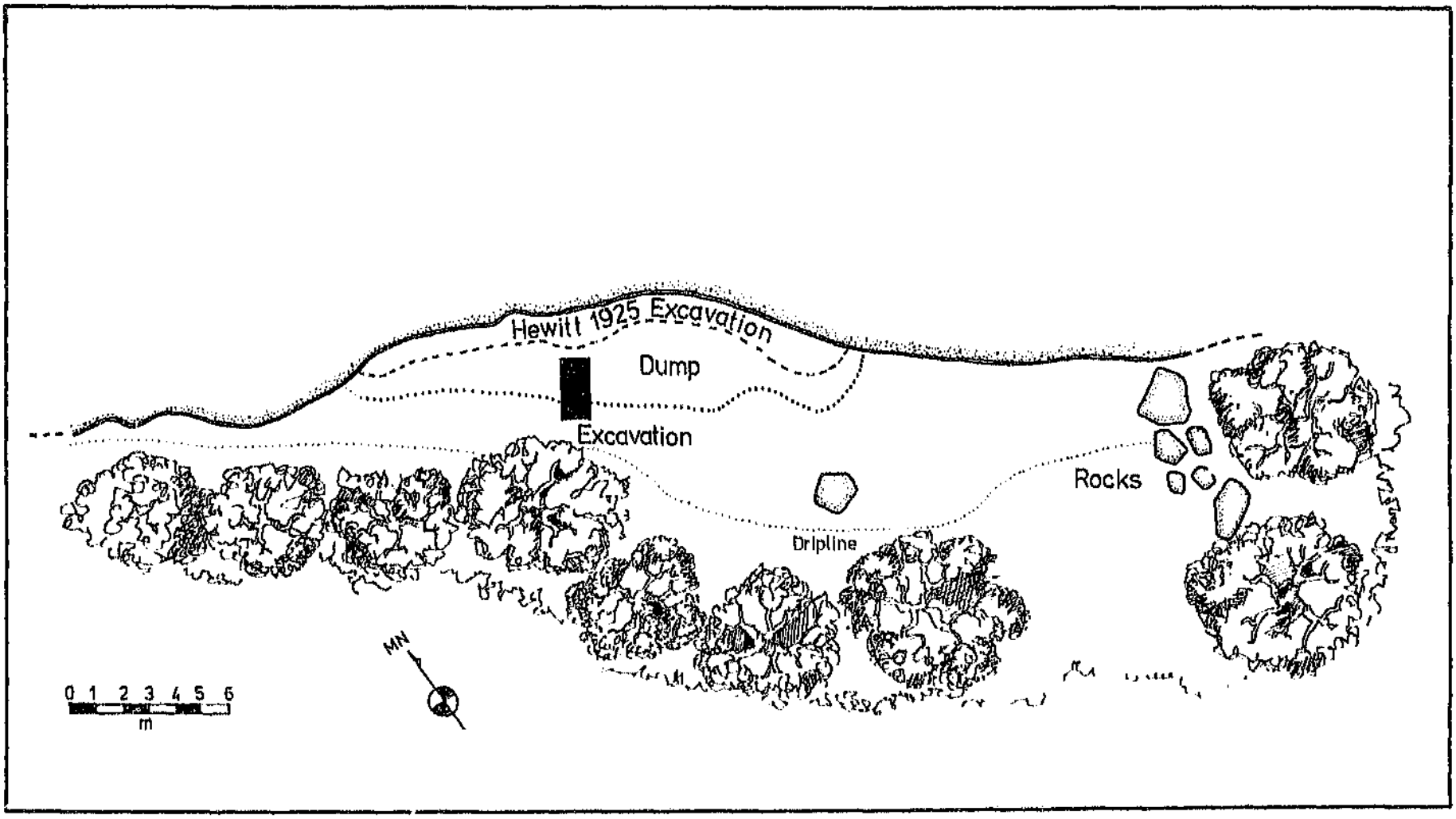


Figure 23. Shelter plan and location of the excavation at Kabeljous River Shelter 1.

CHAPTER SEVEN

ARCHAEOLOGICAL DESCRIPTIONS: COASTAL RESEARCH

PART TWO: CAVES AND SHELTERS

KABELJOUS RIVER SHELTER

INTRODUCTION

The Kabeljous River Shelters (KRS1 & 2) are located approximately 4 km from the river mouth (Fig. 9), some 80 m above sea-level and 20 m above the valley floor. Shelter 1 faces southwest and is approximately 30 m wide along the dripline, between 5 m and 6 m deep and the roof some 6 m high at the entrance (Fig. 23). The entrance of the shelter is well concealed by trees and dense growth of creepers.

Hewitt (1925) excavated a trench along most of the back wall of Shelter 1 and an area of about four square metres in Shelter 2 which is nearby. There is little information on Hewitt's excavation and only a few artefacts were kept (AM No. 1762). Hewitt however reported that the 'pygmy' implements which he observed at other caves and shelters in the eastern Cape were absent from here. He recorded twelve skeletons from the shelters and mentioned that one burial yielded a considerable quantity of ostrich eggshell beads. From the skeletal discoveries Hewitt believed two 'types' of people were present at the site. He thought the larger skulls were those of 'Hottentots', who were also responsible for the large quartzite stone artefacts, and the smaller ones those of 'Bushmen', who were responsible for the 'pygmy' culture of the inland sites.

EXCAVATION, STRATIGRAPHY AND DATING

In the course of this project, 2 m^2 were excavated in Kabeljous River Shelter 1 to bedrock at a depth of 1,20 m. Large erosion hollows formed along the dripline exposed cultural and food remains. A few potsherds were found on the surface, but none were recovered during the

regularly.

As I have explained earlier, one of the most interesting aspects of the open-air shell midden investigation is the fact that there existed two distinct lithic industries side by side along the coast, namely, a microlithic silcrete industry similar to that found in caves and shelters of the adjacent mountains and a quartzite cobble industry called the Kabeljous Industry. These two industries co-existed from ca 4700 BP to 1900 BP. The microlithic assemblages from the shell middens seem to lack segments, but segments were present in the cave sites (I discuss this point in the next chapter). The Kabeljous Industry contains all the formal elements of the microlithic industry, only the elements are large and manufactured from a different raw material. Silcrete is absent from the coastal foreland but abundant resources are present in the adjacent mountains. In general silcrete is not present on Kabeljous middens, which indicate that these groups did not move beyond the coastal foreland, did not collect silcrete from middens and did not trade for the raw material with groups who brought it to the coast. Middens containing Kabeljous stone tools are distributed throughout the research area, but middens containing microlithic stone tools are concentrated only in the SFR2 and Thysbaai areas. It would appear that silcrete as a raw material is restricted to the western side of the Kromme River.

ethnographic evidence seems to suggest that shellfish were only supplementary to the diet even when collected regularly (Meehan 1982). Large amounts of shellfish can in any case only be eaten for limited periods (Noli & Avery 1988).

The one to one explanation of shellfish collecting given above is not entirely convincing. Shellfish collecting, along with all other activities, took place within social contexts. Meehan (1982) and Bigalke (1973) reported that women collected shellfish among the Gidjigali and Nguni speaking peoples respectively, but that men performed this task among the =Aonin people (Budack 1977). Among all three groups men were responsible for catching fish. Whether men also collected shellfish among prehistoric pastoralist groups is not known. It is possible that the =Aonin are an isolated case or that the role of shellfish collecting changed during historic times. No direct evidence is available for HG/HCF, but it is assumed that women also collected shellfish.

It can be speculated that the difference in the collecting strategies between pastoralists and 'ceramic' groups may reflect changes in the relations of power. The view taken here is that herding formed the ideological base through which relations of power were generated in and between pastoralist groups. When groups lost their stock, men, women and the group as a whole lost much of their power base. In other words, men lost a substantial amount of status as far as their role as food producers in the group was concerned. Although it is not possible to establish the role of domesticated animals in social relations and subsistence, it can be assumed that pastoralists were most probably dependent on milk and other related products at certain times of the year (Webley 1984). In order for men to remain important food providers they took over the role of collecting shellfish. By adding shellfish collecting to their existing activities of hunting and fishing, they regained some status and power as food providers This meant that shellfish were collected more often than was the case previously. Alternatively, it can be argued that women also lost part of their power base when the group lost their stock, for example, milking and other related duties that accompanied it. In order to remain important as food providers they collected shellfish more

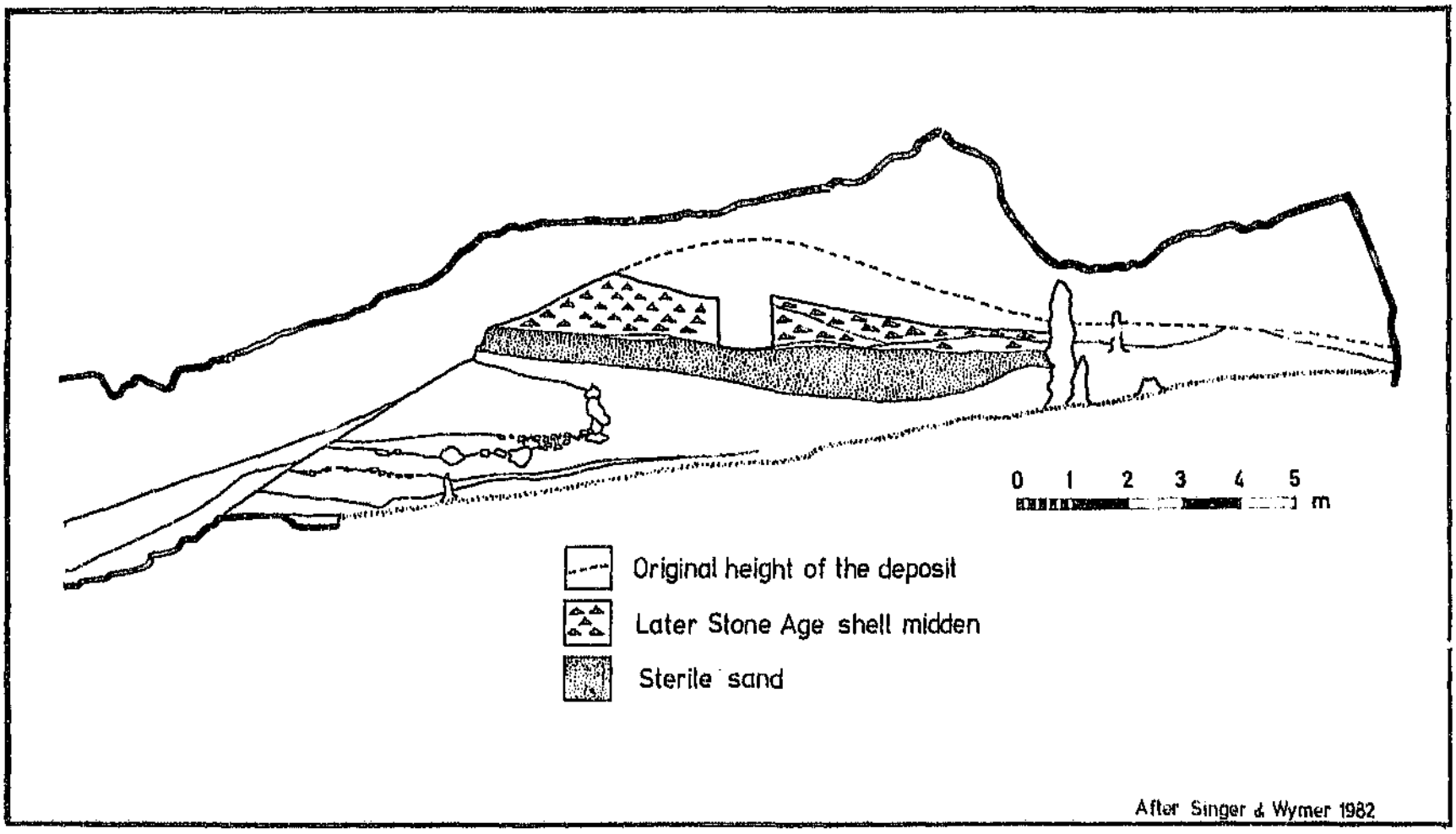


Figure 30. Section drawing and the location of the excavation at Klasies River Cave 1.

KLASIES RIVER CAVE 1

I excavated a small area (1 m^2) in 1984 to obtain larger samples of food and cultural remains. The previous excavators, to a large extent, ignored scientific sampling of the Later Stone Age levels, even though they excavated approximately 80% of the deposit.

I excavated on top of the three metre high witness wall left by Singer and Wymer (1982) (Fig. 30). As they did not secure the witness wall, nearly a metre of the top of the very loose Later Stone Age shell midden has been lost to erosion (Fig. 31). Pottery was absent from Cave 1 and other cultural remains were few.

DATING AND STRATIGRAPHY

Singer and Wymer (1982) divided the Holocene shell midden into upper and lower units. The upper unit dates to 2525 ± 85 BP (Gx-0969) and 2795 ± 85 BP (Gx-0971). The lower unit dates to 4755 ± 95 BP (Gx-0970) and 4695 ± 180 BP (Gx-0973). A radiocarbon date of 3780 + 60 BP (Pta-3905) obtained for the bottom of the shell midden (Layer 7) is somewhat younger than the Singer and Wymer date (Binneman 1985).

Only a small part of the surface unit (Singer and Wymer's upper unit) could be sampled due to the erosion. The upper unit consisted of loosely stacked shell material with occasional large fragments of mammal and fish bone (Table 30). Apart from two quartzite flakes, no other cultural material was found (Table 31). The most important shellfish species recorded was *P. perna* (60%) [77%] (Table 32). Unit 2 consisted mainly of brown soil with occasional lenses of charcoal and shell. The following units, 3 and 4, comprised loosely packed shell and other food remains with little soil matrix. The shell remains in layer 4 were more fragmented than layer 3. Fish and marine bird remains were abundant in both layers. *P. perna* was the dominant shellfish species in both layers with 68% [73%] and 79% [81%] respectively. Unit 5 also comprised several layers of loosely packed shell and areas of white ash and yellow brown soil with abundant fish and bird remains. *P. perna* (70%) [60%] was the most important shellfish species.

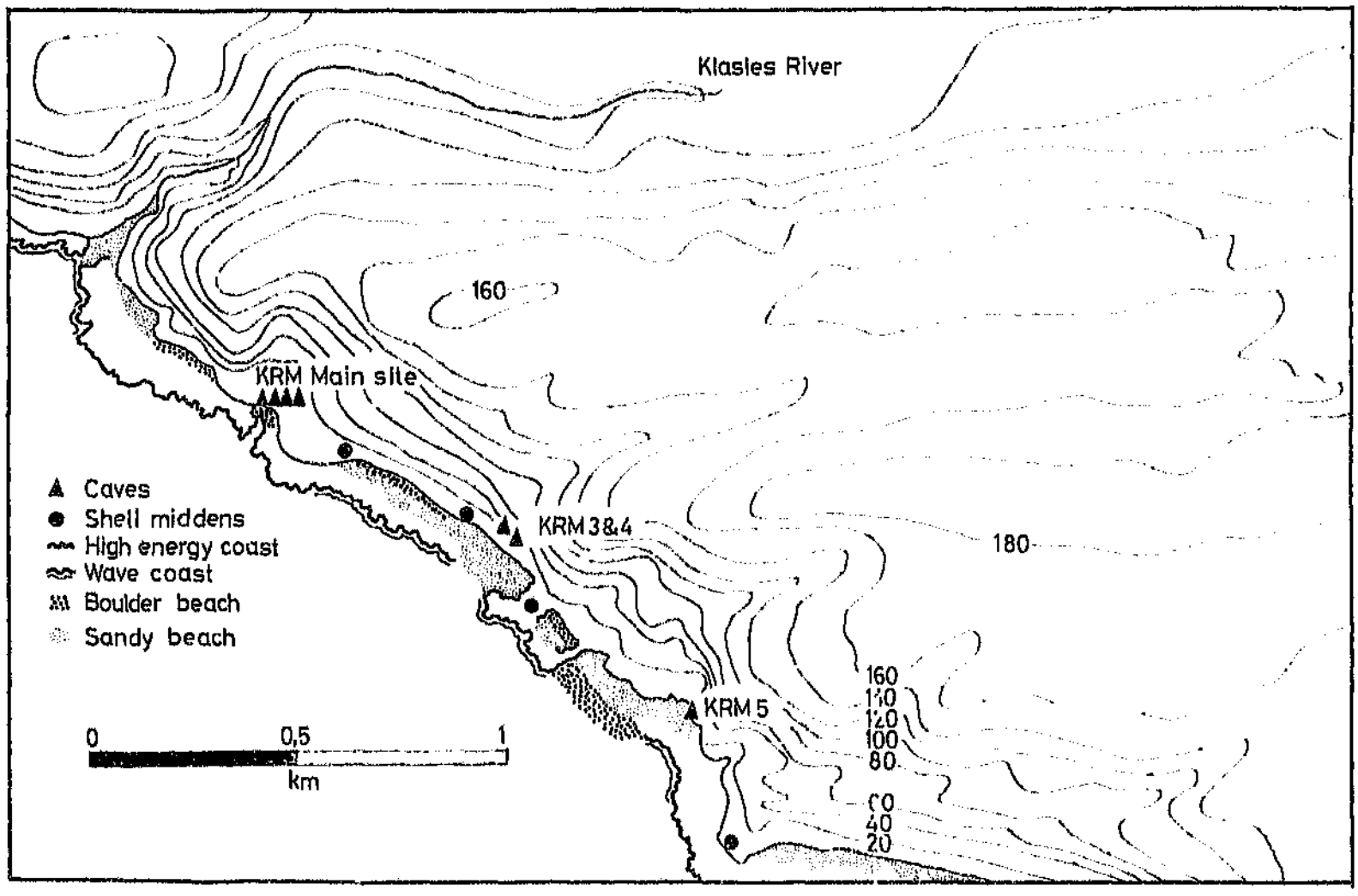


Figure 29. Map of the archaeological sites at Klasies River.

Kabeljous units. Meat mass data are not available for tortoises, but the live mass (including eggs) of *Chersina angulata* is between 600 and 800 grams and for *Homopus areolatus* between 100 and 150 grams (B. Branch, per. comm.). Thus there is little meat to eat. Furthermore, the ethnographic observations among the Nama-speaking people of Namaqualand revealed that the people may only eat the eggs or certain parts such as the liver. In other words, the collecting of tortoises may have been cultural-specific (L. Webley, pers. comm.). The only other food resource which may have contributed significantly to the diet is fish, but no data are as yet available. On present evidence the two main contributors to the diet were mammals and shellfish. In the Kabeljous units these two resources contributed a mean of 88,8 kg per volume and in the Wilton units a mean of 49,5 kg. Shellfish contributed only 1,8% of the mean food mass per volume in the Kabeljous units and 3,2% in the Wilton units. From this data it is clear that shellfish was only complemented to the diet in both industries, but shellfish contributed a slightly higher percentage in the Wilton units. In general the indications are that the economic activities of both groups were on the same scale. The 39 kilogram difference in the mean food mass per volume in the Kabeljous units may indicate that the group size was marginally larger and/or occupation more intensive than that of the Wilton groups.

KLASIES RIVER MOUTH COMPLEX

INTRODUCTION

The Klasies River complex consists of five caves along a two kilometre coastline some 40 km west of Cape St Francis, opposite a high activity coast (Fig. 2 & 29). The caves are cut into jointed and sheered quartz arenite rocks and situated at various elevations along a steep coastal cliff some 60 m high (H.J. Deacon & Geleijnse 1988). The first excavations at the Klasies River Caves were conducted between 1966 and 1968 by Singer and Wymer of the University of Chicago. The main site complex is world renowned for the discovery of anatomically modern human remains dating to some 100 000 ago years (Rightmire 1978; Singer & Wymer 1982; Deacon & Geleijnse 1988).

BP stone artefacts and fish per volume peak again, but both shellfish meat mass and mammal bone mass per volume are on the decline. PMM, mammal bone per volume and shellfish meat mass per volume peak prominently between 2450 BP and 2750 BP, but again at the same time stone artefacts per volume and fish bone mass per volume are relatively low.

The decline in decorative items suggests that the site was not used for aggregation. However, decorative items such as ostrich eggshell and marine beads are not automatic indicators. Nevertheless, the period between ca 4000 BP and 2300 BP is not characterised by major synchronised periods of increased activities and the site was probably occupied by smaller groups for short periods. These groups concentrated on individual resources such as fish and shellfish rather than on the full spectrum of available resources. Furthermore, the stone artefact production shows a sharp increase from 2500 BP at the time when the Kabeljous Industry 'replaced' the Wilton Industry at the site. The second synchronised peak occurs at between 2150 BP and 1950 BP in most of the remains which are present in the first peak, as well as a slight increase in tortoise per volume. Shortly afterwards pastoralists settled in the region.

One important aspect is the similarity in the shellfish collecting strategies employed by the different groups that occupied the shelter. There is no significant difference (38 grams) between the mean shellfish meat mass per volume during the Wilton and Kabeljous units. One would have expected that the 'permanent' Kabeljous groups would have exploited a larger mean shellfish meat mass per volume than the visiting Wilton groups. However, what seems to be important here is that the distance between the shelter and the coast lends preference to certain species. The shortest direct route to the nearest rocky shore is approximately 4 km. The low frequency of *Oxystele* spp. (11% or less) throughout the sequence indicates that small species (relatively low meat mass) have been ignored in general.

Other food remains, such as mean mammal bone and fish bone mass and individual tortoises per volume, show relatively no major differences in the subsistence activities between the Wilton and

Linked to this conclusion is the interesting fact that there are virtually no differences between the mean individual mammals and individual tortoises per volume, but a significant difference in the PMM in both units. This indicates that although the Kabeljous groups settled permanently along the coast they were still hunting, trapping and capturing animals at the same rate as the visiting Wilton groups before them, except that the PMM per volume was larger. More important is the fact that the Kabeljous groups accomplished this without a microlithic toolkit. This evidence questions the general assumption that backed implements were used as arrowheads. This evidence indicates that a microlithic toolkit was not necessary for permanent or semi-permanent inhabitation of the coast. Secondly, the Kabeljous Industry was not merely a 'adaptation' to coastal conditions.

From the subsistence and cultural density per volume results (Fig. 25) it is apparent that there were several periods of 'increased activities' followed by periods of 'decline'. Shortly after the site was occupied for the first time by presumably inland Wilton groups, a dramatic increase is visible in all but one indicator. The first peak occurs approximately between 4850 BP and 4450 BP with an increase in the PMM, mammal and fish bone mass per volume, and shellfish meat mass per volume, as well as stone artefacts and ornaments per volume. The relatively high frequency of decorative items together with high food waste densities per volume and the tortoise remains during this period suggest that the site was used by large groups most probably for aggregation purposes during summer. Sharp decline of all indicators follows the initial peak. The reasons for this decline are not clear, but it is possible that the site lost its importance as an aggregation centre.

The period after 4000 BP is not clearly defined. Between approximately ca 4000 BP and 2500 BP are also pronounced peaks of individual remains, but are not as synchronised as in the first peak. After a dramatic decline from 4500 BP, mammal bone mass per volume and shellfish meat mass per volume show a brief increase at approximately 3650 BP, with tortoise per volume also relatively well represented. The PMM, stone artefacts and fish bone per volume on the other hand are low at this point and ornaments per volume continue a downward trend. At approximately 3250

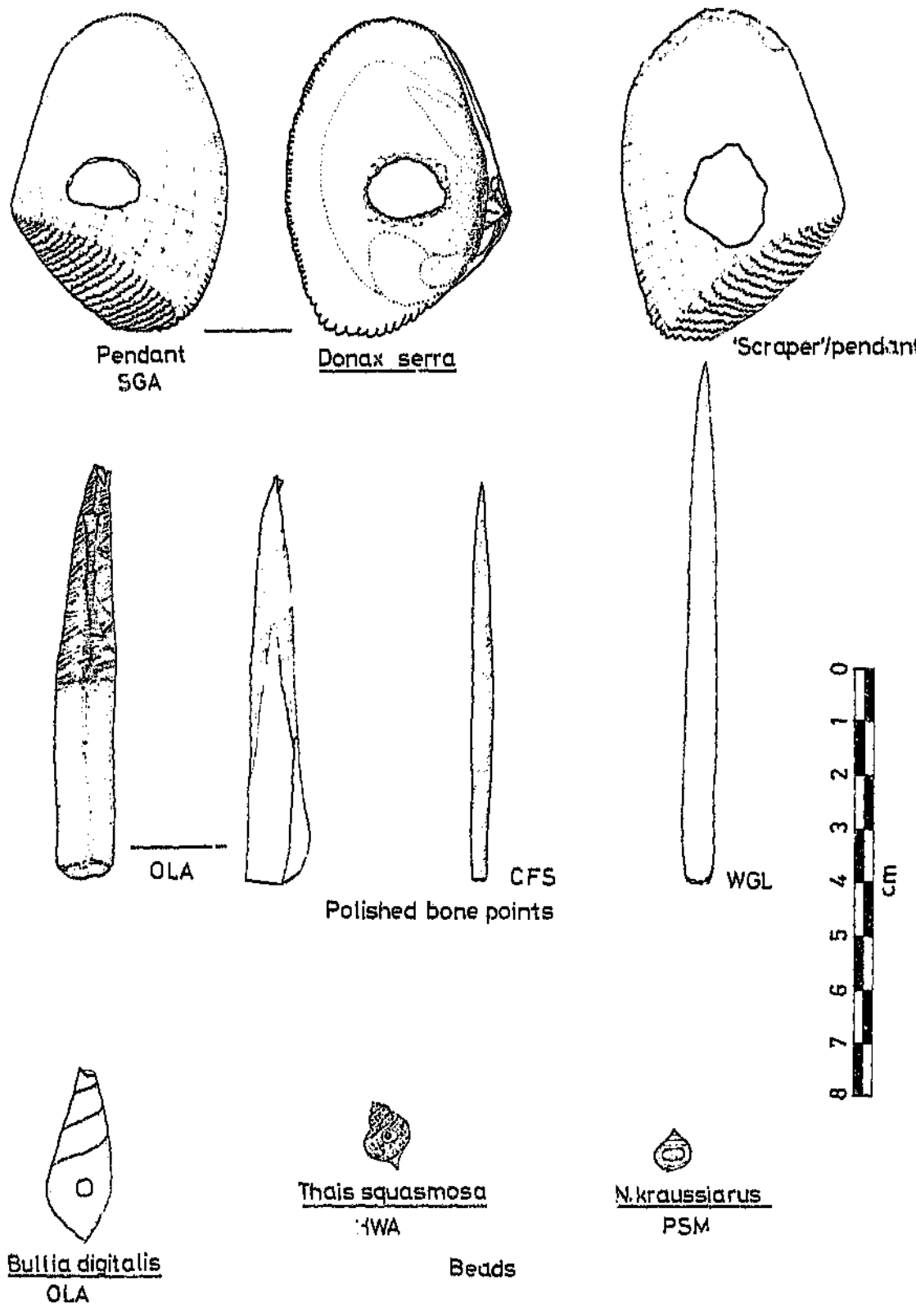


Figure 28. Illustrated marine ornaments and bone artefacts from Kabeljous River Shelter.

combination of the two types, pendant/scrapers, was only present in the Wilton units (Table 29). The functions of these artefacts are not known, but it is possible that the 'scrapers' were used to clean fish, and that the pendants were possibly used as dancing rattles during ceremonial activities (Inskeep 1987). Although *N. kraussianus* beads and shells are present in very low numbers, they were found in the time period when these ornaments were absent from the inland sites (H.J. Deacon 1976; J. Deacon 1982).

Ostrich eggshell

Ostrich eggshell beads are numerous in the bottom two units (WLG and HWA), but subsequently drop off sharply, and are virtually absent in the Kabeljous units (Table 29). Although a relatively high frequency of ostrich eggshell beads are present in the Wilton units, only one roughout was found.

Bone artefacts

Few bone artefacts were recovered (Fig. 28). These included four bone points (only in the Wilton units) and two bone awls (only in the Kabeljous units) (Table 29).

DISCUSSION

The lithic assemblages from Kabeljous River Shelter 1 indicate that two distinct groups occupied the cave through time. From ca 5800 BP to 2500 BP a quartz microlithic Wilton Industry was present after which it was 'replaced' by the quartzite Kabeljous Industry. Changes in raw material frequency percentages indicate that the groups who occupied the shelter from unit ORA did not move beyond the coastal plain to collect quartz nor did they acquire it from visiting inland groups. In other words, quartzite did not replace quartz as a raw material, but rather quartz was 'dropped' together with the microlithic component. Consequently the microlithic Wilton assemblages most probably belonged to groups from the adjacent mountains who visited the coast occasionally, while the Kabeljous assemblages belonged to groups who were the permanent residents of the coastal foreland.

difference in the mean stone artefacts per volume between the Wilton (63,5) and Kabeljous (45,2) Industries. The heavy duty cobble tools were divided into two groups, utilised and formal.

Cobble core tools (utilised tools)

Cobble core tools are artefacts such as rubbers and hammerstones that had been flaked systematically to obtain flakes for other purposes. Typologically these would be classified as cores, but microscopic examination shows that these tools had been used as adzes (core adzes) and possibly also as scrapers. These tools were not deliberately designed to perform any function, but were used opportunistically. Most of these artefacts had multiple functions before they were converted into cores, such as rubbers and hammerstones. A number also display ochre and/or charcoal stains.

Cobble tools (formal tools)

Cobble tools are rubbers and hammerstones that had been purposefully flaked to display one or more working edges. Some are similar to the Wilton types, for example adzes and scrapers.

Ochre and shale pieces were well represented throughout the sequence, but ground (pencils?) and flaked pieces were only found in the Kabeljous units (Table 28). There is no significant difference in the mean inclusions of other lithic per volume between the Wilton (3,8) and Kabeljous (3,1) Industries.

Non-lithic artefacts

Ornaments are generally present in low frequencies throughout the sequence. In density per volume they only peak at 4850 BP (unit GDS), whereafter they continue to decline (Fig. 25). The mean frequency for ornaments per volume is marginally higher in the Wilton (1,7) than in the Kabeljous units (0,6).

Marine shell

D. serra pendants and 'scrapers' are well represented throughout the sequence (Fig. 28) The

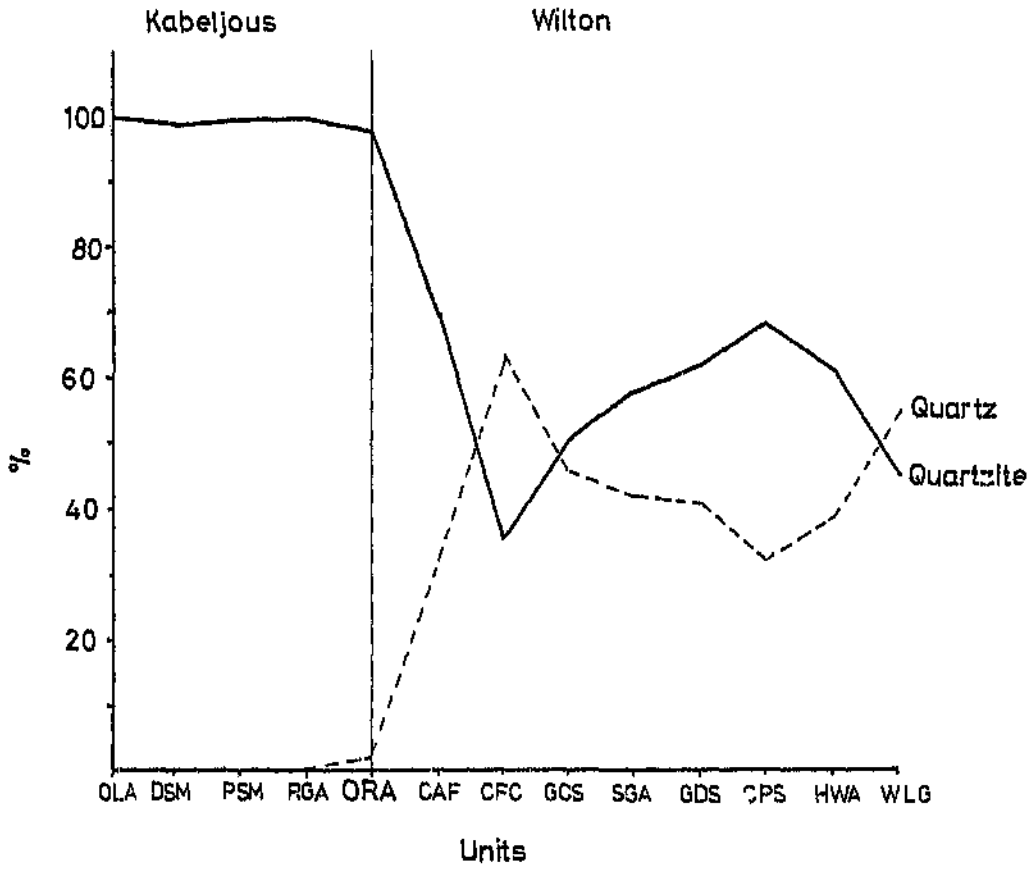


Figure 27. Raw material percentage frequencies at Kabeljous River shelter 1.

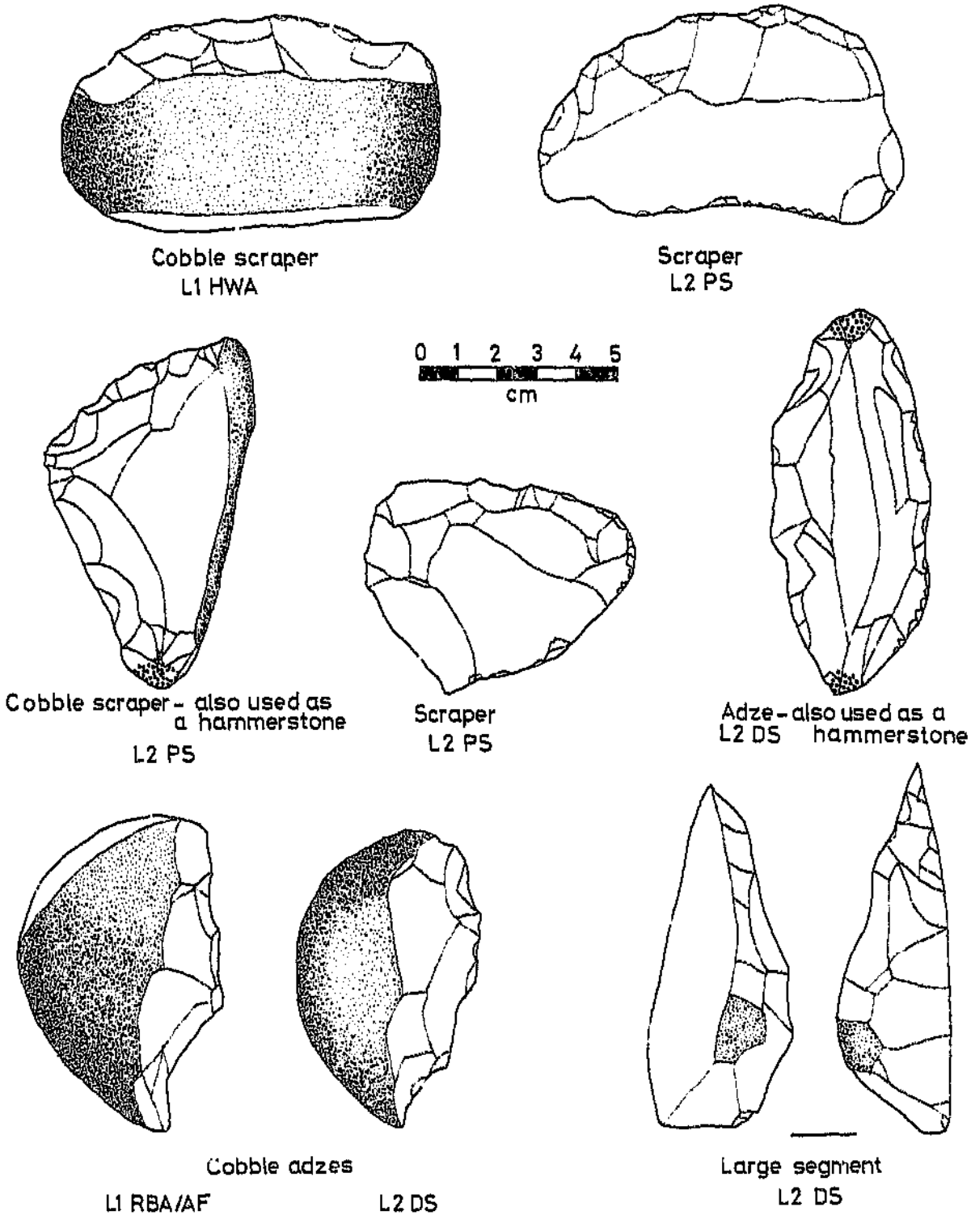


Figure 26. Illustrated examples of quartzite stone tools from the Kabeljous units.

any definite conclusions, but it seems that the site was probably occupied mainly during summer. Individual tortoise per volume is relatively low throughout the sequence and show slight increases at 3650 BP (unit GCS) and 2150 BP (unit PSM) (Fig. 25). There is also no difference in the mean individual tortoise per volume between the Kabeljous (0,5) and Wilton units (0,4).

CULTURAL REMAINS

Lithic artefacts

The analysis of the artefact sample used the methods set out in J. Deacon (1969, 1982) and H.J. Deacon (1976). Minor adaptations had to be introduced and are noted where appropriate. It is evident from Table 28 that a significant change in the lithic content at Kabeljous River Shelter 1 occurred subsequent to the deposition of unit CAF. Microlithic Wilton artifacts were manufactured from quartz crystal, and crystals themselves were common. From approximately 2450 years ago (unit OLA), the microlithic element disappears from the sequence and only the Kabeljous, a rough quartzite flake and cobble industry, was present in the upper units.

The Kabeljous Industry (younger than 2450 BP) consists of heavy duty quartzite cobble tools including large segments (Fig. 26). Not only are microlithic stone tools totally absent from the Kabeljous Industry, but there is also a dramatic reduction in the use of quartz as a raw material (Fig. 27). Quartz crystals are not found in the Kabeljous units. It is clear from Figure 27 that the percentage frequencies of quartz and quartzite follow opposite trends through time. In the earlier units quartzite gradually increases to become the dominating raw material (68%) in unit CPS. Quartz on the other hand declines gradually to only 32%. Thereafter quartzite declines to only 36% in unit CFC while quartz increases to 64%. After unit CFC quartzite increases dramatically and becomes the only raw material used in units RGA and OLA. At the same time quartz decreases dramatically and becomes insignificant as a raw material. Stone artefacts per volume peak at 4850 BP (unit GDS), 3250 BP (unit CFC) and at 2150 BP (unit PSM) (Fig. 25). There is a significant

low frequencies of *Patella* spp. in the deposits indicate that the people mainly collected in the upper balaniod zone in the shallow pools and the boulder beach opposite the cave and towards Druipkeiderpunt.

On the other hand, in the Wilton units *P. perna* (43,6%) [63,5%] accounted for the highest frequency and meat mass. *Oxystele* spp. (36,4%) [12,9] and *T. sarmaticus* (8,9%) [23,6] were less dominant and therefore the mean ERR for the Wilton units (31,2%) was slightly higher than the Kabeljous units. This also means that more meat mass entered the Wilton (mean of 1498,5 grams) than the Kabeljous (mean of 1152,5 grams). Although the Wilton groups were more economical, it is difficult to establish whether this is due to larger groups or simply that mussels were generally preferred to winkles. The fact that the same three species dominated throughout the sequence indicates that both groups practised a similar collecting strategy and that the difference in frequencies was most probably due to preferences the availability of the different species and. Less than 8% of the shellfish were *Patella* spp., suggesting that limpets were not generally preferred and collecting took place mainly from the upper balaniod zone. After an initial decline from unit M6 to unit M5 at ca 3300 BP, meat mass per volume gradually increased in the bottom units until unit M1. Thereafter it declined sharply and then peaked at ca 2500 BP (unit AP/MA4) and 2050 BP (unit MA) (Fig. 36).

