

**Indicators of Stress**  
**Evidence from the Later Stone Age Layers at**  
**Blombos Cave, Southern Cape,**  
**South Africa**



**Heidi Strandman**  
**Masters Thesis (Master of Arts)**  
**Institute of Archaeology, Conservation and History**  
**University of Oslo**

Front cover illustration: View of Blombos Cave from the sea

Courtesy of Christopher Henshilwood

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With that said, this thesis is entirely my own work. Only I can be held responsible for the contents and opinions offered in it.

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## Abstract

Herding was introduced to South Africa about 2000BP (Henshilwood 1995:153), and interaction between the immigrant herders and the local hunter-gatherers is expected have occurred. What form would this interaction take? It has been argued to have been everything from hostile to amicable. Despite ongoing research on interaction, the results remain inconclusive. Part of the problem seem to be the lack of undisputable criteria for determining the identity of the inhabitants, and criteria for determining the nature of interaction, and how this would be manifested in the archaeological record. Another problem is that all research on this aspect of the debate, to date, has applied the same methodology based on typology and quantification.

As a result, the main focus of this study was to create a list of possible criteria to assist in determining the nature of interaction between the herders and the hunter-gatherers and to then test these criteria on an assemblage dated to the period in question; using a new approach, the *chaîne opératoire*. Blombos Cave, situated on the Southern Cape coast of South Africa, was chosen as the material basis of this study due to its well documented Later Stone Age assemblage.

Based on the selected criteria of the nature of interaction, it was concluded that the assemblage from Blombos Cave indicates that the interaction between the herders and the hunter-gatherers was characterized by stress. Restricted access is one of the criteria that offer evidence supporting the notion of stress at Blombos Cave; with the behaviour patterns, such as scavenging of antique tools, as a site-specific indicator of stress.



## Introduction

South Africa has recently been in the forefront of archaeological research due to the modern human behaviour debate. However, the Later Stone Age (hereafter referred to as the LSA, see the glossary at the back of this study) is equally important due to the hunter-gatherer and herder debate.

The hunter-gatherer and herder debate takes on a number of forms; one aspect of it concerns interaction. Herding was introduced to South Africa about 2000BP (Henshilwood 1995:153). When two groups of different people meet, interaction is expected. However, this interaction can take a number of forms. In South Africa the interaction between the herders and the hunter-gatherers has been argued to have been hostile, amicable, and also to have been originally amicable but increasingly hostile with time. Despite extensive research, the results remain to be inconclusive, and the argument has become an ongoing debate.

Part of the problem seem to be the lack of indisputable criteria for determining the nature of interaction between these groups, the lack of criteria to identify the various groups, and the lack of criteria to determine how this would manifest itself in the archaeological record. In addition, to date, research on interaction between the herders and the hunter-gatherers in South Africa have applied the same basic methodology based on typology and quantification.

In the following study, I will explore various criteria proposed from the literature on the subject of herders and hunter-gatherers. In addition, I will propose possible criteria for identifying the inhabitants of a site as well as criteria to assist in determining the nature of interaction between them. Through the course of this investigation the size of the site, the location of the site, aspects of the lithic assemblage and other possible criteria will be explored. Further, I will test these criteria, and their possibilities for assisting in determining the nature of interaction, by using a new approach; the *chaîne opératoire* methodology. The lithic assemblage will be examined based on the *chaîne opératoire*, and hopefully provide some new results to this aspect of the herder and hunter-gatherer debate.

This area of research has consequences outside of South Africa, as the identification of interaction and behavioural patterns at the point of contact between different populations is a theme in archaeological research in many places in the world.

The assemblage from the LSA layers at Blombos Cave, located in the Southern Cape of South Africa, will form the material basis of this study. Blombos Cave is an excellent choice for this study of interaction because of its well documented LSA assemblage which is

dated to the period when herders are known to have been present in the area (Henshilwood 1995:95, 151). Furthermore, based on initial research, the inhabitants of the cave were identified as hunter-gatherers and the interaction with the herders was suggested to have changed over time: initially being amicable and then increasingly hostile (Henshilwood 1995:61-62, 154-155, 203, 248). This suggestion will be examined and tested using this new *chaîne opératoire* approach.

During the course of research I will cover the following areas: background information, the hunter-gatherer and herder debate, a presentation of the problem, the *chaîne opératoire* methodology, the material analysis and finally a discussion of the results of my findings.

Background information will present basic data about the division of the periods of South African prehistory, and how the South-western Cape and Blombos Cave fits into this. Further, it will contain a brief history of research, which will be concerned with the evolution of South African and European archaeology from the 1950's, and how different approaches led to distinct methodologies in archaeological research.

Under the hunter-gatherer and herder debate, several possible criteria of identifying the inhabitants of a site and possible indicators of the nature of interaction as suggested through the literature will be briefly presented. The criteria presented here will form the basis of the discussion at the end of this present study.

The presentation of the problem will first describe the problem which will be examined in the study. Then the site, the site's context and the material will be briefly presented.

The presentation of the *chaîne opératoire* methodology will briefly explain the *chaîne opératoire* and the advantages of using this methodology on the material from Blombos Cave, particularly when exploring different indicators of interaction.

The material analysis presents the information from the *chaîne opératoire* analysis based on the raw material, the tool types and the cores from Blombos Cave; as well as a discussion of the results of the analysis.

The final discussion will focus on the indicators of interaction as presented in chapter 2, and what these can say about the nature of interaction between the hunter-gatherers and the herders at Blombos Cave. Non-lithic evidence and comparative material will be discussed, backed up with my results from the *chaîne opératoire* analysis. In the end a conclusion as to the nature of interaction at Blombos Cave will be attempted.

Due to differences in the South African and European terminology, a glossary of some of the terms used in the study is provided at the back of this thesis.