Plant remains

Well over a thousand seeds were recovered from unit HP. *Myrica cordifolia* (wax berry) accounted for the majority of the seeds. Other seeds include *Sideroxlon inerme* L. (white milkwood), *Cissampelos capensis* L.f. (dawedjie), *Grewia occidentalis* L. (cross berry) and *Rhoicissus tomentosa* (Lam.) Wild & R.B. Drumm (common forest grape). Although these seeds may be indicative of economic activities, the majority were probably carried into the cave by birds and bats.

Apart from seeds, the remains of other edible plant foods were also recovered. These remains were

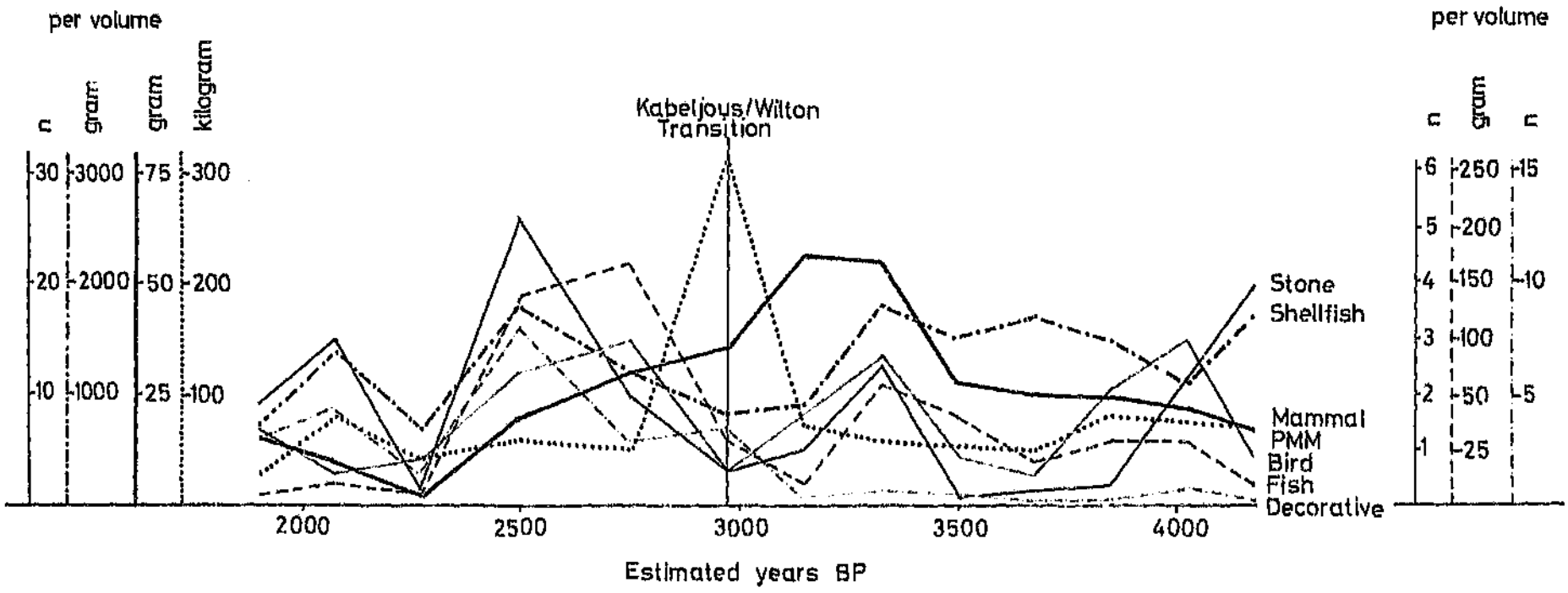


Figure 36. Food waste and cultural remains densities from Klasies River Cave 5A.

underlain by hard white ash (HWA). The lower units were composed of alternating lenses of shell (Middens 1-6) and thick compacted lenses of yellow and olive green ash (GYA 1-4). The size of the excavation was too small to reach any meaningful conclusion as to what these ash deposits represented in terms of their spatial function and distribution during the time the entrance was occupied.

Subsistence and diet

Mammal remains

Apart from the remains of two *Syncerus caffer* (both in the Kabeljous units) and a few large bovids, mostly small bovids were represented (Table 34). The mean mammal bone mass per volume showed a substantially higher amount of bone in the Wilton units (28,8 grams) than Kabeljous units (18,0 grams). However, like Kabeljous River Shelter 1, the PMM per volume showed an opposite trend. The mean PMM per volume for the Kabeljous units was 99,3 kg. and for the Wilton units 59,0 kg. Mammal bone mass per volume showed no major changes in the bottom units, and it was only at ca 3500 BP when it increased sharply to peak between ca 3300 BP (unit M2) and 3150 BP (unit CWA). Thereafter it declined sharply and continued this trend until ca 2250 BP (unit SBA). After this unit it rose slightly again. The PMM per volume did not follow this trend. However, it did have a pronounced peak at ca 3000 BP coinciding with the change from the Wilton to a Kabeljous Industry (Fig. 36).

Shellfish

The shellfish remains displayed interesting patterns (Table 35). *Oxystele* spp. (48,1%) [16,3%] was the dominant species in most of the Kabeljous units, followed by *P. perna* (28,4%) [36,8%] and *T. sarmaticus* (14,0%) [46,8%]. Although *Oxystele* spp. accounted for the highest frequency, it only provided the third highest meat mass. *T. sarmaticus* provided the highest meat mass followed by *P. perna*. The very high frequencies of *Oxystele* spp. accounted for the mean ERR at 27,2%. This ratio is similar to that recorded for 'ceramic' middens along the Cape St Francis coast. The

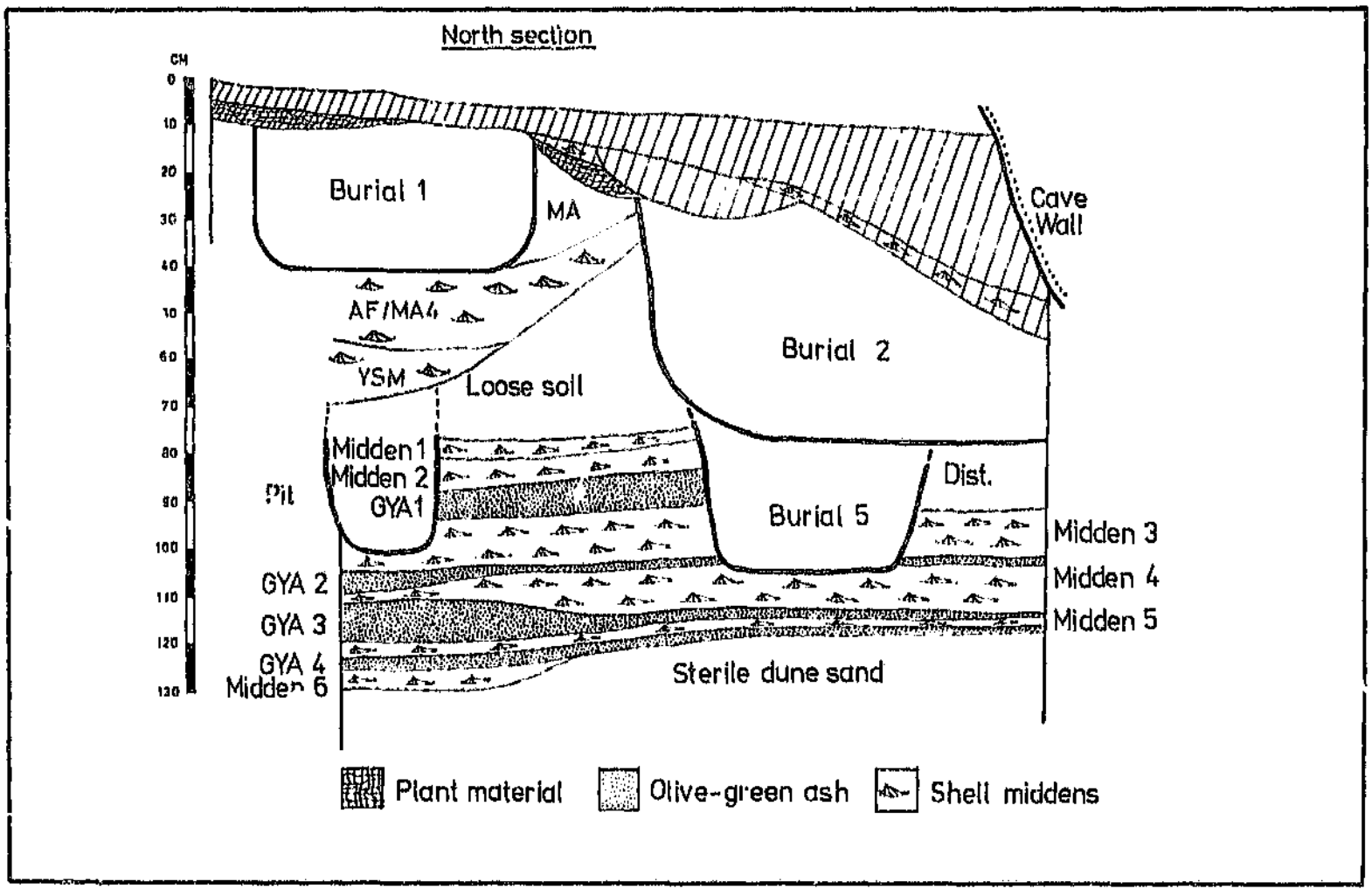


Figure 35. Section drawing of the excavation at Klasies River Cave 5A.

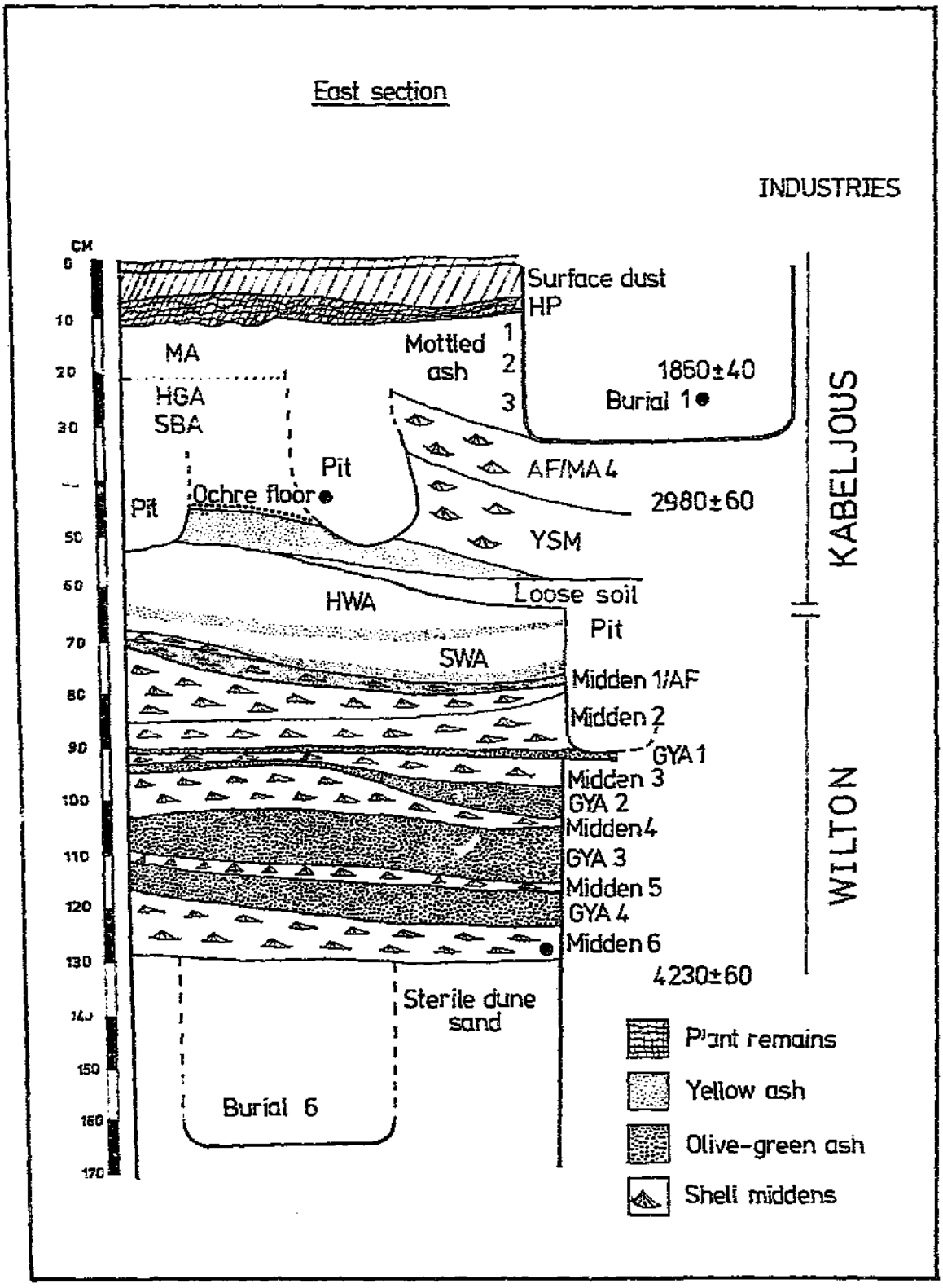


Figure 34. Section drawing of the excavation at Klasies River Cave 5A.

damp, 'sticky' dark grey dust overlying a grey dust with abundant roof spalls. The top 0,50 m of the deposit was disturbed by three burials and several other pits. The burial shafts and some of the pits reached down to 1,05 m which made excavation difficult. The top unit, HP, consisted of shallow hollows filled with plant remains in the Burial 1 area. The fill consisted of red-brown soil and burnt plant material, becoming ashy and carbonised towards the bottom. Underlying unit HP was a thick layer of black and grey ashy loams and mottled white ash (MA). The deposit was compact, appeared damp with no apparent clear subdivisions. The shell remains were fragmentary with the occasional whole shell. Several burial shafts and other pits were situated within MA.

The next unit, SBA, consisted of soft grey, black and hard white ash (HGA) and did not extent across the whole excavation. Burial shafts and other pits made it difficult to establish the full extent of this unit. Little food waste and few cultural items were recovered. Underlying SBA, was unit AF/MA4 which consisted of loosely packed burnt shell with a black and mottled white ash matrix. A relatively large number of marine and ostrich eggshell beads were recovered from this unit. The next unit, Unit YSM, also consisted of loosely packed shell, yellow and pink ash. Unit OGY underlaid YSM and marked the beginning of the Kabeljous units. It contained a ochre stained floor (OSF) between 10 mm to 30 mm thick except where burial shafts and pits penetrated it. In some areas fine humified plant material was present, which disintegrated at the touch of a brush. The origin of this floor is unknown. Several shell ornaments and stone tools were found on OSF. This layer was radiocarbon dated to 2980 $\pm$ 60 BP (Pta-4613). Lenses of soft grey and yellow ash underlaid the ochre stained floor.

A very loose well sorted layer of shell material, loose grey soils, stone artefacts and abundant fish and mammal bone remains separated Unit OGY from the next unit, CWA. The deposit had a distinct smell and appeared to be disturbed slope fill. Artefacts, shell, and fish bone were often found in up-right positions. Burial shafts and other pits penetrated through this layer. Unit CWA marked the end of Wilton units and consisted of a thin layer of carbonised organic material

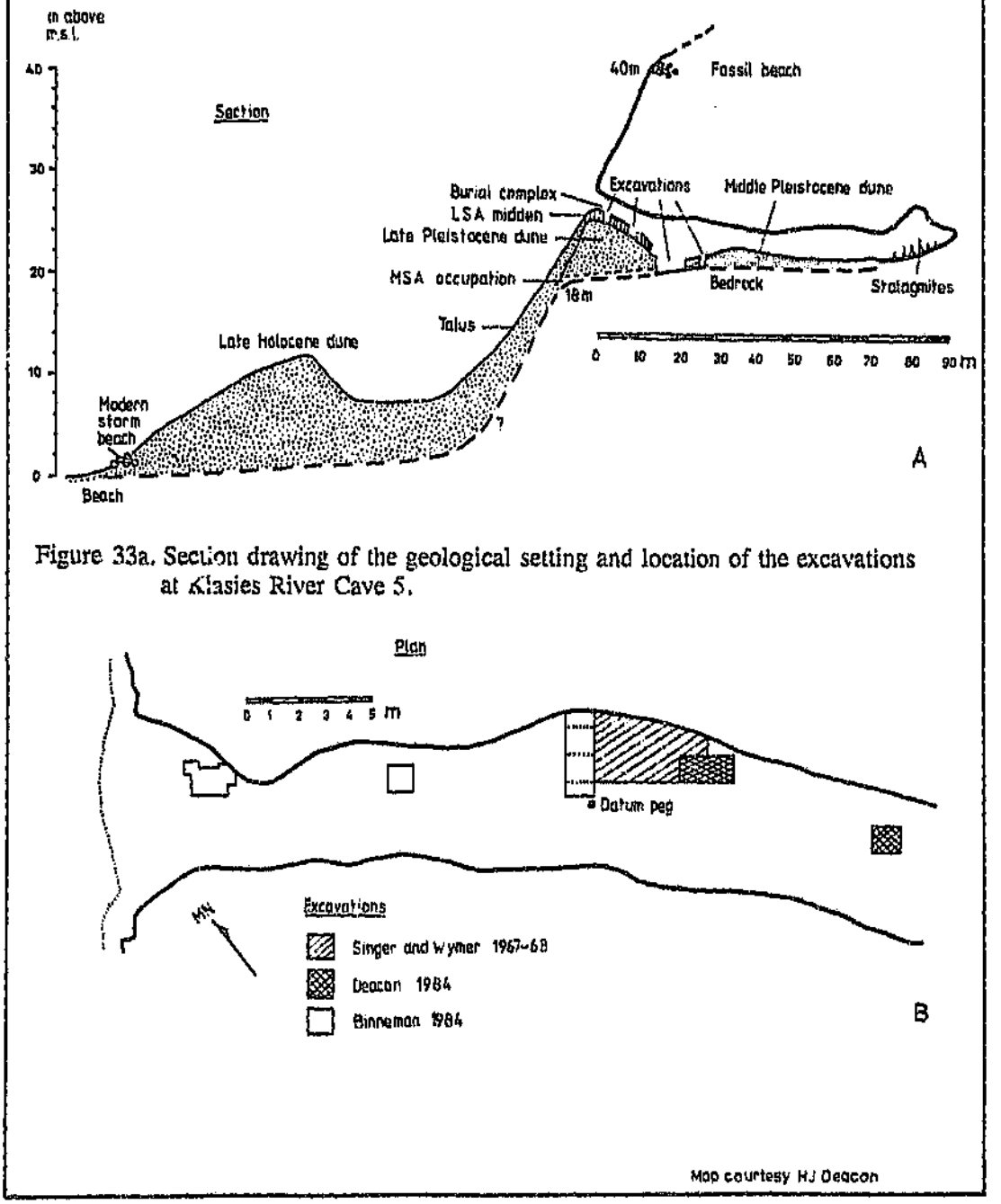


Figure 33a. Section drawing of the geological setting and location of the excavations at Klasies River Cave 5.

Figure 33b. Cave plan and location of the excavations at Klasies River Cave 5.

eggshell beads (Table 31 & 33). Ornaments and beads, especially marine items were rare finds. The previous excavations yielded a substantial number of stone tools, bone artefacts (awls and chisel types) and other ornaments (Singer & Wymer 1982), but this number is still surprisingly low in relation to the size of the excavation. Although no large segments were found in the 1984 excavation, 18 were recovered by Singer and Wymer, 17 from the Upper Midden dating c. 2795 BP.

KLASIES RIVER CAVE 5

INTRODUCTION

Klasies River Cave 5 is situated approximately 2 km to the east of the main site (Fig. 29). The cave is about 90 m in length from entrance to rear with the mouth of the cave about 18 m above modern sea-level. The entrance to the cave is almost entirely blocked by a Late Pleistocene sand dune capped by a 1,30 m Later Stone Age shell midden (Fig. 33a & 33b). Re-excavation of the cave was carried out during January and again in May and June of 1984. The excavations were located at the entrance to the cave and adjacent to Singer and Wymer's excavations some 20 m from the cave entrance, and thirdly halfway down the steep slope between the excavations at the entrance and the back. This excavation proved to be of little archaeological interest because the deposits represent slope fill.

The re-excavation of Cave 5 originally had three objectives in mind, namely, to test the depth of archaeological deposit at the entrance, to obtain a representative sample of the cultural and food remains and to enlarge the Singer and Wymer excavation to allow investigation of the underlying Middle Stone Age deposits by the Department at Archaeology of the University of Stellenbosch.

ENTRANCE EXCAVATION (KRM5A)

Stratigraphy

A 1 m^2 excavation at the entrance revealed a 1,30 m deep Later Stone Age deposit, radiocarbon dated to 4230 $\pm$ 60 BP (Pta-3919) at the base (Fig. 34 & 35). The surface was covered by a loose,

BP) and rises sharply to reach a peak at approximately 3150 BP (Layer 4). After the peak it declines sharply and reaches a low at ca 2700 BP (Layer 2) whereafter it again rises markedly (Fig. 32). The mean contribution of shellfish meat mass per volume to the mean total food mass per volume is 2,7%.

Marine birds

The excavation yielded a total of 146 marine birds (Table 30). *Phalacrocorax carbo lucidus* (whitebreasted cormorant) accounted for the highest number (115). Ten buckets from the talus slope were sampled to gain a general idea of the archaeological remains. The remains of 154 marine birds were recovered, of which 137 were *P. c. lucidus*. Virtually all the remains of *P. c. lucidus* were sub-adult birds. The individual bird remains per volume shows a marked increase from Layer 7 to Layer 6 and stay steady until Layer 4 whereafter it declines sharply (Fig. 32).

The relatively high number of birds needs some comment. It is possible that relatively large populations of *P. c. lucidus* were established along the Klasies coast during the late Holocene. A small population is currently present in the area (highest count since January 1984 has been 44 at Druipkelderpunt). Only 20 breeding pairs were recorded in the entire Tsitsikamma Coastal National Park during 1980 and 1981 (Crawford 1983). These birds can breed throughout the year with a summer (December) and winter (May) egg laying peak (Brooke *et al.* 1982). In the deposit the birds were all less than a year old, which indicates that the people could have been living at Klasies either during summer or winter, or both. The birds were most probably scavenged from the beach because hunting them would also have been extremely difficult. They usually fly off long before one can get close. It is doubtful whether these marine birds made any significant contribution to the diet.

CULTURAL REMAINS

Due to the small size of the excavation only a few artefacts were recovered. These included a small number of stone tools, a few ochre fragments and ochre stained cobble chunks and a few ostrich

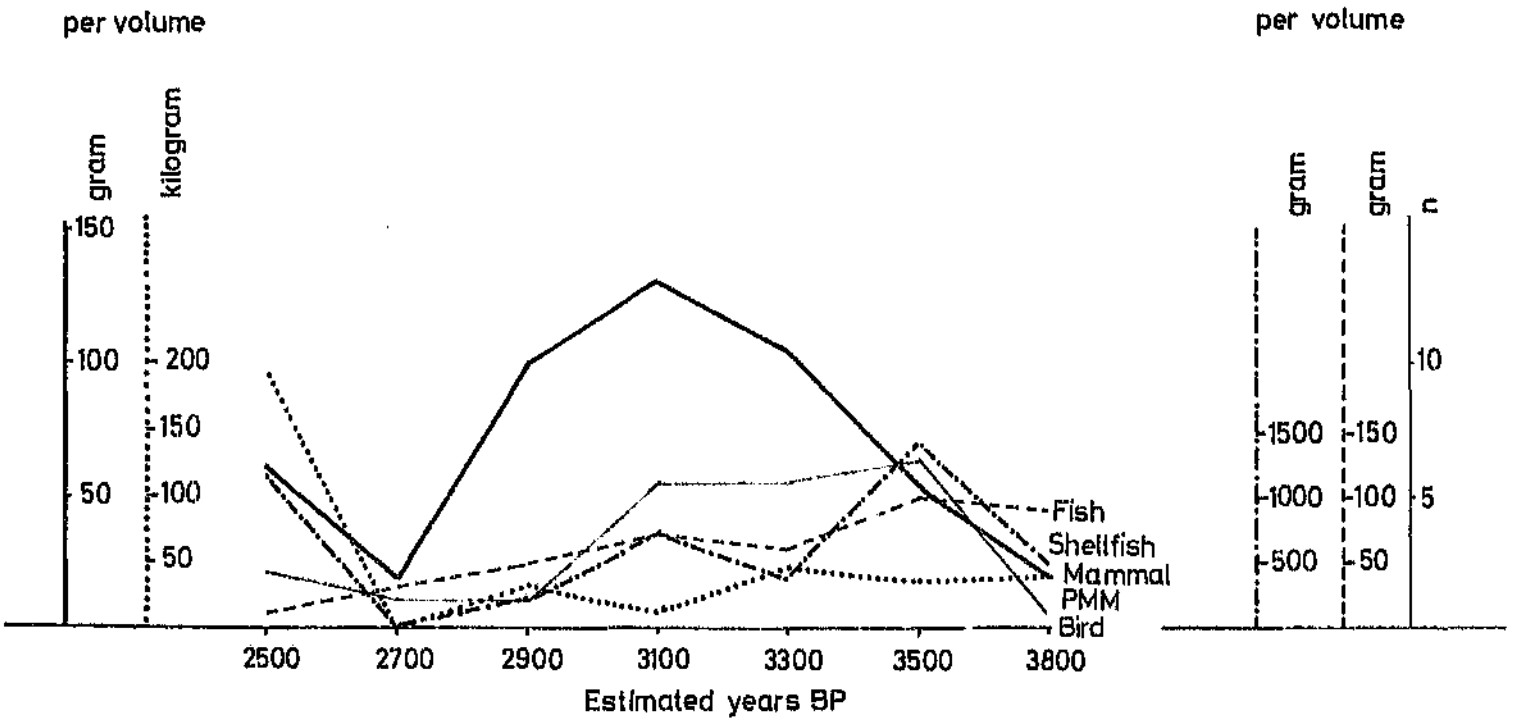


Figure 32. Food and cultural densities from Klasies River Cave 1.

The bottom units, 6 and 7, comprised loose dark brown soil and carbonised lenses with abundant fish, fish scale and bird remains. Stone tools were present in small numbers. Unit 7 laid on top of sterile white sand of Pleistocene origin.

SUBSISTENCE AND DIET

Mammals remains

Only a few terrestrial mammals, mainly small to medium bovids were recovered from the excavation (Table 30). This seems also to be the case for the Singer and Wymer excavation (1982:150, table 12.2) although this may be due to sampling. *Syncerus caffer* was well represented in the Singer and Wymer excavation and one was present in the 1984 excavation. The remains of only one other large animal, *Equus* sp., was recorded in Layer 7. The 1984 excavation surprisingly yielded only one Cape Fur Seal. No mammal bone was recovered from unit 2. The mammal bone mass per volume recovered from the site showed a pronounced peak at approximately 3600 BP (Layer 6), whereafter it decreased sharply and peaked again slightly at ca 3150 BP (Fig. 32). The PMM did not show this pronounced peak, but declined markly when mammal bone peaked at ca 3150 BP. From Layer 2 it showed a dramatic increase again. The mean mammal bone mass per volume for Cave 1 was 35,2 gram and the mean PMM was 50,3 k

Shellfish

Results of the shellfish species analysis are different to those obtained by Voigt (1982). It is evident that the samples she analysed were biased (also the impression of E. Voigt, pers. comm.). Today *P. perna* is super abundant along the Klasies coast, and it is not surprising that this species was dominant in the deposits. It accounts for between 70% of the total frequency and 72% of the total meat mass (Table 32). *T. sarmaticus* follows with 5,6% and 12% respectively. None of the other species were of any importance. The ERR's for all layers (between 32% and 39%) are more than 30% which is similar to that recorded at the Kabeljous and Wilton open sites along the Cape St Francis coast. The shellfish meat mass per volume shows a marked increase from Layer 7 (3780

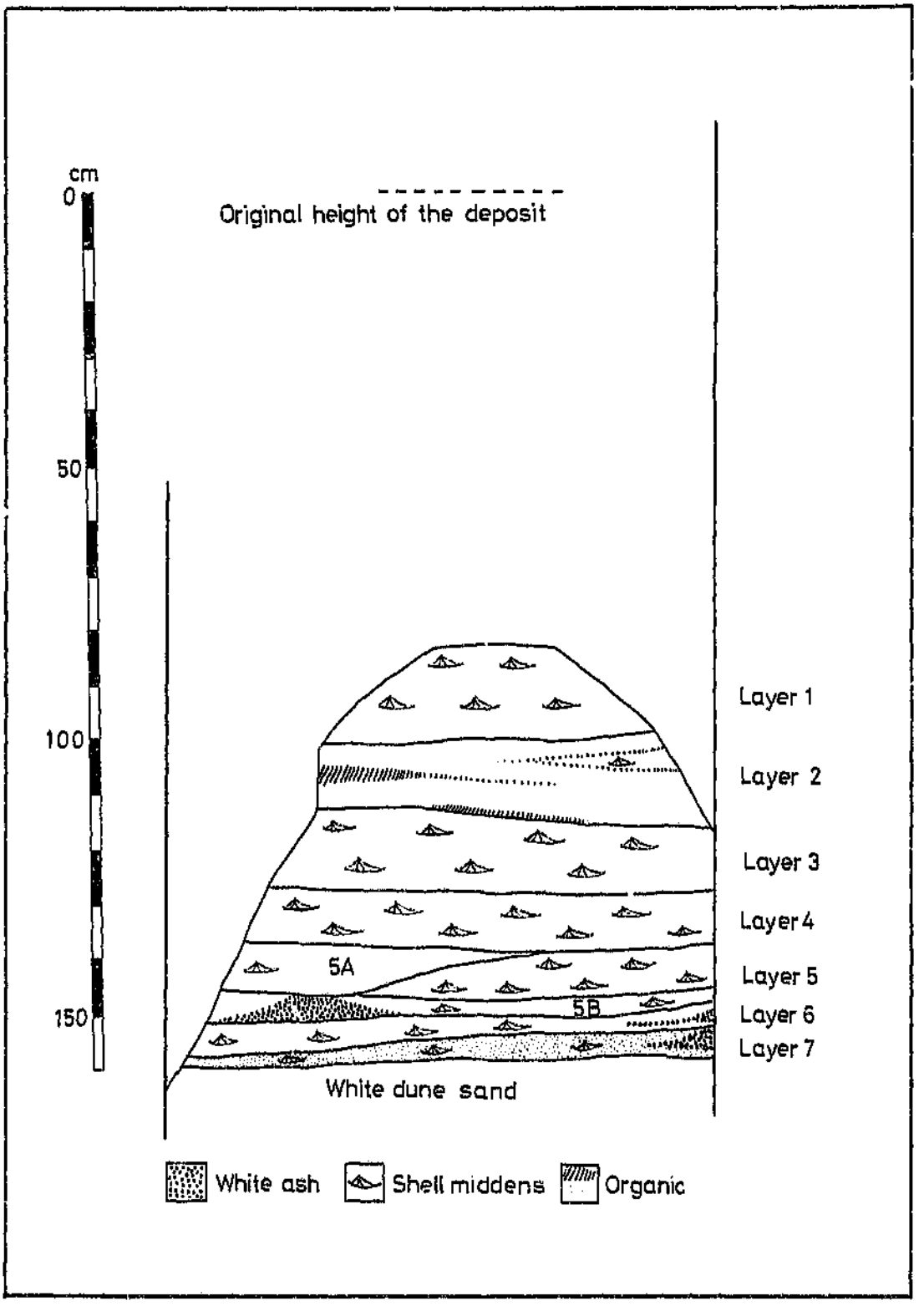


Figure 31. Section drawing of the excavation at Klasies River Cave 1.

whereafter it increases gradually again. Individual birds peak briefly at ca 3400 BP (Midde 1 6) and fish remains at ca 2200 BP (Midden 2/3). The large numbers of ochre stained stone tools and painted stones indicate Cave 5B was an aggregation site. Ochre is an important ceremonial item for body decoration, rock paintings and for covering burials (Rudner 1982, 1983). These items also show that 5B was used for ceremonial purposes by the Kabeljous groups.

As was the case at Shelter 1, the food waste and cultural densities per volume at Cave 5A show three pronounced peaks (Fig. 36). The first occurs at ca 3350 BP (Midden 1) when five of the seven indicators peak. The second occurs between ca 2750 BP and 2500 BP (units YSM and AF/MA4) with only mammal bone declining during this period. The third peak occurs at ca 2050 BP (unit MA). The PMM per volume, however, does not follow these general trends. Apart from a dramatic peak at ca 3000 BP and a minor peak at ca 2050 BP, it shows little variation. The very bottom units show an increase in mammal bone, fish bone and individual bird densities per volume similar to that at Cave 1, except for the decline in shellfish and stone artefacts.

The changes from the Wilton units to the Kabeljous units at Cave 5A provide some interesting information. All the indicators, except for mammal bone mass per volume, show an increase at this time which in this case is similar to the initial occupation at Cave 1. The same pattern of increased exploitation of marine resources and a decline in mammal bone at the beginning of the Kabeljous occupation is also visible at Cave 5A. From this pattern it may be said that one would have expected an increase in the mean densities of marine food waste per volume for the Kabeljous occupation and should be much higher than that of the visiting Wilton groups, because they were living permanently along the coast and had access to marine resources all year round. However, this is not the case. For example, the mean shellfish meat mass collected in the Wilton units (1498,5 grams) is higher than the Kabeljous units at Cave 1 (1389,6 grams), Cave 5A (1152,3 grams) and Cave 5B (1061,1 grams). The mean marine fish weight from the Wilton units (28,3 grams) is also higher than the Kabeljous units at Cave 5A (27,5 grams) while it is insignificantly

peak at ca 3600 BP when mammal bone peaks, but remains constant in the bottom units and drops markly at ca 3159 BP when mammal bone peaks. In general the food waste densities per volume show sharp increases for a limited period after the initial occupation of the site and then gradually decline. Although it is not possible to predict any patterning for the last ca 2500 years, the mammal bone, the PMM and shellfish meat mass per volume suggest another peak between ca 2500 BP and 1800 BP.

Again it is difficult to explain these patterns because of the small sample and the many unknown factors which may have been responsible. For example, the dramatic increase in mammal bone in the bottom layers suggest that hunting and trapping were important to the diet. The mean PMM per volume (50,3 kg), however, does not show this increase. This may indicate that more complete animals or bone-containing parts for the extraction of marrow were in the bottom units. The sharp increase of shellfish (from 0,4 kg per volume in unit 7 to 2,6 kg. per volume in unit 4) and the decline of the PMM per volume indicate that shellfish became more important as a food resource and replaced hunting and trapping to a greater extent. After unit 4, however, shellfish declines significantly as a supplementary food resource in unit 1. In general there appears to be an increase in the exploitation of marine resources in the earlier units. I suspect that the earlier units represent a continuous growth in people living at the site (for extended periods or during possible aggregation phases). The decline after ca 3150 BP in all food remains signal a drop in the number of people living at the site or a change in the site activity. It is possible that after ca 3150 BP the large group fragmented or the site was no longer used as an aggregation centre. In fact the decorative items and stone artefacts per volume do not support aggregation. The mean PMM per volume (50,3 kg) is also notably lower than that of the Kabeljous occupation at Shelter 1 (87,1 kg), Cave 5A (99,3 kg) and Cave 5B (73,4 kg) which were probably aggregation centres.

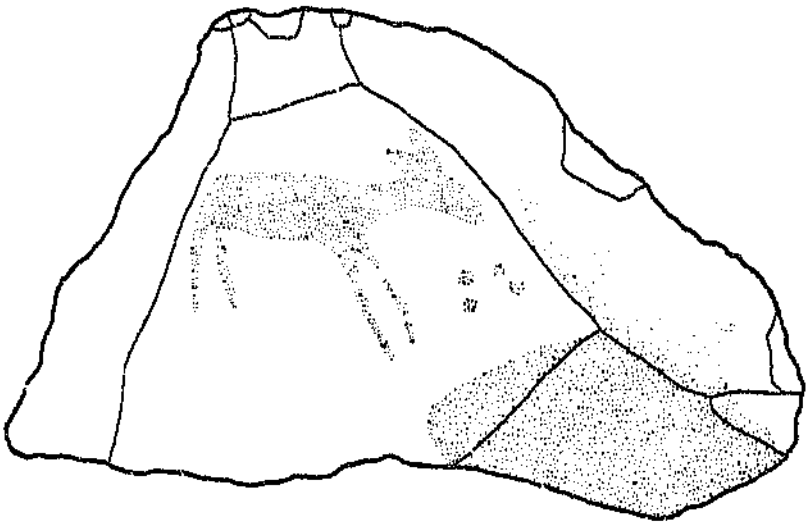
The food waste densities per volume at Cave 5B show little patterning through time (Fig. 39). Mammal bone shows a gradual decline from the bottom layers until ca 3500 BP (Midden 5)

however, com. n that the Kabeljous Industry dates at least 4000 years old. Furthermore, Caves 5A & B were first occupied at approximately the same time (ca 4200 BP) by two groups with different stone tool traditions, although perhaps not necessarily simultaneously.

The limited excavation at Cave 1 makes it difficult to draw any major conclusions about site utilisation. Furthermore, since almost a metre of the top, representing the last 2500 years, has eroded away, it is virtually impossible to interpret the whole sequence as well as compare it to other sites. One aspect is clear, however, from the food and cultural densities from Cave 1 and Cave 5B. In comparison to Kabeljous River Shelter 1 and Cave 5A, activities remained similar or changed slowly without short 'bursts'.

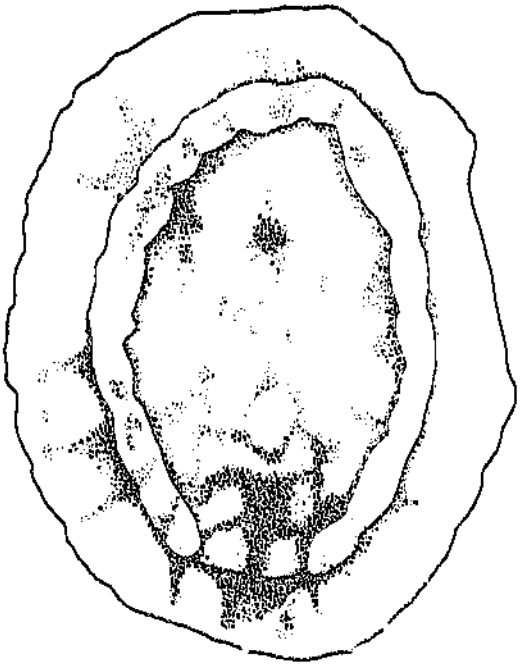
The shellfish remains from Cave 1 indicate that the occupants practised a specialised and economical collecting strategy. The ERR (36,5%) for Cave 1 is the highest for the Klasies River sites and is also similar to most of the other Kabeljous sites along the Cape St Francis coast. The reason being that the occupants collected mainly *P. perna*, which has a relatively high ERR. The mean mammal bone weight (65 grams), fish bone (35.2 grams) and individual marine birds (4) per volume in Cave 1 are also notably higher than the other Klasies River sites. The reason for this is not clear, but it may be possible that larger groups stayed at Cave 1 since it is a larger cave. The relatively large frequency of marine bird remains suggest that the cave was occupied for extended periods or that the occupation coincided with the seasonal availability of marine birds. However, it would appear that little material-culture production took place at the site. If this is not due to sampling, then the evidence does not support an argument for aggregation. On the other hand, ostrich eggshell beads, marine beads and other ornaments may not necessarily indicate aggregation at coastal sites. I return to this point.

The food waste densities per volume (Fig. 32) indicate that there were sharp increases in mammal bone, bird, and shellfish meat mass in the bottom layers (3780 BP). After ca 3150 BP both fish bone and individual birds per volume decli gradually. The PMM per volume does not show a

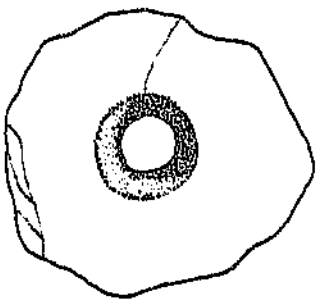


Painted stone KRM 5B E22 L4 M5





Ochre stained P. tabularis shell
KRM 5B D22 L2 M2



Bored ochre
KRM 5B D22 L2 M2

Figure 40. Painted stone, *Patella tabularis* ochre 'container' and a bored ochre piece from Klasies River Cave 5B.

Fish remains

There was a low mean of 1,5 grams of fish bone (Table 37) with the only significant increase at approximately 2200 BP (Fig. 39).

Cultural remains

Lithic artefacts

The large number of bored stones, grindstones, rubbers, hammerstones, flaked cobbles, flakes and large segments represents a typical Kabeljous Industry. Of the utilised tools 52% were ochre and/or charcoaled stained (Table 39). Stone artefact production was low and showed only a marginal increase per volume in the surface units.

Non-lithic artefacts

Apart from the two painted stones found by Singer and Wymer (1969, 1982), another stone with a small red buck was found during June 1984. This find is dated to 3900 ± 50 BP (Pta-3906) (Binneman 1985, 1993) Other artefacts related to painting included a ochre stained Patella tabularis container and a large piece of bored ochre (Fig. 40).

No ostrich eggshell beads were found, but there were a few marine shell ornaments, including two *Donax serra* pendants and one 'scraper' (Table 33). Excavation 5B is the only Klasies River site which yielded D. serra ornaments.

DISCUSSION OF THE KLASIES RIVER SITES

Of the three sites excavated, two were initially occupied by Kabeljous groups (Caves 1 & 5B) and one by Wilton groups (Cave 5A). Cave 1 was occupied for the first time at 4700 BP (Singer & Wymer 1982), and this is the oldest date for the Kabeljous Industry in the south-eastern Cape. There is no reason to reject the older dates obtained by Singer and Wymer in favour of the younger date of 3780 BP. The sample for the latter date was collected from the eroded witness wall left by the previous excavators and contamination can therfore not be ruled out. Two dates from KRM5B,

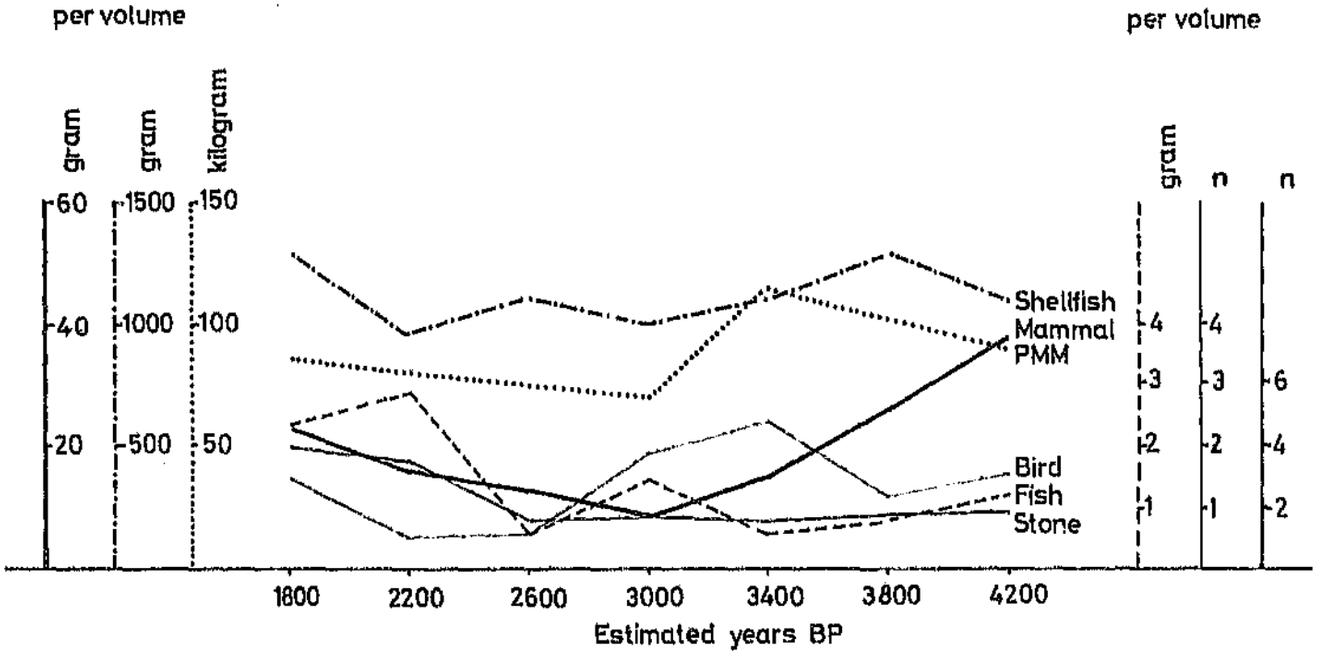


Figure 39. Food waste and cultural remains densities from Klasies River Cave 5B.

individuals could be identified from the badly preserved fragments. The mean mammal bone mass per volume for the excavation was 19,1 gram and the mean PMM per volume was 73,4 kg. Mammal bone mass per volume declined from the bottom units until ca 3000 BP whereafter it continued to increase marginally. The PMM per volume peaked at ca 3400 BP, declined briefly and then levelled out (Fig. 39).

Shellfish

Limpets were the dominant shellfish in almost all occupation layers (Table 38). *P. longicosta* was the most important, except in Middens 5 and 3 where *P. tabularis* accounted for the highest meat mass, and in Midden 6 where *T. sarmaticus* provided the highest meat mass. *Oxystele* spp. and *P. perna* were only present in small percentages, except in Midden 1 where the former accounted for the second highest frequency, and in Midden 8 where *P. perna* provided the highest meat mass. Overall *T. sarmaticus* (12,9% [26,8%]) contributed the highest meat mass, followed by *P. longicosta* (38,6% [26,3%] and *P. tabularis* (8,2% [25,1%].

In general, shellfish species with a relatively high meat mass were collected while species with a low meat mass, like *Oxystele* spp. were ignored (except for Midden 1). *P. longicosta* occurs in the neap tide low zone (Killburn & Rippey 1982:38) and its high frequencies indicate that collecting took place mainly during spring and neap tide lows. It would appear that very little collecting took place during other periods of the tide cycle (low frequencies of *P. perna* and *P. oculus*). The ERR's, except for Midden 6 (30,6%), were all lower than 28% and the mean ERR (27,1%) similar to that for the Kabeljous units at Cave 5A (Fig. 39).

Marine birds

Of the 131 birds recovered, 100 were *P. c. lucidus*, virtually all sub-adult birds (Table 37). There was a mean of 1,4 individuals and only one pronounced peak at ca 3400 BP (Fig. 39).

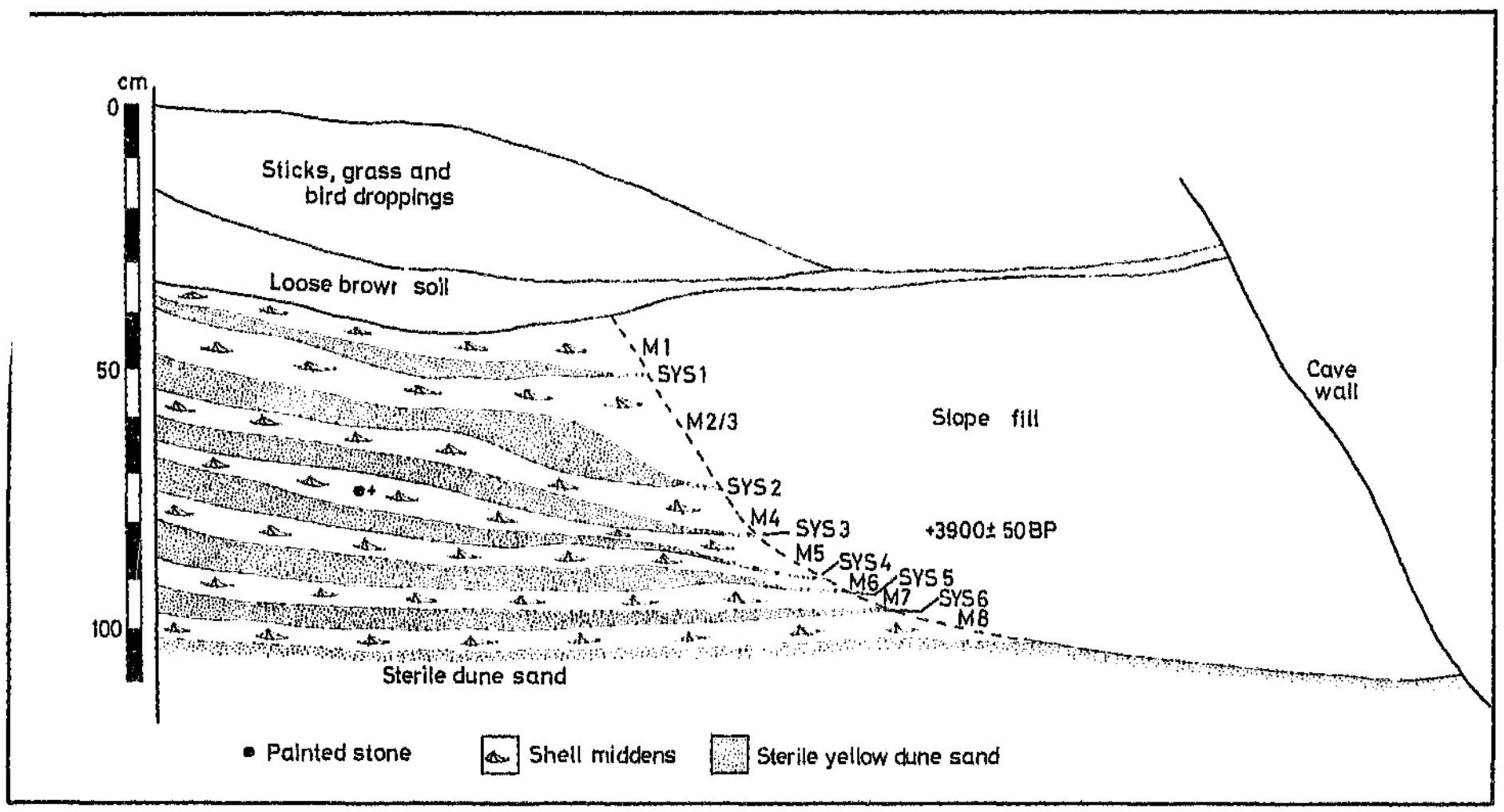


Figure 38. Section drawing of the excavation at Klasies River Cave 5B.

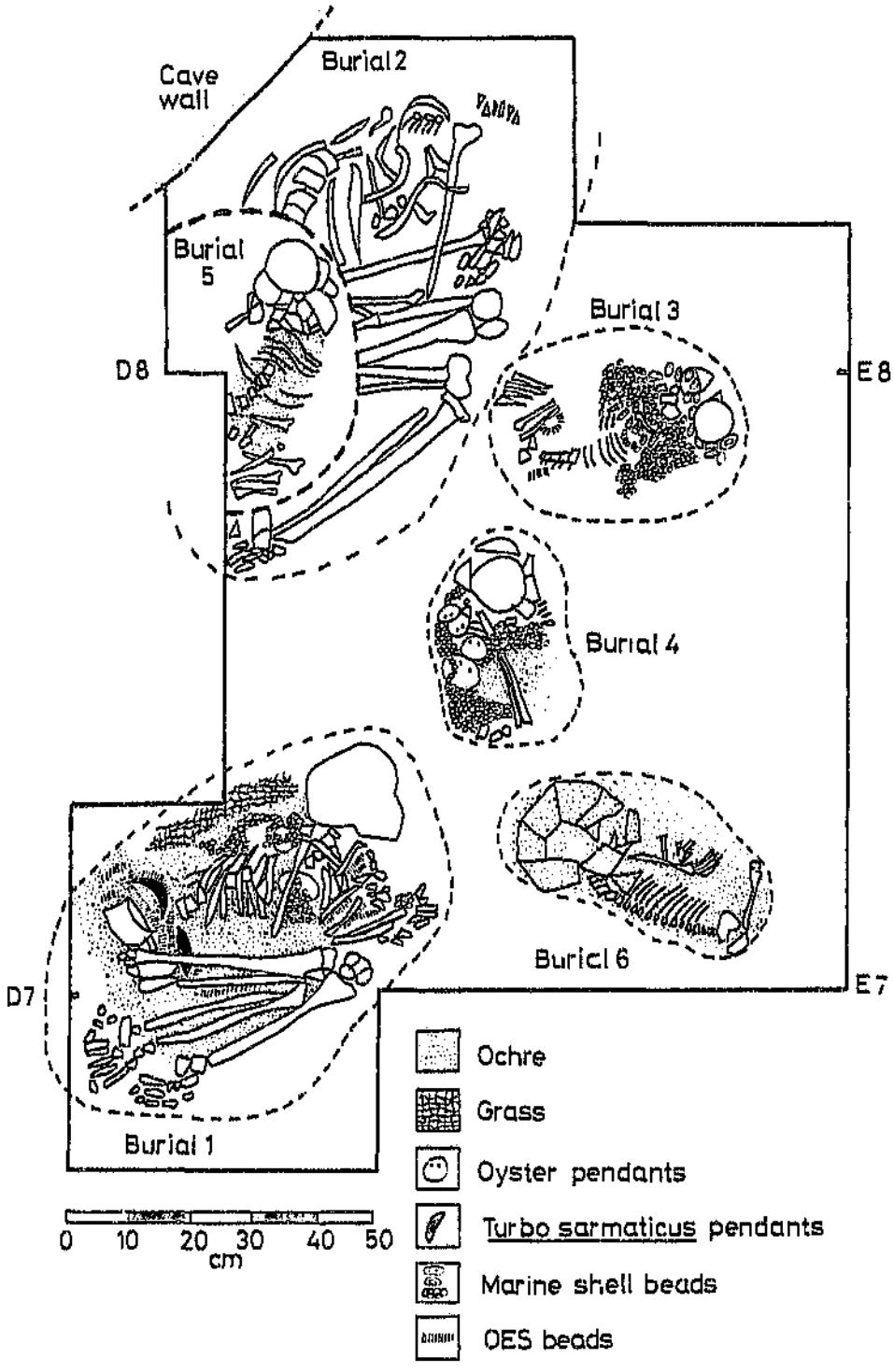


Figure 37. Plan drawing of the burial complex at Klasies River Cave 5A.

KRM5A/6, was located some 35cm below the lowest occupation floor in white dune sand (Fig. 37). It most probably belonged to the earliest occupation (4230 BP). Although no grave goods were found, it was covered with a thick layer of red ochre.

REAR EXCAVATION (5B)

This trench was placed next to the Singer and Wymer 1982 excavation. The excavation covered approximately 2,5 m^2 to a depth of 0,90 m. I encountered some major problems. First, the previous researchers removed the archaeological deposit from a 4 x 2 m area and then used it as backfill without adequate scientific sampling. Secondly, there are shortcomings in their interpretation of the stratigraphy. For example, in the drawn section (Singer & Wymer 1982:133, fig. 10.2), the Later Stone Age deposits are two to three metres thick. Re-excavation indicates that these deposits are no thicker than 1,10 m. Furthermore, it is clear from the photograph (Singer & Wymer 1982, plate 47) and the original witness section that a large part of the deposit against the wall was slope fill. Analysis of the fill indicates that it originated from the entrance occupation: (A) these deposits were loose and well sorted with little soil matrix: (B) thick lenses of very loose *Oxystele* spp. were present, as in the top of the slope deposits, but *Oxystele* spp. were present only in small numbers in the adjacent *in situ* occupation layers. The test pit (5C) half way down the slope revealed similarly loose deposits.

The *in situ* Later Stone Age deposit in 5B consisted of a series of shell lenses alternating with lenses of sterile dune sand (Fig. 38). The base of the Later Stone Age deposit dates to 4110 $\pm$ 160 BP (GX 1378), and overlies a thick layer of dune sand covering Middle Stone Age deposits (Singer & Wymer 1969, 1982).

Subsistence and diet

Mammal remains

The species were similar to those recorded from the other Klasies excavations (Table 37). *Syncerus caffer* was present in four layers. Although unit M7 yielded the highest mammal bone mass, no

here yielded only quartzite flakes and none of the heavy duty cobble tools that characterised this Industry at other sites.

Lithic artefacts per volume show four major peaks at ca 4200 BP (unit M6), 3300 BP (unit M1), 2500 BP (unit AF/MA4) and 2050 BP (unit MA) (Fig. 36). There was a marked difference in the mean frequency of stone artefacts per volume between the Kabeljous units (10,3) and the Wilton units (4,7).

Non-lithic artefacts

Botanical

A small number of wood shavings were recovered from unit HF. Although no wooden artefacts were found, the shavings indicate that they were manufactured and/or maintained at the site.

Shell

Marine shell ornaments and ostrich eggshell beads were well represented in the Kabeljous units (Table 33). Not many ornaments were associated with other Wilton artifacts and the mean number per volume of 0,4 was substantially less than the 4,3 recorded for the Kabeljous units. *Nassarius kraussianus* beads were present in both units, but appeared to be more abundant in the Kabeljous units. *Tricolia capensis* beads and *Turbo sarmaticus* 'buttons' and 'roughouts' were relatively abundant in the Kabeljous units but absent from the Wilton units. These two items were also present in large numbers in the burials (Hall & Binneman 1987). Ostrich eggshell beads were relatively abundant in the Kabeljous units (62), but less so in the Wilton (7). The ornament frequency per volume showed only two distinct peaks, both in the Kabeljous units at ca 2500 BP (unit AF/MA4) and 2050 BP (unit MA) (Fig. 36).

The burial complex

The burial complex has been discussed in detail elsewhere (Hall & Binneman 1987). Subsequently, burial KRM5A/1 was radiocarbon dated to 1860 + 40 BP (Pta-4636). In 1992 another burial,

probably of human origin. *Freezia* sp. accounted for the bulk of underground plant remains. Some *Watsonia* sp. and *Moraea* sp. were also present. Dense stands of *Watsonia* sp. have been observed on the coastal foreland between November and February. The plant remains suggest that occupation of unit HP took place during the warmer months. Other plant inclusions were grass leaves and bases, sticks, bark, leaves, moss, pieces of reed and sea grasses which were loosely attached to shellfish.

Marine birds

The excavation yielded a large number of bird remains (106) (Table 34). *P. c. lucidus* (73) were the most important numerically. As at Cave 1, virtually all the birds were sub-adult. There is no difference between the Wilton and Kabeljous units regarding the mean number of individuals. In both units, 1,2 individuals per volume were captured. Individuals per volume show three pronounced peaks, at ca 4000 BP (unit M5), 3300 BP (unit M1) and 2750 BP (unit YSM) (Fig.36).

Marine fish

The mean fish bone per volume for the Wilton units (28,3 gram) was marginally higher than that of the Kabeljous units (27,5 gram). Fish remains per volume showed a slow increase from the bottom units, peaking at ca 3300 BP (unit M1). After a short steep decline, it increased sharply to peak between ca 2800 BP (unit YSM) and 2500 BP (unit AF/MA4). Whereafter it declined sharply to low densities in the surface units (Fig. 36).

Cultural remains

Lithic artefacts

Although the lithic artefact sample was small, the Wilton Industry was present prior to unit OGY (2980 BP). Follow-up excavations confirmed this observation. A few scrapers, a backed flake and core reduced pieces manufactured from quartz and silcrete were found (Table 36). No microlithic stone tools were present from unit OGY to the surface. Apart from two quartz flakes from unit OGY, no fine-grained raw materials were found in the Kabeljous units. The Kabeljous Industry

An aspect closely related to 'ownership' and access to territories and resources was the meaning of cave burials and other features such as storage pits. As mentioned earlier, Hall (1990) suggests that the increasing number of cave burials during the late Holocene is evidence for group rights, or 'ownership' of sites, resources and stronger boundary maintenance. Pardoe (1988) argues a similar situation for Australia.

The meaning of the group burials at Klasies River Cave 5 and other coastal caves is still unclear, but appears not to support fully the above argument of exclusion. Burials were found at the entrance of Klasies River Cave 5 in both the Wilton (Klasies River Cave 5A/5 & 6) and Kabeljous (Klasies River Cave 5A/1, 2, 3, & 4) occupation units. Wilton groups buried their dead at the entrance, therefore, at a time when Kabeljous groups still utilised the rear for ceremonies. A possible explanation is that the Kabeljous groups, until sometime before 3000 BP, were not yet 'successful in negotiating' exclusive rights to cave sites. The Wilton groups on the other hand buried their dead in the cave to secure their bargaining rights to at least the coastal foreland if they were excluded from the cave. It was only sometime after 3000 BP that the Kabeljous groups negotiated exclusive rights to cave sites and buried their dead at the same localities. However, the Wilton groups were not excluded from other parts of the coast. A similar situation is evident from St Francis Bay where a Wilton burial was dated to 5180 BP (Thackeray & Feast 1974) and the area was later shared by both Kabeljous and Wilton groups. From this evidence it should be clear that the presence of burials in a specific area did not enable a group to exclude others, or to give them 'ownership'. Burials, and other features for that matter, could only serve as reference points in the process of information exchange between groups as to where they may or may not go. They could only be used in power relations to 'bargain' or to get other people to comply with a point of view. The fact that Wilton people were buried at the coast probably supported their claims of access.

What we are witnessing appears to be selective exclusion of visiting Wilton groups from certain places, notably from caves that became aggregation, ceremonial centres or special burial grounds.

Thus the Kabeljous Industry was created under specific social conditions to "act out deeper meanings" by groups who decided to settle permanently along the coast. Quartz crystals or fine grained raw material such as silcrete, that were associated with the Wilton Industry, are rarely found in the Kabeljous assemblages. This indicates that the Kabeljous groups did not travel beyond the coastal foreland to collect these items. They were not interested in obtaining quartz crystals or silcrete from the visiting inland people either.

Equally important is the fact that this expression of identity was not aimed at excluding other groups, as Hall (1990) suggested for the eastern Cape Midlands, but rather at including them. The important point evident from the system of inclusion as practised between the Kabeljous and Wilton groups suggests that territories and resources were not exclusively 'owned' by groups.

As demostrated earlier, the Wilton groups were inland visitors to the coast from time to time and they probably had requested permission from the resident Kabeljous groups. From the archaeological evidence, it is clear that permission was not refused. As a matter of fact Klasies River Cave 5 shows that they even shared the same cave for a thousand years. By asking permission to share the coastal resources, Wilton groups acknowledged the Kabeljous groups as independent with their own identity, social space and 'right' to resources. Thus through signification social relationships of autonomy and dependence were established that made it possible for the different groups to share space and resources.

By sharing information on the location of resources with visiting Wilton groups, and by directing them to these areas, the Kabeljous groups were in a position to control and monitor their movements, thereby avoiding social pressure through competition for the same resources, and also preventing them from exploiting favourite or scarce resources. In this sense information sharing was a much more effective way of monitoring the movements of neighbouring groups than excluding them from a territory and physically patrolling boundaries to keep them from 'sneaking' in.

not directly related to meat procurement. This conclusion is also supported by the fact that the Kabeljous groups with a quartzite industry maintained a higher PMM capture rate than those groups with a microlithic industry. Because the subsistence strategies for both industries were similar, ecological models are inadequate to explain this phenomenon.

In chapter three I discussed the social approaches that contributed to the model of symbolic construction of communities along the south-eastern Cape coast. Central to the understanding of the social relations that existed between the two different groups is the concept of power relations as discussed by Giddens (1979). Power is always a two-way relationship and it is an integral part of all social interaction. Resources are the media through which power is exercised and structures of autonomy and dependence are produced and reproduced. These structures always operate in conjunction with signification which in turn plays an important role in the generation of group identity and maintenance of social space. I will now discuss the role power relations played in the constitution of communities along the south-eastern Cape coast.

When groups settle permanently in a new region, they will ultimately create information networks about themselves different from those by which they were previously identified. The systematic change from an inland stylistic information system to a coastal one was a slow process at Nelson Bay Cave, although it appears to have been a rapid process at Kabeljous River Shelter 1 and Klasies River Cave 5A. The process was most probably similar to the formation of new groups and new territories as described by Silberbauer (1981) for the G/wi.

The lithic evidence from Klasies River Cave 5 illustrates the role material culture, especially style, played as a communication medium enabling groups to create active information networks about themselves. The fact that similar subsistence patterns were associated with both industries clearly indicates the Kabeljous Industry must be seen as a meaningfully constructed social strategy by coastal groups to transmit information about themselves and their territory in response to the already existing information networks of the inland Wilton tradition.

CHAPTER EIGHT

TOWARDS A 'TRANSLATION' OF THE HOLOCENE LATER STONE AGE SOCIAL LANDSCAPE IN THE SOUTH-EASTERN CAPE

In the previous three chapters I have outlined the archaeological observations made along the south-eastern Cape coast and the adjacent Cape mountains. The archaeological evidence presented for the coast clearly reflects technological changes which, although similar, are not as clearly defined as those observed at Nelson Bay Cave. The small size of the excavations at Kabeljous River Cave 1 and the Klasies River sites does not allow micro-level changes to be detected. One important technological development, however, has been recorded for the coastal region. Large segments/backed flakes manufactured of quartzite appeared ca 3000 BP, and it would seem that these tools had a limited geographical distribution. They have been found from Klasies River in the west to the mouth of the Great Fish River in the east, but they probably extend as far east as the Transkei coast.

Archaeological observations indicate that two different lithic industries, the Wilton and Kabeljous, existed contemporaneously along the coast from ca 4700 BP to 1900 BP. Prior to this date only groups with a Wilton microlithic stone tool industry visited the coast. Wilton Industries were present at Kabeljous River Shelter 1 from ca 5800 BP and at Klasies River Cave 5A from 4230 BP. From ca 3000 BP the microlithic tool tradition disappeared from the cave sites, but was still found in the open-air shell middens until ca 1900 BP.

The presence of both industries at Klasies River Cave 5 from ca 4200 BP - 3000 BP presents a unique situation where the same cave space was shared by different groups, although not necessarily at the same time. As I pointed out earlier, the stylistic composition of the Kabeljous Industry represents neither the dispersal phase nor gender relations. Because the terrestrial faunal species present in the two different industries were similar, it follows that the lithic technology was

for ceremonial purposes. The species exploited by the Wilton groups, *Oxystele* spp. and *P. perna*, are abundant along the Klasies coast, more so than *Patella* spp. (pers. observ.) and would not easily have been over-exploited. By entering into socio-economic agreements of this nature both groups would have benefitted from the exploiting of marine resources in the same region. If this was indeed the case, it is an excellent example of the type of power relations and inclusive behaviour which persisted among prehistoric populations along the Cape St Francis/Tsitsikamma coast. To reduce competition for territorial resources inclusive power relations was an effective "risk management strategy".

It should be clear that changes in the lithic industries at Cave 5A and Shelter 1 were not related to 'new adaptations' to coastal environments. Ecological paradigms can not adequately explain this phenomenon, and therefore I turned to social models. The presence of microlithic stone tools in the earlier occupation units probably reflect regular visits to the coast by groups from the adjacent Cape mountains. The disappearance of the microlithic stone industries from the cave sites indicate that these inland groups settled permanently along the coast. In the process these Wilton groups 'dropped' the microlithic stone toolkit, and possibly also other cultural identity markers and created their own 'new' identity markers through *Tricolia capensis* beads and *Turbo sarmaticus* 'buttons'. Ostrich eggshell beads and scraper/pendants are virtually absent from the Kabeljous units at Shelter 1 and Cave 1, but abundant in the Wilton units. On the other hand, a high frequency (much higher than the Wilton units) is present in the Kabeljous units at Cave 5A. There is no evidence, however, to suggest that the beads were manufactured there. Perhaps the ostrich eggshell beads were gifts, or traded from the inland visitors. I discuss these aspects in more detail in chapter eight.

It would appear from this information that aggregation can come in different formats from those outlined by Wadley. From the data presented for the Transvaal sites there is little doubt that the archaeological observations appear to fit the aggregation/dispersal model. However, as Hall (1990) remarked, this model "is less plausible" for the eastern Cape sites. Virtually without exception all Holocene sites contain most of the indicators for aggregation throughout their sequences. This does not imply, however, that the system of aggregation/dispersal was not operative in the Cape Fold Belt, but rather that the archaeological record does not signal dispersal phases. I agree with Barham's (1992:46) view that the dispersal phases are "swamped by the sheer density of aggregation phase debris. Only under exceptional circumstances could the two be separated".

None of the scenario's discussed above seem to explain the different collecting strategies at Cave 5. Both deposits probably represent aggregation phases, but the range of species collected are different. The groups that occupied Cave 5B were most probably among the first to settle permanently along the coast, and they preferred to collect *Patella* spp. The Wilton groups who visited the coast periodically collected a different range of shellfish, and when these groups also decided to settle permanently along the coast, continued to collect the same species. However, there is another possible way in which this different collecting strategies can be explained.

The different collecting strategies were social-related. Meehan (1982) reported that although shellfish is a supplementary food resource among the Gidjigali people, it is still regarded as one of the prime resources of their territory. Furthermore, contemporary hunter-gatherers residents will direct visiting groups where to forage in order to 'protect' their scarce and favourite resources. This may have also been the attitude of the Kabeljous people. By allowing inland Wilton groups to share the marine resources with them, they placed certain 'restrictions' on the species they were allowed to collect. Although this explanation seems to be far fetched, it makes sense that the resident group would protect their favourite resources and prevent the over-exploitation of certain species, such as *P. longicosta* which were preferred by the Kabeljous groups who used Cave 5B

Industry are present in the Kabeljous Industry, but the tools are stylistically different. There are scrapers, adzes and segments, but they are large and therefore hand held opposed to hafted.

Another stone item mentioned by Wadley as an indicator of aggregation is unmodified quartz crystals. However, this item is the most important raw material used for the manufacturing of formal stone tools in the south-eastern Cape mountains, and many flaked and unmodified quartz crystals are found in the sites. Therefore apart from being used for artefacts and to signal a different social network, quartz crystals had little or no shamanistic value.

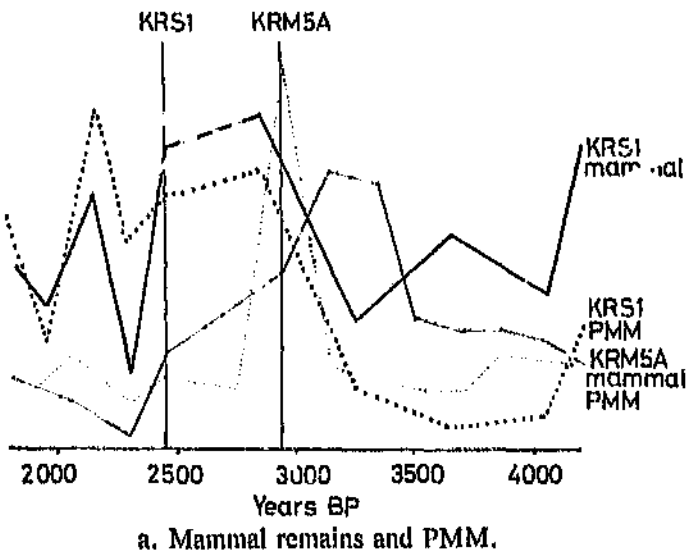
Wadley suggested that the presence and absence of *hxaro* objects such as ostrich eggshell beads and the remains of manufacturing them are among the main indicators of aggregation and dispersal sites. In this regard Cave 5 presents us with interesting information. The rear excavation (Cave 5B) yielded no ostrich eggshell beads, only six marine shell beads. However, three painted stones and an ochre 'container' were found in this area. One of the painted stones depicts a possible trance figure (Lewis-Williams 1984:2370). Furthermore, 36% of the utilised stone artefacts from the rear excavation display red ochre staining and 16% display charcoal staining (not burnt). Thus 52% of all the utilised stone artefacts (62 of 120) were in one way or another employed in manufacturing ochre and charcoal powder, presumably either to use as paint or body decoration. This would suggest that the rear of the cave was used for some ceremonial events which usually took place during aggregations phases. An interesting aspect is that apart from a large piece of ochre with a drilled hole no fragments were found, but this may be due to sampling.

The Kabeljous units at the entrance excavation (Cave 5A), on the other hand, yielded ochre fragments and a ochre stained floor, but none of the stone artefacts are stained. However, a large number of marine shell beads, 'buttons' and 'button roughouts' and ostrich eggshell beads were recovered from the occupation units. Three of the burials found in the Kabeljous units were decorated with some 4333 marine and ostrich eggshell beads. The mean number of ornaments per volume for the Kabeljous units is also much higher than that for the Wilton units.

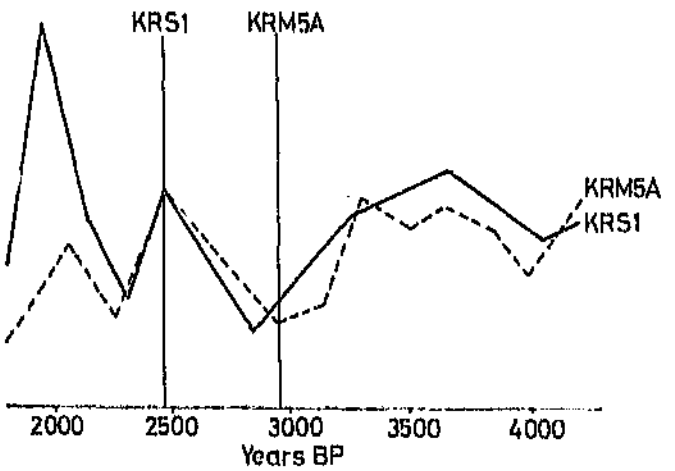
increase and cultural densities are low or decline, does this signal dispersal? If so, why the increase in economic activities? On the other hand, if it represents an aggregation phase why the low cultural production? Furthermore, if the cultural remains increase and the food waste declines, what does that signal? Thus it would seem that any increase in either food waste or cultural remains densities can be interpreted as aggregation and/or as periods of stress and *vice versa*.

The basal units at Shelter 1 show a dramatic increase in all activities and therefore probably represent an aggregation phase and/or increasing socio-economic pressure that most probably lead to group fragmentation. The first occupation of Cave 5A by inland Wilton groups took place simultaneously with the dramatic decline in food and cultural densities at Shelter 1. It is therefore possible that some group(s) that were formerly aggregated at Shelter 1 moved to Cave 5A. The period following the initial occupation at Cave 5A between ca 4200 BP to 3500 BP is in many ways similar to that observed at Kabeljous River Shelter 1. Some individual indicators such as marine birds and fish remains peak and decline again and others like stone artefacts decline dramatically. Shellfish meat mass initially declines and then rises again gradually, while mammal bone marginally increases. Decorative items are virtually absent, which may suggest that the site did not functioned as an aggregation centre for inland Wilton groups. On the other hand, the increase of all the indicators, except for decorative items, may suggest that the site was used as an aggregation centre for a short period. The most visible change occurred when the Kabeljous groups 'replaced' the Wilton groups. Virtually all the indicators, except for mammal bone, show major peaks at ca 2500 BP and 2050 BP. Decorative items also show pronounced peaks, which suggest that the site was a major aggregation centre for the Kabeljous groups.

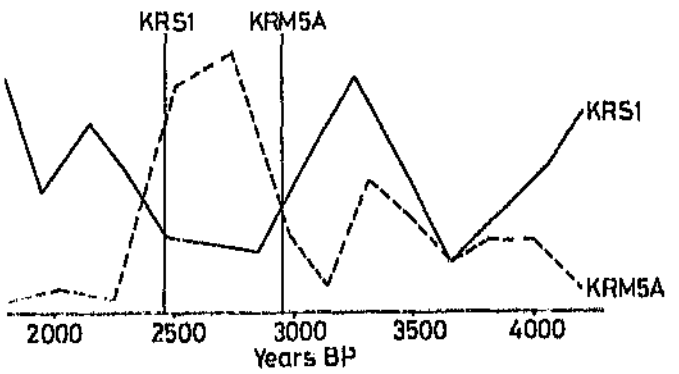
The stone tools from the Kabeljous Industry are in many ways similar to the definition for dispersal in that they are "unstandardised" in appearance, are virtually all recycled from other artefacts and only local raw materials (quartzite) were employed. Low frequencies of "curated artefacts" are also characteristic of the Kabeljous Industry. However, all the morphological elements of the Wilton



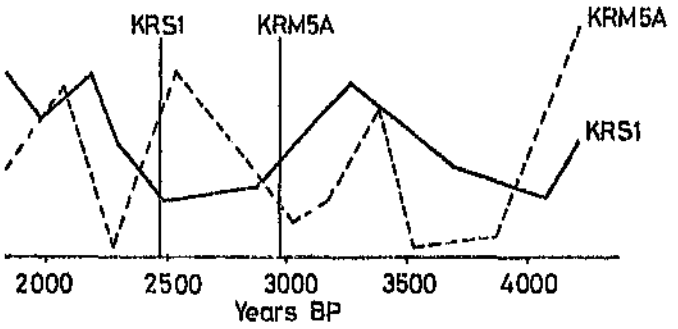
a. Mammal remains and PMM.



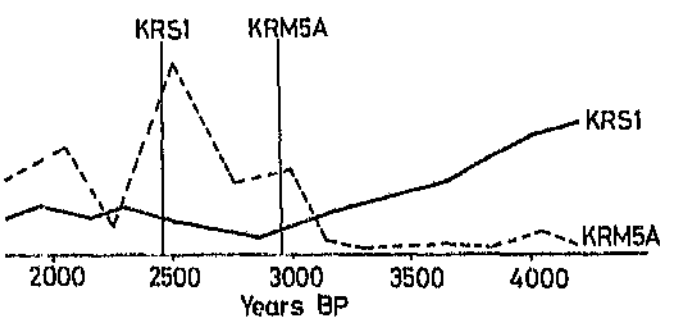
b. Shellfish meat mass.



c. Fish remains.



d. Stone artefacts.



e. Decorative items.

Figure 41. Food waste and cultural remains densities from Kabeljous River Shelter 1 and Klasies River Cave 5A during the past 4000 years plotted on the same estimated time scale.

DISCUSSION OF THE CAVE AND SHELTER SITES

The density of food waste and cultural material from Kabeljous River Shelter 1 and Klasies River Cave 5A during the past 5800 years is notably different from those presented by Mazel (1987b) for the Thukela Basin and Hall (1990) for the eastern Cape Midlands. Both record only one major peak period for the late Holocene, which they explain as an intensification and resource stress period brought about by population increases. Along the south-eastern Cape coast there were several periods of increased activity. When the individual indicators from Shelter 1 and Cave 5A are plotted against each other on the same estimated time scale, it is evident that most peaks are not synchronised (Fig. 41). The lack of synchronisation may indicate that the peak periods were the result of local (site) events and not geographical events.