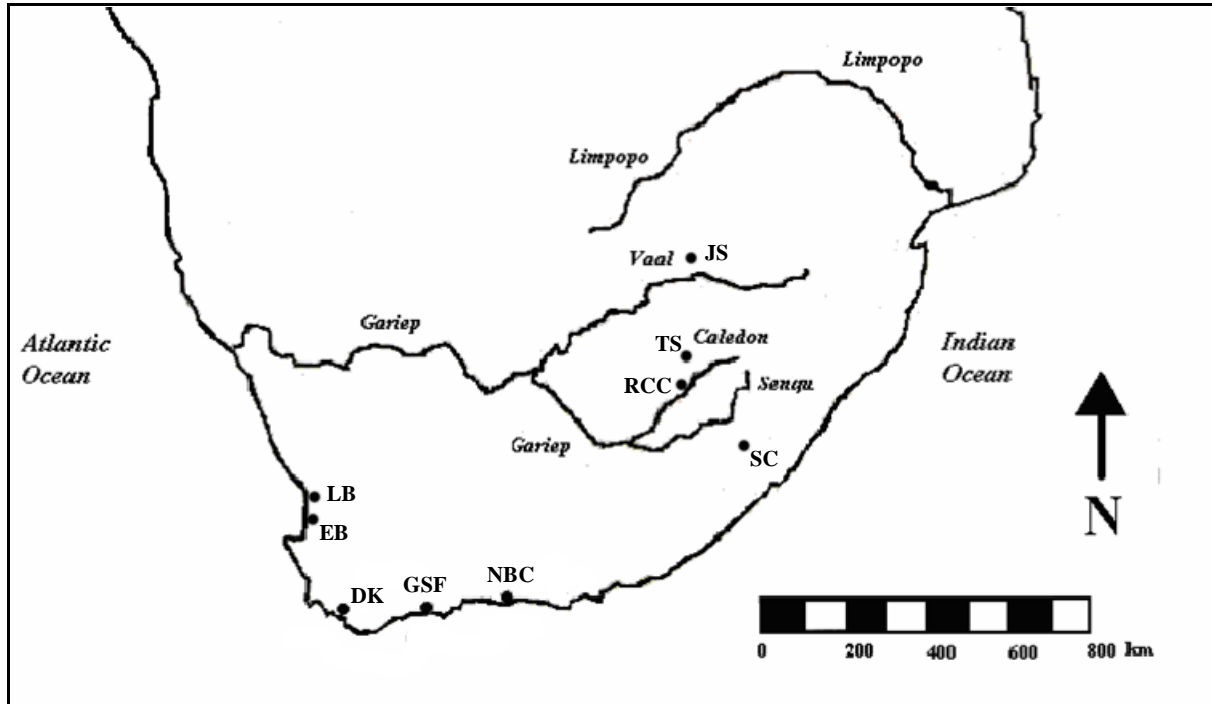


Figure 1: Map of South Africa with the location of sites mentioned in the thesis.

KEY TO ABBREVIATIONS USED IN FIGURE 1	
Abbreviation	Site
DK	Die Kelders (Schweitzer 1979)
EB	Elands Bay (Jerardino 1998)
GSF	Garcia State Forest Nature reserve with sites GSF1-9, including Blombos Cave (GSF8) (Henshilwood 1995)
JS	Jubilee Shelter (Wadley 1989; Wadley 2000)
LB	Lambert's Bay (Jerardino 1998)
NBC	Nelson Bay Cave (Inskeep 1987)
RCC	Rose Cottage Cave (Wadley 1992; Wadley 2000)
SC	Strathalan Cave (Opperman 1999)
TS	Twyfelpoort shelter (Backwell <i>et. al.</i> 1996; Wallace 1996)

Table 1: Key to figure 1

# **1: Background Information**

To give the readers who are not familiar with South African archaeology an idea of the context in which this study is set, the following chapter will provide a brief overview of the timeline and the course of research in recent South African archaeology. The various periods which form the basis of South African archaeology will be presented, with focus on the relevant period for this study. Then I will move on to present the recent history of methodology, which is relevant for the methodological approach applied in this study.

## **THE PERIODICAL DIVISIONS OF PRE-HISTORY IN SOUTH AFRICA**

In South Africa the Stone Age is divided into the Early Stone Age (2,5mya-250kya), the Middle Stone Age (250kya-ca. 22kya) and the Later Stone Age (ca. 22kya-historical times) (Deacon and Deacon 1999:6). The Later Stone Age is further subdivided into three periods but only the last one, the Wilton (8000BP-100BP), is relevant for this study (Deacon and Deacon 1999:6, 108-109, 115, 117-119; Klein 1983:36-37).

In general the Wilton lithic assemblage is characterized by microliths, backed segments and a higher incident of formal tools than are found in previous periods. The frequency and range of formal tools decrease towards the end of the period (Deacon and Deacon 1999:119-123; J. Deacon 1984: 309-311, 312-315, 317-318, 343-351; Klein 1983:35-36)

Following 2000BP, when the herders migrated into South Africa, the lithic assemblage in the Western Cape changed along with the rest of the country to a new industry within the Wilton tradition, the post Wilton or Pottery Wilton. Overall there seem to be a general decrease in the amount of formal tools, and a trend towards a more expedient technology and coarser grained raw material in lithic assemblages post-dating 2000BP (Bakwell *et. al.* 1996:86-89; J. Deacon 1984:297; Jerardino 1998:20; Henshilwood 1995:62, 187-188, 242; Parsons 2000:64-65). Local variants of the Wilton industry may differ somewhat from this overall description (Deacon and Deacon 1999:123-126; Wadley 2000:101), and the Blombos Cave lithics seem to be in accordance with the coastal pattern of less formal tools than at interior sites (Henshilwood 1995:95-96, 187).

## **HISTORY OF RESEARCH**

Even though the broad trajectories of archaeological research in Europe and South Africa has been the same, some differences in the approach early on has caused the aim of research and the methodologies applied in the two areas today to vary considerably (Binford 1980; Bordes

1961; Bordes and de Sonneville-Bordes 1970; J. Deacon 1972; J. Deacon 1990; Deacon and Deacon 1999; Goodwin 1929; Goodwin 1931; Mitchell 1995; Mitchell 2002; Parkington 1984; Pelegrin 2001). Statistics and comparisons of frequencies was the major research methodology in both Europe and South Africa early on (Bar-Yosef *et. al* 1992:511; J. Deacon 1972:15; Johnson *et. al.* 1978). In South Africa this is for the most part still the preferred research methodology (Some examples are: Barham 1989; Binneman 1997; J. Deacon 1984; Orton 2002; Parsons 2003), while in Europe the *chaîne opératoire* has now virtually taken over for this (for example: Bodu *et. al.* 1987; Cahen and Keely 1980; Dobres 2000; Inizian *et. al.* 1999; Villa *et. al.* 2005).

The first explorers arrived on the Southern Cape coast already in the 15<sup>th</sup> century. But the first permanent Dutch settlement was not established until 1652 (Henshilwood 1995:41-42). When the colonists arrived in South Africa, they considered the indigenous population to be underdeveloped and uncivilized (Deacon and Deacon 1999:131-133; Mitchell 2002:33). Even though some studies of the indigenous population, the Khoisan, (hunter-gatherers and herders) way of life was conducted in the late 19<sup>th</sup> century, the attitude towards them did not change until the 20<sup>th</sup> century when researchers from abroad lived with indigenous groups in Botswana and Namibia (Deacon and Deacon 1999:132-133). By that time, their way of life had been eradicated in South Africa.

However, from the 1960's, the indigenous peoples have been subject of considerable research (J. Deacon 1990:53). Some examples are: Henshilwood (1996), Kent (1992), Sadr (1997), Smith (1990b), Phillipson (1977) and Kusimba and Kusimba (2005). Popular themes concerning the hunter-gatherer and herder debate are for example: when did herders first arrive in South Africa; which routes did they take; did sheep and pottery arrive together as a package or separately; how did the herders affect the hunter-gatherer population; social relations like gender relations etc.

Even though LSA research has recently declined compared to MSA research, the hunter-gatherer debate continues to be the focus of attention for this period (Mitchell 2005).

### **History of methodology from the 1950's and onwards**

In the late 1950's, spatial patterning became an area of interest in Europe as well as South Africa, although with different approaches to the problem. These varying approaches affected the course and methods archaeological research would take.