Another important aspect is the patterning of the individual indicators at the change from Wilton to Kabeljous occupation. Initially mammal bone (decreases) (Fig. 41b), fish (Fig. 41c & d) and stone artefacts (increase) display similar patterns at both sites when the change from Wilton occupation to Kabeljous occurred. Opposite patterns are displayed by shellfish (Fig. 41b), PMM and ornaments (Fig. 41e). However, this is not necessarily a reflection of the situation for the whole of the Kabeljous occupation of the coast. For example, although the PMM per volume initially shows a dramatic decline at Cave 5A, the mean per volume is significantly higher than the mean for the Wilton units. Fish remains per volume increase in the Kabeljous units at Cave 5A, but the mean is still lower than the mean for the Wilton units. The same can be said for shellfish meat mass per volume. At Cave 5A the Wilton units contained a larger marine food per volume than in the Kabeljous units. This may be due either to a greater degree of marine exploitation, or the Wilton groups were slightly larger. In general there is only a marginal difference between the subsistence patterns of the two groups.

Densities of food waste and cultural remains pose another difficulty in establishing whether a site or time period represents an aggregation or dispersal phase. If the food waste shows a dramatic

recorded for the 'ceramic' shell middens. Evidently, then, the Wilton groups collected species generally associated with 'ceramic' middens, but the ERR was higher than that recorded in 'ceramic' middens and that of the Kabeljous units where a HG/HCF collecting strategy was followed. Furthermore, groups that occupied the same cave over the same time span practised a different shellfish collecting strategy. I will return to this point later.

The mean mammal bone weight in the Wilton units (28,8 grams) is, like the mean ERR, notably higher than that of the both the Kabeljous units (Cave 5A, 18% and Cave 5B, 19%). However, the mean PMM per volume for the Kabeljous (99,3 kg) and Wilton units (59,0 kg.) indicates that the capture rate of mammals by the Kabeljous groups was much higher although a similar range of species were captured. As is the case at Kabeljous River Shelter 1 when mammal and shellfish are combined, the mean food mass per volume is much higher for the Kabeljous (100,4 kg.) than the Wilton units (60,5 kg.). The shellfish contribution in the Wilton (2,2%) is also higher than in the Kabeljous units (1,1%). The plant material in the top units of Cave 5A suggest an occupation mainly during the warmer months. But the abundant remains of sub-adult marine birds also suggest occupation at other times of the year, or extended occupations.

Where the mean densities of food waste per volume are higher for the Wilton units, the situation is reversed for the mean cultural remains per volume at Cave 5A. Stone artefacts per volume for the Kabeljous units (10,7) are notably higher than the underlying Wilton units (4,7). The same holds for the mean ornaments per volume; Kabeljous units, 4,3, Wilton units, 0.4. Mean stone artefacts and ornaments per volume are insignificantly low at Cave 1 and Cave 5B. The relatively few microlithic stone tools and decorative items present in the Wilton units suggest that the site was not used for aggregation during this period. The microlithic stone tools at Cave 5A suggest that inland Wilton groups occupied the entrance of the cave when the rear was not occupied by coastal Kabeljous groups. The peak at ca 3350 BP of all indicators suggests that the site was then used briefly for aggregation. The absence of decorative items, however, does not support this interpretation.

low at Cave 5B (1,5 grams). The mean individual marine birds in the different units are similar. In general the density of food waste per volume in the Wilton units is higher than the Kabeljous units. This suggests that the Wilton groups may have been marginally larger than the Kabeljous groups occupying Cave 5. Alternatively, the reason for the high densities of marine food waste in the Wilton units may not necessarily have anything to do with group size, but rather with the intensity of exploitation. In this case Wilton groups exploited as much marine resources in their short visits as the resident Kabeljous groups did during the whole year.

The shellfish remains at Cave 5 display interesting patterns. Like Cave 1 the range of shellfish species stayed unchanged for some 4000 years. The shellfish remains from Cave 5A and Cave 5B display two totally different collecting strategies within the same habitat. The occupants at Cave 5A did not collect *Patella* spp. in any large numbers, while these species were dominant at Cave 5B. *Perna perna* and *Oxystele* spp. were the most important species collected at Cave 5A which coincide with the pattern observed at 'ceramic' middens. From the frequency percentages alone it can be argued that the shellfish remains, mostly *Patella* spp., suggest that relatively large groups stayed at Cave 5B. It is assumed that those species which provide relatively high meat mass per individual were collected to feed a large group while small groups collected smaller shellfish species. Still this does not explain the continuity in species at Cave 5A between the Wilton and Kabeljous units.

When the mean ERR's are taken into account, the difference in collecting strategies between the Wilton (31,2%) and Kabeljous units (27,5%) at Cave 5A becomes more apparent. The Wilton groups collected a higher frequency percentage of *P. perna* and lower frequency percentages of *Oxystele* spp. and *T. sarmaticus*. The mean ERR from Cave 5B (27,1%) is similar to that for the Kabeljous units at Cave 5A, although a different range of shellfish species were collected. The mean ERR for the Wilton units is similar to those recorded for the Wilton open-air shell middens along the Cape St Francis coast. The mean ERR's from the Kabeljous units coincide with that

Although it is not known how many people were involved in the exodus from the Cape mountains, it must have brought about some relief to the remaining populations. The drop of food and cultural densities at The Havens Cave support this interpretation. Furthermore, territories probably become progressively smaller and populations more mobile, as is evident from the long distance seasonal trips to the coast by groups from the Langkloof.

The period after ca 4500 BP is less clear. Apparantly The Havens Cave again became an important aggregation centre. The increases in PMM, decorative items and stone artefacts by ca 3700 BP indicate a renewed importance. The steep decline of the PMM and decorative items per volume after this brief aggregation phase suggests another 'relaxed' phase, but it is not known whether, or to what extent, the groups split again. Interestingly, large segments first appeared at the coast shortly after this second decline, but they were not accompanied by any obvious new procurement activities. These segments, therefore, were most likely another symbolic marker. It is not known, however, if the segments represented another 'wave' of inland groups settling permanently along the coast. The large segments may have been a reaction by the coastal people to 'strengthen' or 'widen' their range of symbols to demarcate their territory to an ever increasing number of inland visitors. The large segments appeared when Kabeljous groups replaced Wilton groups at Klasies River Cave 5A. The 'replacement' was also accompanied by a sharp increase in economic and social production and coincided with an episode of aggregation.

The data from The Havens Cape shows that more things happened between ca 4500 BP and 2000 BP, but that the archaeological signals are not clear. There was at least one 'pressure period' and another possibly beginning shortly before 2000 BP. The coastal sites on the other hand, as the recipient or host region, most probably reflect the inland events over the past 3000 years. Both Klasies River Cave 5A and Kabeljous River Cave 1 show pronounced peaks at about 2000 BP, and this probably represents yet another process of large-scale fission and beginning of another 'relaxed' period in which the Wilton Industry was further being transformed. As suggested earlier,

The increase in dated sites at the start of the Wilton probably reflects the wider spread of people through the landscape. These people were probably organised in small groups with relatively small territories (smaller than the preceding Albany period) with fixed boundaries (Deacon, H. J. 1976), which were communicated through a system of inclusion. The groups were probably more mobile than in the Albany to make use of the seasonal availability of resources in the different patches. Thus, this survival strategy created many more sites.

The 'relaxed' period at the beginning of the Wilton probably lasted for only a few hundred years because there are visible increases in activities at sites such as The Havens Cave. The increase reached its climax between about 5500 BP to 5000 BP when the coast and the Cape Midlands were permanently inhabited. The peak periods between ca 6500 BP and 5000 BP at The Havens Cave suggest the site became progressively important as a seasonal aggregation centre. It is possible that after ca 5000 BP another break-up occurred.

Evidently there were two strategies to release socio-economic stress in the Cape Fold Belt initially. First, some groups did not split permanently to occupy 'new' habitats, but rather opted for 'new' aggregation sites in 'new' habitats, but returned to the common territory during the dispersal phase. Kabeljous River Shelter was occupied for the first time at ca 5800 BP and probably became an important aggregation site for inland Wilton groups. The first increases in activities at Kabeljous River Cave took place shortly after the site was occupied, approximately the same time as the peak in inland activities. The relative high density per volume of decorated items is evidence for aggregation. After ca 4000 BP, however, the decorative items per volume steadly decline. Presumably the site ceased to be an important aggregation centre.

The second strategy was the decision to split and occupy 'new' habitats. The permanent occupation of 'marginal habitats', such as the Cape Midlands, dry inland areas and the coastal regions of the south-eastern Cape are best interpreted this way.

groups that remained. The smaller groups still interacted with the mother group, and most probably still shared the same information networks for a short period. At first decorative production was scaled down to spend more time on technological production. Apparently it was more important to create information networks about themselves than to create new exchange networks with other groups. Previous networks of exchange within the group were most probably maintained. Once the new group identity was established sometime around 6000 BP, individual and group exchange networks were accelerated. This is evident from the earliest Wilton units at The Havens Cave (6600 BP). As detailed earlier decorative production (beads and other ornaments) markedly decreased in comparison to the underlying Albany units, but technological production (stone artefacts) increased. *N. krausslanus* beads are absent and worked ostrich eggshell is virtually absent. Similar patterns of low decorative production are also present at Boomplaas, Melkhoutboom, Wilton, Uniondale, Edgehill and Byeneskranskop 1 at this time. The absence of *N. krausslanus* beads has been attributed to the flooding of some estuaries and lagoons during the mid-Holocene (Martin 1968; Deacon, J. 1984:250). This may be a reason, but the archaeological evidence rather points to social factors.

The change from quartzite in the Albany to fine grained material in the Wilton illustrates the creation of newly formed information networks. This change, as mentioned earlier, does not coincide with environmental changes or the fauna hunted. Although the manufacture of these artefacts may have been influenced from environmental experiences, they took place within social contexts. Further, the new range of tool types in the Wilton does not automatically mean that new tools had to be invented for new activities. The same activities were conducted with different looking tools which were also a medium of communication. For example, the introduction of kasouga flakes at Melkhoutboom, Wilton, Edgehill and especially Uniondale but not in the south-eastern Cape is clear evidence for a stylistic marker. Another stylistic marker is the stemmed and semi-stemmed bone and ivory points at Uniondale.

different system of intergroup co-operation came into effect, namely, active social interaction information exchange networks. In order for groups to communicate their identity and rights to territories and resources, people had to interact socially. This they did through an increase in decorative production. Examples of group identity expressed through style during the Albany period are evident in the elaborate bone ornaments and tools from Nelson Bay Cave, polished bone objects from BPA and relative high frequencies of ostrich eggshell beads and *N. kraussianus* beads at The Havens Cave. The large number of burials dating to the late Albany at Matjes River Rock Shelter (Louw 1960) may be another method of demarcating territorial claims. People could, through descent, ensure access to a site, or area, and its resources.

The late Albany also reflects another important development. The first permanent inland occupation in the eastern Cape represented at sites such as The Havens Cave, Melkhoutboom Cave, Wilton and Uniondale began at about 10 500 BP. Presumably certain habitats in the southern Cape were abandoned because they could not support, satisfy and meet the social demands and needs of the groups there. Consequently, people moved eastward into habitats which could meet their needs, leaving behind more breathing space for the mother groups.

From the evidence at Melkhoutboom Cave and Byneskranskop 1, it appears that the transition from relatively large groups in the Albany to small highly mobile groups in the Wilton took place 'gradually' between 8000 BP and 7000 BP (Deacon, H.J. 1976; Schweitzer & Wilson 1982) after which the change accelerated. At many sites this gradual transition is absent, but evidence from a large number in the Cape Fold Belt indicates that the Wilton was well established by 6500 BP. Together with the splitting of groups, a completely new diversified, multi-purpose microlithic stone toolkit emerged. As was the case with the Albany, the new artefact assemblage was purposefully created by newly formed groups to communicate their new identity.

It also appears that a low degree of socio-economic pressure and the break-up of larger groups during the Albany/Wilton transition temporarily relaxed the identity management of the large

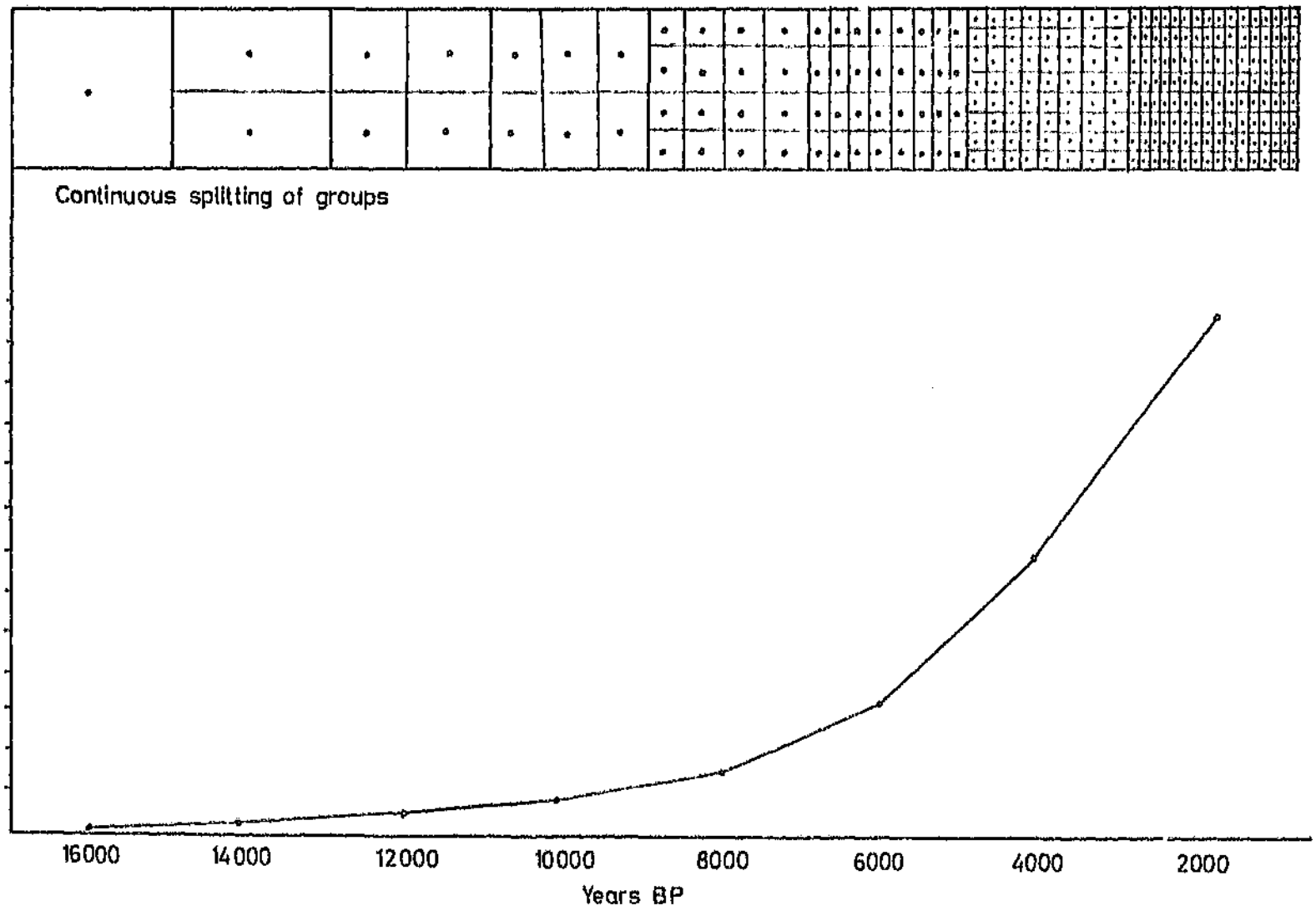


Figure 44. Theoretical representation of the distribution of dated sites and populations across time-space during the Later Stone Age.

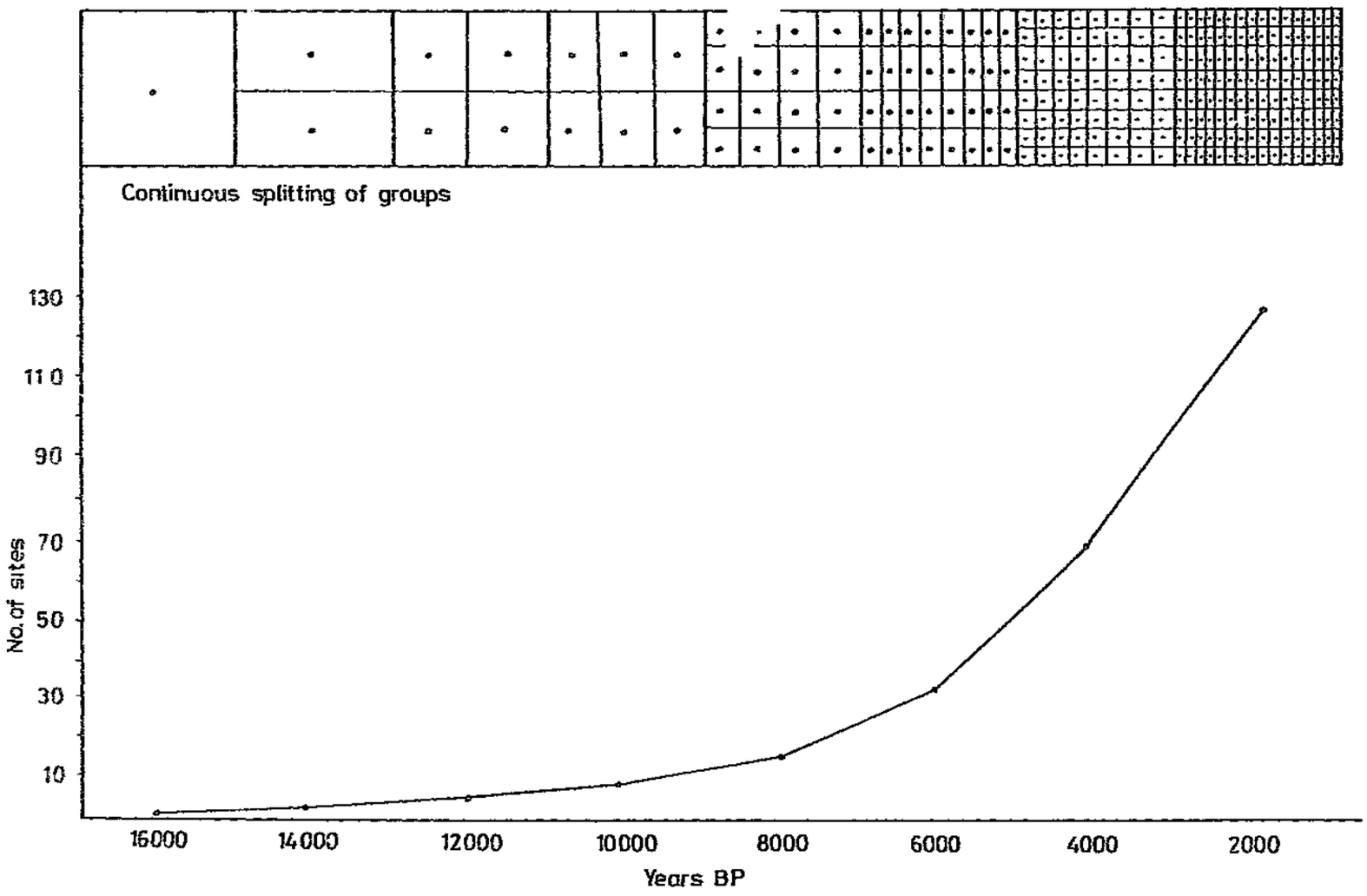


Figure 44. Theoretical representation of the distribution of dated sites and populations across time-space during the Later Stone Age.

smaller groups?

Plant food remains from Strathalan Cave B in the north-eastern Cape do not support the position that the Albany period was more "productive" than previous periods (Opperman & Heydenry 1990). The geophyte rich plant remains from Strathalan Cave B reflects similar organisational features of living areas as Later Stone Age sites such as Melkhoutboom Cave. Therefore, "differences in behaviour between the Middle Stone Age in their use of plants are therefore not marked" (Opperman & Heydenrych 1990:99).

I do not dispute the fact that marginal population increased, but rather the belief that occupation of the eastern Cape or any other region was 'forced' on people by climatic changes, demographic or resource stress. Instead, the apparent increase in site numbers is more likely due to the re-arrangement of people across the landscape through time. Following Cohen's (1978) concept of fission, and Binford's (1968) open population system, I argue that the visible increase in archaeological sites was due to a continuous splitting of groups filling the landscape. In other words, population numbers increased only marginally (since the smaller territories will regulate the number of people they can support), but the visible dateable sites increased dramatically across time (Fig. 44). The splitting of groups is not directly linked to changes in the environment, but is rather initiated by social needs and desires, and therefore material culture changes followed this trend. Thus, what I suggest here is that relatively large Robberg groups split into smaller units and settled in unoccupied areas where they became autonomous with their own identities.

The decline in large migratory grazing animals during the Albany also eliminated intergroup co-operation. These 'new' habitats could not support large herds of animals or relatively large groups of people and were therefore less productive than the previous environments. However the 'new' habitats could support the social and economic needs of smaller groups. In order to maintain and satisfy social needs in a less productive environment, groups split into smaller groups and 'new' habitats were occupied. Territorial boundaries most probably became more fixed and a

from the Holocene.

H.J. Deacon (1976:160) explained the low archaeological visibility of populations in the eastern Cape in terms of emplacement. During the Last Glacial, the main population centres were situated more to the west on the exposed continental shelf; the rapid rise of the sea level after 18 000 years ago contributed to movement into the eastern Cape. In recent years, H.J. Deacon and Thackeray (1984) replaced this mechanistic model with yet another equally mechanistic model. All published radiocarbon dates for the past 40 000 years were plotted on a scale, (although seemingly aware of the serious short comings of this method) they suggested that the period after 15 000 witnessed a dramatic increase in the visibility of archaeological sites. They reasoned that this was due to large scale environmental changes and warmer climates which stimulated population increases. Although it is not possible to measure past habitat production directly, the authors suggested that changes in climatic conditions increased the productivity and relative diversity of habitats in the Cape ecozone. The improved climatic conditions thus effected the production of food resources and also had an effect on the maintenance and movement of populations (Deacon, H.J. & F. Thackeray 1984; Deacon, H.J. & Deacon, J. 1986).

Their method is probably not a true reflection of the density of populations during the Later Stone Age (see Sampson 1985). This scenario is somewhat contradictory to an earlier statement that "the fynbos is not a biome of high productivity" (Deacon, H.J. 1976:171). Notwithstanding, Wadley (1989) suggested that the "Oakhurst" people moved into new territories "where land and resources are regionally plentiful". Therefore the habitats not occupied during the Robberg were 'marginal', but became 'non-marginal' after 15 000 BP due to climatic changes. However, it is difficult to believe that this 'productive' environment could not support large grazing animals or large human groups, because it is generally accepted that groups were smaller during the Albany than during the preceding Robberg period (Wadley 1989). If the Robberg environments could support 'large' groups, why could the Albany environments not also? Why did the Albany populations form

distributed in cells representing dialectic tribes running approximately transverse to the strike of the mountain ranges". For the Baviaanskloof and the Langkloof sites at least these units appear to have been distributed approximately transverse to the mountain ranges to include part of the coast.

The archaeological record of the past 6000 years provides a window for interpreting similar events in the earlier Later Stone Age record in the south-eastern Cape. The research results provide not only an alternative way of interpreting the Later Stone Age, but also create exciting new prospects which should stimulate future research. The Later Stone Age is characterised by 'rhythmic episodes' of change and these episodes were similar in character. For example, the Robberg microlithic industry was replaced by the quartzite industry of the Albany and in turn by the microlithic industry of the Wilton, and I believe the Wilton was in the process of being replaced by the Kabeljous. This pattern of replacement is also most apparent during the Middle Stone Age (Howieson's Poort). J. Deacon's (1982, 1988) research clearly demonstrates that change in the lithic industries during the Robberg/Albany transition in the southern Cape was not determined or related to environmental changes, and did not fully coincide with the shift from large grazing mammals to small browsing mammals. Furthermore, no changes took place in the lithic industry during the later Albany (10 500 BP to 8000 BP) either, when large grazing mammals were replaced by small browsers along with the transition from grassland to bushier vegetation. The changes occured some 3000 years later. Thus factors other than climate and environment stimulated technological change.

A brief comment on the Earlier Later Stone Age helps put the Holocene events in perspective. Robberg populations were probably organised in relatively large groups, with large territories and no fixed boundaries (H.J. Deacon 1976). Little group identity was expressed and reciprocity was practised in the form of intergroup co-operation during the peak hunting season. This co-operation may explain the absence of social boundaries (see Gilman 1984:122). Therefore it is possible, following Wadley (1989:51), that the aggregation sites during the Robberg do not resemble those

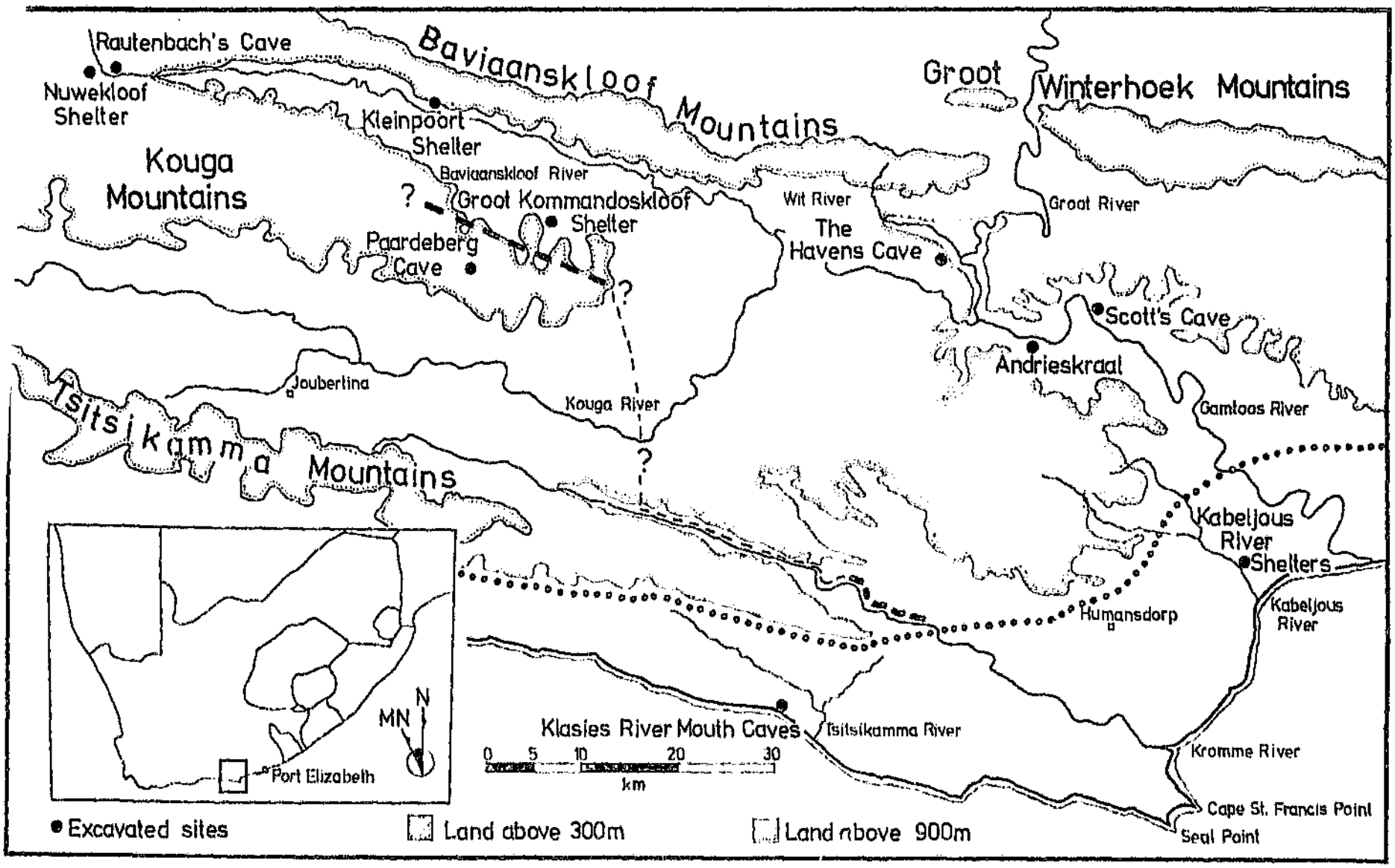


Figure 43. Possible symbolic cultural boundaries from ca 4700 BP.

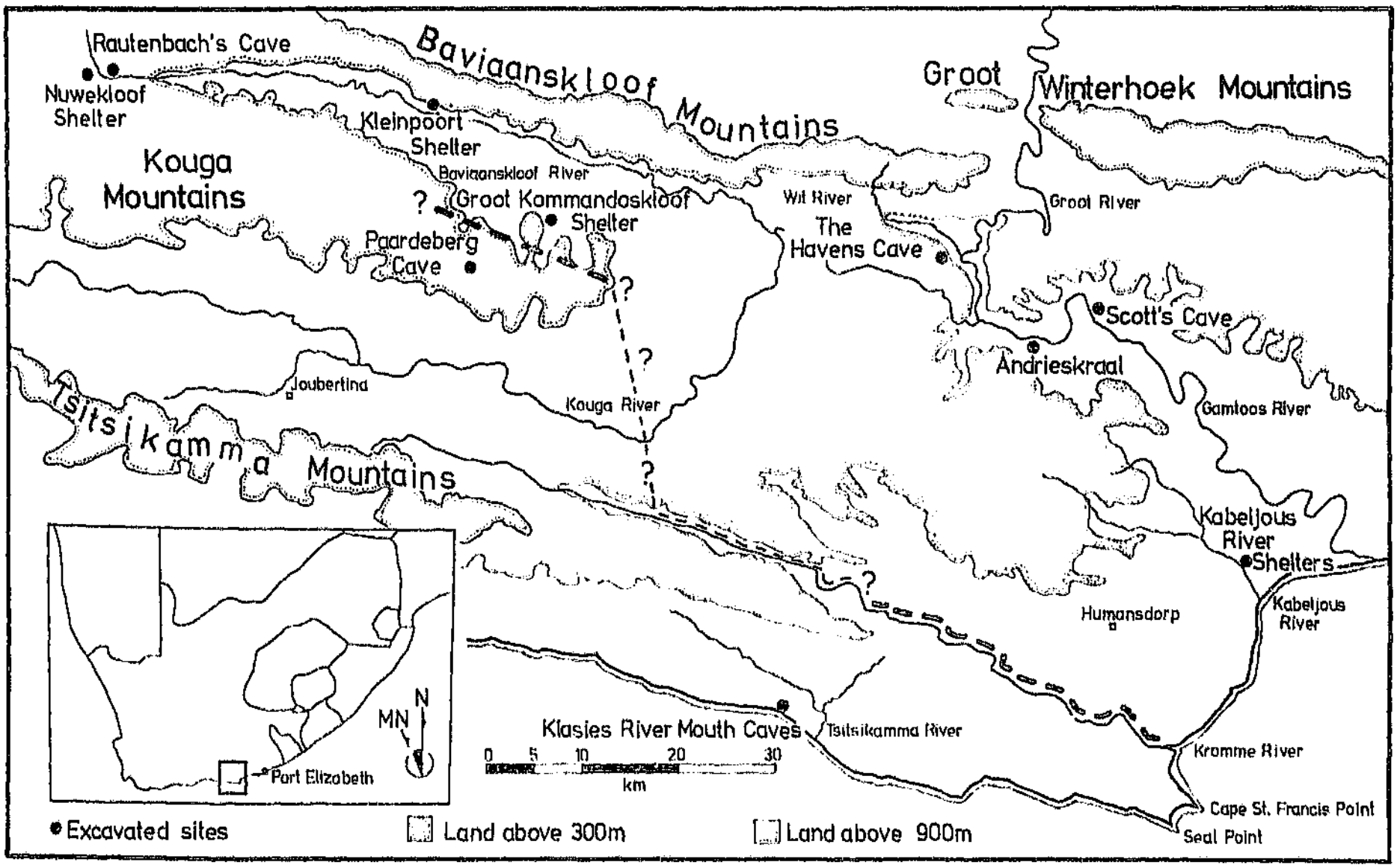


Figure 42. Possible symbolic cultural boundary between ca 7000 BP and 5000 BP.

The four burials (there may be more) that were found in a small area may indicate that Klasies River Cave 5 had become a special burial place after 3000 BP (Hall & Binneman 1987). The Kabeljous River Shelter sites were probably also special burial places. Hewitt (1925) reported twelve burials from these shelters and mentioned that one yielded a considerable amount of ostrich eggshell beads. These burials probably all post-date 2500 BP because Hewitt reported that the 'pygmy' implements observed at other caves and shelters in the eastern Cape were absent.

It is not only style that played an important role in the expression of group identity, but also the use of raw material. The distribution of raw material along the Cape St Francis coast suggests that the Kromme River was a natural boundary between two different inland cultural groups visiting the coast (silcrete dominated sites west and quartz east of the river). A similar pattern existed for the inland sites. Silcrete is virtually absent from The Havens Cave and other sites in the Baviaanskloof, while sites in the Langkloof, only some 12 km away yielded large quantities of formal stone tools manufactured from this raw material, for example, Paardeberg Cave (pers. obser.) and Kangkara Cave (J. Deacon 1982). Silcretes are present in the Kouga/Baviaanskloof region (W. Illenberger pers. comm.), but groups preferred to use quartz to signal their group identity. A similar observation was made in the eastern Cape proper (Leslie-Brooker 1987) and eastern Cape Midlands (Hall 1990). The Havens Cave and other sites in the Baviaanskloof, together with Kabeljous River Cave 1 at the coast, can be regarded as part of the same 'cultural unit' as opposed to the sites in the Langkloof (Deacon H.J. 1976). It would seem that no 'contact' in the form of raw material exchange existed between the two 'cultural units' even though they were only a few kilometres apart. As explained earlier, this does not mean that active social interaction did not take place. According to oral tradition, people moved freely from the one area to the other in historical times. Although the precise sizes of these 'cultural units' are not known as yet, preliminary borders can be drawn between the Baviaanskloof and Langkloof (Figs 42 & 43). It seems that the physical environment played an important role in determinating the 'cultural units' and supports H.J. Deacon's (1976 172) assumption "that the population would have been

Wiessner, P. 1982b. Risk, reciprocity and social influences on !Kung San economies. *In* Leacock, E.R. & Lee, R.B. (*eds*) *Politics and history in band societies*. pp. 61-84. London: Cambridge University Press.

Wiessner, P. 1983. style and social information Kalahari San projectile points. *American Antiquity* 48:253-276.

Wiessner, P. 1984. Reconsidering the behavioural basis for style: a case among the !Kung San. *Journal of Anthropological Archaeology* 3:190-234.

Wiessner, P. 1985. Style or isochrestic variation? a reply to Sackett. *American Antiquity* 50:160-166.

Wiessner, P. 1989. Style and changing relations between the individual and society. *In* Hodder, I. (*ed.*) *The meaning of things: material culture as symbolic expression*. London: Uwin-Hyman.

Wilmsen, E.N. 1989. *Land filled with flies: a political economy of the Kalahari*. Chicago: University of Chicago Press.

Wobst, M. 1977. Stilistic behaviour and information exchange. *In* Cleland, C.E. (*ed.*), *Research essays in honour of James B. Griffin*. pp. 317-342. Michigan: Ann Arbor.

Winterhaler, B. & Smith, E.A. (eds) 1981. *Hunter-gatherer foraging strategies: ethnographic and archaeological analysis*. Chicago: University of Chicargo Press.

Story, R. 1958. *Some plants used by the Bushmen in obtaining food and water.* Pretoria: Botanical Survey of South Africa. Memoir No. 30.

Tanaka, J. 1976. Subsistance ecology and social structure of Central Kalahari San. *In.* Lee, R.B. & De Vore, I. (*eds*) *Kalahari hunter-gatherers: studies of the !Kung San and their neighbours.* Cambridge: Harvard University Press.

Tanaka, J. 1980. *The San, hunter-gatherers of the Kalahari: a study in ecological anthropology.* Tokyo: University of Tokyo Press.

Testart, A. 1982. The significance of food storage among hunter-gatherers: residence patterns, population densities and social inequalities. *Current Anthropology* 23:523-537.

Thackeray, J.F. & Feast, E.C. 1974. A midden burial from Cape St Francis, eastern Cape Province. *South African Archaeological Bulletin* 29:92.

Thunberg, K.P. 1795. *Travels in Europe, Africa and Asia. Performed between the years 1770 and 1779.* Vol. 1. London: William Richardson & John Egerton.

Tyson, P.D. 1964. Berg winds of South Africa. *Weather.* 19:7-11.

Vahrmeijer, J. 1981. *Poisonous plants of South Africa that causes stock losses.* Cape Town: Tafelberg.

Von Den Driech & Deacon, H.J. 1985. Sheep remains from Boomplaas Cave, South Africa. *South African Archaeological Bulletin* 40:39-44.

Voigt, E. A. 1982. The molluscan fauna. *In* Singer, R. & Wymer, J. *The Middle Stone Age at Klasies River Mouth in South Africa.* pp. 155-186. Chicago: University of Chicago Press.

Wadley, L. 1986. A social and ecological interpretation of the Later Stone Age in the southern Transvaal. Unpublished Ph.D. thesis: University of the Witwatersrand.

Wadley, L. 1989. Legacies from the Later Stone Age. *South African Archaeological Society Goodwin Series* 6:42-53.

Watt, J. & Breyer-Brandwijk, M.G. 1962. *The medicinal and poisonous plants of southern and eastern Africa.* Edinburgh: Livingstone.

Webley, L.E. 1984. Archaeology and ethnoarchaeology in the Leliefontein Reserve and surrounds. Unpublished M.A. thesis: University of Stellenbosch.

Wells, M.J. 1965. An analysis of plant remains from Scott's Cave in the Gamtoos Valley. *South African Archaeological Bulletin* 20:79-84.

Wells, M.J., Balsinhas, A.A., Joffe, H., Engelbrecht, G., Harding, G. & Striton, C.H. 1986. *A catalogue of problem plants in South Africa.* Pretoria: Botanical Survey of South Africa. Memoir No. 53.

Wiessner, P. 1982a. Beyond willow smoke and dogs' tails: a comment on Binford's analysis of hunter-gatherer settlement systems. *American Antiquity* 47:171-178.

Rose, E.E. & Jacot Guillarmod, A. 1974. Plants gathered as foodstuffs by Transkeian peoples. *South African Medical Journal* 48:1688-1690.

Rudner, J. 1968. Strandloper pottery from South and South West Africa. *Annals of the South African Museum* 49:441-663.

Rust, I. & Illenberger, W. 1989. Geology and geomorphology of the Baviaanskloof. *In* Kerley, G.I.H. & Els, L.M. *(eds) The Kouga-Baviaanskloof Complex: conservation status and managment problems.* Port Elizabeth: University of Port Elizabeth.

Salter, T.M. 1944. The The genus *Oxalis* in South Africa. Journal of South African Botany, supplementary Vol. 1.

Sampson, G. 1985. Atlas of Stone Age settlement in the central and upper Seacow Valley. *Memoirs of the National Museum* 20:1-116.

Schweitzer, F.R. & Wilson, M.L. 1982. Byneskranskop: a Late Quaternary living site in the southern Cape Province, South Africa. *Annals of the South African Museum* 88:1-203.

Shanks, M. & Tilley, C. 1987a. *Re-constructing archaeology*. Cambridge: Cambridge University Press.

Shanks, M. & Tilley, C. 1987b. *Social theory and archaeology*. Cambridge: Cambridge University Press.

Silberbauer, G.B. 1981. *Hunter and habitat in the central Kalahari Desert*. Cambridge: Cambridge University Press.

Singer, R. & Wymer, J. 1969. Radiocarbon date for two painted stones from a coastal cave in South Africa. *Nature* 244:508-510.

Singer, R. & Wymer, J. 1982. *The Middle Stone Age at Klasies River Mouth in South Africa.* Chicago: University of Chicago Press.

Smith, C.A. *Common names of South African plants.* Pretoria. Botanical Survey Memoir No. 35.