In Europe, as in South Africa, there was a preoccupation with variability between sites, and whether this was due to different cultural groups or different functional or seasonal activities by the same group (Binford 1980; Bordes 1961; Bordes and de Sonneville-Bordes 1970; J. Deacon 1972:15; Deacon and Deacon 1999:126; Parkington 1984:99-102, 105, 108; Pelegrin 2001:8986). However, in Europe this interest in spatial variability between sites also led some archaeologists to be concerned with spatial dimensions within a site (Pelegrin 2001:8986). While the South African approach led to a continued emphasis on questions of economical, environmental and cultural boundaries as possible explanations behind the variability (Parkington 1984:98-108), the European approach led to two interlinked methodological innovations: the application of *Chaîne Opératoire* and in particular the use of the method of *refitting* (Pelegrin 2001:8985-8986).

In the 1960's with the processual approach, and again in the 1980's with the post-processual approach; the research paradigm in South Africa changed in line with Europe. However, the different approaches caused different types of information to be extracted from the material. In the 1960's the focus of attention was on the processes leading to cultural change, paleoenvironmental reconstruction, subsistence activities, ecological change and quantitative approaches (Deacon and Deacon 1999:7; Mitchell 1995:79; Mitchell 2002:149; Parkington 1984:89-90; Pelegrin 2001:8986-8987). An example is H. J. Deacon (1976:161-162) who relates changes in the lithic assemblage to environmental changes. Jeanette Deacon (1984:286-287, 291) on the other hand, dismissed environmental changes as the cause itself because of a considerable time-lag between the environmental changes and the changes in the lithic assemblage. She rather considered the change as a result of social stress due to the changing environment (J. Deacon 1984; Mitchell 2002:49).

In the 1980's, this processual approach was criticized of being too deterministic and to overlook the human agents behind the assemblages. As a result, ethnography would play a larger part in interpretations of the past, and research would focus more on social relations, gender, ideology and so on (Deacon and Deacon 1999:108, 123, 127; Mitchell 1995:79; Mitchell 2002:36-37; Robb 1998:332). However, as mentioned, the aim of research continued to be different in Europe and in South Africa.

The difference in preferred research methodology can probably be explained by the early experimentation and refitting studies conducted in Europe (Johnson *et. al.* 1978; Pelegrin 2001:8985). These experiments caused the major knapping operations to be well known in Europe at about the same time when collecting of stone artefacts only just started in South Africa. Experimentation was never part of the South African methodology, and hence

European research had a more technical focus right from the beginning (Deacon and Deacon 1999:2; Mitchell 1995; Mitchell 2002:33; Johnson *et. al.* 1978; Pelegrin 2001:8985).

Though the aim of research today is often to identify behavioural patterns, European and South African archaeologists continue to apply these different methodologies. However, the first *chaîne opératoire* workshop in South Africa was held in November 2006. Hence, the *chaîne opératoire* methodology might be used more in South Africa in the future.

### **Summary**

Research on the indigenous populations did not really start off until the mid-20<sup>th</sup> century, but today research on the hunter-gatherers and herders is part of an ongoing discussion in South African archaeology.

Following 1950, spatial patterning became an area of interest in archaeology both in South Africa and in Europe. This interest was taken on differently in the two areas, and consequently, in extension of this, two distinct research methodologies developed in South Africa and Europe.

## **2: The hunter-gatherer and herder debate**

Herders migrated into areas of South Africa already inhabited by local hunter-gatherer populations approximately 2000 years ago (Bollong *et. al.* 1997; Henshilwood 1995; Parsons 2000; Schrire 1993; Smith 1986; Smith 1990a; Smith *et. al.* 1991; Vogel *et. al.* 1997; Wilson 1996; Yates and Smith 1993). As would be anticipated when two very different groups meet, for example a local and an immigrant population, there will be interaction, but what form will that take? In the case of the hunter-gatherer and herder debate in South Africa, this interaction has been reported to be completely amicable, not quite so agreeable and anything but friendly. As will be briefly presented in the following pages, these arguments, which have dominated the archaeological literature on the herders and hunter-gatherers in South Africa since the 1960's, continue to the present day and have been the focus of research for the final periods of the Late Stone Age (J. Deacon 1990:53). As will also be demonstrated, one of the reasons for the lack of any possible resolution in this debate is that there are no clear and indisputable criteria for what form the interaction between these groups could take, how the various groups could be identified, and how this would manifest itself in the archaeological record.

### **INTERACTION BETWEEN HUNTER-GATHERERS AND HERDERS**

As stated, there are a variety of accounts of interaction between hunter-gatherers and herders (Backwell *et. al.* 1996; Gifford-Gonzales 1998; Jerardino 1998; Klein 1986:5; Opperman 1999; Parkington *et. al.* 1986; Smith 1986; Smith 1990a; Smith *et. al.* 1991; Wallace 1996; Henshilwood 1995:63). This interaction has been claimed to be amicable by some authors (Backwell *et. al.* 1996:85, 94; Gifford-Gonzales 1998:166, 194-195; Henshilwood 1995:59; Smith 1986:40; Smith 1990a:63; Wadley 1996:205, 214; Wallace 1996:20-21), by others to be characterized by hostility (Henshilwood 1995:60-61; Smith 1986; Wallace 1996:20), and also to have been originally amicable, but to have grown more hostile over time (Backwell *et. al.* 1996:85, 94; Wallace 1996: 20-21).

Clearly, one of the main sources of disagreement would have occurred over the use and access to resources; increasing hostility for example, can be explained by the increased pressure the herders put on the hunter-gatherers and their resources. As the herders became more and more settled they would gain as much knowledge of the local resources as the hunter-gatherers, and the vegetation and the wild life would be increasingly affected by the domestic stock kept by the herders (Smith 1986:36; Parkington *et. al.* 1986:325).



Furthermore, herders can take advantage of all the resources the hunter-gatherers are using, in addition to the products of their herder economy. Hence, according to some (for example, Smith 1986:36, 37, 40), the hunter-gatherers have a disadvantage compared to the herders, but others (see: Wallace 1996:21) disagree. It can also be claimed that the hunter-gatherers would have a better understanding of the resources and therefore they would have an advantage. Clearly the competition for resources would have been an obvious focal point for the discussions (Henshilwood 1995:61,154; Smith 1986:39; Wallace 1996:21).

On the other hand, there are also reported materials from LSA sites (such as in the Eland's Bay and Lambert's Bay areas), where the archaeological data contradicts the reports of herders and hunter-gatherers competing for resources. For example Jerardino (1998:23) reports increasing numbers of fauna from wild game at sites post-dating 2000BP, and thus he does not find evidence that the relationship between hunter-gatherers and herders as strained. However, he does admit that the incoming herders resulted in some changes in the hunter-gatherers' subsistence economy (Jerardino 1998:23).