Smithers, R.H.N. 1983. *The mammals of the southern African subregion.* Pretoria: The University of Pretoria.

Sparrman, A. 1785. *A voyage to the Cape of Good Hope towards the Antarcticpolar circle and around the world, but chiefly into the country of the Hottentots and Caffres, from the year 1772 to 1776. Vol. 1.* London: Robinson.

Stevenson, G. 1989. Sourdough and cheechakos: the formation of identity-signaling social groups. *Journal of Anthropological Archaeology* 8:270-312.

Steyn, H.P. 1981. Nharo plant utilisation: an overview. *Khoisis* 1:1-31.

Steyn, H.P. 1984. Southern Kalahari San subsistence ecology: reconstruction. *South African Archaeological Bulletin* 39:117-124.

Mazel, A. 1988. Nkupe Shelter: a report on excavations in the eastern Biggarberg, Thukela Basin, Natal, South Africa. Annals of the *Natal Museum* 29:321-377.

Mead, G.H. 1964. *Mind, self and society*. Chicago: Chicago University Press.

Meehan, B. 1982. *Shell bed to shell midden*. Canberra: Australian Institute of Aboriginal Stud s.

Mitchell, P.J. 1988. *The early microlithic assemblages of southern Africa*. Oxford: British Archaeological Reports International Series 388.

Miller, D. & Tilley, C. 1984. Ideology, power and long-term social change. *In* Miller, D. & Tilley, C. *(eds) Ideology, power and prehistory*. Cambridge: Cambridge University Press.

Millot, B. 1988. Symbol, desire and power. *Theory, culture & society*. 5:675-694.

Mossop, E.E. 1935. *The Journal of Hendrik Jacob Wikar (1779)*. Cape Town: Van Riebeeck Society.

Noli, & Avery, G. 1988. Protin poisoning and coastal subsistence. *Journal of Archaeological Science* 15:395-401.

Opperman, H. & Heydenrych, B. 1990. A 22 000 year-old Middle Stone Age camp site with plant food remains from the north-eastern Cape. *South African Archaeological Bulletin* 45:93-99.

Osborn, A. 1977. Strandloopers, mermaids and other fairy tales: ecological determinants of marine resource utilisati .. - the Peruviaan case. *In* Binford, L.R. (*ed.*) *For theory building in archaeology*. pp. 157-205. New York: Academic Press.

Palmer, E. & Pitman, N. 1972. *Trees of southern Africa*. 3 Vols. Rotterdam: Balkema.

Pappe, L. 1868. *Florae Capensis Medica Prodomus*. Cape Town.

Pardoe, C. 1988. The cemetery as symbol: the distribution of prehistoric Aboriginal burial grounds in southeastern Australia. *Archaeology in Oceania* 23:1-16.

Parkington, J.E. 1980. Time and place: some observations on spacial and temporal patterning in the Later Stone Age sequence in southern Africa. *South Africa Archaeological Bulletin* 35:73-83.

Parkington, J.E. & Poggenpoel, C. 1971. Excavations at De Hangen 1968. *South Africa Archaeological Bulletin* 26:3-36.

Pianka, E.R. 1978. *Evolutionary ecology*. New York: Harper and Row.

Pollock. S. 1983. Style and information: an analysis of Susiana ceramics. *Journal of Anthropological Archaeology* 2:354-390.

Renfrew, C. & Cherry, J.F. 1986. (eds) *Peer polity interactions and socio-political change*. Cambridge: Cambridge University Press.

Rightmire, G.P. 1978. Human skeletal remains from the southern Cape Province and their bearing on the Stone Age prehistory of South Africa. *Quaternary Research* 9:219-230.

Leslie Brooker, M. 1989. The Holocene sequence from Uniondale Rock Shelter in the eastern Cape. *South African Archaeological Society Goodwin Series* 6:17-32.

Lewis, G.L. & Obermeyer, A.A. 1972. *Gladiolus*. Cape Town: Purnell.

Lewis-Williams, J.D. 1981. *Believing and seeing*. New York: Academic Press.

Lewis-Williams, J.D. 1982. The economic and social contex of southern San rock art. *Current Anthropology* 23:429-449.

Lewis-Williams, J.D. 1984. Ideological continuities in prehisto.. rock art. *In* Schrire, C. (*ed.*) *Past and present in hunter-gatherer studies*: 225-252. Orlando: Academic Press.

Lewis-Williams, J.D. & Dowson, T. 1988. The signs of all times: entoptic phenomena in Upper Palaeolithic art. *Current Anthropology* 29:201-245.

Lewis-Williams, J.D. & Dowson, T. 1989. *Images of power: understanding Bushmen rock art*. Johannesburg: Southern Book Publishers.

Lourandos, H. 1983. Intensification: a late Pleistocene-Holocene archaeological sequence from southwestern Victoria. *Archaeology in Oceania* 18:81-94.

Lourandos, H. 1985. Intensification and Australian prehistory. *In* Price, T.D. & Brown, J.A. (*eds*) *Prehistoric hunter-gatherers: emergence of cultural complexity*. pp. 385-426. New York: Academic Press.

Louw, J.T. 1960. Prehistory of Matjes River Shelter. *Memoirs of the National Museum Bloemfontein* 1:1-143.

Lubkey, R.A., Gess, F.W. & Bruton, M.N. 1988. (eds). *A field guide to the eastern Cape*. Grahamstown: Wildlife Society of southern Africa.

MacArthur, R.H. & Pianka, E.R. 1966. On optimal use of a patchy environment. *American Naturalist* 100:603-609.

Maggs, T.M. & Speed, E. 1967. Bonteberg Shelter. *South Africa Archaeological Bulletin* 22:80-93.

Martin, A.R.H. 1968. Pollen analysis of Groenvlei lake sediments, Knysna (South Africa). *Review of Palaeobotany and Palynology*. 7:107-144.

Martin, A.R.H. & Noel, A.R.A. 1960. *The flora of Albany and Bathurst*. Grahamstown: Rhodes University.

Marx, K. & Engels F. 1965. *The German ideology*. *London: Lawrence & Wishart.*

Mazel, A. 1989a. Changing social relations in the Thukela Basin, Natal 7000-2000 BP. *South Africa, Archaeological Society Goodwin Series* 6:33-41.

Mazel, A. 1989b. People making history: the last ten thousand years of hunter-gatherer communities in the Thukela Basin. *Natal Museum Journal of Humanities* 1:1-168.

Hewitt, J. 1925. On some stone implements from the Cape Province. *South African Journal of Science* 22:441-453.

Hillard, O.M. & Burtt, B.L. 1991. *Dierama*. Johannesburg: Acorn Books.

Hitchcock, R.K. 1982. The ethnoarchaeology of sedentism: mobility strategies and site structure among foraging and food producing populations in the eastern Kalahari Desert, Botswana. Ph.D. University of New Mexico, Albuquerque: University Microfilms International.

Hodder, I. 1982. *Symbols in action*. Cambridge: Cambridge University Press. University Press.

Hodder, I. 1985. Postprocessual archaeology. *In* Schiffer, M. (*ed.*) *Advances in Aregaeology Method and Theory, Vol. 8*. New York: Academic Press.

Hodder, I. 1987a. (ed.) *The archaeology of contextual meaning*. Cambridge: Cambridge University Press.

Hodder, I. 1987b. (ed.) *Archaeology as long-term history*. Cambridge: Cambridge University Press.

Humphreys, A.J.B. 1979. The Holocene sequence in the northern Cape and its position in the prehistory of South Africa. Unplubished Ph.D. thesis: University of Cape Town.

Ingold, T. 1986. *The appropriation of nature: essays on human ecology and social relations*. Manchester: Manchester University Press.

Inskeep, R.R. 1987. *Nelson Bay Cave, Cape Province, South Africa*. Oxford: British Archaeological Reports International Series 357.

Jacot Guillarmod, A. 1966. A contribution towards the economic botany of Basutoland. *Bot. Notiser, Lund* 119:209-212.

Jacot Guillarmod, A. 1971. *Flora of Lesotho*. Lehre: J. Cramer.

Killburn, R. & Rippey, E. 1982. *Sea shells of southern Africa*. Johannesburg: Macmillan.

Klein, R.G. 1986. The prehistory of Stone Age herders in the Cape Province of South Africa. *South African Archaeology Society Goodwin Series* 5:5-12.

Laidler, P.W. 1947. The evolution of Middle Palaeolithic technique at Geelhoutboom, near Kareedouw, in the southern Cape. *Transactions of the Royal Society of South Africa* 31:283-313.

Lee, R.B. 1979. *The !Kung San men, women and work in a foraging society*. Cambridge: Cambridge University Press.

Leistner, O.A. 1966. *Podocarpaceae*. Flora of South Africa Vol. 1. Pretoria: Department of Agricultural Technical Services.

Leslie Brooker, M. 1987. An archaeological study of the Uniondale Rock Shelter. Unpubiished M.A. thesis: University of Stellenbosch.

Deacon, J. 1988. The scale and timing of technological and environmental changes over the last 20 000 years in the southern Cape, South Africa. *In* Bower, J. & Lubell, D. (*eds*) *Prehistoric cultures and environments in the late Quaternary of Africa*. pp. 145-160. Oxford: British Archaeological Reports International Series 405.

Deacon, J. 1990. Changes in the archaeological record in South Africa at 18 000. *In* Gamble, C. & Soffer, O. (*eds*) *The world at 18 000 BP. Volume 2. Low latitudes*. London: Unwin Hyman.

Dyer, R.A. 1965. *The Cycads of southern Africa*. Pretoria: The Goverment Printer.

Fourcade, H.G. 1941. *Check-list of the flowering plants of the divisions of George, Knysna, Humansdorp and Uniondale*. Pretoria: Botanical Survey of South Africa. Memoir No.20.

Foucalt, M. 1980. *Power/knowledge: selected interviews and other writings 1972-1977*. Gorden, C. (*ed.*) Brighton: Harvester Press.

Fox, F.W. & Norwood Young, M.E. 1982. *Food from the veld: edible wild plants of southern Africa botanically identified and described*. Johannesburg: Delta Books.

Giddens, A. 1979. *Central problems in social theory: action, structure and contradictions in social analysis*. London: Macmillan Press.

Giddens, A. 1981. *A contemporary critique of historical materialism*. London: Macmillan Press.

Giddens, A. 1984. *The constitution of society: outline of the theory of structuration*. Cambridge: Polity Press.

Gilman, A. 1984. Explaining the Upper Palaeolithic revolution. *In* Spriggs, M. (*ed.*) *Marxist perspectives in archaeology*. pp. 115-126. Cambridge: Cambridge University Press.

Goldblatt, P. 1986. *The Moraeas of southern Africa*. Cape Town: National Botanical Gardens.

Goldblatt, P. 1989. *The genus Watsonia*. Cape Town: National Botanical Gardens.

Goodwin, A.J.H. 1946. Prehistoric fishing methods in South Africa. *Antiquity* 20:134-141.

Hall, M. 1980. A method for obtaining metrical data from fragmentary molluscan material found at archaeological sites. *South African Journal of Science* 76:280-281.

Hall, S.L. 1990. Hunter-gather-fishers of the Fish River Basin: a contribution to the Holocene prehistory of the eastern Cape. Unpublished thesis: University of Stellenbosch.

Hall, S.L. & Binneman, J.N.F. 1987. Later Stone Age burial variability in the Cape: a social interpretation. *South Africa Archaeological Bulletin* 42:140-152.

Heinz, H.J. 1966. The social organization of the !Ko Bushmen. Unpublished M.A. thesis: University of South Africa.

Heydorn, A.E.F. & Morant, P.D. 1988. (eds). *Eustuaries of the Cape*. Report No. 33. Stellenbosch: CSIR.

Cowling, R.M. 1982. Vegetation studies in the Humansdorp region of the Fynbos biome. Unpublished Ph.D. thesis: University of Cape Town.

Crawford, R.J.M. 1983. Some observations on seabirds breeding in the Tsitsikamma Coastal National Park. *Koedoe* 26:145-152.

Deacon H.J. 1970. Two shell midden occurrences in the Tsitsikama National Park, Cape Province: a contribution to the study of the ecology of the Strandlopers. *Koedoe* 13:37-49.

Deacon, H.J. 1972. A review of the post-Pleistocene South Africa. *South African Archaeological Society Goodwin Series* 1:26-45.

Deacon, H.J. 1976. *Where hunters gathered: a study of Holocene Stone Age people in the eastern Cape*. Claremont: South African Archaeological Society Monograph 1.

Deacon, H.J. & Brooker, M. 1976. The Holocene and Upper Pleistocene sequence in the southern Cape. Annals of the South African Museum. 71: 203-214.

Deacon, H.J. & Deacon, J. 1963. Scott's Cave: a Late Stone Age site in the Gamtoos Valley. *Annals of the Provincial Museums* 3:96-121.

Deacon, H.J. & Deacon, J. 1986. Late Pleistocene and Holocene climates and human responses. *South African Journal of Science* 82:74-75.

Deacon, H.J. & Geleijnse 1988. The stratigraphy and sedimentology of the main site sequence, Klasies River, South Africa. *South African Archaeological Bulletin* 43:5-14.

Deacon, H.J. & F. Thackeray 1984. Late Pleistocene environmental changes and implications for the archaeological record in southern Africa. *In* Vogel, J.C. (*ed.*) *Late Cainozoic palaeoclimates of the southern Hemisphere*. pp. 375-390. Rotterdam: Balkema.

Deacon, J. 1969. Re-excavation and description of the Wilton Type-site, Albany District, eastern Cape. Unpublished M.A. thesis: University of Cape Town.

Deacon, J. 1972. Wilton: an assessment after 50 years. *South Africa Archaeological Bulletin* 27:10-45.

Deacon, J. 1974. Patterning in the radiocarbon dates for the Wilton/Smithfield complex in southern Africa. *South African Archaeological Bulletin* 29:3-18.

Deacon, J. 1978. Changing patterns in the late Pleistocene/early Holocene prehistory of southern Africa. *Quaternary Research* 10:84-111.

Deacon, J. 1982. Later Stone Age in the southern Cape. Unpublished Ph.D. thesis: University of Cape Town.

Deacon, J. 1984. The Later Stone Age people and their descendants in southern Africa. *In* Klein, R.G. (*ed.*) *Southern African prehistory and palaeoenvironments*. pp. 221-328. Rotterdam: Balkema.

Bourdieu, 1990. *In other words: essays towards a reflexive sociology.* Cambridge: Polity press.

Bourdieu, 1992. *The logic of practice.* Cambridge: Polity Press.

Bryant, A.T. 1909. Zulu medicine and medicine-men. *Annals of the Natal Museum* 2:1-103.

Brooke, R.K., Cooper, J., Shelton, P.A. & Crawford, R.J.M. 1982. Taxonomy, distribution, population size and conservation of the white breasted cormorant *Phalacrocorax carbo* on the southern African coast. *Le Gerfaut* 72:189-220.

Brumfiel, E.M. 1992. Distinguised lecture in archaeology: breaking and entering the ecosystem gender, class and function steal the show. *American Anthropologist* 94:551-567.

Budack, K.F.R. 1977. The =Aonin or Topnaar of the lower !Khuiseb Valley and sea. *Khoisan Linguistic Studies* 3:1-42.

Buchanan, W.F. 1988. *Shellfish in prehistoric diet.* Oxford: British Archaeological Reports International Series 455.

Bruton, M. & Gess, F. 1988. (eds). *Towards an environmental plan for the eastern Cape.* Grahamstown: Rhodes University.

Butzer, K.W. & Helgren, D.M. 1972. Late Cainozoic evolution of the Cape coast between Knysna and Cape St Francis. *Quartenary Research* 2:143-169.

Cairns, P. 1976. A report on circular stone features associated with coastal shell middens at Cape St Francis. *South African Archaeological Bulletin* 30:36-39.

Cashden, E.A. 1983. Territoriality among human foragers: ecological models and an application to four Bushmen groups. *Current Anthropology* 24:47-66.

Cashden, E.A. 1985. Coping with risk: reciprocity among the Basarwa of northern Botswana. *Man* 20:453-474.

Chippendale, L.K.A. 1955. *The grasses and pastures of South Africa.* Parow: Central News Agency.

Coates Palgrave, K. 1977. *Trees of southern Africa.* Cape Town: Struik.

Cohen, A.P. 1985. *The symbolic construction of community.* Chichester: Ellis Horwood.

Cohen, M.N. 1977. *The food crisis in prehistory: overpopulation and the origins of agriculture.* New York: Academic Press.

Conkey, M.W. 1978. Style and information in cultural evolution: towards a predictive model for the Paleolithic. *In* Redman, C.L., Langhorne, W.T., Berman, M.J., Versaggi, N.M., Curtin, E.V. & Wanser, J.C. *(eds) Social archaeology: beyond subsistence and dating* pp. 61-85. New York: Academic Press.

Conkey, M.W. 1989. The use of diversity in stylistic analysis. *In* Leonard, R D. & Jones, G.T. *(eds) Quantifying diversity in archaeology.* pp. 118-129. Cambridge: Cambridge University Press.

REFERENCES

Acocks, J.P.H. 1975. *Veld types of South Africa*. Pretoria: Botanical Survey of South Africa. Memoir No.40.

Ashton, E.H. 1939. A sociological sketch of Sotho diet. *Transations of the Royal Society of South Africa*. 27:147-214.

Avery, G. 1976. A systematic investigation of open station shell middens along the south-western Cape coast. Unpublished M.A. thesis: University of Cape Town.

Barnard, A. & Woodburn, J. 1988. Introduction. *In*: Ingold, T., Riches, D. & Woodburn, J. (*eds*) *Hunters and gatherers: property, power and ideology*. pp. 4-31. Oxford: Berg.

Barnham, L.S. 1992. Let's walk before we run: an appraisal of historical materialist approaches to the Later Stone Age. *South African Archaeological Bulletin* 47:44-51.

Barnham, L.S. 1987. The bipolar technique in southern Africa: a replication experiment. *South African Archaeological Bulletin* 42:45-50.

Barrow, J. 1806. *Travels in the interior of South Africa*. London: Cadell & Davis.

Bender, B. 1985. Emergent tribal formations in the American midcontinet. *American Antiquity* 50:52-62.

Bicchieri, M.C. 1983. Reply to Cashden. *Current Anthropology* 24:57.

Bigalke, E. 1973. The exploitation of shellfish by coastal tribesmen of the Transkei. *Annals of the Cape Province Museum* 9:159-175.

Binford, L.R. 1968. Post-Pleistocene adaptations. In Binford, S.R. & Binford, L.R. *New perspectives in archaeology*. Chicago: Aldine.

Binneman, J.N.F. 1982. Mikrogebruikstekens op steenwerktuie: eksperimentele waarnemings en 'n studie van werktuie van Boomplaasgrot. Unpublished M.A. thesis: University of Stellenbosch.

Binneman, J.N.F. 1985. research along the south eastern Cape coast. *In* Hall, S.L. & Binneman, J.N.F. *Guide to archaeological sites in the eastern and north eastern Cape*. pp. 117-134. Grahamstown: Albany Museum.

Binneman, J.N.F. & Deacon, J. 1986. Experimental determination of use wear on stone adzes from Boomplaas Cave, South Africa. *Journal of Archaeological Science* 13:219-228.

Binneman, J.N.F. & Hall, S.L. 1993. The contex of four painted stones from the south-eastern and eastern Cape. *Southern African Field Archaeology* 2:89-95.

Blau, P. 1964. *Exchange and power in social life*. New York: John Wiley.

Blumer, H. 1969. *Symbolic interactionism: perspective and method*. Chichester: Ellis Horwood.

is social suicide. Subsistence strategies are directed by social action and any changes observed in these strategies, such as exploitation of 'new' resources or occupation of 'new' areas, were the direct consequence of social needs and desires.

the Wilton was probably in the process of being replaced by a quartzite industry similar to that found along the eastern Cape and southern Cape coast.

The plant remains from The Havens Cave and other sites in the Baviaanskloof, not included in this study, date only from the last 2000 years. Thus, to extend the evidence further back in time may be unjustified. Nevertheless, the remains may reflect similar behavioural patterns before 2000 BP. The evidence from sites in the Baviaanskloof during the past 2000 years points to groups being highly mobile, rather than sedentary. This evidence comes during a time period when pastoralists settled on the coastal foreland. If, as it is assumed here, the Kabeljous populations were displaced by the pastoralists, then the majority probably retreated back into the Cape mountains. Following the 'intensification' model the mountains should then show an even higher level of 'intensification' after 2000 BP. This of course is not the case, the statistical displays show a sharp decline in production. There were probably far fewer people and far more unoccupied habitats around 2000 BP than is generally perceived.

In this thesis I have argued against suggestions that uncontrolled population increases 'forced' populations into 'marginal' areas, that populations in the Cape mountains were 'forced' to 'intensify' their subsistence economy, and that they were 'forced' to change from an inclusive system to an exclusive system of territorial behaviour. Although there were periods of accelerated resource procurement and material culture production as well as population increases, I have questioned the view that this was only restricted to the later part of the Holocene due to 'uncontrolled' population increases. Instead, I have suggested that there were several periods of accelerated production interspersed by 'relaxed' periods of production. These 'relaxed' periods were caused when groups split and settled in unoccupied habitats to form autonomous groups. I have also argued for an inclusive system of social interaction whereby positive exchange of information took place through signification, whereby groups signalled an own identity. I have also suggested that group identity can only be maintained through social inclusion and that exclusion

Table 8. Frequencies of pottery, leather and botanical artefacts from The Havens Cave.

	BEDDING UNIT
POTTERY	
Fragments	8
Rim	2
Body decoration	1
TOTAL	11
LEATHER	
Fragments	1
WOOD	
Pegs	1
Cut pieces	1
Shavings	*
TOTAL	2
REED	
Cut/Notched	1
CYPERUS	
Cordage	7
Matting	73
Netting	1
Cut/slit	1
TOTAL	82
SEED BEADS	
H. aristatus	1
OTHER INCLUSIONS	
Mastic	1
Glass beads	1
TOTAL	2

* Present in relatively large numbers.

Table 8. Frequencies of pottery, leather and botanical artefacts from The Havens Cave.

	BEDDING UNIT
POTTERY	
Fragments	8
Rim	2
Body decoration	1
TOTAL	11
LEATHER	
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WOOD	
Pegs	1
Cut pieces	1
Shavings	*
TOTAL	2
REED	
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CYPERUS	
Cordage	7
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TOTAL	82
SEED BEADS	
H. aristatus	1
OTHER INCLUSIONS	
Mastic	1
Glass beads	1
TOTAL	2

* Present in relatively large numbers.

Table 7. Scraper length, width and height from the Wilton units at The Havens Cave.

		Length		Width		Height		W/L ratio
	f	Mean	SD	Mean	SD	Mean	SD	
POS	12	10,79	4,33	21,38	4,42	4,68	1,40	123,42
OGA	15	9,44	6,02	11,36	3,01	3,94	1,31	124,24
WAG	30	8,91	3,91	11,00	3,67	4,36	1,26	127,00
BOW	31	8,94	2,91	9,83	3,59	3,59	1,48	111,85
WGA	8	8,84	0,92	10,46	1,94	4,01	0,94	119,42
VOG	23	8,30	2,26	10,25	2,21	3,84	1,08	136,17
KOW	31	7,88	1,40	10,54	2,37	4,09	1,26	136,39
GHA	20	7,48	1,77	10,09	2,00	3,58	0,98	141,52
SBA	16	8,90	2,50	10,52	2,55	3,72	0,96	120,68

Table 6. continues. Frequencies and percentage frequencies of stone artefacts from The Havens Cave.

		Wilton units											Albany units				
		BED	POS	OGA	WAG	ROW	WGA	VOG	KOW	GHA	SBA	TOTAL	OOA	BOA	GOW	ROL	TOTAL
FORMAL TOOLS																	
Segments																	
Quartz	f		2	1		1			1			5					
Silcrete	f		1					1				2					
Chalcedony	f		1									1					
Total	f		4	1		1		1	1			5					
Borers																	
Chalcedony	f					1											
Misc. Retouched																	
Quartzite	f								2			2	1				1
Chalcedony	f			1		1						2					
Hornfels	f						3					3					
Total	f			1		1	3		2			7	1				1
TOTAL FORMAL TOOLS																	
Quartz	f	4	12	29	38	35	8	33	49	25	24	257					
	%	80,0	63,2	90,6	84,4	76,1	61,5	91,7	94,2	100,0	96,0	88,0					
Quartzite	f				1				2			3	5		2		7
	%				2,6				3,8			1,0	100,0		100,0		100,0
Silcrete	f		3			1		1				5					
	%		15,8			2,2		2,8				1,7					
Chalcedony	f		2	2		7	1	1				13					
	%		10,5	6,3		15,2	7,7	2,8				4,5					
Hornfels	f	1	2	1		3	4	1	1		1	14					
	%	20,0	10,5	3,1		6,5	30,8	2,8	1,9		4,0	4,8					
Total	f	5	19	32	39	46	13	36	52	25	25	292	5		2		7
Formal Tools as % of Grand Total		1,8	1,1	1,8	2,9	1,6	1,4	1,3	1,2	1,7	1,7	1,5	0,4		0,2		
GRAND TOTAL	f	283	1703	1767	1325	2797	924	2876	4264	1483	1409	18921	1205	878	948	1155	4186
Artefacts/volume		70,8	227,1	196,3	142,5	144,9	102,7	239,7	233,0	123,6	136,3	169,8	66,9	67,5	111,5	64,2	72,8
OTHER INCLUSIONS																	
Ochre																	
fragments		7	35	15	33	70	10	50	98	43	71	432	62	108	35	61	266
pencils		3										3					
Shale			3	4	7	33	8	35	26	10	41	167	16	9	11	68	104
Crystals		1	6	1	19	6	21	21	5	5		85					
MSA flakes		1										1					

Table 6. continues. Frequencies and percentage frequencies of stone artefacts from The Havens Cave.

		Wilton units											Albany units				
		BED	POS	OGA	WAG	BOW	WGA	VOG	ROW	GHA	SBA	TOTAL	OOA	BOA	GOW	ROL	TOTAL
UTILISED TOOLS																	
Flakes																	
Quartz	f	1	1	1	1	3	1	3	1	2	4	17					
Quartzite	f					1		2	1	1		4	3	1	1	1	6
Chalcedony	f		1			1						2					
Hornfels	f		1	1		2		1				5		1	1	1	3
Total	f	1	3	2	1	7	1	5	2	3	4	21	3	2	2	2	9
OTHER UTILISED TOOLS																	
Hammerstones	f					1					1	2		1	1	1	3
Hammer/rubbers	f								2			2					
Milled edge	f			1			1					2					
Ochre pencils	f	3										3					
Total	f	3		1		1	1		2		1	9		1	1	1	3
TOTAL		4	3	3		8	2	5	4	3	5	37	3	3	3	3	12
Utilised tools as % of Total waste		1,0	0,2	0,2		0,3	0,2	0,2	0,1	0,2	0,1	0,2	0,2	0,3	0,3	0,3	0,3
FORMAL TOOLS																	
Scrapers																	
Quartz	f	4	10	28	38	33	8	33	48	25	24	251	4		2		6
	%	80,0	71,4	96,6	100,0	94,3	88,9	94,3	98,0	100,0	96,0	93,7	100,0		100,0		100,0
Quartzite	f																
	%																
Quartz	f		2			1						3					
	%		14,3			2,6						1,1					
Chalcedony	f			1		5	1	1				8					
	%			3,4		12,8	11,1	2,9				3,0					
Hornfels	f	1						1	1		1	6					
	%	20,0						2,9	2,0		4,0	2,2					
Total	f	5	14	29	38	39	9	35	49	25	25	268	4		2		6
Scrapers as % of Total Formal Tools		100,0	73,7	90,6	97,4	84,4	69,2	97,2	94,2	100,0	100,0	91,8	80,0		100,0		85,7
Adzes																	
Quartzite	f				1							1					
Chalcedony	f		1									1					
Hornfels	f			1		2						3					
Total	f		1	1	1	2						5					
Backed blades																	
Hornfels	f						1					1					

Table 6. continues. Frequencies and percentage frequencies of stone artefacts from The Havens Cave.

		Wilton units											Albany units				
		BED	POS	OGA	WAG	BOW	WGA	VOG	KOW	GHA	SBA	TOTAL	OOA	BOA	GOW	ROL	TOTAL
Core Reduced Piece																	
Quartz	f	4	19	17	19	27	10	31	37	15	8	187	1			2	3
	%	100,0	100,0	100,0	100,0	84,3	91,0	96,9	97,4	100,0	88,9	95,4	50,0			40,0	37,5
Silcrete	f							1									
	%							3,0									
Chalcedony	f					2	1				1	4					
	%					6,3	9,1				11,1	2,0					
Hornfels	f					3			1			4	1		1	3	5
	%					9,3			2,6			2,0	50,0		100,0	60,0	62,5
Total	f	4	19	17	19	32	11	32	38	15	9	196	2		1	4	8
CRP as % of Total waste		1,5	1,1	1,0	1,5	1,2	1,2	1,1	0,9	1,0	0,6	1,0	0,2		0,1	0.4	0,2
Flakes																	
Quartz	f	47	248	374	159	422	123	461	447	120	173	2004	15	2	6	32	55
	%	40,9	47,7	49,9	29,5	28,8	23,2	30,4	19,4	16,7	24,2	28,4	2,2	0,4	1,0	4,8	2,3
Quartzite	f	56	235	338	357	949	299	927	1782	582	521	6346	598	474	512	568	2153
	%	48,7	39,4	45,1	66,2	64,7	63,7	61,2	78,5	80,9	73,0	66,9	89,3	92,2	86,8	84,9	88,1
Silcrete	f	3	14	9		4	2	1	1		2	36	2				2
	%	2,6	2,3	1,2		0,3	0,4	0,1	0,1		0,3	0,4	0,3				0,1
Chalcedony	f		1	2		5	2	2	1	9	3	24	4				4
	%		0,2	0,3		0,3	0,4	0,1	0,1	1,3	0,3	0,3	0,6				0,2
Hornfels	f	9	63	27	23	87	43	124	46	8	16	446	50	38	72	69	229
	%	7,8	10,6	3,6	4,3	5,8	9,2	8,2	2,0	1,1	2,2	4,9	7,5	7,4	12,2	10,3	9,4
Total	f	115	597	750	539	1467	469	1515	2271	719	714	9158	699	514	590	669	2442
Flakes as % of Total waste		42,0	35,5	43,3	41,9	53,5	51,6	53,4	54,0	49,4	48,6	48,4	55,9	58,7	62,6	58,1	58,3
TOTAL WASTE																	
Quartz	f	133	1172	1133	670	1074	353	1080	1199	437	508	7670	86	17	9	106	218
	%	48,5	69,7	65,4	52,1	39,2	38,8	35,3	28,4	30,0	34,6	41,4	7,2	1,9	1,0	9,2	5,2
Quartzite	f	125	387	528	570	1479	481	1617	2922	1000	923	10032	1035	802	821	922	3580
	%	45,6	23,0	30,5	44,3	53,9	52,9	52,9	69,4	68,7	62,8	54,1	86,5	91,7	87,0	80,0	0,9
Silcrete	f	4	27	18	4	6	3	3	2		3	70	2				2
	%	1,5	1,6	1,0	0,3	0,2	0,3	0,1	0,1		0,2	0,4	0,2				0,1
Chalcedony	f		5	6	6	53	4	9	16	9	4	112	4				4
	%		0,3	0,3	0,5	1,9	0,4	0,3	0,4	0,6	0,3	0,6	0,3				0,1
Hornfels	f	12	90	67	36	131	68	206	69	9	31	699	70	56	113	124	363
	%	4,4	5,4	2,7	2,8	4,8	7,5	7,3	1,6	0,6	2,1	3,8	5,8	6,4	12,0	10,8	8,7
Total	f	274	1681	1732	1286	2743	909	2835	4208	1455	1469	18592	1197	875	943	1152	4167
Waste as % of Total waste		96,8	98,7	98,1	97,1	98,1	98,4	98,6	98,6	98,1	98,1	98,3	99,3	99,7	99,5	99,8	99,6

Table 6. Frequencies and percentage frequencies of stone artefacts from The Havens Cave.

		Wilton units										Albany units				
		BED	POS	OGA	WAG	BOW	WGA	VOG	KOW	GUA	SBA	TOTAL	OOA	BOA	GOW	ROL	TOTAL
WASTE																	
Chips																	
Quartz	f	78	838	702	426	568	204	453	669	276	306	4520	67	14	3	68	152
	%	52,3	18,7	72,2	66,0	48,7	50,0	37,5	38,2	39,9	42,4	51,6	13,4	3,9	0,9	14,5	9,1
Quartzite	f	67	146	188	198	515	180	675	1124	415	401	3909	431	323	296	353	1403
	%	45,0	14,4	20,4	30,7	44,2	44,1	55,8	61,5	60,0	55,6	44,6	86,4	91,0	87,3	75,1	84,4
Silcrete	f	1	13	9	4	1		1	1		1	31					
	%	0,7	1,3	11,0	0,6	0,1		0,1	0,1		0,1	0,4					
Chalcedony	f		4	4	6	45	1	2	12			74					
	%		0,4	0,4	0,9	3,9	0,2	0,2	0,7			0,8					
Hornfels	f	3	26	26	11	37	78	78	22	1	14	231	1	18	40	49	108
	%	2,0	2,5	2,5	1,7	3,2	6,5	6,5	1,2	0,1	1,9	2,7	0,3	5,1	11,8	10,4	6,5
Total	f	149	1027	921	645	1166	408	1209	1828	692	722	8767	499	355	339	470	1663
Chips as % of Total waste		53,4	61,1	53,2	50,2	42,5	44,9	42,6	43,5	47,6	49,1	46,3	41,6	40,6	35,9	40,8	39,7
Chunks																	
Quartz	f	3	29	39	65	47	16	50	36	21	21	329				3	3
	%	60,0	80,6	92,2	78,0	74,4	76,2	68,5	66,7	87,5	95,5	77,0				60,0	6,1
Quartzite	f	2	6	1	15	15	2	15	15	3	1	75	6	5	13	1	25
	%	40,0	16,7	2,4	18,3	23,4	9,5	20,5	27,8	12,5	4,5	17,6	23,1	100,0	100,0	20,0	51,0
Silcrete	f						1					1					
	%						4,8					0,2					
Chalcedony	f							4	3			8					
	%							5,5	5,5			1,9					
Hornfels	f		1	2	2	2	2	4				14	18			1	19
	%		2,8	4,8	2,4	3,1	9,5	9,5				3,3	69,2			20,0	38,8
Total	f	5	36	42	82	64	21	73	54	24	24	427	26	5	13	5	49
Chunks as % of Total waste		1,0	2,1	2,4	6,3	2,3	2,3	2,6	1,3	1,6	1,6	2,2	2,2	0,6	1,4	0,4	1,2
Cores																	
Quartz	f	1	2	1	1	10		5	16	5		41	1	1		1	3
	%	100,0	100,0	50,0	100,0	71,4		83,3	294,1	100,0		85,4	100,0	100,0		33,3	60,0
Quartzite	f			1					1			2					
	%			50,0					5,9			4,2					
Silcrete	f					1						1					
	%					7,1						2,1					
Chalcedony	f					1		1				2					
	%					7,4		16,7				4,2					
Hornfels	f					2						2				2	2
	%					14,3						4,2				66,7	40,0
Total	f	1	2	2	1	14		6	17	5		48	1	1		3	5
Cores as % of Total waste		0,4	0,1	0,1	0,1	0,5		0,2	0,4	0,3		0,3	0,1	0,1		0,3	0,1

Table 5. Frequencies of shell, worked shell and bone from The Havens Cave.

	Wilton units											Albany units				
	BED	POS	OGA	WAG	BOW	WGA	VOG	KOW	GUA	SBA	TOTAL	OOA	BOA	GOW	ROL	TOTAL
OSTRICH EGGSHELL																
Fragments	2	8	10	13	36	8	14	7	7	14	119	60	122	70	43	295
Mean/volume											1,1					5,1
Roughouts*	1	3	1		9	6	15				35	10	10	3	5	28
Beads*	2	24*	2	1	3	1	4	7		2	46	7	12	1	1	21
Pendants*	1										1					
Decorated fragments*					6						6		1			1
Container apetures													1	2	1	4
TOTAL	6	35	13	14	54	15	33	14	7	16	207	77	146	76	50	349
MARINE SHELL BEADS																
*Nassarius kraussianus**		750*			26		1				777	18	25	29	5	77
Mean /volume											7,0					1,3
MARINE SHELL																
Nassarius kraussianus												1	5	8		14
Donax serra		1		1	1	1	4	1	1	1	11	1	2			3
Patella argenvillei	1										1					
Haliotis spadicae			1								1					
Perna perna							1			1	2					
FRESHWATER SHELL																
Unio caffer		1	1		1	1	1	1		1	7	2	1	3	2	8
TOTAL	1	2	2	1	2	2	6	2	1	3	22	4	8	11	2	25
BONE																
Points					1			1			2				1	1
Awls								1			1					
Pendants*							1				1					
Flakes			1	1			2				4			2		2
Polished															1	1
Cut														1	3	4
TOTAL			1	1	1		3	2			8			3	5	8
*Decorative items/unit	4	777	3	1	44	7	21	7		2	866	35	48	33	11	126
*Decorative items/volume	1,0	103,6	0,3	0,1	2,8	0,4	1,8	0,4		0,2	7,2	2,1	3,7	3,9	0,6	2,2
*Found with burial																

Table 4. Mammal remains from The Havens Cave.

	Wilton units										Albany units				
	BED	POS	OGA	WAG	BOW	WGA	VOG	ROW	GHA	SBA	TOTAL	OOA	BOA	GOW	ROL	TOTAL
MAMMALS																
Papio ursinus										1	1			1	1	2
Small primate															2	2
Small carnivore									1		1					
Procavia capensis	2			1	2	2	3	6	2	2	21	6	2	2		10
Potamochoerus porcus				1		1	1				3					
Oreotragus oreotragus										1	1	1	1			3
Raphicerus campestris	1										1	2				2
Raphicerus sp.		2	2	2	2		2	4	1	1	16	3	3	1	4	11
Redunca fulvorufula										1	1	1		1	1	3
Silvicapra grammia									1		1	1	1			2
Lepus sp.										1	1	1	1	1	2	5
Bovidae - general																
small	1					1	1	1	1	1	6			2	3	5
small medium		1			1			1			3	3	1		3	7
large medium					1						1	2			2	4
large					1						1					
TOTAL	4	3	2	4	7	4	7	12	7	8	58	20	9	9	18	56
Buckets/unit	4	7,5	9	9,3	19,3	9	12	18,3	12	11	111,4	18	13	8,5	18	56
Mammal bone mass	102,4	144,1	128,3	171,0	226,7	93,5	342,2	730,5	244,0	516,6	2701,2	896,5	763,7	530,5	798,5	2989,2
Weight/volume	25,6	19,2	14,2	18,6	11,7	10,4	28,5	39,9	20,3	47,0	24,2	49,8	58,7	62,4	44,4	52,0
Individuals/volume	1,0	0,4	0,2	0,4	0,4	0,4	0,6	0,7	0,6	0,7	0,5	1,8	0,7	1,1	1,0	1,0
Total PMM	29,1	46,0	21,4	85,6	913,5	78,5	103,6	100,1	52,1	89,7	1519,6	585,3	99,3	84,4	377,9	1146,9
PMM/volume	7,3	6,1	2,4	9,2	47,3	8,7	8,6	8,3	7,4	11,2	13,6	32,5	7,6	9,9	21,0	19,9

Table 3. Analysis of bulk samples of plant remains from The Havens Cave.