It has also been suggested that interaction between the hunter-gatherers and herders could potentially lead the hunter-gatherers to change into a herder-economy, or alternatively lead them to enter into a patron-client relationship with the herders (Smith 1986:39-40). For example, it has been claimed that the hunter-gatherers would always be inferior to the herders in both of these scenarios, as the difficulty of changing into a herder economy for the hunter-gatherers would prove to be almost impossible (Smith 1986:39-40). As has been observed, the hunter-gatherers had an egalitarian lifestyle, and they would share and eat the animals they hunted (Cashdan 1980; Kent 1993:491), while the herder way of life made it possible to accumulate wealth in the form of domestic stock and as a result the forming of hierarchies within the community was encouraged (Parkington *et. al.* 1986:314; Smith 1986). There are also examples of symbiotic relationships disrupting the egalitarian life style of the hunter-gatherers. For example a hunter-gatherer shaman could accumulate wealth and become very powerful, especially if he was willing to perform services for the pastoralists (Backwell *et. al.* 1996:85; Wadley 1996:206).

## **IDENTIFYING THE INHABITANTS OF A SITE**

The immigration of the herding population into a new area obviously had repercussions that will be visible in the archaeological record, and it has of course played a major role in how the sites dated to the period in question have been interpreted. However, before exploring the evidence of interaction in the archaeological assemblage, how the identity of the hunter-

gatherers or herders has been established from the archaeological data needs to be examined. An important aspect of the hunter-gatherer and herder debate concerns the identification of the inhabitants of a site based on the archaeological record.

To some, the discussion of possible criteria for identifying the inhabitants of a site as either hunter-gatherers or herders is without relevance. These archaeologists regard the hunter-gatherers and the herders to be basically the same group of people switching between a forager and a herder way of life as they saw fit (Elphick referred in Smith 1990a and Smith *et. al.* 1991:71; Schrire 1993; and Schrire referred in Smith 1986:39; Smith 1990a:51; Yates and Smith 1993:36).

Conversely, others consider herding to have represented something distinctly different from the foraging way of life. These archaeologists are of the opinion that herding populations migrated into new areas in southern Africa and colonized them (Parkington *et. al.* 1986:314, 317; Smith 1986; Smith 1990a; Smith *et. al.* 1991; Yates and Smith 1993).

According to some, diffusion cannot explain the rapid movement of the herding way of life because a subsistence economy based on herding represented too many fundamental changes (for example Smith 1986:37). Supporting evidence is presented by the fact that several herding communities spoke another language (Smith 1986:39). In addition, there are historical accounts which indicate that European travellers in the 1700 made a distinction between herders and hunter-gatherers and regarded them as two different groups of indigenous people (Smith 1986:39; Yates and Smith 1993:97). Based on the differences between herders and hunter-gatherers, it is also assumed that the material remains from the two groups are different (See Smith 1986:39; Smith *et. al.* 1991).

Those who regard the herders and the hunter-gatherers to be one and the same, base their evidence on the cultural material and written historical sources. Indigenous artefacts were recovered together with the remains from European settlers. Supposedly only herders were trading with the European settlers, and thus the artefacts must be the result of the pastoralists (See Yates and Smith 1993:96). For example, Schrire argued that there were no differences between the assemblages with European artefacts and other indigenous assemblages dating to the LSA (referred in Yates and Smith 1993:96). It follows then, that all material remains are the result of a single group. These archaeologists explain the difference in lithic assemblages as the result of different contexts, not different economic systems (Smith *et. al.* 1991:71).

Another argument for herders and hunter-gatherers representing one group is that the indigenous people were all called bushmen by the European settlers no matter if they owned

livestock or not. Hence, it appears European settlers considered the indigenous people as one group (Smith 1990a:51). However, this is contradicted with evidence of language differences between them, as well as evidence of European settlers who regarded them as distinct (Smith 1990a:51). This evidence includes the misinterpretation of the word ‘bushman’ in historical sources. ‘Bushman’ was not a name describing the group’s subsistence economy, but rather a name given to *all* the indigenous people who were seen as coming from the bush (Smith 1990a:51).

The debate concerning the herders and hunter-gatherers and whether they represent two different groups or not, continues to be an important aspect of the herder and hunter-gatherer debate (Parkington *et. al.* 1986:314, 317; Schrire 1993; Smith 1986; Smith 1990a; Smith *et. al.* 1991; Yates and Smith 1993). However, most archaeologists seem to agree that herders and hunter-gatherers represent two distinct populations (Parkington *et. al.* 1986:314, 317; Smith 1986; Smith 1990a; Smith *et. al.* 1991; Yates and Smith 1993; Vogel *et. al.* 1997:248).

However, although most archaeologists are of the opinion that it is possible to make a distinction between herders and hunter-gatherers, it is quite another matter when attempts are made to establish criteria on which to separate these two groups archaeologically. As a consequence of this assumption, there have been several attempts to distinguish between sites based on the archaeological assemblage. However, archaeologists do not agree on the identifying criteria used, as the results are inconclusive (Parkington *et. al.* 1986; Parsons 2000; Smith *et. al.* 1991; Wilson 1996).

Some archaeologists claim that they have been able to establish some criteria which are supposed to distinguish between the two types of sites (for example: Parkington *et. al.* 1986:313; Smith 1986:38; Smith *et. al.* 1991:71). Their criteria for determining hunter-gatherer use of a site are (Smith 1986; Smith *et. al.* 1991:71; Wilson 1996:79):

- A high formal tool component,
- Few potsherds and
- Relatively small ostrich-eggshell beads.

While a herder site is supposed to be characterised by:

- Domestic fauna
- Potsherds
- A low formal tool component and
- Relatively large ostrich-eggshell beads

Several archaeologists agree that a change in the toolkit is an archaeological marker of identity (Smith 1986; Smith *et. al.* 1991:71; Vogel *et. al.* 1997), but several others point out inconsistencies when using the tool assemblage as a marker (Henshilwood 1995:59-60; Parsons 2000:64-66; Wilson 1996:80-82). An example is provided by Parsons (2000:64-66) where contrary to the criteria, the herder sites actually have a higher percentage of formal tools than the hunter-gatherer sites.

In addition to lithics, the amount of domestic fauna, the size of ostrich eggshell beads and the amount of pottery has been suggested as identifying criteria (Parsons 2000; Smith 1986; Smith *et. al.* 1991:71; Wilson 1996:81-82). However, the use of ostrich eggshell beads and pottery has also been criticized (Wilson 1996:80, 82). It has been claimed that not enough research has been conducted to assign ostrich eggshell beads either to herders or hunter-gatherers (Wilson 1996:80). The critique of the use of pottery is based on the fact that when comparing the frequency of pottery, the result will differ based on the quantifying method. Moreover, recent studies indicate that pottery may have preceded herding into South Africa, in which pottery can not be used as an identifying criterion (Wilson 1996:82).

One additional criterion has been suggested to identify the inhabitants of a site. If the site in question is unsuited for herders, for example, an inaccessible cave site, the cave site would be deemed as unlikely to be a herder site as domestic animals could not have been kept there (Wilson 1996:82; Henshilwood 1995:63, 248).