	Storage pit	Bedding		Storage pit	Bedding
WEIGHT					
Unsived	2781,2 g.	2986,4 g.	*Grewia occidentalis*	0,1	0,1
1mm mesh	1093,8 g.	1205,6 g.	*C. africana*	0,8	1,3
3mm mesh	950,3 g.	1010,5 g.	*Acacia rudiga*	*	
			Diospyros sp.	*	0,1
NON BOTANICAL			*Euclea* sp.	0,7	4,3
Waste stone	92,9	120,9	*Podocarpus* cf. *falcatus*	1,2	
Stone tools	63,4	94,6	*Maytenus* cf. *heterophylla*	0,1	0,1
Pottery	11,0	3,0	*Hypodiscus aristatus*		0,2
Marine shell	0,9	2,9	*Apodytes dimidiata*	*	
OES	0,5	1,9	*Ricinus communis*	0,1	0,5
Freshwater shell	0,3	0,8	*Encephalartos* cf. *longifolius*		0,6
Bone	18,6	13,0	*Cissampelos capensis*		*
Mastic		0,1			
Leather		1,3	EDIBLE AND MEDICINAL		
Insects	0,9	2,7	*Cyperus usitatus*	0,4	0,5
Coprolites	2,3		*Moraea* sp.		
Earth lumps	3,7		Corm tunics	*	
Acatina	0,4		*Watsonia* sp.		
Owl pellets	1,4	0,8	Corm tunics	1,1	0,2
Freshwater fish	*	0,1	Corm bases	0,6	0,4
Termite casts		5,4	*Freezia/Tritonia* sp.		
			Corm tunics	0,8	1,8
PROCESSED PLANT MATERIAL			Corm Bases	1,1	0,1
REEDS	0,2		*Hypoxis* sp.		
Cut		0,4	Contractile roots	0,2	0,6
CYPERUS TEXTILUS	1,5	1,1	*Oxalis stellata*		
Cordage	0,2	2,9	Corm tunics	0,8	0,8
Netting		0,9	*Boophone disticha*		1,4
Matting	1,6		*Portulacaria afra*		
Cut/slit	*		Stems	1,8	0,4
WOODEN ARTEFACTS			*Dioscorea elephantipe*	23,4	6,3
Pegs		0,6	*Carpobrotus edilis*	0,2	
Shavings	2,9	1,2	*Gasteria* sp.	0,9	1,1
Cut	0,1	0,6	*Anthospermum* cf. *paniculata*	*	
			Agathosma puberula	0,1	
GRASSES					
Lining	129,6		LEAVES	6,0	8,9
Stems and bases	28,5	15,3			
			OTHER INCLUSIONS		
INFLORECENCES			Charcoal	23,3	7,2
Themeda triandra	*		Twigs and bark	30,9	44,7
Cymbopogon validus		*	*Aloe* sp.	0,3	
Koeleria capensis		*	Thorns	0,1	0,3
			Moss	*	*
SEEDS AND FRUITS			*Helicrysum* sp. flowers	0,1	
Schotia latifolia	1,6		*Medicarpa* cf. *aschersoniana*		*
Schana sp. pods	13,0	16,1	Misc. unidentified	6,9	4,2
Pappea capensis	18,6	7,7			

* Present

Table 2. Ranking of shellfish species (modern day collection) in terms of mean size, total mass, meat mass and ERR.

Shellfish species	Mean size/mm	Mean total mass/gr	Mean meat mass/gr	% EER
Haliotis midae	121	258	141	55
Solen capensis	114	33	21	64
Patella tabularis	90	98	19	21
Patella barbara	90	80	17	21
Turbo sarmaticus	74	130	26	20
Patella oculus	70	33	8	24
Patella longicosta	70	30	6	20
Patella argenvillei	66	42	11	26
Perna perna	66	20	7	35
Patella miniata	63	24	6	25
Haliotis spadicea	58	39	23	59
Patella cochlear	57	16	3	[illegible]
Donax serra	51	24	10	[illegible]
Oxystele spp.	32	12	2	17

Table 1. List of radiocarbon dates from the south-eastern Cape.

SITE	DATE BP	ASSOCIATION
COASTAL SITES		
Kabeljous River Shelter 1	5750 ± 80 (Pta-4061)	Wilton
Kabeljous River Shelter 1	2450 ± 60 (Pta-4614)	Kabeljous
Klasies River Cave 1	4755 ± 95 (Gx-0970)	Kabeljous (Singer & Wymer 1982)
Klasies River Cave 1	4695 ± 180 (Gx-0973)	Kabeljous (Singer & Wymer 1982)
Klasies River Cave 1	3780 ± 60 (Pta-3905)	Kabeljous (Binneman 1985)
Klasies River Cave 1	2795 ± 85 (Gx-0971)	Kabeljous (Singer & Wymer 1982)
Klasies River Cave 1	2525 ± 85 (Gx-0969)	Kabeljous (Singer & Wymer 1982)
Klasies River Cave 5A	4230 ± 60 (Pta-3919)	Wilton (Binneman 1987)
Klasies River Cave 5A	2980 ± 60 (Pta-4613)	Kabeljous
Klasies River Cave 5A	1860 ± 40 (Pta-4636)	Kabeljous
Klasies River Cave 5B	4110 ± 160 (Gx-1378)	Kabeljous (Singer & Wymer 1982)
Klasies River Cave 5B	3900 ± 50 (Pta-3906)	Kabeljous (Binneman 1993)
Klasies River Cave 5B	2285 ± 105 (Gx	Kabeljous (Singer & Wymer 1982)
Kabeljous River Mouth 2B	2570 ± 60 (Pta-3907)	Kabeljous
Kabeljous River Mouth 1A	1560 ± 40 (Pta-5982)	Pastoralists
St Francis Bay	5180 ± 65 (Pta-1089)	Wilton (De Villiers 1974)
St Francis Bay 2/2	4250 ± 70 (Pta-5042)	Wilton
St Francis Bay 10B	3640 ± 60 (Pta-5055)	Wilton
St Francis Bay 2/1C	1900 ± 50 (Pta-3910)	Wilton
St Francis Bay 1/1	1770 ± 50 (Pta-9311)	Ceramics
Goedgeloof C1/M1	2890 ± 40 (Pta-4066)	Kabeljous
Goedgeloof C3/M4	1270 ± 50 (Pta-4616)	Pastoralists
De Hoek SS6	250 ± 50 (Pta-3908)	Ceramics
Thysbani W2	3760 ± 60 (Pta-5050)	Wilton
INLAND SITES		
The Havens Cave	9790 ± 90 (Pta-4620)	Albany
The Havens Cave	5820 ± 80 (Pta-3915)	Albany
The Havens Cave	6610 ± 90 (Pta-3919)	Wilton
The Havens Cave	6190 ± 80 (Pta-3917)	Wilton
The Havens Cave	1280 ± 50 (Pta-4610)	Wilton/ceramics
Groot Kommandokloof Shelter	6430 ± 70 (Pta-4612)	Wilton (Binneman 1993)
Rautenbach's Cave	12 560 ± 100 (Pta-251)	Albany (Deacon & Brooker 1976)
Rautenbach's cave	1620 ± 40 (Pta-4611)	Wilton/ceramics
Nuwekloof Shelter	1140 ± 50 (Pta-4617)	Wilton/ceramics

Table 18. Shellfish frequency percentage per species and percentage meat mass contribution from the Goedgeloof middens.

	C1/M1[f]				C2/M4[f]				C3/M4[•]			
	f	f %	mm/gr	mm %	f	f %	mm/gr	mm %	f	f %	mm/gr	mm %
Perna perna	211	20,7	1582,5	17,5	192	21,3	1440,0	20,6	286	16,7	2145,0	12,0
Donax serra	139	13,6	1362,0	15,0	1	0,1			1	0,1		
Patella argenvillei	13	1,3			35	3,9			14	0,8		
Patella barbara	3	0,3			3	0,3						
Patella cochlear	54	5,3	167,4	1,8	198	22,0	613,8	8,8	15	0,9		
Patella longicosta	5	0,5			12	1,3			16	0,9		
Patella miniata					2	0,2						
Patella oculus	10	1,0			13	1,4			2	0,1		
Patella tabularis					1	0,1						
Haliotis spadicea	3	0,3	133,1	1,5	4	0,5						
Oxystele spp.	121	11,8			37	4,1			100	5,9		
Turbo sarmaticus	12	1,2	134,4	1,5	109	12,1	1253,5	17,9	30	1,8		
Burnupena spp.	14	1,3			3	0,3			1	0,1		
Solen capensis	437	42,8	5681,0	62,7	290	32,2	3683,0	52,7	1242	72,7	15773,4	88,0
Dinoplax gigas					1	0,1						
TOTAL	1022	100,1	9060,4	100,0	900	99,9	6990,3	100,0	1707	100,0	17918,4	100,0

Buckets sampled	4	2	6
Buckets analised	4	2	6
Meat mass/volume	2266,5	3495,2	2986,4
Total collecting mass	17647,9	17705,8	28748,4
% meat mass of total mass/volume	51,3	39,5	62,3

[f] Kabeljous Industry
[•] Pottery and sheep

Only those shellfish species which contributed relatively high meat mass are considered.

Table 17. Frequencies of worked shell and bone and pottery from the Dune Fields area, Seal Point, De Hoek, Tony's Bay and Goedgeloof middens.

	Dune Fields			Seal Point		De Hoek	TB	Goedgeloof					
	6	8	10A	SP1	SP2	DH8	FTS	C3/1	C3/2	C3/3	C3/5	C3/6	A8
MARINE SHELL													
Donax serra													
Pendants		1		1	3								
Scrapers													
Pend/scrapers													
Glycymeris sp.													
Beads										1			
Thias squamosa													
Beads										1			
TOTAL		1		1	3					2			
OSTRICH EGGSHELL													
Fragments				1									
Beads			1	1	1					5			3
TOTAL			1	2	1					5			3
BONE													
Points	1												
Tubes								1					
Pendants								1		1			
TOTAL	1							2		1			
POTTERY													
Fragments			47			4	35	20	1	82	11	4	85
Rim								5	1	11	18	3	3
Rim decorated								5		12	2	2	1
Body decorated								14		33	6	6	14
Spouts							1	2	2	1			
Lugs								1				3	2
Bases													1
TOTAL			47			4	36	47	4	139	37	18	106

Table 1a. Shellfish frequency percentage per species and percentage meat mass contribution from the Dune Field area middens.

	SFB4*				SFB6*			
	f	f %	mm/gr	mm %	f	f %	mm/gr	mm %
Perna perna	929	44,5	9197,1	65,8	768	49,5	5683,2	64,7
Donax serra	24	1,2			3	0,2		
Patella argenvillei	41	2,0			2	0,1		
Patella barbara	6	0,3			5	0,3		
Patella cochlear	114	7,4	569,8	4,1	53	3,4		
Patella longicosta	48	2,3			63	4,1		
Patella miniata					3	0,2		
Patella oculus	47	2,3			40	2,6		
Patella tabularis	22	1,1			41	2,6	471,5	5,4
Haliotis midae	8	0,4			4	0,3		
Haliotis spadicea	20	1,0			33	0,9	564,7	6,4
Oxystele spp.	341	16,3	579,7	4,1	317	2,1		
Turbo sarmaticus	158	7,6	3634,0	26,0	94	20,4	2068,0	23,5
Burnupena spp.	227	10,9			120	6,1		
Solen capensis	2	0,1				7,7		
Dinoplax gigas	62	3,0			6	0,4		
TOTAL	2089	100,2	13980,6	100,0	1552	100,0	8787,4	100,0
Buckets sampled			9				9	
Buckets analised			9				9	
Meat mass/volume			1553,4				976,4	
Total collecting mass			45505,5				25690,3	
% meat mass of total mass/volume			30,7				34,2	

	SFB8/9*				SFB10A*				SFB10B*			
	f	f %	mm/gr	mm %	f	f %	mm/gr	mm %	f	f %	mm/gr	mm %
Perna perna	211	37,0	1814,6	50,9	1688	52,2	5401,6	60,6	123	26,2	799,5	13,8
Donax serra	5	0,9							11	2,2		
Patella argenvillei	17	3,0			23	0,7			8	1,7		
Patella barbara	17	3,0			6	0,2			1	0,1		
Patella cochlear	185	32,4	647,5	18,2	480	14,8	960,0	10,8	62	12,2		
Patella longicosta	7	1,2			37	1,1			6	1,3		
Patella miniata					8	0,3						
Patella oculus	30	5,3			39	1,2			29	6,4		
Patella tabularis	25	4,4	595,0	16,7	2	0,1			66	13,6	1716,0	29,7
Haliotis midae	1	0,2							29	5,7	2813,1	48,7
Haliotis spadicea	5	0,9			7	0,2			11	2,0		
Oxystele spp.	6	1,1			599	18,5	838,6	9,4	51	12,0		
Turbo sarmaticus	23	4,0	506,1	14,2	251	7,8	1706,8	19,2	36	7,8	450,2	7,8
Burnupena spp.	18	3,7			85	2,6			26	4,5		
Solen capensis												
Dinoplax gigas	17	3,0			7	0,2			20	4,2		
TOTAL	571	100,1	3563,2	100,0	3234	100,0	8907,0	100,0	477	100,0	5778,8	100,0
Buckets sampled			3				7				10	
Buckets analised			3				7				4	
Meat mass/volume			1187,7				1272,4				1444,7	
Total collecting mass			11382,5				35940,1				16558,2	
% meat mass of total mass/volume			31,3				24,8				34,9	

* Pottery present
f Kabeljous Industry
* Silcrete microlithic stone tools present

Only those shellfish species which contributed relatively high meat masses are considered.

Table 15. Faunal remains from SFB2 and Dune Field areas.

	SFB2/1			SFB2	Dune Field area		
	L1	L2	L3	SFB2/2	SFB2/5	SFB4	SFB8
MAMMALS							
Homo sapiens	1						
Arctocephalus pusillus	2	1	1				1
Equus sp.	1						
cf. Canis mesomelas	1						
Hippopotamus amphibius	1						
Rhinoceros melanotis	1						
Raphicerus sp.	1			1	1		1
Syncerus caffer	1						
Lepus sp.	1						
Hystrix africae-australis	1						
Bos Taurus	1						
Bovidae - general							
small medium				1			
large medium				1	1		
large						1	
TOTAL	12	1	1	3	2	1	2
REPTILES (tortoise)						*	

...ntinues. Shellfish frequency percentage per species and percentage meat mass contribution from middens of the SFB2 area.

	SFB2/1B#				SFB2/2+				SFB2/5#			
	f	f %	mm/gr	mm %	f	f %	mm/gr	mm %	f	f %	mm/gr	mm %
Perna perna	1694	86,0	13382,6	95,8	778	60,2	5973,0	59,4	3995	70,3	37867,5	84,0
Donax serra					195	15,1	2214,0	22,0	8	0,1		
Patella argenvillei	22	1,1			23	1,8			32	0,6		
Patella barbara	4	0,2			1	0,1						
Patella cochlear	69	3,6			16	1,2			71	1,3		
Patella longicosta	7	0,4			14	1,1			9	0,2		
Patella miniata	6	0,3			15	1,2						
Patella oculus	9	0,5			28	2,2			17	0,3		
Patella tabularis	2	0,1			2	0,2			8	0,1		
Haliotis spadicea	11	0,6	291,5	2,1	9	0,7			139	2,4	4059,1	9,0
Oxystele spp.	68	3,5			59	4,6			940	16,5	1659,0	3,7
Turbo sarmaticus	19	1,0	300,2	2,1	98	7,6	1860,1	18,5	79	1,4	1485,0	3,3
Burnupena spp.	14	0,7			17	1,3			370	6,5		
Solen capensis					5	0,4			12	0,2		
Dinoplax gigas	36	1,9			31	2,4			3	0,1		
TOTAL	1961	99,9	13974,3	100,0	1291	100,1	10047,1	99,9	5683	100,0	45070,6	100,0

Buckets sampled	14	14	25
Buckets analised	14	14	25
Meat mass/volume	998,2	717,7	1802,8
Total collecting mass	39511,1	32329,8	125943,8
% meat mass of total mass/volume	35,4	31,1	35,8

Kabeljous Industry

+ Silcrete microlithic stone tools present

Only those shellfish species which contributed relatively high meat mass are considered.

Table 14. Shellfish frequency percentage per species and percentage meat mass contribution from middens of the SFB2 area.

	SFB2/1 L1"				SFB2/1 L2*				SFB2/1 L3'			
	f	f %	mm/gr	mm %	f	f %	mm/gr	mm %	f	f %	mm/gr	mm %
Perna perna	1242	47,9	5599,3	73,2	1825	62,7	8577,5	82,9	2857	67,5	20570,4	72,5
Donax serra									142	3,4	1732,4	6,1
Patella argenvillei	11	0,4			7	0,2			11	0,3		
Patella barbara	5	0,2							6	0,1		
Patella cochlear	28	1,1			16	0,6			45	1,1		
Patella longicosta	38	1,5			4	0,1			23	0,5		
Patella miniata					2	0,1			3	0,1		
Patella oculus	41	1,6			18	0,6			17	0,4		
Patella tabularis	10	0,4			2	0,1			19	0,5		
Haliotis spadicea	2	0,1			7	0,2			49	1,2	1063,3	3,7
Oxystele spp.	901	34,7	1072,4	14,0	844	29,0	1181,6	11,4	615	14,5	922,5	3,3
Turbo sarmaticus	219	8,4	979,2	12,8	118	4,1	590,0	5,7	315	7,5	4095,0	4,4
Burnupena spp.	79	3,0			20	1,8			104	2,5		
Solen capensis	3	0,1			42	0,4			17	0,4		
Dinoplax gigas	12	0,5			4	0,1			9	0,1		
TOTAL	2591	99,9	7650,9	100,0	2909	100,0	10349,1	100,0	4232	100,1	28383,6	100,0
Buckets sampled			14				17				28	
Buckets analised			14				17				28	
Meat mass/volume			546,5				608,8				1013,7	
Total collecting mass			31159,2				36785,9				79930,0	
% meat mass of total mass/volume			[illegible],6				28,1				35,5	

" Pottery and *Bos taurus*
* Pottery present
' Silcrete microlithic stone tools present

Only those shellfish species which contributed relatively high meat mass are considered.

Table 13. continues. Shellfish frequency percentage per species and percentage meat mass contribution from midden SFB1/1.

	Layer 4SS*								Layer 5#			
	f	f %	mm/gr	mm %	TOTAL f	f %	mm/gr	mm %	f	f %	mm/gr	mm %
Perna perna	726	86,2	4573,8	93,6	21266	84,7	117900,3	94,5	166	50,2	962,8	47,9
Donax serra					25	0,10						
Patella argenvillei					46	0,20			10	3,0		
Patella barbara					6	0,02			3	1,0		
Patella cochlear	7	0,8			197	0,80			42	12,7		
Patella longicosta					90	0,40			19	5,7		
Patella miniata					7	0,03			3	1,0		
Patella oculus					130	0,50			8	2,4		
Patella tabularis	2	0,2			47	0,20	520,3	0,4	1	0,3		
Haliotis spadicea	1	0,1			56	0,20			21	6,3		
Oxystele spp.	56	6,6	72,8	1,5	2334	9,30	2914,5	2,3	33	10,0	478,8	23,8
Turbo sarmaticus	23	2,7	241,5	5,0	459	1,80	3394,2	2,7	20	6,0		
Burnupena spp.	25	3,0			376	1,50			4	1,4	570,0	28,3
Solen capensis	2	0,2			64	0,30						
Dinoplax gigas	1	0,1			63	0,25			1	0,3		
TOTAL	843	99,9	4888,1	100,1	25022	100,35	124729,3	99,9	331	100,1	2011,6	100,0

Buckets sampled	6	4
Buckets analised	6	4
Meat mass/volume	814,7	502,9
Total collecting mass	13644,2	4425,1
% meat mass of total mass/volume	35,8	45,5

* Pottery
\# Kabeljous Industry

Only those shellfish species which contributed relatively high meat mass are considered.

Table 13. Shellfish frequency percentage per species and percentage meat mass contribution from midden SFB1/1.

	Layer 1*				Layer 2*				Layer 3*				Layer 4*			
	f	f %	mm/gr	mm %	f	f %	mm/gr	mm %	f	f %	mm/gr	mm %	f	f %	mm/gr	mm %
Perna perna	4048	86,6	24288,0	97,0	3845	75,5	21532,1	88,7	4295	81,8	24911,2	95,1	8352	91,2	42595,2	96,1
Donax serra	3	0,1							9	0,2			13	0,1		
Patella argenvillei	19	0,4			6	0,1			6	0,1			5	0,1		
Patella barbara									3	0,1						
Patella cochlear	12	0,3			44	0,9			48	0,9			44	0,5		
Patella longicosta	7	0,2			34	0,7			20	0.4			10	0,1		
Patella miniata					4	0,1										
Patella oculus	14	0,3			52	1,0			31	0,6			25	0,3		
Patella tabularis	8	0,2			26	0,5	520,3	2,1	5	0,1			5	0,1		
Haliotis spadicea	3	0,1			23	0,5			16	0,2			13	0,2		
Oxystele spp.	384	8,2	422,4	1,7	723	14,2	939,9	3,9	619	11,8	804,7	3,1	519	5,7	674,7	1,5
Turbo sarmaticus	102	2,2	326,0	1,3	16	3,2	1288,2	5,3	80	1,5	480,0	1,8	73	0,8	1058,5	2,4
Burnupena spp.	44	0,9			148	2,9			81	1,5			74	0,8		
Solen capensis	22	0,5							28	0,5			12	0,1		
Dinoplax gigas	8	0,2			30	0,6			11	0,2			12	0,1		
TOTAL	4674	100,2	25036,4	100,0	5096	100,2	24280,5	100,0	5252	100,0	26195,9	100,0	9157	100,1	44328,4	100,0
Buckets sampled			17				11				9				14	
Buckets analised			17				11				9				14	
Meat mass/volume			1472,7				2207,3				2910,7				3116,3	
Total collecting mass			72377,6				73938,0				69586,0				123238,2	
% meat mass of total mass/volume			34,6				32,8				37,6				36,0	

* Pottery present

Only those shellfish species which contributed relatively high meat mass are considered.

Table 12. Cultural remains: Frequencies of worked shell, bone and pottery from Kabeljous River Mouth, SFB1 and SFB2 middens.

	Kabeljous River Mouth				SFB1/1					SFB2/1			SFB2
	1A	1B	2A	2B	L1	L2	L3	L4	4SS	L1	L2	L3	L1
MARINE SHELL													
Nassarius kraussianus													
Shell		1		1					1	1		2	
Donax serra													
Pendants	1	4	11	10								1	14
Scrapers			13	13									
Bullia digitalis													
Beads										4	2		
Thais sp.													
Beads											2	1	
Conus sp.													
Beads	1												
Glycymeris sp.													
Beads										1	1		
Patella cochlear													
Pendant											1		
Burnupena sp.													
Beads												2	
Fusitriton sp.													
Beads												1	
Polynices sp.													
Beads												1	
TOTAL	2	5	24	24					1	6	6	8	14
OSTRICH EGGSHELL													
Beads	10	1			2	6	7		3	1		7	
TOTAL	10	1			2	6	7		3	1		7	
BONE													
Points										1			
Tubes	1												
Cut marks							1						
Utilised					1								
TOTAL	1				1		1			1			
POTTERY													
Fragments	130	15			18	6	1	2	9	288	71		
Rim	3									3			
Rim decorated										1			
Body Decorated	1	1											
Spouts										1			
Lugs										1			
TOTAL	134	16			18	6	1	2	9	294	71		

Table 11. Cultural material: frequencies of stone artefacts from Kabeljous River Mouth, SFB1, SFB2 areas and the Dune Field area middens.

	Kabeljous River Mouth				SFB1/1						SFB2					Dune Field area				
	1A	1B	2A	2B	L1	L2	L3	L4	L4SS	L5	L1	L2	L3	2/2	2/5	4	6	8	10A	10B
WASTE																				
Chips	9							2						13*					1	1*
Chunks	8													33*						8*
Small cores													3*	16*						5*
Cobble cores	1		1	1							1			1*					3	1
CRP														12*						2*
Flakes	92		14	4	14	7	2	6	3	1	14	5	4	383*	14	10	5	15	10	46*
Flakes													5*							
TOTAL	111		15	5	14	7	2	8	3	1	15	5	12	458	14	10	5	15	14	63
UTILISED																				
Hammerstones												2	1							
Milled edge														1						
Grindstones																				
Hammer/grind																				
Flakes	3	3					1										2			6*
TOTAL	3	3					1					2	1	1			2		1	6
FORMAL																				
Scrapers													1*	67*						4*
Adzes														1*						1*
Borers														2*						1*
Large segments				1																
Backed flakes														2*						
Bored stones																				
Stone pipes														1*						
Misc. retouched														5*						1*
TOTAL				1									1	78						7
OTHER																				
ochre	1	1	11	3			1				2	2		14						
shale			1	1																

All quartzite unless indicated differently. *Silcrete

Table 10. Shellfish: frequency percentage per species and percentage meat mass contribution from the Kabeljous River Mouth middens.

	KR/SM1A*				KR/SM1B*				KR/SM2A#				KR/SM2B#			
	f	f %	mm/gr	mm %	f	f %	mm/gr	mm %	f	f %	mm/gr	mm %	f	f %	mm/gr	mm %
Perna perna	129	49,3	447,3	33,7	696	16,3	3062,4	20,0	2741	55,0	13430,9	49,5	1082	57,3	4760,0	33,5
Donax serra	48	18,4	643,2	45,5	633	14,8	7026,3	45,9	906	18,2	11778,0	43,4	551	29,1	8650,7	60,9
Patella barbara					4	0,1			26	0,5			3	0,2		
Patella cochlear									72	1,4			5	0,3		
Patella longicosta	6	2,3			35	0,8			61	1,2			10	0,5		
Patella oculus					3	0,1			10	0,2						
Patella tabularis									7	0,1			5	0,3		
Haliotis midae									3	0,1			3	0,2		
Haliotis spadicea					2	0,1			15	0,3			6	0,3		
Oxystele spp.	50	19,2	60,0	4,2	2498	58,4	2747,8	18,0	799	16,0			126	6,7		
Turbo sarmaticus	17	6,5	234,6	16,6	352	8,2	2464,0	16,1	192	3,9	1920,0	7,1	80	4,2	800,0	5,6
Burnupena spp.	2	0,8			38	0,9			86	1,7			6	0,3		
Solen capensis	4	1,6							3	0,1						
Dinoplax gigas	5	1,9			15	0,4			64	1,3			11	0,6		
TOTAL	261	100,0	1415,1	100,0	4274	100,1	15300,5	100,0	4985	100,0	27128,9	100,0	1888	99,9	14210,7	100,0

Buckets sampled	3=	13	15	8
Buckets analised	1=	13	15	8
Meat mass/volume	1415,1	1177,0	1808,6	1776,3
Total collecting mass	4245,9	60070,0	71989,7	35923,6
% meat mass of total mass/volume	33,3	25,5	37,7	39,6

= Surface samples
* Pottery and sheep
# Kabeljous Industry

Only those shellfish species which contributed relatively high meat mass are considered.

Table 9. Preliminary count of faunal species from the Kabeljous River Mouth and St Francis Bay area 1 middens.

	Kabeljous River Mouth			St Francis Bay midden 1/1					
	KR/SM1A*	KR/SM1B*	2C AREA	L1+	L2+	L3+	L4+	4SS+	TOTAL
MAMMALS									
Arctocephalus pusillus	1	1	1		1	1	5	1	8
Equus sp.		1	1						
Hippopotamus amphibius	1								
Alcelaphus buselaphus			1						
Silvicapra grammia	1								
Lepus sp.	1								
Hystrix africae-australis		1							
Ovis aries									
juvenile	3	1							
sub-adult	1	1							
adult		1							
old	2								
Bovidae - general									
small medium				1					1
large medium	1	1		1					1
large			1						
TOTAL	11	7	4	2	1	1	5	1	10

* Pottery and sheep present
\+ Only pottery present

Table 27. continues. Shellfish frequency percentage per species and percentage meat mass contribution from Kabeljous Shelter 1: Wilton units.

	HWA				WGL				TOTAL			
	f	f %	mm/gr	mm %	f	f %	mm/gr	mm %	f	f %	mm/gr	mm %
Perna perna	626	78,4	3942,8	70,2	460	83,0	2760,0	78,3	3163	66,52	17681,0	53,43
Donax serra	52	6,5	728,4	13,0	32	5,8	416,1	11,8	870	18,29	11775,5	35,59
Patella argenvillei	2	0,3							10	0,21	112,2	0,34
Patella barbara	1	0,1			2	0,4			13	0,27		
Patella cochlear					7	1,3			33	0,69		
Patella longicosta	7	0,9			1	0,2			145	3,05	85,5	0,26
Patella miniata	1	0,1			1	0,2			6	0,15		
Patella oculus	2	0,3							21	0,44		
Patella tabularis					1	0,2			12	0,25		
Haliotis midae					6	1,1			1	0,02		
Haliotis spadicea	7	0,9			30	5,4			46	0,96	501,6	1,52
Oxystele spp.	60	7,7			12	2,2	348,0	9,8	272	5,72	69,6	0,21
Turbo sarmaticus	39	4,9	943,8	16,8					155	3,25	2864,1	8,65
Burnupena spp.									1	0,02		
Solen capensis					1	0,2			1	0,02		
Dinoplax gigas	1	0,1			1	0,2			6	0,15		
TOTAL	798	100,0	5615,6	100,0	554	100,2	3524,1	99,9	4755	100,2	33089,8	100,01

Buckets sampled	24	25	Total buckets excavated:	147
Buckets analised	3	2	Total buckets analised:	21
Meat mass/volume	1871,9	1762,1	Mean meat mass/volume:	1575,7
Total collecting mass	15015,7	10580,4	Total collecting mass/vol.:	4127,9
% meat mass of total mass/volume	37,4	33,3	% mm of total mass/vol:	38,2

Only those shellfish species which contributed relatively high meat mass are considered.

Table 27. continues. Shellfish frequency percentage per species and percentage meat mass contribution from Kabeljous Shelter 1: Wilton units.

	CAF				CFC				GSC			
	f	f %	mm/gr	mm %	f	f %	mm/gr	mm %	f	f %	mm/gr	mm %
Perna perna	338	62,1	1757,6	76,5	167	73,0	1002,0	57,1	816	69,7	3427,2	44,2
Donax serra	36	6,7	334,8	14,5	29	12,7	464,1	26,5	268	22,9	3778,8	48,8
Patella argenvillei					8	3,5	112,2	6,4				
Patella barbara	6	1,1			2	0,9			1	0,1		
Patella cochlear	6	1,1			2	0,9			6	0,5		
Patella longicosta	78	14,3	85,5	3,7	4	1,8			17	1,5		
Patella miniata					1	0,4						
Patella oculus	10	1,8							2	0,2		
Patella tabularis	5	0,9			1	0,4			2	0,2		
Haliotis spadicea												
Oxystele spp.	51	9,4			3	1,3			23	2,0		
Turbo sarmaticus	12	2,2	120,0	5,2	11	4,8	175,1	10,0	35	3,0	542,5	7,0
Burnupena spp.					1	0,4						
Dinoplax gigas	2	0,4							1	0,1		
TOTAL	544	100,0	2298,2	99,9	229	100,1	1753,4	100,0	1171	100,2	7748,5	100,0
Buckets sampled				20				19				
Buckets analised				4				1				4
Meat mass/volume				574,6				1753,4				1937,1
Total collecting mass				7045,8				4442,2				17544,6
% meat mass of total mass/volume				32,6				39,5				44,2

	SGA				GDS				CPS			
	f	f %	mm/gr	mm %	f	f %	mm/gr	mm %	f	f %	mm/gr	mm %
Perna perna	452	63,3	2983,2	52,3	88	24,9	554,4	15,1	216	55,2	1232,8	45,2
Donax serra	130	18,2	1755,0	38,8	220	62,2	2970,0	80,7	103	26,3	1338,7	48,0
Patella argenvillei												
Patella barbara	2	0,3			1	0,3						
Patella cochlear	16	2,2							1	0,3		
Patella longicosta	24	3,4			1	0,3			7	1,8		
Patella miniata					3	0,9						
Patella oculus	4	0,6							2	0,5		
Patella tabularis	3	0,4										
Haliotis spadicea	22	3,1	501,6	8,8	3	0,9			8	2,1		
Oxystele spp.	32	4,5			29	8,2	69,6	1,9	44	11,3		
Turbo sarmaticus	28	3,9	462,0	8,1	9	2,5	85,5	2,3	9	2,3	187,2	6,8
Burnupena spp.												
Dinoplax gigas	1	0,1							2	0,4		
TOTAL	714	100,0	5701,8	100,0	354	100,2	3679,5	100,0	391	100,2	2761,7	100,0
Buckets sampled				15				11				8
Buckets analised				4				2				1
Meat mass/volume				1425,5				1839,8				2768,7
Total collecting mass				15729,0				9401,6				6926,5
% meat mass of total mass/volume				36,3				39,1				40,0

Only those shellfish species which contributed relatively high meat mass are considered

Table 27. Shellfish frequency percentage per species and percentage meat mass contribution from Kabeljous Shelter 1: Kabeljous units.

	OLA				DSM				PSM			
	f	f %	mm/gr	mm %	f	f %	mm/gr	mm %	f	f %	mm/gr	mm %
Perna perna	452	50,9	1717,6	37,0	241	32,8	915,8	14,3	855	71,9	3847,5	58,8
Donax serra	154	17,3	1817,2	39,1	362	49,3	4887,0	76,3	167	14,0	1870,4	28,6
Patella argenvillei	11	1,2			1	0,1						
Patella barbara	6	0,7			1	0,1			6	0,6		
Patella cochlear	15	1,7			9	1,2			4	0,3		
Patella longicosta	36	4,1	54,0	1,2	26	3,5			16	1,3		
Patella miniata					1	0,3						
Patella oculus	5	0,6			1	0,1			1	0,1		
Patella tabularis	3	0,3			1	0,1			3	0,3		
Haliotis midae												
Haliotis spadicea	2	0,2			7	1,0	133,0	2,1	8	0,7	244,8	3,7
Oxystele spp.	92	10,4	73,6	1,6	40	5,4			55	4,6		
Turbo sarmaticus	99	11,1	980,1	21,1	42	5,7	470,4	7,3	68	5,7	578,0	8,8
Burnupena spp.	4	0,5							3	0,3		
Dinoplax gigas	9	1,0			3	0,4			4	0,3		
TOTAL	888	100,1	4642,5	100,0	735	100,0	6406,2	100,0	1190	100,1	6540,7	99,9
Buckets sampled				27				10				14
Buckets analised				4				2				4
Meat mass/volume				1160,6				3203,1				1635,2
Total collecting mass				14410,0				15657,3				17567,1
% meat mass of total mass/volume				32,2				40,9				37,2

	RGA				ORA				TOTAL			
	f	f %	mm/gr	mm %	f	f %	mm/gr	mm %	f	f %	mm/gr	mm %
Perna perna	403	60,7	1934,4	54,4	1038	65,0	5605,2	58,9	2989	58,90	14020,5	45,73
Donax serra	119	17,9	1261,4	35,5	211	13,2	1603,6	16,9	1013	19,96	11439,6	37,31
Patella argenvillei									12	0,24		
Patella barbara	1	0,2			6	0,4			20	0,39		0,18
Patella cochlear	13	2,0			29	1,8			70	1,38		
Patella longicosta	11	1,7			57	3,6			146	2,88	54,0	0,48
Patella miniata									1	0,02		2,01
Patella oculus	6	0,9			5	0,3			18	0,35		
Patella tabularis	6	0,9	145,8	4,0	6	0,4			19	0,37	145,8	
Haliotis midae					1	0,1			1	0,02		
Haliotis spadicea	4	0,6			11	0,7	239,8	2,5	32	0,63	617,6	3,7
Oxystele spp.	69	10,4			101	6,3			357	7,03	73,6	
Turbo sarmaticus	27	4,1	216,0	6,1	118	7,4	2065,0	21,7	354	6,98	4309,5	8,8
Burnupena spp.	1	0,2							8	0,16		
Dinoplax gigas	4	0,6			15	0,9			35	0,69		
TOTAL	644	100,2	3557,6	100,0	1598	100,1	9513,6	100,0	5075	100,00	30660,6	99,9
Buckets sampled:				11				14	Total buckets excavated:			76
Buckets analised:				4				5	Total buckets analised:			19
Meat mass/vol:				889,4				1902,7	Mean meat mass/volume:			1613,7
Total collecting mass:				10044,3				25492,0	Mean collecting mass/vol:			4377,7
% meat mass of total mass/vol:				35,4				37,3	% mm of total mass/vol:			36,9

Only those shellfish species which contributed relatively high meat mass are considered.

Table 26. continues. Minimum numbers of individuals and density per volume: mammals, marine birds and fish as represented at Kabeljous River Shelter

	Kabeljous units						Wilton units								
	OLA	DSM	PSM	RGA	ORA	TOTAL	CAF	CFC	GCS	SGA	GDS	CPS	HWA	WGL	TOTAL
REPTILES (tortoise)															
Homopus arcolatus	13	5	8	4	5	35	2	5	11	7	3	1	4	7	40
Chesina angulata	1		1	1		3	1	3	4	1	1	1		1	12
Pelusedusa subrufa (turtle)														1	1
TOTAL	14	5	9	5	5	38	3	8	15	8	4	2	4	9	53
Tortoise/volume	0,5	0,5	0,6	0,5	0,4	0,5	0,2	0,4	0,6	0,5	0,4	0,3	0,2	0,4	0,4
MARINE FISH															
Total bone Mass/unit	547,6	83,5	219,0	116,5	79,9	1048,3	94,4	370,9	89,2	154,7	273,3	125,3	60,8	164,0	1332,6
Bone mass/volume	20,3	8,5	15,6	10,6	5,7	13,8	1,7	19,5	3,6	10,3	24,8	15,7	2,5	6,6	9,1
MARINE BIRDS															
Phalacrocorax carbo lucidus							1	1							
Spheniscus demersus							1			1	1	1		1	5
Larus dominicanus							21					1			3
Unidentified	1		1					1		2					1
TOTAL	1		1				3	2		3	1	2		1	12

Table 26. Minimum numbers of individuals and density per volume: mammals, marine birds and fish as represented at Kabeljous River Shelter 1.

	Kabeljous units						Wilton units							
	OLA	DSM	PSM	RGA	ORA	TOTAL	CAF	CFC	GCS	SGA	GDS	CPS	HWA	WGL	TOTAL
MAMMALS															
Homo sapiens								1							1
Hyaena sp.							1								1
Felis sp.													1		1
Small carnivore			1			1									
Large carnivore														1	1
Arctocephalus pusillus		1				1		2	1						3
Procavia capensis									1				1		2
Equus sp.											1				1
Connochaetes gnou									1	2					3
Phacochoerus sp.															3
Oreotragus oreotragus			1		1	2	3								7
Raphicerus melanotis					1	1	2	1	2	1				1	3
Raphicerus sp.	1							1	1				1		4
Pelea capreolus							3		1						6
Redunca fulvorufula			1			1	1		1		1	2		1	3
Alcelaphus buselaphus					2	2	3								1
Sylvicapra grimmia					1	1							1		1
Tauratragus oryx			1			1	1								
Syncerus caffer			1												
Bovidae - general															
small	3	1		2	1	7	1	2		1		1	1		6
small medium	1	2	2		1	6	4	2			1		1	1	9
large medium	4	1	2	1	2	10	3	1		1	1	1		1	8
large	2			1		3	1				1	1	1	1	5
TOTAL	11	5	8	5	9	38	23	10	8	5	5	5	7	6	69
Bone mass/unit	2258,2	626,5	1665,3	333,5	770,7	6654,2	2785,8	1050,0	2221,1	962,4	2609,2	2674,3	1094,6	1027,0	14424,4
Bone mass/volume	83,6	62,7	119,0	30,3	87,6	87,6	139,3	55,3	88,8	64,2	237,2	334,3	45,6	41,1	98,1
Individuals/volume	0,4	0,5	0,6	0,5	0,6	0,5	1,2	0,5	0,3	0,3	0,5	0,6	0,3	0,2	0,5
Total PMM (kg.)	2158,2	377,1	1810,9	881,6	1394,6	6622,4	2332,4	538,8	209,5	215,0	1148,5	929,7	744,4	924,5	7042,8
PMM/volume (kg.)	80,0	37,7	129,4	80,1	99,6	87,1	116,6	28,4	8,4	14,3	104,4	116,2	31,0	37,0	47,9

Table 25. Shellfish frequency percentage per species and percentage meat mass contribution from the Tony's Bay middens.

	FTS*				WP1'				WP2'				TP'			
	f	f %	mm/gr	mm %	f	f %	mm/gr	mm %	f	f %	mm/gr	mm %	f	f %	mm/gr	mm %
Perna perna	55	7,6	286,3	18,7	78	16,5	592,8	25,5	52	8,8	384,8	18,4	13	5,6		
Donax serra	1	0,1			2	0,4			57	9,7	732,9	35,1				
Patella argenvillei	7	1,0			24	5,1	326,4	14,0	19	3,2			21	9,1	207,9	16,0
Patella barbara	1	0,1			20	4,2			4	0,7			2	0,9		
Patella cochlear					69	14,6			47	8,0			23	9,9		
Patella longicosta	20	2,8			133	28,2	864,5	37,1	93	15,8	279,9	13,4	50	21,6	150,0	11,6
Patella miniata	4	0,6			6	1,3			3	0,5			3	1,3		
Patella oculus	69	9,5	365,7	23,3	28	5,9			19	3,2			32	13,8	156,8	12,1
Patella tabularis					2	0,4			6	1,0			7	3,0		
Haliotis midae													1	0,4	264,7	20,4
Haliotis spadicea	2	0,3	276,0	17,6	4	0,8							1	0,4		
Oxystele spp.	230	69,9	642,6	40,9	42	8,9			231	39,3	346,5	16,6	25	10,8	518,7	40,0
Turbo sarmaticus	63	8,7			41	8,7	545,3	23,4	26	4,4	345,8	16,5	39	16,8		
Burnupena spp.	24	3,3			19	4,0			30	5,1			4	1,7		
Dinoplax gigas	1	0,1			4	0,9			1	0,2			11	4,7		
TOTAL	4674	100,2	1570,6	100,0	472	99,9	2329,0	100,0	588	99,9	2089,9	100,0	232	100,0	1298,1	100,1
Buckets sampled			4				1				1				1	
Buckets analised			2				1				1				1	
Meat mass/volume			785,3				2329,0				2089,9				1298,1	
Total collecting mass			3349,8				9511,2				6906,5				4043,1	
% meat mass of total mass/volume			23,4				24,5				30,3				32,1	

* Pottery present
' Kabeljous Industry

Only those shellfish species which contributed relatively high meat mass were considered.

Table 24. Shellfish frequency percentage per species and percentage meat mass contribution from the Thysbaai middens.

	TBW2[+]				TBK2[#]				TBH3[*]			
	f	f %	mm/gr	mm %	f	f %	mm/gr	mm %	f	f %	mm/gr	mm %
Perna perna	27	9,2	210,6	10,6	47	11,4	366,6	25,2	5	1,5		
Donax serra					2	0,5						
Patella argenvillei	77	26,3	539,0	27,2	27	6,6			26	7,7	182,0	10,3
Patella barbara	3	1,3			3	0,7						
Patella cochlear	110	37,5	440,0	22,3	202	49,1	808,0	55,6	14	4,2		
Patella longicosta	14	4,8			18	4,4						
Patella miniata												
Patella oculus	4	1,4				2,9			24	7,1		
Patella tabularis	19	6,5	281,2	14,2	9	2,2						
Haliotis midae	1	0,3	260,8	13,2	2	0,5						
Haliotis spadicea					7	1,7						
Oxystele spp.	19	6,5			53	12,9			162	48,4	243,0	13,8
Turbo sarmaticus	15	5,1	246,5	12,5	21	5,1	279,3	19,2	100	29,8	1330,0	75,8
Burnupena spp.	4	1,4			6	1,5			3	0,8		
Dinoplax gigas					2	0,5			2	0,6		
TOTAL	1022	100,0	1978,1	100,0	411	100,0	1453,9	100,0	336	100,0	1755,0	99,9
Buckets sampled			1				1				1	
Buckets analised			1				1				1	
Meat mass/volume			1978,1				1453,9				1755,0	
Total collecting mass			7010,5				5234,3				7724,8	
% meat mass of total mass/volume			28,2				27,8				22,7	

[+] Wilton Industry
[#] Kabeljous Industry
[*] Pottery present

Only those shellfish species which contributed relatively high meat mass are considered.

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Table 23. Shellfish frequency and frequency percentage per species contribution from the Seal Point and De Hoek middens.

	SP8[#]		DH1[#]		DH2[#]		DH3[*]		DH4[*]		DH5[#]	
	f	f %	f	f %	f	f %	f	f %	f	f %	f	f %
Perna perna	2	1,9	56	16,5	11	3,1	20	4,3	16	5,5	7	3,7
Donax serra			6	1,8							1	0,5
Patella argenvillei	8	7,6	53	15,6	32	9,0	25	5,4	13	4,5	14	7,4
Patella barbara	8	7,6	1	0,3	5	1,4	1	0,2	2	0,7	3	1,6
Patella cochlear	16	15,2	189	55,8	158	44,3	6	1,3	25	8,6	51	26,8
Patella longicosta	12	11,4	6	1,7	18	5,0	3	0,6	3	1,0	20	10,5
Patella miniata	3	2,9	2	0,6	1	0,3	1	0,2			7	3,7
Patella oculus	6	5,7	5	1,5	13	3,6	34	7,3	19	6,6	10	5,3
Patella tabularis	28	26,7	2	0,6	9	2,5					19	10,0
Haliotis midae	4	3,8			1	0,3	1	0,2			2	1,1
Haliotis spadicea	1	1,0	2	0,6			1	0,2	4	1,4	1	0,5
Oxystele spp.	4	3,8	6	1,8	59	16,5	349	74,9	156	53,8	10	5,3
Turbo sarmaticus	11	10,5	7	2,1	49	13,7	14	3,0	46	15,9	39	20,5
Burnupena spp.			2	0,6			11	2,4	6	2,1	2	1,1
Dinoplax gigas	2	1,9	2	0,6	1	0,3					4	2,0
TOTAL	105	100,0	339	100,1	357	100,0	466	100,0	290	100,1	190	100,0
Buckets sampled	1		1		1		1		1		1	
Buckets analised	1		1		1		1		1		1	

All grab samples
[*] Pottery present
[#] Kabeljous Industry

Table 22. Shellfish frequency percentage per species and percentage meat mass contribution from Seal Point and De Hoek middens.

	SP1'				SP2'			
	f	f %	mm/gr	mm %	f	f %	mm/gr	mm %
Perna perna	131	4,3	1218,3	10,1	216	8,8	1620,0	15,5
Donax serra	22	0,7			53	2,2	514,1	4,9
Patella argenvillei	144	4,7	1008,0	8,4	188	7,7	1560,4	14,9
Patella barbara	22	0,7			9	0,4		
Patella cochlear	450	14,7	1263	10,4	740	30,2	2442,0	23,3
Patella longicosta	706	23,1	2117,0	17,6	277	11,3	997,2	9,5
Patella miniata	3	0,1			2	0,1		
Patella oculus	344	11,3	2029,6	16,8	136	5,6	802,4	7,6
Patella tabularis	36	1,2			25	1,0	435,0	4,1
Haliotis midae					3	0,1		
Haliotis spadicea	3	0,1			22	0,9	473,0	4,5
Oxystele spp.	895	29,3	1342,5	11,1	655	26,7	786,0	7,5
Turbo sarmaticus	255	8,4	3085,5	26,6	72	2,9	846,0	8,1
Burnupena spp.	38	1,1			44	1,8		
Dinoplax gigas	5	0,2			6	0,2		
TOTAL	3054	99,9	12061,9	100,02	2448	99,9	10476,1	99,9
Buckets sampled				16				20
Buckets analised				16				20
Meat mass/volume				753,9				523,8
Total collecting mass				47849,1				36187,9
% meat mass of total mass/volume				25,2				28,9

	DII/M6'				DII/SS6'				DII/M8'			
	f	f %	mm/gr	mm %	f	f %	mm/gr	mm %	f	f %	mm/gr	mm %
Perna perna	1015	43,1	7917,0	54,1	19	6,2	121,5	12,3	32	1,7	185,6	4,1
Donax serra	4	0,2										
Patella argenvillei	202	8,6	1414,0	9,7					6	0,3	73,0	1,6
Patella barbara	2	0,1										
Patella cochlear	517	21,9	2068,0	14,1					7	0,4		
Patella longicosta	48	2,0							8	0,4		
Patella miniata	6	0,3										
Patella oculus	20	0,9			4	1,3			119	6,3	785,4	17,3
Patella tabularis	10	0,4										
Haliotis midae	4	0,2										
Haliotis spadicea	50	2,5	1998,0	13,6	1	0,3			4	0,2		
Oxystele spp.	291	12,3			246	80,7	344,4	34,7	1570	82,6	2041,0	45,0
Turbo sarmaticus	94	4,0	1250,2	8,5	35	11,5	525,0	53,0	146	7,7	1460,0	32,0
Burnupena spp.	83	3,5							8	0,4		
Dinoplax gigas	3	0,1							1	0,1		
TOTAL	2359	100,1	14647,2	100,0	305	99,9	990,9	100,1	1909	100,1	4544,0	100,0
Buckets sampled				10				10				6
Buckets analised				10				10				6
Meat mass/volume				1464,7				99,1				757,3
Total collecting mass				43284,2				4527,9				177703,3
% meat mass of total mass/volume				33,8				21,9				25,7

* Pottery present
' Kabeljous Industry

Only those shellfish species which contributed relatively high meat mass are considered.

Table 21. Shellfish frequency percentage per species and percentage meat mass contribution from Second Bush and Cape St Francis middens.

	SB1'				SB2*				CSFP*				CSFP'			
	f	f %	mm/gr	mm %	f	f %	mm/gr	mm %	f	f %	mm/gr	mm %	f	f %	mm/gr	mm %
Perna perna	6	2,8			62	17,2	446,4	35,6	5	1,0			149	41,5	1132,4	52,0
Donax serra	3	1,4														
Patella argenvillei	12	5,7			1	0,3			1	0,2			5	1,4		
Patella barbara	16	7,5			6	1,7			2	0,4			3	0,8		
Patella cochlear	58	27,4	162,4	20,3	40	11,1	112,0	8,9	1	0,2			18	5,0		
Patella longicosta	12	5,7			7	1,9			1	0,2			24	6,7		
Patella miniata	1	0,5			1	0,3			1	0,2			1	0,3		
Patella oculus	20	9,4			31	8,6	195,3	15,6	58	12,1	342,2	18,5	33	9,2	270,6	12,4
Patella tabularis	21	9,9	142,8	17,8	7	1,9										
Haliotis midae	1	0,5	184,4	23,4												
Haliotis spadicea	11	5,2	188,1	23,5												
Oxystele spp.	31	14,6			106	29,4	127,2	10,1	318	66,1	381,6	20,6	66	18,4		
Turbo sarmaticus	9	4,2	119,7	15,0	28	7,8	372,4	29,7	85	17,7	1130,5	61,0	58	16,2	771,4	35,5
Burnupena spp.	5	2,4			56	15,6			9	1,9			2	0,6		
Dinoplax gigas	6	2,8			15	4,2										
TOTAL	212	100,0	800,4	100,0	360	100,0	1253,3	99,9	481	100,1	1854,3	100,1	359	100,1	2174,4	99,9
Buckets sampled			1				1				1				1	
Buckets analised			1				1				1				1	
Meat mass/volume			800,4				1253,3				1854,3				2174,4	
Total collecting mass			2632,3				4846,4				8151,0				7337,4	
% meat mass of total mass/volume			30,4				25,9				22,7				29,6	

* Pottery present
' Kabeljous Industry

Only those shellfish species which contributed relatively high meat mass are considered.

Table 20. Minimum numbers of faunal species from the Goedgeloof middens.

	C1/M1	C2/M4	C3/M1	C3/M3	C3/M5	C3/M6	C3/8
MAMMALS							
Canis sp.				1			
Felis sp.				1			
Panthera leo		1					
Arctocephalus pusillus				1			
Diceros bicornis			1	1			
Equus sp.					1		
Hippopotamus amphibius	1	1		1			1
Raphicerus sp.			1	3	1		
Alcelaphus buselapus	1			2	1	2	1
Silvicapra grimmia				1			
Damaliscus sp.							1
Tragelaphus strepsiceros				1			
Syncerus caffer		2		1			
Lepus sp.				1			
Ovis aries							
fetus				2			
juvenile			4	8			
sub-adult			4	8		1	
adult			23	22		17	
old			5	12	1	8	3
cf. Bos Taurus				3	3		3
Bovidae - general							
Small				1			
small medium				1		1	
large medium		1	1	1			
large		1		2		1	
TOTAL	2	6	38	74	7	30	9
REPTILES (tortoise)							
Homopus areolatus	3		2	1		1	1
MARINE BIRDS							
P. c. lucidus					1		
M. capensis					1		
S. demersus		1			1		
TOTAL		1		1	3		

Table 19. Frequencies of stone artefacts from Seal Point, De Hoek, Tony's Bay Goedgeloof and Thysbaai middens.

	Seal Point		De Hoek		TB	Goedgeloof					Thysbaai	
	SP1	SP2	DH2	DH8	FTS	C1/1	C2/4	C3/1	C3/2	C3/4	WM1	WM2
WASTE												
Chips		2										
Chunks	1	9									2*	6*
Small cores											23*	52*
Cobble cores	2		1			1						
CRP											3*	8*
Flakes	5	72	2	4	4	8	2			2	100*	234*
TOTAL	8	83	3	4	4	9	2			2	128	300
UTILISED												
Hammerstones							1					
Hammer/rubber								2				
Rubbers	2											
Milled edge												1
Flakes						4					6*	14*
TOTAL	2					4	1	2			6	15
FORMAL											4*	14*
Scrapers											2*	2*
Adzes												1*
Borers												1*
Backed flakes												
Large segments						13	10					
Bored stones						3*						
Sinkers						1*			1[f]			
Misc. retouched						5					3*	4*
TOTAL						22	10		1		9	22
OTHER												
ochre	1	1		1								

All quartzite u less indicated differently. * Silcrete * Hornfels [f] Calcrete

Table 34. Faunal remains as represented at Klasies River Cave 5A: minimum numbers of individuals and bone mass per volume.

	Kabeljous units							Wilton units						
	HP	MA	SBA	MA4	YSM	OGY	TOTAL	CWA	M1	M2	M3	M4	M5	M6	TOTAL
MAMMALS															
Homo sapiens						1	1			1	1				2
Felis sp.									1						1
Small carnivore									1						1
Arctocephalus pusillus	1	1	1			1	4		1	1	1		1		4
Procavia capensis											1				1
Celhalopus monticola		1					1		1	1	1	2		1	6
Ptamachoerus porcus					1		1								
Raphicerus melanotis									2		1				3
Raphicerus sp.					1	2	3					2	1	1	4
Pelea capreolus										1	2				3
Syncerus caffer		1				1	2								
Hystrix africae-australis				1			1				1				1
Bovidae - general															
small						2	2	1	1	2	3	2	2		10
small medium		1		2	1	1	5					1		1	2
large medium			1	1		1	3			1					1
large						1	1	1		1	1	1		1	4
TOTAL	1	4	2	4	3	10	24	2	7	8	12	8	4	4	43
Mammal bone mass	75,5	134,4	78,1	79,5	58,7	218,3	644,5	518,3	165,6	541,9	409,2	2[illegible],8	94,1	217,8	2151,7
Mass/volume	15,9	11,2	10,8	19,9	29,4	30,0	18,0	57,6	55,2	28,5	25,3	[illegible],8	23,5	19,8	28,3
Individuals/volume	0,2	0,3	0,3	1,0	1,5	1,7	0,7	0,2	2,3	0,4	0,6	0,9	1,0	0,3	0,6
Total PMM	131,0	935,0	316,2	238,0	98,8	1833,6	3549,6	685,7	167,5	1037,0	900,1	751,2	152,4	714,7	4408,6
PMM/volume	27,6	77,9	43,6	59,5	47,9	318,[illegible]	99,3	74,4	55,8	54,6	48,0	83,5	38,1	60,8	59,0

Table 33. Frequencies of worked shell and bone from the Klasies River Caves 1-5.

	Klasies River Cave				Klasies River Cave 5A														Klasies River Cave 5B			
					Kabeljous units							Wilton units										
	1.2	1.6	1.7	TOTAL	HP	MA	SBA	MA4	YSM	OGV	TOTAL	CWA	M1	M2	M3	M4	M5	M6	TOTAL	M1	M2	M5	M6
MARINE SHELL																							
Nassarius kraussianus																							
Beads					3	8		7		17	35	2	2	4					8	1			
Trivella cupensis																							
Beads					1	9		3			13												
Bullupena rinta																							
Beads																							
Donax serra						1			1		2			1					1		1	1	
Pendants																					1		
Scrapers																							
Bulla digitalis																							
Pendants					1						1												
Turbo sarmaticus																							
Pendants		1		1	2					2	4												
Buttons						8		8	1		17												
roughouts						12		4			16												
Haliotis spadicea																							
Pendants															1	1			2				
Conus sp.																							
Pendants																					1		
Patella tabularis																							
Ochre container																					1		
TOTAL		1		1	7	38		22	2	19	87	2	2	5	1	1			11	1	4	1	
OSTRICH EGGSHELL																							
Fragments														1					1				
Roughouts												1											
Beads	2		6	8	9	20	9	18	4	2	62	1		2		1	2	2	8				
TOTAL	2		6	8	9	20	9	18	4	2	62	2		3		1	2	2	10				
BONE																							
Points							1				1			3					3			1	1
Beads	1			1										1					1				
Tubes					1	1					2						1		1				
TOTAL	1			1	1	1	1				3			4			1		5			1	1
GRAND TOTAL	3	1	6	10	17	59	10	40	6	21	183	4	2	12	1	2	3	2	26	1	4	2	1
Ornaments/volume	1.1	0,1	1.5	0,3	3,6	4,9	1,4	10,0	3,0	3,6	4,3	0,4	0,7	0,6	0,1	0,2	0,8	0,2	0,4	0,2	0,2	0,1	0,1

Table 32. continues. Shellfish frequency percentage per species and percentage meat mass contribution from Klasies River Cave 1.

	Layer 5				Layer 6				Layer 7				TOTAL			
	f	f %	mm/gr	mm %	f	f %	mm/gr	mm %	f	f %	mm/gr	mm %	f	f %	mm/gr	mm %
Perna perna	862	70,1	3960,0	60,3	367	64,0	2752,5	66,0	185	79,4	1387,5	85,8	3468	69,9	24034,0	72,8
Patella argenvillei	41	3,3	186,0	2,8	10	1,7			3	1,3			136	2,7	737,0	2,2
Patella barbara	6	0,5			1	0,4			1	0,4			39	0,8		
Patella cochlear	21	1,7			4	0,7			5	2,2			93	1,9		
Patella longicosta	39	3,2			13	2,3			8	3,4	20,8	1,3	248	5,0	718,0	2,2
Patella miniata													5	0,1		
Patella oculus	12	1,0			38	6,6	253,6	6,1	4	1,7	20,0	1,2	91	1,8	273,6	0,8
Patella tabularis	7	0,6			2	0,4							36	0,7	300,0	0,9
Haliotis midae					3	0,5							4	0,1		
Haliotis spadicea	53	4,3	1140,0	17,4	18	3,1	594,0	14,3					124	2,5	2846,0	8,6
Oxystele spp.	92	7,5			85	14,8	144,5	3,5	10	4,3			397	8,0	144,5	0,4
Turbo sarmaticus	79	6,4	1281,0	19,5	29	5,1	420,5	10,0	13	5,6	188,5	11,7	278	5,6	3952,1	12,0
Burnupena spp.	15	1,2			1	0,2			3	1,2			33	0,7		
Dinoplax gigas	2	0,2			1	0,2			1	0,4			13	0,3		
TOTAL	1229	99,9	6567,0	100,1	572	100,1	4165,1	100,0	233	100,1	1616,8	100,0	4965	100,0	33005,2	99,9
Buckets sampled				7,5				9				4				36,75
Buckets analised				3				4				4				23,75
Meat mass/volume				2189,0				1041,3				404,2				1389,7
Total collecting mass				16929,8				11573,2				4480,0				3808,6
% meat mass of total mass/volume				38,8				36,0				36,1				36,5

Only those shellfish species which contributed relatively high meat mass are considered.

Table 32. Shellfish frequency percentage per species and percentage meat mass contribution from Klasies River Cave 1.

	Layer 1				Layer 2				Layer 3				Layer 4			
	f	f %	mm/gr	mm %	f	f %	mm/gr	mm %	f	f %	mm/gr	mm %	f	f %	mm/gr	mm %
Perna perna	480	60,3	3984,0	76,7	110	68,8	847,0	82,5	615	68,0	4735,5	72,5	849	79,4	6367,5	80,6
Patella argenvillei	26	3,3	187,0	3,6	6	3,8	39,0	3,8	30	3,3	195,0	3,0	20	1,9	130,0	1,6
Patella barbara	13	1,6			2	1,3			11	1,2			5	0,5		
Patella cochlear	25	3,1			5	3,1			14	1,6			19	1,8		
Patella longicosta	70	8,8	210,0	4,0	10	6,3	47,0	4,6	62	6,9	219,4	3,4	46	4,3	220,8	2,8
Patella miniata	5	0,6														
Patella oculus	12	1,5			3	1,9			14	1,6			8	0,8		
Patella tabularis	7	0,9			1	0,6			15	1,7	300,0	4,6	4	0,4		
Haliotis midae													1	0,1		
Haliotis spadicea	10	1,3			3	1,9			20	2,2	556,0	8,5	20	1,9	556,0	7,0
Oxystele spp.	77	9,7			11	6,8			85	9,4			37	3,5		
Turbo sarmaticus	68	8,5	816,0	15,7	7	4,4	93,1	9,1	32	3,5	528,0	8,1	50	4,7	625,0	7,9
Burnupena spp.	2	0,3			1	0,6			3	0,3			8	0,8		
Dinoplax gigas	1	0,1			1	0,6			4	0,4			3	0,3		
TOTAL	796	100,0	5197,0	100,0	160	100,0	1026,1	100,0	905	100,1	6533,9	100,1	1070	100,4	7899,3	99,9
Buckets sampled			4				2,75				6,5				3	
Buckets analised			4				2,75								3	
Meat mass/volume			1299,3				373,1				2178,0				2633,1	
Total collecting mass			15731,4				3186,2				17410,7				21142,7	
% meat mass of total mass/volume			33,0				32,2				37,5				37,4	

Only those shellfish species which contributed relatively high meat mass are considered.

Table 31. Frequencies of stone artefacts from Klasies River Cave 1.

	L1	L2	L3	L4	L5	L6	L7	TOTAL
WASTE								
Chips					1		2	3
Chunks							1	1
Cobble cores						3*		3
Flakes	2	2	3		1	5	14	27
TOTAL	2	2	3		2	8	17	34
UTILISED								
Hammer/grindst						1		1
ones				1	6	1	2	10
Flakes								
TOTAL				1	6	2	2	11
	2	2	3	1	8	10	19	45
GRAND TOTAL	0,5	0,7	0,5	0,3	1,1	1,1	4,8	1,2
Artefacts/volume								
OTHER							1	
Ochre					3	3		7
M.S.A. flakes					2	4	2	6
Stalagmites						5		7
* Ochre stained								

Table 30. Mammal, tortoise, marine fish and bird remains from Klasies River Cave 1.

	L1	L2	L3	L4	L5	L6	L7	TOTAL
MAMMALS								
Arctocephalus pusillus							1	1
Equus sp.					1			1
Potamochoerus sp.					2			2
Raphicerus sp.						1		1
Redunca fulvorufula						1		1
Alcelaphus buselaphus						2		2
Syncerus caffer	1							1
Bovidae - general								
small			1	1	1	1	1	5
small medium				1	1	1	1	4
large medium			1					1
TOTAL	1	-	2	2	5	6	3	19
Mammal bone mass	228,3	-	74,6	105,6	167,8	624,1	94,2	1294,6
Weight/volume	57,1	-	11,5	35,2	22,4	69,3	23,6	35,2
Individuals/volume	0,3	-	0,3	0,7	1,3	0,8	0,3	0,5
Total PMM	775,0	-	196,0	35,3	330,1	347,4	166,3	1850,1
PMM/volume	193,8	-	30,2	11,8	44,0	38,6	41,6	50,3
REPTILES								
Tortoise					*	*	*	
Other						*		
MARINE FISH								
Total bone Mass/unit	49,5	94,5	299,5	198,6	442,4	945,9	358,7	2747,9
Bone mass/volume	12,4	34,4	46,1	66,2	59,0	105,1	89,7	74,8
MARINE BIRDS								
Phalacrocorax carbo lucidus	5	2	10*	13	39#	44*	2	115
Phalacrocorax capensis			1	1	2*	9*		13
Morus capensis	2	1	1	1	1	2		5
Sphenlscus demersus	1		1	2*	1	1		6
Larus dominicanus						2*		2
Diomedia sp.			1			1		2
TOTAL	8	3	13	17	43	59	2	146
Individual birds/volume	2,0	1,1	2,2	5,7	5,7	6,6	0,5	4,0

All *P. c. lucidus* remains were sub-adults, unless indicated differently.

* Present
# One adult
* One nestling

Table 29. Frequencies of worked shell and bone from the Klasies River Caves 1.

	Kabeljous units						Wilton c.f.								
	OLA	DSM	PSM	RGA	ORA	TOTAL	CAF	CFC	GCS	SGA	GDS	CPS	HWA	WGL	TOTAL
MARINE SHELL															
Nassarius kraussianus															
Shell	1					1			1		1			1	3
Beads	4		3			7			1				1	1	3
Donax serra															
Pendants		2	2	3		7		3	10	15	15	14	5	4	66
Scrapers	3	4	3	5	8	23	4	5	20	13	6	8	7	4	67
Pend/scrapers								2	2	2		2		5	13
Bullia digitalis															
Beads	1					1									
Thias squamosa															
Beads														1	1
TOTAL	9	6	8	8	8	39	4	10	34	30	22	24	13	16	153
OSTRICH EGGSHELL															
Fragments	1					1	1						1		2
Roughouts	2					2	1								1
Beads	1	1				2		6		4	2	1	31	51	95
Pendants		1				1									
Openings															
TOTAL	4	2				6	2	6		4	2	1	32	52	99
BONE															
Points												1		1	2
Awls	2					2									
TOTAL	2					2						1		1	2
GRAND TOTAL	15	8	8	8	8	45	6	16	34	34	23	26	44	68	249
Ornaments/volume	0,5	0,8	0,6	0,7	0,6	0,6	0,3	0,8	1,3	2,3	2,1	3,3	1,8	2,7	1,7

Unworked marine shell and ostrich eggshell are not included in the Grand Total.

Table 28. continues. Frequencies and percentage frequencies of stone artefacts from Kabeljous River Shelter 1.

		Kabeljous units						Wilton units								
		OLA	DSM	PSM	RGA	ORA	TOTAL	CAF	CTC	GUS	SBA	GDS	CPS	HWA	WGL	TOTAL
FORMAL TOOLS																
Adzes																
Silcrete	f	-	-	-	-	-	-	2	-	-		-	-	-	-	2
Borers																
Silcrete	f	-	-	-	-	-	-	1	-	-		-	-	-	-	1
Backed flakes																
Quartz	f	-	-	-	-	-	-	-	2	1	1	2	1	2	-	9
Chalcedony	f	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1
Bored stones																
Hornfels	f	-	-	-	-	-	-	-	-	1	-	-	-	-		1
Misc. retouch																
Silcrete	f	-	-	-	1	-	1	-	-	-	-	1	-	-	-	2
Total	f	10	13	8	2	6	39	6	12	10	4	17	7	4	32	92
Formal tools as % of GRAND TOTAL		1,2	2,2	0,7	0,4	1,4	1,1	0,9	0,6	1,0	1,0	1,8	0,5	0,3	1,5	1,0
GRAND TOTAL	f	807	592	1126	474	436	3437	664	1406	1006	414	932	1330	1502	2078	9332
Artefacts/bucket		29,9	59,9	80,4	47,4	31,1	45,2	33,2	74,0	40,2	27,6	84,7	156,4	62,6	83,1	63,5
OTHER																
Ochre																
Pieces		19	28	85	17	25	174	40	31	7	17	19	24	22	26	186
Grounded		-	2	4	1	1	8	-	-	-		-	-	-	-	-
Flaked		-	-	2	-	-	2	-	-	-	-	-	-	-	-	-
Chunks		-	-	5	-	-	5	-	-	-	-	-	-	-	-	-
Shale																
Pieces		-	2	14	13	17	46	5	39	112	25	31	40	22	14	288
Grounded		1	-	-	-		1	-	-	-	-	-	-	-	-	-
Crystals		-	-	-	-	-	-	-	-	2	4	19	23	8	24	80
Total	f	20	32	110	31	43	237	45	70	121	46	69	87	52	64	554
Other/bucket		0,7	3,1	7,9	2,8	3,1	3,1	2,3	3,7	4,8	3,1	6,3	10,9	2,2	2,6	3,8

Table 28. continues. Frequencies and percentage frequencies of stone artefacts from Kabeljous River Shelter 1.

		Kabeljous units						Wilton units								
		OLA	DSM	PSM	RGA	ORA	TOTAL	CAF	CFC	GCS	SDA	GDS	CPS	HWA	WGL	TOTAL
UTILISED																
Rubbers		3	-	-	1	-	4	-	-	-		-	1	-	-	-
Ham/rubbers		1*	-	-	-	-	1	-	-	-		-	-	-	-	-
Grindstones		-	-	1*	-	-	1	-	-	-		-	2*	-	-	-
Hammerstones		-	-	2	-	-	2	-	-	-		-	-	-	-	-
Flakes																
Quartz	f	-	-	-	-	-	-	-	1	-	-	-	1	-	1	3
	%	-	-	-	-	-	-	-	33,3	-	-	-	50,0	-	12,5	13,6
Quartzite	f	2	-	1	2	4	9	1	2*	1	1	2	1	1	6	15
	%	100,0	-	100,0	100,0	100,0	100,0	100,0	66,7	100,0	100,0	50,0	50,0	50,0	75,0	68,2
Silcrete	f	-	-	-	-	-	-	-	-	-	-	1	-	-	-	1
	%	-	-	-	-	-	-	-	-	-	-	25,0	-	-	-	4,5
Chalcedony	f	-	-	-	-	-	-	-	-	-	-	-	-	1	1	2
	%	-	-	-	-	-	-	-	-	-	-	-	-	50,0	12,5	9,1
Hornfels	f	-	-	-	-	-	-	-	-	-	-	1	-	-	-	1
	%	-	-	-	-	-	-	-	-	-	-	25,0	-	-	-	4,5
Total	f	6	-	4	3	4	17	1	6	3	2	11	5	2	8	38
Utilised tools as % of GRAND TOTAL		0,7	-	0,7	0,3	0,8	0,5	0,2	0,4	0,3	0,5	1,2	0,4	0,1	0,4	0,4
FORMAL TOOLS																
COBBLE TOOLS																
Large scrapers		-	-	-	-	1	1	-	-	-	-	-	-	-	-	-
Cobble scrapers		-	-	2	-	1	3	-	-	-	-	-	-	-	-	-
Rubber/scrapers		1*	-	-	-	-	1	-	-	-	-	-	-	-	-	-
Adzes		-	-	-	-	1	1	-	-	-	-	-	-	-	-	-
Cobble adzes		4	4	3	1	2	14	-	2	-	-	-	1*	-	2	5
Rubber adzes		1	3*	1	-	1	6	-	-	-	-	-	-	-	-	1
Hammer/adzes		-	4	2	-	-	6	-	-	-	-	-	-	-	1	1
Ham/rub/adzes		-	-	-	-	-	-	-	-	-	-	-	-	-	-	3
Large segments		1	1	-	-	-	2	-	-	-	-	-	-	-	-	-
Misc. retouched		3	-	-	-	-	3	-	-	-	-	-	-	-	-	-
Reamers		-	1	-	-	-	1	-	-	-	-	-	-	-	-	-
Small scrapers																
Quartz	f	-	-	-	-	-	-	2	7	8	3	10	4	2	22	58
	%	-	-	-	-	-	-	75,0	100,0	100,0	100,0	100,0	80,0	100,0	78,6	87,9
Silcrete	f	-	-	-	-	-	-	1	-	-	-	-	-	-	-	1
	%	-	-	-	-	-	-	25,0	-	-	-	-	-	-	-	1,5
Chalcedony	f	-	-	-	-	-	-	-	-	-	-	-	1	-	6	7
	%	-	-	-	-	-	-	-	-	-	-	-	20,0	-	21,4	10,6

Table 28. continues. Frequencies and percentage frequencies of stone artefacts from Kabeljous River Shelter 1.

		Kabeljous units						Wilton units								
		OLA	DSM	PSM	RGA	ORA	TOTAL	CAF	CFC	GCS	SBA	GDS	CPS	HWA	WGL	TOTAL
Core Reduced Pieces																
Quartz	f	-	-	-	-	-	-	6	39	27	12	18	14	13	40	169
	%	-	-	-	-	-	-	66,7	100,0	96,4	100,0	100,0	93,3	76,5	93,0	93,4
Quartzite	f	-	1	1	-	-	2	-	-	-	-	-	-	-	-	-
	%	-	100,0	50,0	-	-	40,0	-	-	-	-	-	-	-	-	-
Silcrete	f	-	-	1	-	2	3	3	-	-	-	-	-	-	-	3
	%	-	-	50,0	-	100,0	60,0	33,3	-	-	-	-	-	-	-	1,7
Chalcedony	f	-	-	-	-	-	-	-	-	1	-	-	1	4	3	9
	%	-	-	-	-	-	-	-	-	3,7	-	-	6,7	23,5	7,0	5,0
Total	f	-	1	2	-	1	5	9	39	28	12	18	15	17	43	181
CRP as % of Total waste		-	0,2	0,2	-	0,5	0,1	1,4	2,8	2,8	2,9	2,0	1,1	1,1	2,1	2,0
Flakes																
Quartz	f	1	3	-	-	19	23	82	429	232	95	150	178	149	384	1699
	%	0,2	0,8	-	-	5,2	1,0	21,1	51,8	35,0	28,7	26,0	21,2	19,7	34,8	31,0
Quartzite	f	578	344	635	249	326	1132	259	393	428	234	422	641	590	703	3670
	%	95,7	93,8	96,5	93,6	90,6	94,6	66,8	47,5	64,9	71,1	73,4	76,6	78,1	63,7	67,0
ochre stained		-	2	3	-	3	8	1		2	1	2	1	2	-	9
Silcrete	f	5	1	4	3	11	24	41	4	-	-	-	-	-	-	45
	%	0,8	0,3	0,6	1,1	3,0	1,1	10,5	0,5	-	-	-	-	-	-	0,8
Chalcedony	f	-	-	-	-	-	-	-	-	1	1	1	17	16	16	52
	%	-	-	-	-	-	-	-	-	0,2	0,3	0,2	2,0	2,1	1,5	0,9
Hornfels	f	20	19	19	14	4	76	6	2	-	-	3	1	1	-	13
	%	3,3	5,1	2,9	1,2	1,1	3,4	1,5	0,2	-	-	0,5	0,1	0,1	-	0,2
Total	f	604	369	661	266	363	2263	389	829	663	331	578	838	788	1103	5488
Flakes as % of Total waste		76,4	63,8	59,3	56,7	84,8	66,9	59,2	59,7	66,8	81,1	63,9	63,6	50,7	54,1	59,6
Total waste	f	791	579	1114	469	428	3381	657	1388	993	408	904	1318	1496	2038	9202
Total waste as % of GRAND TOTAL		98,0	97,8	98,9	98,9	97,7	98,4	98,9	98,7	98,7	98,6	97,0	99,1	99,6	98,1	98,6
UTILISED																
Cobble Core Tools																
Cores		-	-	-	-	-	-	-	3	2*	-	3	-	-	-	8
Rubber/cores		-	-	-	-	-	-	-	-	-	-	-	2	-	-	2
Ham/rub/cores		-	-	-	-	-	-	-	-	-	1*	1	1	-	-	3

Table 28. Frequencies and percentage frequencies of stone artefacts from Kabeljous River Shelter 1.

		Kabeljous units						Wilton units								
		OLA	DSM	PSM	RGA	ORA	TOTAL	CAF	CFC	GCS	SGA	GDS	CPS	HWA	WGL	TOTAL
WASTE																
Chips																
Quartz	f	-	3	5		9	17	88	338	188	57	190	205	387	661	2114
	%	-	1,4	1,1	-	15,3	1,5	35,3	74,3	65,5	96,6	62,5	44,7	54,7	76,2	62,4
Quartzite	f	178	200	427	184	48	1037	149	108	99	2	111	247	297	194	1206
	%	96,2	95,7	95,7	92,0	81,4	94,4	59,2	43,2	34,5	3,4	36,5	53,9	42,0	22,4	35,6
Silcrete	f	2	6	7	3	1	19	14	9	-	-	-	-	1	-	26
	%	1,1	2,9	1,6	1,5	1,7	1,7	5,6	2,0		-	-	-	0,1	-	0,7
Chalcedony	f	-	-	-	-	-	-	-	-	-	-	3	6	22	12	43
	%	-	-	-	-	-	-	-	-	-	-	1,0	1,3	3,1	1,4	1,3
Hornfels	f	5	-	7	13	1	26	-	-	-	-	-	-	-	-	-
	%	2,7	-	1,6	6,5	1,7	2,4	-	-	-	-	-	-	-	-	-
								-	-	-	-	-	-	-	-	-
Total	f	185	209	446	200	59	1099	250	455	287	59	304	458	707	867	3387
Chips as % of Total waste		23,4	36,1	40,0	42,6	12,3	32,5	38,1	32,8	28,9	14,5	34,0	34,7	47,3	42,5	36,8
Chunks																
Quartz	f	-	-	-	-	-	-	5	60	14	6	-	-	8	-	93
	%	-	-	-	-	-	-	55,6	92,3	93,3	100,0	-	-	80,0	-	86,1
Quartzite	f	1	-	3	-	4	8	2	5	5	-	2	1	2	-	13
	%	50,0	-	100,0		100,0	88,9	22,2	7,7	7,7	-	100,0	100,0	20,0	-	12,0
Silcrete	f	-	-	-	-	-	-	2	-	-	-	-	-	-	-	1,9
	%	-	-	-	-	-	-	22,2	-	-	-	-	-	-	-	-
Hornfels	f	1	-	-	-	-	1	-	-	-	-	-	-	-	-	-
	%	50,0	-	-	-	-	11,1	-	-	-	-	-	-	-	-	-
Total	f	2	-	3	-	4	9	9	65	15	6	2	1	10	-	103
Chunks as % of Total waste		0,3	-	0,3	-	0,9	0,3	1,4	4,7	1,5	1,5	0,2	0,1	0,7	-	1,2
Cores																
Quartz	f	-	-	-	-	-	-	-	-	-	-	1	3	1	20	25
	%	-	-	-	-	-	-	-	-	-	-	50,0	50,0	25,0	80,0	65,8
Quartzite	f	-	-	2	-	-	2	-	1#	-	-	1#	2#	3#*	-	7
	%	-	-	100,0	-	-	40,0	-	100,0	-	-	50,0	2	75,0	-	18,4
Silcrete	f	-	-	-	2	-	2	-	-	-	-	-	33,3	-	-	-
	%	-	-	-	66,6		40,0	-	-	-	-	-	-	-	-	-
Chalcedony	f	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hornfels	f	-	-	-	1	-	1	-	-	-	-	-	1	-	5	6
	%	-	-	-	33,3	-	20,0	-	-	-	-	-	16,7	-	20,0	15,8
Total	f	-		2	3	-	5	-	1	-	-	2	6	4	25	38
Cores as % of Total waste		-	-	0,2	0,6	-	0,1	-	0,1	-	-	0,2	0,5	0,3	1,2	0,4

Table 27. continues. Shellfish frequency percentage per species and percentage meat mass contribution from Kabeljous Shelter 1: Wilton units.