In summary, suggested criteria from the literature on the identification of the inhabitants of a site as herders or hunter-gatherers are:

- The amount of domestic fauna recovered at the site (Smith 1986; Smith *et. al.* 1991:71)
- The accessibility of the site (Wilson 1996:82; Henshilwood 1995:63, 248).
- The amount and the content of the tool assemblage (Parsons 2000; Smith 1986; Smith *et. al.* 1991:71; Vogel 1997).
- Whether or not pottery is recovered at the site (Parsons 2000; Smith 1986; Smith *et. al.* 1991:71).
- The size of the recovered ostrich eggshell beads (Parsons 2000; Smith 1986; Smith *et. al.* 1991:71).

## **ARCHAEOLOGICAL EVIDENCE OF INTERACTION**

Several changes can be detected between assemblages dating to before and after 2000BP (Parkington *et. al.* 1986:313, 322). These changes include the presence of domestic fauna in the assemblage, a change in the trend of inhabiting open-air sites to inhabiting cave-/rockshelter sites, the economic base, the activities undertaken at the site and the length of occupation is sometimes of a different character; and changes in the lithic assemblage. These

changes seem to coincide with the immigration of the herders (Parkington *et. al.* 1986:313, 322). And as a result, the changes in the record are by some considered to be the result of the interaction with the herders. In the following, these points will be addressed in relation to what they can say about the interaction between the herders and the hunter-gatherers.

The amount of domestic fauna in the assemblage is suggested as an identifying marker to the inhabitants of the site (Smith 1986; Smith *et. al.* 1991:71). Obviously, in the case of the site classified as a hunter-gatherer site, the presence of domestic stock in the assemblage would infer interaction with the herders. This could result from payment for services or barter, indicating amicable interaction; or the interaction could alternatively signal more hostile relations, for example, if the presence of domestic fauna is explained by theft (Smith 1990a:57).

There are examples of hunter-gatherers raiding the herders' stock, which would definitely indicate hostile interaction between them (Backwell *et. al.* 1996:84-85; Henshilwood 1995:60-61; Klein 1986:5; Smith 1986:40; Smith 1990a:57; Wallace 1996:21). This can also be explained by the fact that wild game would compete with the domestic stock that could graze areas. Consequently wild game would become scarcer, and, as has been suggested, the hunter-gatherers would then steal domestic stock from the herders in order to maintain their diet (Smith 1990a:57).

However, there is also evidence indicating more amicable interaction, for example domestic stock functioning as gifts or payment (Backwell *et. al.* 1996:84-85; Smith 1990a:57). But it has been argued that when domestic stock was given away as payment or gifts, the herders would not give away breeding stock in order to maintain their own stock (Smith 1990a:57). Consequently, if sheep bones recovered from a site are determined to be breeding stock, it can be assumed that these would most likely have been acquired by theft (Smith 1990a:57). As a result, it is suggested that the presence of domestic stock in a hunter-gatherer assemblage could indicate amicable interaction, or alternatively more hostile interaction. Careful analysis of the bones is required to determine the exact nature of the interaction (Smith 1990a:57).

In addition to the fauna, the location the site is also significant when determining the interaction between the herders and hunter-gatherers; not just the identity of the inhabitants. Several archaeologists report that subsequent to 2000BP there was a trend for hunter-gatherers to move to remote shelters and caves in the more mountainous areas, as a response to the pressure and increasing competition caused by the herders (Henshilwood 1995: 154-

155, 248; Parkington *et. al.* 1986:322-324; Smith 1986:39-40; Smith 1990a:57; Smith *et. al.* 1991:89; Wallace 1996:20).

Some archaeologists claim that in the face of increasing competition with the herders, the remote and marginal mountainous areas could have served as a refuge to the hunter-gatherers based on the mentioned inaccessibility of this area (Henshilwood 1995:154-155, 248; Parkington *et. al.* 1986:322-324; Smith 1986:39-40; Smith 1990a:57; Smith *et. al.* 1991:89; Wallace 1996:20). It has also been suggested that the restricted space posed by a cave could potentially cause social stress (Walthall 1998:225); and as a result, the move to a cave may not have been voluntarily.

Hence, several archaeologists seem to agree upon the move to a more remote and restricted area as evidence of interaction (Henshilwood 1995: 154-155, 248; Parkington *et. al.* 1986:322-324; Smith 1986:39-40; Smith 1990a:57; Smith *et. al.* 1991:89; Wallace 1996:20). Further, as this move is involuntary and can potentially cause stress, it can be regarded as evidence of less amicable interaction between the hunter-gatherers and herders.

Another set of criteria which have received a great deal of attention in the literature on the herders and hunter-gatherers is the increase in ritual activity; increased preoccupation with group identity; reciprocity and tightening of gift-exchange networks. There seem to be a general consensus in the literature about these criteria being reactions to stress (Backwell *et. al.* 1996:84; Hodder 1979:447-450; McCall 2007b:227-229; Parkington *et. al.* 1986:314-315; Smith 1986:38; Sporton, Thomas and Morrison 1999:441; Wadley: 1989:46; Wallace 1996:21-22). A reason for this is that when the population suffers from stress, it is important to keep the group together and to strengthen those values which are threatened. Hence, the importance of identity and ritual activity, as it is a collective action which ties the group together as a unity (Parkington *et. al.* 1986:314-316; Wadley 1989:46). When facing an immigrant population, reactions like these are expected.

An example is that the increasing competition between different populations leads to an awareness of identity (examples are Backwell *et. al.* 1996; Hodder 1977, 1979:451; Wiessner 1983:256-257, 270-271). Some are of the opinion that belonging and conformity within a group is symbolized by the use of material culture, for example personal ornaments and tools (Henshilwood 1995:200; Hodder 1977, 1979; Kandel and Conard 2005; Wiessner 1983).

Another example is rock art. Rock art is regarded by many as an important indicator of stress in a society (see: Backwell *et. al.* 1996:84; McCall 2007b:229; Parkington *et. al.* 1986:314-315; Smith 1986:38; Wallace 1996:21-22). This can be explained by the fact that

rock art has been argued to be “a metaphor for the trance-dance”, with the trance-dance being one of the more important rituals because it serves as a healing function (for example Smith 1986:38). Other artefacts often related to ritual activity are shaman’s paraphernalia, painted stones and increased use of ochre (Wallace 1996:23). As increased ritual activity is related to stress in the literature, the evidence of this in the archaeological assemblage could indicate less amicable interaction between the herders and the hunter-gatherers.

Gift-exchange is also mentioned on several accounts as an indicator of interaction (for example Wadley 1989:46-49; Wallace 1996). Evidence of gift-exchange at a hunter-gatherer site could indicate amicable interaction with the herders, or less amicable interaction. This could be evidence of gift-exchange with the herders, and hence be a way of maintaining the piece between the two groups; or it could be evidence of gift-exchange between different hunter-gatherer bands in order to maintain a network when facing times of stress as a result of the herders (Wadley 1989:46-49; Wallace 1996). Artefacts related to gift-exchange are potentially any non-food object. Examples are beads and arrows (Mazel 1989:36).