	IIWA				WGL				TOTAL			
	f	f %	mm/gr	mm %	f	f %	mm/gr	mm %	f	f %	mm/gr	mm %
Perna perna	626	78,4	3942,8	70,2	460	83,0	2760,0	78,3	3163	66,52	17681,0	53,43
Donax serra	52	6,5	728,0	13,0	32	5,8	416,1	11,8	870	18,29	11775,5	35,59
Patella argenvillei	2	0,3							10	0,21	112,2	0,34
Patella barbara	1	0,1			2	0,4			13	0,27		
Patella cochlear					7	1,3			33	0,69		
Patella longicosta	7	0,9			1	0,2			145	3,05	85,5	0,26
Patella miniata	1	0,1			1	0,2			6	0,15		
Patella oculus	2	0,3							21	0,44		
Patella tabularis					1	0,2			12	0,25		
Haliotis midae					6	1,1			1	0,02		
Haliotis spadicea	7	0,9			30	5,4			46	0,96	501,6	1,52
Oxystele spp.	60	7,5			12	2,2	348,0	9,8	272	5,72	69,6	0,21
Turbo sarmaticus	39	4,9	943,8	16,8					155	3,25	2864,1	8,66
Burnupena spp.									1	0,02		
Solen capensis					1	0,2			1	0,02		
Dinoplax gigas	1	0,1			1	0,2			6	0,15		
TOTAL	798	100,0	5615,6	100,0	554	100,2	3524,1	99,9	4755	100,2	33089,8	100,01

Buckets sampled	24	25	Total buckets excavated:	147
Buckets analised	3	2	Total buckets analised:	21
Meat mass/volume	1871,9	1762,1	Mean meat mass /volume:	1575,7
Total collecting mass	15015,7	10580,4	Total collecting mass/vol.:	4127,9
% meat mass of total mass/volume	37,4	33,3	% mm of total mass/vol:	38,2

Only those shellfish species which contributed relatively high meat mass are considered.

APPENDIX I

PLANT REMAINS FROM THE HAVENS CAVE

Ethnographic examples of Bantu-speaking people using these plants as historic accounts suggest that the Xhosa in particular may have obtained much of their plant lore from the San.

Pappea capensis seeds are common at The Havens Cave. The fruits ripen from late summer to mid winter (February to July) (Coates Palgrave 1977:535). The fruits are edible and can be made into beverages, vinegar and jelly (Palmer & Pitman 1972:1359). In 1779, Wikar (in Mossop 1935) a runaway Swedish soldier who was the first European to journey along the Orange River, between 1775-1779, noted that the tribes used the oil of *P. capensis* seeds instead of fat for rubbing themselves. They also roasted the seeds under the coals and crushed the shell, which they threw away, to get to the kernel. These they ground to make a sweetly scented oil. Pappe (1868:3) reports that the kernel contains a fairly heavy oil which is edible, but somewhat purgative. He mentions that it is also recommended as an external remedy for ringworm and baldness. The oil of the kernel is suitable too for making soap, and early farmers lubricated their guns with it. The fruits were delicious and served as food and drink. The leaves and bark were used for medicinal purposes. A leaf infusion was used as a cure for sore eyes, and the bark to treat venereal diseases (Coates Palgrave 1977:535).

Schotia afra var. *afra* (L) Bodin (Karoo boer-bean) and *S. longifolia* pods and seeds were well represented in all the samples. The pods of both species are similar, so identifications were made on the seeds. *S. afra* are edible and available between October and March (Coats Palgraves 1977:275). Wikar (1779) reported that the Bushmen near the Augrabies Falls cooked the beans of *S. afra* var. *angustifolia* (E. Meyer) Harvey, so that the outer red skin could be peeled off, because the skin is somewhat astringent. They also roasted the beans under the coals and pounded them into

Table 39. Frequencies of stone artefacts from Klasies River Cave 5B.

	M1	M2/3	M4	M5	M6	M7	M8	TOTAL
WASTE								
Chunks	2	2						4
Cobble cores	3	7	1	2		2	4	19
ochre stained		1					1	2
charcoal stained		2						2
Flakes	10	8	1	7	13	22	9	70
ochre stained		1		1		2		4
charcoal stained			1	1				3
TOTAL	15	21	3	12	13	26	14	104
UTILISED								
Slabs/grindstone								
ochre stained		2		1	1			4
charcoal stained		1	1		1			3
ochre/charcoal stained			1					1
Hammerstones		3	1	3				7
ochre stained		2						2
charcoal stained			1					1
ochre/charcoal staine		2						2
flaked		2						2
Hammer/cores		1						1
Hammer/grindstones			2	1				3
charcoal stained	1		1					2
ochre/charcoal stained				1				1
flaked								
ochre stained			1					1
charcoal stained			1					1
ochre/charcoal stained			1					1
Hammer/rubbers		5			2		1	8
ochre stained	1	4	1	2				8
Rubbers	2	3	1					6
ochre stained	2	1		1				4
charcoal stained		2						2
ochre/charcoal stained	1							1
Rubber/core						1		1
Grindstones					1			1
flaked		1		1				2
ochre stained		2	2					4
charcoal stained			3					3
ochre/charcoal stained		2						2
Cores								
ochre stained		1		1				2
ochre/charcoal stained		1			1			2
charcoal stained	1							1
Reamers		1						1
Heavy flaked pieces		1						1
charcoal stained		1						1
Flakes	7	6					1	14
ochre stained	1		1	1	1	1		5
charcoal stained	1	3	1					4
ochre/charcoal stained			1			1		2
TOTAL	17	48	19	12	8	2	2	108
GRAND TOTAL	32	69	22	24	22	28	16	212
Artefacts/volume	4.0	3.6	1.5	1.6	1.5	1.6	1.7	2.2

Table 38. continues. Shellfish frequency percentage per species and percentage meat mass contribution from Klasies River Cave 5B.

	Midden 6				Midden 7				Midden 8				TOTAL			
	f	f %	mm/gr	mm %	f	f %	mm/gr	mm %	f	f %	mm/gr	mm %	f	f %	mm/gr	mm %
Perna perna	50	12,7	335,0	9,7	63	14,3	510,0	18,6	113	40,4	813,6	36,7	322	11,1	2066,6	10,8
Patella argenvillei	17	4,3			5	1,1			2	0,7			81	2,8		
Patella barbara	11	2,8			2	0,5							29	1,0		
Patella cochlear	2	0,5			2	0,5							38	1,3		
Patella longicosta	122	30,9	671,0	19,4	220	50,0	836,0	30,4	88	31,4	396,0	17,9	1127	38,7	5015,0	26,3
Patella miniata					4	0,9							8	0,3		
Patella oculus	32	8,1			36	8,2			16	5,7			229	7,9	838,0	4,4
Patella tabularis	50	12,7	1075,0	31,1	22	5,0	473,0	17,2	13	4,6	341,9	15,4	240	8,3	7788,9	25,1
Haliotis midae	5	1,3			3	0,7			3	1,1			15	0,5		
Haliotis spadicea	11	2,8	305,0	8,8	11	2,5	253,0	9,2	7	2,5	217,0	9,8	64	2,2	1053,0	5,5
Oxystele spp.	33	8,4			23	5,2			3	1,1			365	12,5	217,0	1,1
Turbo sarmaticus	62	15,7	1023,0	29,6	49	11,1	647,0	23,5	35	12,5	448,0	20,2	378	13,0	5122,0	26,8
Burnupena spp.													13	0,4		
TOTAL	395	100,1	3409,0	99,9	440	100,0	2719,0	99,9	280	100,0	2216,5	100,0	2909	100,0	19101,3	100,0

Buckets sampled	14	17	9	Total buckets excavated: 95
Buckets analised	3	2	2	Total buckets analised: 18
Meat mass/volume	1136,3	1359,5	1108,1	Mean meat mass/volume: 1061,2
Total collecting mass	11136,3	10142,2	7999,7	Mean collecting mass/vol.: 3921,1
% meat mass of total mass/volume	30,6	26,9	27,7	% mm of total mass/vol.: 27,1

Only those shellfish species which contributed relatively high meat mass are considered.

Table 38. Shellfish frequency percentage per species and percentage meat mass contribution from Klasies River Cave 5B.

	Midden 1				Midden 2/3				Midden 4				Midden 5			
	f	f %	mm/gr	mm %	f	f %	mm/gr	mm %	f	f %	mm/gr	mm %	f	f %	mm/gr	mm %
Perna perna	50	7,8	245,0	9,4	17	3,4			25	6,0	163,0	4,8	14	5,7		
Patella argenvillei	15	2,3			18	3,6			13	3,1			11	4,5		
Patella barbara					7	1,4			9	2,1						
Patella cochlear	22	3,4			6	1,2			3	0,7			3	1,2		
Patella longicosta	237	37,0	1066,0	40,7	236	47,3	1109,0	40,0	146	34,8	672,0	19,5	78	31,8	265,0	13,8
Patella miniata	1	0,2			2	0,4			1	0,2						
Patella oculus	40	6,2	220,0	8,4	52	10,4	307,0	11,1	34	8,1	194,0	5,6	19	7,8	117,0	6,1
Patella tabularis	4	0,6			30	6,0	525,0	19,0	49	11,7	1078,0	31,2	72	29,4	1296,0	67,6
Haliotis midae									2	0,5			2	0,8		
Haliotis spadicea	10	1,6			10	2,0	278,0	10,0	8	1,9			7	2,9		
Oxystele spp.	181	28,2	217,0	8,3	78	3,0			24	5,7			23	9,4		
Turbo sarmaticus	68	10,6	870,4	33,2	43	8,6	550,0	19,9	105	25,0	1344,0	38,9	16	6,5	240,0	12,5
Burnupena spp.	12	1,9							1	0,2						
TOTAL	641	100,0	2618,4	100,0	499	100,0	2769,0	100,0	420	100,0	3451,0	100,0	245	100,0	1918,0	100,0

Buckets sampled	8	22	12	15
Buckets analised	2	3	3	3
Meat mass/volume	1309,2	923,0	1150,3	639,3
Total collecting mass	10215,0	9948,4	12907,1	8231,3
% meat mass of total mass/volume	25,6	27,8	26,7	23,3

Only those shellfish species which contributed relatively high meat mass are considered.

Table 37. Faunal remains from Klasies River Cave 5B. minimum numbers of individuals and bone mass per volume.

	M1	M2/3	M4	M5	M6	M7	M8	TOTAL
MAMMALS								
Homo sapiens			1					1
Felis sp.							1	1
Arctocephalus pusillus		1	1		1		1	4
Raphicerus melanotis		1						1
Raphicerus sp.	1	1			1		1	4
Alcelaphus buselaphus				1				1
Sylvicapra grimmia					1			1
Syncerus caffer		1	1	1	1			4
Bovidae - general								
small		1	1	1	1			4
small medium		1						1
large medium		1		1				2
large	1	1			1		1	4
TOTAL	2	8	4	4	6	-	4	28
Mammal bone mass	175,9	351,9	191,3	128,8	197,7	459,8	345,1	1850,5
Weight/volume	22,6	16,5	12,6	8,6	15,2	26,1	38,3	19,1
Individuals/volume	0,3	0,4	0,3	0,3	0,4	-	0,4	0,4
Total PMM	685,7	1822,5	916,7	1106,9	1622,1	-	816,7	6970,6
PMM/volume	85,7	82,8	76,4	73,8	115,9	-	90,7	73,4
REPTILES (tortoise)					*	*	*	
Homopus areolatus		1						1
MARINE FISH								
Total bone Mass/unit	19,1	64,3	7,9	22,9	8,8	13,5	10,5	147,0
Bone mass/volume	2,4	2,9	0,7	1,5	0,6	0,8	1,2	1,5
MARINE BIRDS								
Phalacrocorax carbo lucidus	9*	8	4	27	30	13	9*	100
Phalacrocorax capensis			2			1		3
Morus capensis	1	1		1	1	1	1	6
Spheniscus demersus	2	2	1	1		5	3	14
Diomedia sp.					1			1
Unidentified		2**	2**		2**		1*	7
TOTAL	12	13	9	29	34	20	14	131
Individual birds/volume	1,5	0,7	0,6	1,9	2,4	1,2	1,6	1,4

All *P. c. lucidus* remains were sub-adults, unless indicated differently.

* Present
* One adult
* One nestling

Table 36. continue. Frequencies and percentage frequencies of stone artefacts from Klasies River cave 5A.

		Kabeljous Units							Wilton Units							
		HP	MA	SBA	MA4	YSM	OGY	TOTAL	CWA	MI	M2	M3	M4	M5	M6	TOTAL
UTILISED																
Flakes																
Quartz	f									1						1
Quartzite	f											1	1			2
Silcrete	f									1						1
Chalcedony	f									1						1
Hammerstones			1					1								
Total	f		1					1		3		1	1			5
FORMAL																
Scrapers																
Quartz	f								2						2	4
Silcrete	f										1					1
Cobble scraper															1	1
Backed flakes																
Silcrete	f														1	1
Sinkers																
Hornfels	f								1							1
TOTAL	f								3		1				4	8
GRAND TOTAL	f	42	178	7	106	10	22	365	23	23	12	14	20	43	216	351
Artefacts/volume		8,8	14,8	1,0	26,5	5,0	3,8	10,2	2,5	7,7	0,6	0,7	2,2	10,8	18,3	4,7
OTHER																
Ochre		7	25	2	5	2	16	52	2	1	3			2	3	12
Shale			2		1		2	5		1	1	2			1	5
Crystals															1	1
MSA flakes				1			1	2		2						2

Table 36. Frequencies and percentage frequencies of stone artefacts from Klasies River cave 5A.

		Kabeljous Units							Wilton Units							
		HP	MA	SBA	MA4	YSM	OGV	TOTAL	CWA	M1	M2	M3	M4	M5	M6	TOTAL
WASTE																
Chips																
Quartz	f						2	2	1	2		3	4	4	30	44
	%						100,0	1,6	100,0	40,0		100,0	100,0	33,3	62,5	58,7
Quartzite	f		71		50	2		123		2				2	18	22
	%		100,0		100,0	100,0		95,3		40,0				16,7	37,5	29,3
Silcrete	f													6		6
	%													50,0		8,0
Chalcedony	f									1	2					3
	%									20,0	100,0					4,0
Total	f		71		50	2	2	125	1	5	2	3	4	12	48	75
Chunks																
Quartz	f										2				4	6
Total	f										2				4	6
Small cores																
Quartz	f								1			1				2
Total	f								1			1				2
Core reduced pieces																
Quartz	f									1			2		6	9
Chalcedony	f									1						1
Silcrete	f										1					1
Total	f									2	1		2		6	11
Flakes																
Quartz	f						1	1	4	3	4	2	2	5	52	72
	%						5,6	0,4	22,2	25,0	50,0	25,0	15,4	16,7	33,8	29,6
Quartzite	f	42	106	7	56	8	16	235	12	6		5	7	14	3[illegible]	136
	%	100	100,0	100,0	100,0	100,0	88,9	99,2	66,7	50,0		62,5	53,8	46,7	39,7	56,0
Silcrete	f	,0									4	1	3	11	5	24
	%										50,0	12,5	23,0	36,7	3,2	9,9
Chalcedony	f								2	3					1	6
	%								11,1	25,0					0,6	2,5
Hornfels	f						1	1					1		4	5
	%						5,6	0,4					7,7		2,6	2,1
Total	f	42	106	7	56	8	18	237	18	12	8	8	13	30	154	243
TOTAL WASTE		42	177	7	106	10	22	364	20	19	11	13	19	43	212	337

Table 35. continues. Shellfish frequency percentage per species and percentage meat mass contribution from Klasies River Cave 5A: Wilton units.

	Midden 4				Midden 5				Midden 6				TOTAL			
	f	f %	mm/gr	mm %	f	f %	mm/gr	mm %	f	f %	mm/gr	mm %	f	f %	mm/gr	mm %
Perna perna	483	47,4	2801,4	62,0	228	57,4	1687,2	74,1	521	40,7	3178,1	60,0	2294	43,6	15068,5	63,5
Donax serra	1	0,1							1	0,1			2	0,03		
Patella argenvillei													7	0,1		
Patella barbara					3	0,8			2	0,2			11	0,2		
Patella cochlear	1	0,1			2	0,5			1	0,1			40	0,8		
Patella longicosta	37	3,6			10	2,5			37	2,9			269	5,1		
Patella miniata													1	0,02		
Patella oculus	27	2,6			13	3,3			20	1,6			135	2,6		
Patella tabularis													4	0,08		
Haliotis spadicea	5	0,5							1	0,1			29	0,6		
Oxystele spp.	339	33,2	508,5	11,3	104	26,2	156,0	6,8	583	45,6	874,5	16,5	1916	36,4	2874,0	12,9
Turbo sarmaticus	93	9,1	1209,0	26,8	34	8,6	435,2	19,1	101	7,9	1252,4	23,6	467	8,9	6032,7	23,6
Burnupena spp.	32	3,1			2	0,5			10	0,8			76	1,4		
Dinoplax gigas	2	0,2			1	0,2			2	0,2			15	0,3		
TOTAL	1020	99,9	4518,9	100,1	397	100,1	2278,4	100,0	1279	100,0	5305,0	100,1	5266	100,13	23975,2	100,0

Buckets sampled	9	4	11,75	Total buckets excavated:	74,75
Buckets analised	2	2	3	Total buckets analised:	16
Meat mass/volume	1506,3	1139,2	1768,3	Mean meat/volume:	1498,5
Total collecting mass	14962,2	6853,6	16907,7	Mean collecting mass/vol.:	4808,2
% meat mass of total mass/volume	30,2	33,2	31,4	% mm of total mass/vol.:	31,2

Only those shellfish species which contributed relatively high meat mass are considered.

Table 35. continues. Shellfish frequency percentage per species and per centage meat mass contribution from Klasies River Cave 5A: Wilton units.

	CWA				Midden 1				Midden 2				Midden 3			
	f	f %	mm/gr	mm %	f	f %	mm/gr	mm %	f	f %	mm/gr	mm %	f	f %	mm/gr	mm %
Perna perna	127	32,9	914,4	51,2	144	33,2	950,4	50,6	253	36,6	1771,0	58,8	538	50,8	3766,0	72,7
Patella argenvillei									2	0,3			5	0,5		
Patella barbara	3	0,3							1	0,1			4	0,4		
Patella cochlear					7	1,6			17	2,5			12	1,1		
Patella longicosta	5	1,3			19	4,4			66	9,6			95	9,0		
Patella miniata					1	0,2										
Patella oculus	4	1,0			13	3,0			43	6,2			15	1,4		
Patella tabularis													3	0,3		
Haliotis spadicea	3	0,8			1	0,2			6	0,9			13	1,2		
Oxystele spp.	192	49,7	288,0	16,1	185	42,6	277,5	14,8	226	32,7	339,0	11,1	287	27,1	430,5	8,3
Turbo sarmaticus	46	11,9	584,2	32,7	50	11,5	650,0	34,6	69	10,0	917,7	30,3	74	7,0	984,2	19,0
Burnupena spp.	6	1,6			11	2,5			5	0,7			10	1,0		
Dinoplax gigas	2	0,5			3	0,7			3	0,4			3	0,3		
TOTAL	386	100,0	1786,6	100,0	434	99,9	1877,9	100,0	691	100,0	3027,7	100,0	1059	100,1	5180,7	100,0
Buckets sampled			9,25				3				19				18,75	
Buckets analised			2				1				2				3	
Meat mass/volume			893,5				1877,9				1513,9				1726,7	
Total collecting mass			6164,4				6553,6				9935,6				15554,6	
% meat mass of total mass/volume			29,0				28,7				30,5				33,3	

Only those shellfish species which contributed relatively high meat mass are considered.

Table 35. continues. Shellfish frequency percentage per species and percentage meat mass contribution from Klasies River Cave 5A: Kabeljous units.

	YSM				OGY				TOTAL			
	f	f %	mm/gr	mm %	f	f %	mm/gr	mm %	f	f %	mm/gr	mm %
Perna perna	130	44,4	676,0	56,1	70	19,4	490,0	32,8	518	28,4	2972,0	36,8
Patella argenvillei	2	0,7							8	0,4		
Patella barbara									1	0,1		
Patella cochlear	4	1,4			14	4,0			21	1,2		
Patella longicosta	18	6,1			9	2			78	4,3		
Patella miniata									2	0,1		
Patella oculus	6	2,0							33	1,8		
Patella tabularis									1	0,1		
Haliotis spadicea					3	0,8			8	0,4		
Oxystele spp.	105	35,8	157,5	13,1	207	58,0	310,5	20,8	879	48,1	1318,5	16,3
Turbo sarmaticus	28	9,6	372,4	30,9	52	14,4	691,6	46,4	255	14,0	3775,5	46,8
Burnupena spp.					1	0,3			17	0,9		
Dinoplax gigas					3	0,8			5	0,3		
TOTAL	293	100,0	1205,9	100,0	359	100,1	1492,1	100,0	1826	100,1	8066,0	99,9

Buckets sampled:	2	5,75	Total buckets excavated:	35,75
Bucket analised:	1	2	Total buckets analised:	7
Meat mass/vol:	1205,9	786,1	Mean meat mass/volume:	1152,3
Total collecting mass:	4238,8	5635,0	Mean collecting mass/vol:	45240,8
% meat mass of total mass/vol:	28,4	26,5	% mm of total mass/vol:	27,2

Only those shellfish species which contributed relatively high meat mass are considered.

Table 35. Shellfish frequency percentage per species and percentage meat mass contribution from Klasies River Cave 5A: Kabeljous units.

	HP				MA				SBA				AP/MA4			
	f	f %	mm/gr	mm %	f	f %	mm/gr	mm %	f	f %	mm/gr	mm %	f	f %	mm/gr	mm %
Perna perna	80	18,2	448,0	32,7	27	15,3	156,6	10,8	56	39,4	302,4	42,8	155	37,4	899,0	49,0
Patella argenvillei	3	0,7											3	0,7		
Patella barbara	1	0,2														
Patella cochlear	1	0,2							1	0,7			1	0,2		
Patella longicosta	4	0,9			2	1,1			3	2,1			42	10,1		
Patella miniata	1	0,2											1	0,2		
Patella oculus	12	2,7			5	2,8			1	0,7			9	2,2		
Patella tabularis	1	0,2														
Haliotis spadicea	3	0,7											2	0,5		
Oxystele spp.	288	65,5	420,0	31,5	78	44,1	117,0	8,0	57	85,5	85,5	12,1	144	34,8	216,0	11,8
Turbo sarmaticus	37	8,4	493.1	35,9	60	33,9	1182.0	81,2	24	16,9	319,2	45,1	54	13,0	718,2	39,2
Burnupena spp.	8	1,8			5	2,8							3	0,7		
Dinoplax gigas	1	0,2											1	0,2		
TOTAL	440	99,9	1372,1	100,1	177	100,0	1455,6	100,0	142	99,9	707,1	100,0	415	99,9	1833,2	100,0

Buckets sampled	4,75	12	7,25	4
Buckets analised	2	1	1	1
Meat mass/volume	686,1	1455,6	707,1	1833,2
Total collecting mass	5192,4	5603,4	2612,8	6401,0
% meat mass of total mass/volume	26,4	26,0	27,1	28,6

Only those shellfish species which contributed relatively high meat mass are considered.

Table 34. continues. Faunal remains as represented at Klasies River Cave 5A: minimum numbers of individuals and bone mass per volume.

	Kabeljous units							Wilton units							
	HP	MA	SBA	MA4	YSM	OGY	TOTAL	CWA	M1	M2	M3	M4	M5	M6	TOTAL
REPTILES (tortoise)	*							*	*		*	*			
MARINE FISH															
Total bone Mass/unit	30,4	123,4	44,5	381,7	222,5	179,4	981,9	206,4	163,7	821,4	380,4	271,7	117,0	153,8	2114,4
Bone mass/volume	6,4	11,2	6,1	95,4	111,3	31,2	27,5	10,7	54,6	43,2	43,2	43,5	29,3	13,1	28,3
MARINE BIRDS															
Phalacrocorax carbo lucidus	4	4	3	6	3	6	26	7	7	14	6	11	10	9	64
Phalacrocorax capensis					1		1			1	1	6			8
Morus capensis	1		1	1		1	4		1	1	1	2	1	2	8
Spheniscus demersus	1	2		1	1	1	6			2	2	2	2	1	9
Sterna sp.						1	1								
Diomedia sp.	1						1								
Unidentified		1	2	1	1	1*	5								
TOTAL	7	7	6	9	6	10	45	7	8	18	10	21	13	12	89
Individual birds/volume*	1,5	0,6	0,8	2,3	3,0	1,7	1,2	0,8	2,7	0,9	1,1	2,3	3,3	1,0	1,2

All *P. c. lucidus* remains were sub-adults, unless indicated differently.

* Present
* One nestling

to identify bark and other woody material. The only thorn positively identified was *Carrisa* L.sp. Leaf material was either blown in or transported into the cave attached to fire wood. These include *Encephalartos* cf. *longifolius*, *Myrica serrata* Lam (lance-leave wax berry), *Portulacaria afra*, *Loxostylis alata* A. Sprengel ex Reichenh. (tierhout), *Rhus* spp., *Euclea* spp. and *Schotia latifolia*. The weed *Medicargo* cf. *aschersoniana* (clover) was also recovered from the bedding samples.

could have been blown in. Local Coloured people use the crushed leaves to treat inflamation. *P. afra* is widely used among Black people. The leaves are edible with a pleasant acid flavour. Black women eat the leaves when they have insufficient natural milk for their babies. The dried leaves, when ground, are used as snuff (Coates Palgrave 1977:163).

Another interesting medicinal plant present at the site was *Agathosma puberula* (Steud.) Fourc. (buchu/boegoe). Buchu was an important plant and widely used among 'hottentots' and Bushmen as a medicine, for anointing their bodies and at marriage and other rituals. Several early travellers reported on the use of buchu for stomach problems, kidney and bladder diseases, treatment of bruises and fractures and mixed with fat, for body annointment. 'Hottentot' women also sprinkled powdered buchu on their heads when they took part in tribal dances. Buchu played an important role in 'Hottentot' and Bushmen marriage rituals. The parents of the bride usually gave her a painted springbuck skinbag filled with buchu. Trance dancers' backs were rubbed with buchu during trance ceremonies (see Smith 1966 for a comprehensive account of the uses of buchu).

Remains of *Gasteria* sp. Duval and *Gasteria* cf. *lilliputana* v. Poell., which belong to the *LILIACEAE* family, were well represented in the samples. The uses and economic values of this plant is unknown among the Khoisan people, but the Blacks use some *Gasteria spp.* to treat paralysis and eat the leaves as protection agains anthrax meat (Watt & Breyer-Brandwijk 1966:700).

Remains of *Anthospermum* cf. *paniculatum* Cruse or *aethiopicum* L. have also been found. *A. paniculatum* (sore eye bush) was used in treatment of sore eyes (Smith 166:413). Several *Anthospermum* spp. are used by the southern Sotho as a charm medicine, a remedy for painful menstruation, during pregnancy and for toothache (Watt & Breyer-Brandwijk 1962:896).

Other botanical inclusions in the bulk samples include charcoal, sticks, bark, twigs, moss, thorns, leaves and *ASTERACAEA* flowers (*Helicrysum* sp. has been identified). No attempt has been made

The second group of remains belongs to the genera *Gladiolus/Watsonia*. At least 20 species of this genera are listed for the research area (Fourcade 1941). The corm tunics are coarsely patterned and the bases are large and robust, and therefore probably belong to the genus *Watsonia*. *Watsonia meriana* mill. have been collected in the area, and *W. longifolia* Math. & Bolus are common in the Humansdorp area. A variety of *Gladiolus* spp. are also common in this area. Most of the species belonging to this genera flower from early to mid summer.

The third group consist of the genera *Moraea/Homeria* types. The corm tunics have a distinctive herringbone pattern. *Moraea* L. (tulp) is a large genus and at least 13 species are listed for the area (Goldblatt 1986). Three of these are said to be poisonous to stock, but whether the bulbs are poisonous as well is not clear. *Moraea* sp. were of little economical value at the site. Most of the *Moraea* sp. flower between early and mid summer.

Other edible plants include *Dioscorea elephantipes* (L'Herit.) Engl. ('hottentots bread') and *Carpobrotus* cf. *edilus* (L.) N.E. Br. ('hottentots fig'). *D. elephantipes*, also known as elephant's foot, was eaten by 'hottentots'. They cut the inner white flesh of the tuber into strips which were eaten after being roasted on the coals (Smith 1966).

The most common medicinal plant at THC is *Boophone disticha* Herb. This plant is probably the most widely used medicinal plant among indigenous people. Thunberg (1795) reported that Bushmen and 'hottentots' used the inner leaves as a source of poison for their arrows. The Xhosa use the dry leaves as a dressing after circumcision and to treat boils. The Naron Bushmen use dried pieces of fibre between ostrich eggshell beads when they are strung, to prevent them from turning and ensure smooth rounding when rubbed with a stone (Steyn 1981:9). The local Coloured people staying on the farm at present also use the leaves as bandages in the treatment of sores and boils.

Portulacaria afra Jacq. (spekboom) stems and leaves were also present in the samples. Large clumps of spekboom are found at the entrance of the cave and on the hill slopes, and the remains

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cooked as porridge in time of famine (Jacot Guillarmod 1971:422). According to Sparrman (1785) and Barrow (1806), *C. usitatus* played an important role in the social and economic life of the 'Hottentots'. Important time events were measured by these plants Their New Year, age and other events were marked by the appearance of the plants as well as the time of gathering, known as 'uintjiestyd'.

Oxalis stellata Eckl. & Zeyh. (star-leaved sorrel) has been positively identified from THC with the help of Estelle Brink from the Selmar Schonland Herbarium at the Albany Museum. There are 204 species in this genus (Salter 1944) of which at least 20 are present in the eastern Cape (Fourcade 1941; Martin & Noel 1960). This species does not have a fibrous papery tunic cover like the majority of the underground bulbs, but rather a hard, smooth dark brown barky cover. *O. stellata* flowers between April and June (Salter 1944:91). Salter reports that many of the *Oxalis* spp. bulbs descend to great depth before producing flowering plants and are by no means easy to obtain. The greatest care and delicacy must be exercised in excavating the bulbs.

A number of contractile roots were recovered which show some resemblance to *Hypoxis cf. argentea* Harv. ex Bak. (star of Bethlehem), which flowers between June and November and is edible. The Xhosa use the plant medicinally to treat stomach troubles (Batten & Bokelman 1966:32).

Three groups of *IRIDACAEA* were present in the bedding samples. No flowers, stems or leaves were recovered, and the identifications had to be performed on the corm tunics and bases. This only allowed for identifications. The absence of the above ground remains of the bulbous plants illustrates the selective collecting strategy whereby only the edible parts of the plants were transported back to the site. The first group is composed of the genera *Tritonia/Freezia* types. *Freezia corymbosa* (Burm. f.) N.E. Br. (buttercup) probably accounts for the majority of the remains. The corm tunics closely resemble herbarium specimens. Stands of these plants have been observed along the banks of the Wit River during August and September.

paste and roasted under the coals (Dryer 1965:428).

Smelophyllum capense is a small scrub or tree usually occurring in evergreen forests, kloofs and bush. The fruits are fleshy and mature during December and January (Coates Palgrave 1977:531). It is not known whether the fruits are edible, but in the Baviaanskloof they are eaten by dassies.

A suprising inclusion in the surface plant rich layers samples were seeds of *Ricinus communis*, a classified weed and thought to be alien to southern Africa (Wells *et al.* 1986:449). The seeds are highly toxic and fatal when eaten. It is used by the drug industry after the poisonous elements have been eliminated (Vahrmeijer 1981:98). Poison extracted from this plant was used to assassinate two Bulgarian defectors in London (Evening Post 5/12/1978).

Ricinus communis, despite it's toxic qualities, is widely used in southern Africa. The Zulu use an infusion of the leaves as a remedy for stomach ache. They also apply a paste of the root in toothache. The Sotho apply the powdered roasted seeds to sores and boils. The root bark is used as a purgative and the leaves to relieve rheumatism. The castor-oil plant grows along streambanks and must have been transported from the stream below the site, most probably for medicinal use. It is also possible that birds could have transported it into the cave. Seeds from this plant have also been reported from De Hangen (Parkington & Poggenpoel 1971).

Apart from seeds, numerous other edible and medicinal plant remains were also recovered. *Cyperus usitatus* Burch. (Boesmanuintjie) remains are well represented at THC and at other sites in the Baviaanskloof. *C. usitatus* was also found at other sites in the eastern Cape and has a limited time distribution at Melkhoutboom Cave (H.J. Deacon 1976:92). The papery appearance of *C. usitatus* is easy to identify and accounted for 88% of the corm remains at Scott's Cave (Wells 1965:82). The bulbs are edible, and Burchell (1824) observed Bushmen collecting these bulbs, and roasting them slightly before eating them. These bulbs are also eaten by children and adults in Lesotho (Aston 1939) but causes constipation if taken to excess. The bulbs can also be ground to meal and

Smelophyllum capense Radlk. (buig-my-nie) and *Ricinus communis* L. (caster-oil plant).

E. ridiga fruits mature between October and January (Coates Palgrave 1977:804) and are eaten by the Nharon (Steyn 1981, 1984) and other Bushmen groups in Namibia and Botswana (Story 1958; Tanaka 1976). Among Bantu-speaking people the tree has many medicinal and magical uses; it is considered a powerful hunting charm. The fruits of *M.* cf. *heterophylla* mature between May to January, but it is not known whether they are edible (Coates Palgrave 1977:497). The tree is widely used in African medicine and magic. The bark is a remedy for dysentary and the roots and thorns for colds and coughs. A decoction of the plant together with parts of snakes is a snake-bite remedy (Palmer & Pitman 1972:1291-92).

The fruits of *D. dichrophylla*, also known as 'hottentotstolletjies', are available from April to October, but they are said to be poisonous (Coates Palgrave 1977:745). The fruits are about the size of a walnut, densely covered with greyish hairs and are not unlike a peach in appearance, hense the name poison peach. Smith (1966:251) mentions that the dry fruits were used by the 'Hottentots' for making fire.

A. dimidiata is another inedible fruit present in the bedding samples. The fruits are available between December and June. Zulu prepare an infusion from the root bark as an enema for intestinal parasites. The leaves are used in treating ear inflammation.

Remains of *E.* cf. *longifolius* ('Hottentot's bread') were well represented in the samples. The fruits are edible and available between spring and mid summer, but the kernel is extremely toxic (Jacot Guillarmod pers. comm.). The stem contains a good deal of starch and can be used as sago or meal (Watt & Breyer-Brandwijk 1962:369-72; Dryer 1965:427-28). Early travellers in the eastern Cape reportedly used the pith from the stems of *Encephalartos* spp. for making crude bread. The trunks were split open, the pith removed, placed in an animal skin and buried for a month to six weeks to induce it to partial fermentation. The fibrous mass was then ground, mixed with water into a

The fruits of *E. natalensis* which are said to be edible in the Transkei (Rose and Jacot Guillarmod 1974) and are also regarded as edible by Palmer & Pitman (1972:1775), were thought to be poisonous by Bryant (1909:93). The fruits ripen and mature during the late autumn and winter according to Palmer & Pitman (1972:1775), while Coates Palgrave (1977:739) mentions October to June. The root of *E. natalensis* has many uses and is a well known Zulu purgative. A mixture of pounded root and water is used to treat a number of abdominal disorders (Bryant 1909). The root is also charred, and powdered and applied to skin lesions in leprosy or used to relieve tooth and headache (Watt & Breyer-Brandwijk 1962:390).

Olea europaea subsp. *africana* Miller (wild olive) was well represented in the bedding samples. The fruits mature between March and July and although bitter, are edible and widely sought after (Coates Palgrave 1977:759). The leaves, when boiled in water, are a subsitute for tea or coffee, can be made into snuff or can stop bleeding from the nose (Palmer and Pitman 1972:1821). An infusion of the fresh bark relieves colic. A strong decoction of bark and roots is drunk in the morning before breakfast for relief of urinary infections. An infusion of the leaves is used as an eye lotion; a decoction can be used as a gargle for sore throats (Watt and Breyer-Brandwijk 1962:807). In Lesotho a preparation of leaves is used to cure headaches (Jacot Guillarmod 1971:443). The wood is hard and durable. Wikar (1779) reported that the Khoisan along the Orange River made pointed sticks of the wild olive tree. These sticks were fitted with round heavy stones with holes through the centre, a little below the middle of the sticks. These round stones gave additional weight to the sticks for digging game pits. Bows were also made of the wild olive.

Other seeds present in the bedding samples include *Podocarpus falcatus*, known to be eaten in the Transkei (Rose and Jacot Guillarmod 1974), *Grewia occidentalis*, *Ehretia rigida* (Thunb.) Druce (tangled bush), *Maytenus* cf. *heterphylla* (Eckl.& Zeyh.) N. Robson (spike thorn), *Diospyros dichrophylla* (Grand.) De Wint. (poison peach), *Apodytes dimidiata* E. Mey. ex Arn (white pear), *Cissampelos capensis*, *Encephalartos* cf. *longifolius* (Jacq.) Lehm. (cycad), *Rhus* L. spp.

meal, which they cooked. Wikar also mentions that the beans tasted pleasant when eaten green. Xhosa eat the seeds when still partly green, or roast the mature seeds in the fire and grind them into meal. The early European settlers also ate the beans (Watt & Breyer-Brandwijk 1962:645). The bark of the tree is astringent and was once used medicinally and for tanning. The wood is hard and good for fuel (Palmer & Pitman 1972:851).

S. latifolia pods are available between April and August (Coates Palgrave 1977:277) and are used in a similar manner as *S. afra* (Watt & Breyer-Brandwijk 1962:646). Both these trees occur on the hillside and in the valley below the cave. At Scott's Cave *S. afra* accounts for 88 % fruit portion and 73% of the seed found in the bedding samples. *S. longifolia* was not found at Scott's cave, although it is common in the vicinity of the site (Wells 1965:81). At THC it appears to be the other way round. *S. latifolia* was fairly common in the samples, while *S. afra* was virtually absent.

Euclea spp. Murry was also represented in fair numbers in the bedding samples. *Euclea schimperi* (A. DC.) Dandy var. *schimperi* (witstam gwarri), *E. schimperi* (A. DC.) Dandy var. *daphnoides* (Hiern) De Wint. and *E. undulata* Thunb. var. *undulata* are present on the hill slope near the cave. Trees of the former two species have been observed with hundreds of red and matured black fleshy fruits during early and mid summer. Coates-Palgrave (1977:740) however, reports that the fruits ripen between February to September.

With the aid of a reference collection and microscopic examination, most of the seeds have been identified, the majority beloning to *E. schimperi* var. *schimperi*. Others identified were *E. schimperi* var. *daphoides* and *E. natalensis* A. DC. (Natal Gwarri). The Fruits of *E. schimperi* var. *schimperi* are edible (Watt & Breyer-Brandwijk 1962:391) and eaten raw in Lesotho (Jacot Guillarmod 1966). Tswana in Botswana eat the fruits fresh and also preserve them for year-round use (Fox & Norwood Young 1982:187).

Author: Binneman Johannes Nicolaas Francois.
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