There have also been several reports of changes in the subsistence base for the hunter-gatherers as a result of the incoming herders (Jerardino 1998:24; Parkington *et. al.* 1986:319; Wadley 1989:49). This has been explained by the need to broaden the subsistence base and make use of new resources as a result of the competition for resources with the herders (see Smith 1990a:57). Hence, a change in subsistence base for the hunter-gatherers is regarded by some as a criterion of interaction with the herders. Further, this criterion indicates more hostile interaction as the subsistence base had to change as a result of the herders and not by choice. A change in subsistence base can be evidenced in the archaeological assemblage by the existence of new artefacts, and change in the recovered fauna, related to the processing of food.

The last one of the suggested criteria concerns the access to resources. Restricted access to resources for the hunter-gatherers is mentioned by some as a criterion of interaction with the herders (Backwell *et. al.* 1996:93-94; Henshilwood 1995:177-178, 203; Wadley 1992). This includes raw material sources and food resources, and can be evidenced in the archaeological material by changes in the amount of fauna, changes in the amount of fine-grained raw material, changes in the tool assemblage and evidence of economizing behaviour in the lithic assemblage. If the herders’ presence restricted the hunter-gatherers’ access to resources, this indicates more hostile interaction between the two groups.

## SUMMARY/CONCLUSIONS

As presented above; the interaction between the herders and the hunter-gatherers have been interpreted to be both hostile (Henshilwood 1995:60-61; Smith 1986; Wallace 1996:20) and amicable (Backwell *et. al.* 1996:85, 94; Gifford-Gonzales 1998:166, 194-195; Henshilwood 1995:59; Smith 1986:40; Smith 1990a:63; Wadley 1996:205, 214; Wallace 1996:20-21), as well as being originally amicable but increasingly hostile over time (Backwell *et. al.* 1996:85, 94; Wallace 1996: 20-21). More hostile interaction has been expected by some archaeologists due especially to the competition over resources (Henshilwood 1995:61,154; Parkington *et. al.* 1986:325; Smith 1986:36, 39; Wallace 1996:21). In addition, it is claimed that the hunter-gatherers would be inferior to the herders if they attempted to change to a herder lifestyle, or if they entered into a patron-client relationship with the herders (Smith 1986:39-40). However, some archaeologists report evidence of amicable relationships where the herders have not caused any change to the hunter-gatherer community (Jerardino 1998:23).

This argument is now a part of the ongoing herder and hunter-gatherer debate presented above. Part of the difficulty in resolving this matter is due to the lack of undisputable criteria for determining the identity of the inhabitants (be they hunter-gatherers or herders), the lack of criteria for determining the nature of the interaction, and finally the lack of recognizable attributes of what to look for in the archaeological record.

The issue of the identity of the inhabitants needs to be addressed before turning to the problem of identifying what form the interaction between the herders and the hunter-gatherers would take.

However, some find the debate concerning the identity of the inhabitants to be irrelevant altogether as they regard the herders and the hunter-gatherers to be the same group of people; switching between a herder and hunter-gatherer way of life as they saw fit. These archaeologists believe that differences in the assemblage are due to different contexts, not the result of different groups (Elphick referred in Smith 1990a and Smith *et. al.* 1991:71; Schrire 1993; and Schrire referred in Smith 1986:39; Smith 1990a:51; Yates and Smith 1993:36). However, most authors regard herders and hunter-gatherers to be two different ethnic groups (Parkington *et. al.* 1986:314, 317; Smith 1986; Smith 1990a; Smith *et. al.* 1991; Yates and Smith 1993). On the other hand, they do not agree on the criteria applied to determine the identity because of contradictory evidence (Parkington *et. al.* 1986; Parsons 2000; Smith *et. al.* 1991; Wilson 1996). Nevertheless, based on the literature the following five criteria have been suggested when attempting to determine the identity of the inhabitants of a site as either herders or hunter-gatherers:



- ***The amount of domestic fauna recovered at the site*** (Smith 1986; Smith *et. al.* 1991:71)
- ***The accessibility of the site*** (Wilson 1996:82; Henshilwood 1995:63, 248).
- ***The amount and the content of the tool assemblage*** (Parsons 2000; Smith 1986; Smith *et. al.* 1991:71; Vogel 1997).
- ***Whether or not pottery is recovered from the site*** (Parsons 2000; Smith 1986; Smith *et. al.* 1991:71).
- ***The size of the recovered ostrich eggshell beads*** (Parsons 2000; Smith 1986; Smith *et. al.* 1991:71).

As has been demonstrated, neither has there been established any common consensus for determining criteria for interaction between the hunter-gatherers and herders, nor has there been any greater success in attributing the exact nature of the interaction. However, the following are indicators and activities that the majority of the authors have turned to; and consequently they will be examined in the following pages:

- ***Presence of domestic fauna*** in sites identified as hunter-gatherer sites (Backwell *et. al.* 1996:84-85; Klein 1986:5; Smith 1986:40; Smith 1990a:57; Wallace 1996:21)
- Change in the location of sites identified as hunter-gatherer sites, indicating a ***change in the preference of location*** (Henshilwood 1995: 154-155, 248; Parkington *et. al.* 1986:322-324; Smith 1986:39-40; Smith 1990a:57; Smith *et. al.* 1991:89; Wallace 1996:20)
- ***Awareness with identity***, evidence in the form of personal ornaments, indicating the need for emphasizing group identity and uniting the band (Backwell *et. al.* 1996; Hodder 1977, 1979:451; Kandel and Conard 2005; Wiessner 1983:256-257, 270-271).
- ***Increased use of ritual*** demonstrating the need for the strengthening of group values and uniting the band. Evidence in the form of rock art, shaman's paraphernalia and increased use of ochre (Backwell *et. al.* 1996:84; Hodder 1979:447-450; McCall 2007b:227-229; Parkington *et. al.* 1986:314-315; Smith 1986:38; Sporton, Thomas and Morrison 1999:441; Wadley 1989:46; Wallace 1996:21-22).
- ***Gift-exchange*** indicating either amicable interaction or less amicable interaction between the herders and the hunter-gatherers (Wadley 1989:46-49; Wallace 1996).
- ***Broadening of the subsistence base*** on behalf of the hunter-gatherers as a result of the competition with the herders for food-resources (Jerardino 1998:24; Parkington *et. al.* 1986:319; Smith 1990a:57; Wadley 1989:49)
- ***Restricted access*** to resources like raw material and wild game (Backwell *et. al.* 1996:93-94; Henshilwood 1995:177-178, 203; Wadley 1992).

These lists of suggested criteria will be the focus of attention in the following examination of the archaeological assemblage in hope of contributing to the question of what form the interaction between the herders and the hunter-gatherers took. The methodology previously applied to the problem has been basic technological analysis based on typology and

quantification. The weaknesses inherent in this methodology will be outlined in the following chapter. A new approach to the suggested criteria might be able to provide new answers. As will be presented in the following chapter the application of a different methodological approach, the *chaîne opératoire*, will be applied in this study in the hopes of shedding new light on the issue of interaction between the herders and the hunter-gatherers.

### 3: Presentation of the problem

As has been demonstrated in the previous chapter, it is possible to create a list of criteria to assist in determining whether an assemblage should be attributed to hunter-gatherers or to herders. Furthermore, a general list of criteria has also been proposed for areas or activities that are found within the archaeological assemblage that would assist in establishing the nature of the interaction between these two groups. However, all studies of these assemblages, to date, have used a very similar methodological approach: technological analysis based on typology and quantification.

The main limitation of the approach based on typology and quantification is that the methodology is primarily descriptive, and the focus is upon each individual artefact; not the artefact sequence or the lithic assemblage as a whole. As a result, the social context of stone tool production is neglected (Bar-Yosef *et. al.* 1992:511; Dobres 2000:191; Mitchell 1995: 71-87), as well as the holistic picture (examples are: Barham 1989; Binneman 1997; J. Deacon 1984; Orton 2002; Parsons 2003).

Therefore, in an attempt to overcome these limitations, as well as to benefit from the holistic approach whereby the entire assemblage is utilized in analysis, this study will employ the *chaîne opératoire* approach. The *chaîne opératoire* is a well known and widely used methodology in Europe, and although the *chaîne opératoire* is only in its infancy in South Africa, it is becoming more and more common (examples are Barham 1987; Wurz 1999). However, it is mainly applied to MSA contexts, and it has not previously been applied to this area of the LSA hunter-gatherer and herder debate.

The advantage with the *chaîne opératoire* approach is that the whole production sequence is taken into consideration. The artefacts are not considered individually as isolated occurrences as with the typological approach. The focus on raw material sequences cast light on which raw materials were most heavily and preferentially used, which artefacts originated at the site and which originated elsewhere, the intention and the starting point of the knapper, patterns of maintenance and discard, possible tool blanks, and decision making strategies (see: Bar-Yosef *et. al.* 1992:511-515, 543; Dobres 2000:164, 166-169; Edmonds 1990:57; Eren *et. al.* 2005:1190; Gamble 1998:439; Hays and Lucas 2000:456; Inizian *et. al.* 1999:89, 100; Moloney and Shott 2003:xv; Pelegrin 1990:116; Runnels *et. al.* 2003:148; Schofield 1995:6; Sinclair 1995:51, 56-57, 60; Whittaker 1994:259). Additionally, the *chaîne opératoire* methodology can potentially establish the integrity of the deposits through the results of selective refitting (Inizian *et. al.* 1995:94-96).

The *chaîne opératoire* will be applied to a very well known cave, but to a lesser known layer. Blombos Cave, situated in the Blomboschfontein region in the southern Cape of South Africa, has been chosen for this study because of its very well documented LSA deposit. This was documented by Christopher Henshilwood (1995) in the course of his doctoral research in the Garcia State Forest area. Additionally, the sample from the LSA layers increased in size as it was necessary to excavate approximately 20 sq. m. of the LSA layers to reach the now world renowned Middle Stone Age levels. The same rigour and excellent documentation techniques were applied to these more recent excavations.

Furthermore, the LSA layers at Blombos Cave is an excellent choice since the excavator stated that this site had been initially used by hunter-gatherers who had amicable contact with the herders which deteriorated over time (Henshilwood 1995:61-62, 154-155, 203, 248). The identification of the inhabitants as hunter-gatherers was based on the small amount of domestic fauna recovered from the site, the small size and the inaccessibility of the site (Henshilwood 1995:155 248). On the other hand, the suggestion of restricted access to raw material resources and increasingly hostile interaction was based on the small amount of silcrete recovered from Blombos Cave compared to the older dated sites in the area, and the change of preference in the location of a site (Henshilwood 1995:61, 154, 203).

In the following study the ideas stated by Henshilwood (1995:60-61, 63, 151, 203, 248), as well as the proposed criteria of interaction as stated in chapter 2, will be tested using the *chaîne opératoire* approach for one of the first times on an LSA site in South Africa.

## **PRESENTATION OF THE SITE AND THE MATERIAL**

In the course of research to his doctorate, Christopher S. Henshilwood conducted initial research in the Garcia State Forest nature reserve. During the course of research nine sites were excavated and studied. These sites was numbered GSF1-GSF9, from the oldest to the youngest (Henshilwood 1995). This includes Blombos Cave, previously called GSF8, which is now a famous site.



**Figure 2: Map of Western Cape**

Of the excavated sites in the Garcia State Forest Nature Reserve, Blombos Cave and GSF9 are the only sites that are dated to the time when the herders were present in the area (table 2) (Henshilwood 1995:95-97, 62-63, 154).

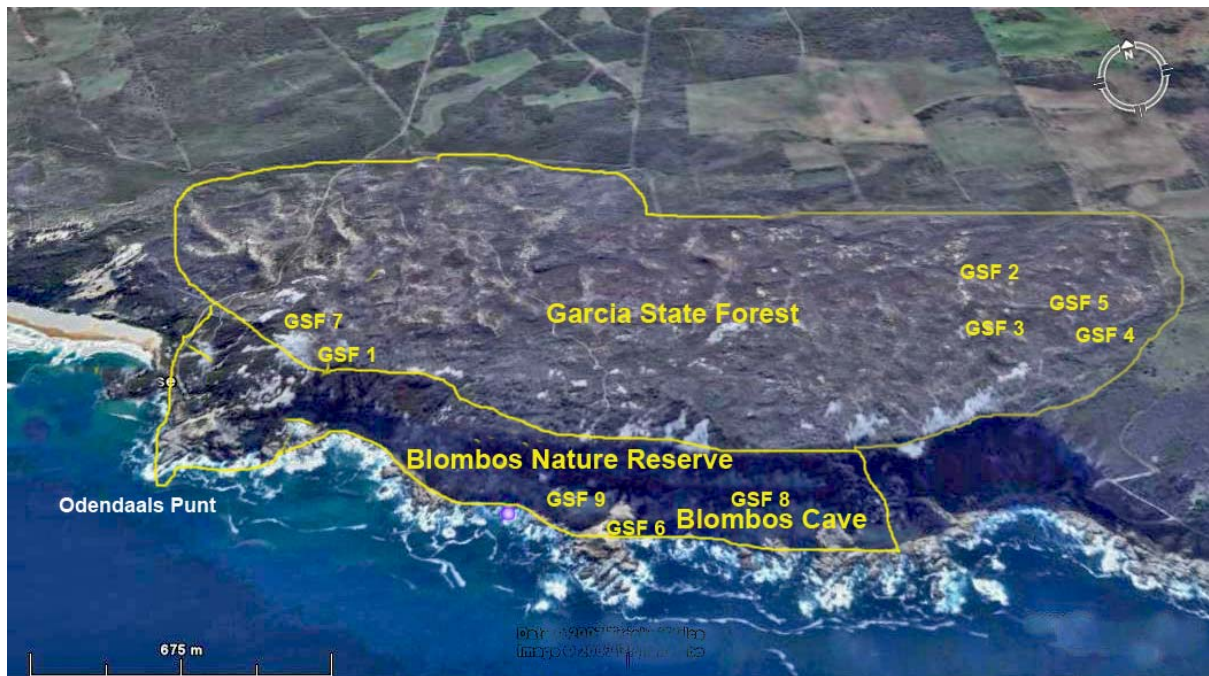
Site	Layer/unit/ Square	Dated material	Date BP	Calibrated date	Type of site
<b>GSF1</b>	-/-/B1	Shell	6960±70BP	5363BC	Open-air
<b>GSF2</b>	-/-/I3	Shell	6740±70BP	5123BC	Open-air
<b>GSF3</b>	-/-/B2	Shell	5960±70BP	4322BC	Open-air
<b>GSF4</b>	-/-/DB21	Shell	5680±70BP	3985BC	Open-air
<b>GSF5</b>	-/-/C2	Shell	5520±70BP	3802BC	Open-air
<b>GSF6</b>	-/12HBL	Shell	4070±60BP	1899BC	Open-air
	-/2ASBA	Shell	3630±70BP	1399BC	Open-air
<b>GSF7</b>	-/1YSL/B2	Shell	3110±50BP	801BC	Open-air
	-/4HL3/B2	Shell	3170±25BP	846BC	Open-air
<b>GSF8 (Blombos Cave)</b>	5/MC4/E4	Charcoal	1840±50BP	225AD	Cave
	5/MC4/E4	Shell	2400±40BP	74AD	Cave
	5/MC4/E4	Shell	2280±50BP	133AD	Cave
	5/MC4/E4	Shell	2340±50BP	133AD	Cave
	5/-/-	Sheep-bone	1960±50BP	3-89AD	Cave
	6/-/-	Sheep-bone	1880±55BP	82-215AD	Cave
	1/COK/E4	Charcoal	290±20BP	1651AD	Cave
<b>GSF9</b>	OH	Charcoal	480±45BP	1443AD	Shelter
	OH	Shell	940±50BP	1493AD	Shelter

**Table 2: The dates of the Garcia State Forest sites**

Before presenting Blombos Cave further, it is necessary to put it in context with the area in which it is situated.

### **Garcia State Forest Nature Reserve**

Garcia State Forest is a 3.5km<sup>2</sup> nature reserve situated on a coastal foreland on the southern coast of South Africa (figure 3). It is separated from the sea by Blombos Nature Reserve (figure 3). The borders of the two reserves have changed over the years, and as a result the reserve to which each site has belonged has varied. In accordance with the excavator, both Blombos Nature Reserve and Garcia State Forest Nature Reserve will hereafter be referred to as Garcia State Forest (Henshilwood 1995:14).



**Figure 3: Garcia State Forest Nature Reserve and Blombos Nature Reserve, with the location of the excavated sites.**

The lowest point of the Garcia State Forest is elevated 90m above sea level, and the highest at 167m above sea level. It is bordered by dense scrub and arable land to the north and coastal cliffs to the south. Today the Garcia State Forest dunefield is stabilized, but during the occupation of the Garcia State Forest area by the indigenous people the ongoing process of activation and stabilisation of the dunefield probably affected the surrounding environment and vegetation (Henshilwood 1995:9, 14).

Two of the nine excavated sites are cave/shelter sites, while the rest are open-air sites (table 2). The open-air sites are located in the dunefield area, while the shelter sites are situated in the coastal cliffs on the seaward side. All the excavated sites are within a 1.5km

radius of each other and are placed no longer than 1,5km from the coast (Henshilwood 1995: 3, 39, 66, 95).

The climate and environment has changed through the years, but the temperatures of the Holocene epoch was warmer than the temperatures in the previous 100 000 years in the area. The present sea level is thought to have been reached by the mid-Holocene, at about 4200BP, and the present plant and animal community was formed during the last 5000-4000 years. The vegetation in the Garcia State Forest area in the Late Holocene is believed to have alternated between unvegetated dune sands and light Dune Asteraceous Fynbos. Fynbos is the dominant vegetation type in the Cape Floristic region, and the name was invented by the Dutch settlers to describe the “small-leafed vegetation” of the south-western Cape (Henshilwood 1995: 3, 14, 22, 27-28, 31-32, 37). Based on the excavated sites in the reserve the pre-historic and historic sites in the area were short term occupations focused on the marine resources especially in the form of shellfish (Henshilwood 1995:9-10).

The material from Blombos Cave and the lithic assemblage in particular, will be the focus of this examination of the interaction between herders and hunter-gatherers. The material from the other Garcia State Forest sites will only be brought in as reference material.

### **Blombos Cave**

Blombos Cave is now a famous site due to the Middle Stone Age (MSA) component in the cave, dated to about 70 000BP, and its significance for the modern human behaviour debate (for example: d’Errico *et. al.* 2005; Botha *in press*; Henshilwood 2004; Henshilwood *et. al.* 2001; Henshilwood and Marean 2006; McCall 2007a). As a result, studies of the LSA component in the cave have been neglected. However, the LSA sequence from Blombos Cave is dated to the time the herders were migrating in to the area (Henshilwood 1995:42-43, 54-55, 57). Hence, these layers are equally important due to the contribution to the hunter-gatherer and herder debate.

The cave is located 34,5m above sea level and 50m from the sea. The floor area cover 45 sq.m from the rear of the cave to the dripline and in addition there is a 30sq.m. level platform extending southwards from the cave mouth. The height of the roof prior to excavation was between 1 and 1,5m, making this the height of the roof during the last occupation (Henshilwood 1995:78).

The LSA layers in the cave were excavated during the seasons 1991-1992 (squares E2, E3, E4 and F2), and in the seasons 1997-2000 (squares E5-E7, F3-F7, G3-G6, H5-H6, I5-I6) (figure 4) (Henshilwood 1995:173-174; Henshilwood 2006).

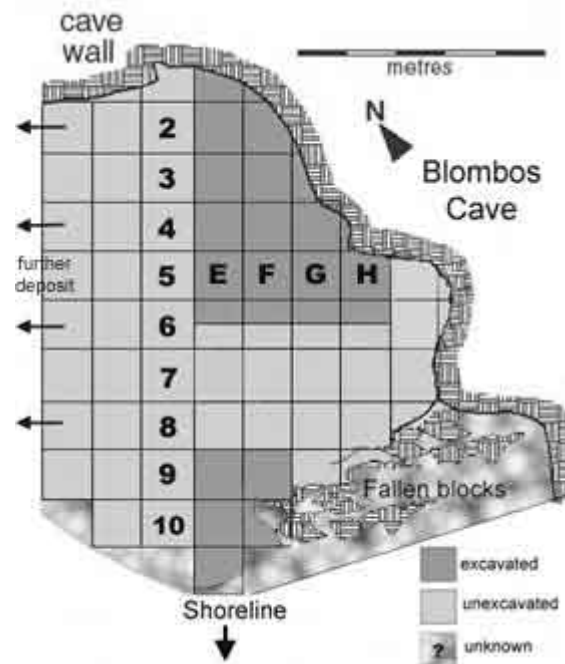


Figure 4: Layout of the excavation floor at Blombos Cave

Combined, approximately 20 sq. m. have been excavated (figure 4). According to the excavator, there are six different occupational layers in the LSA sequence (Henshilwood 1995:78-80), and the LSA layers are separated from the MSA layers by a 5-50cm sterile layer of dune sand (Henshilwood 2005:441). The depth of the LSA layers above the sterile layer is about 60cm deep (figure 5).

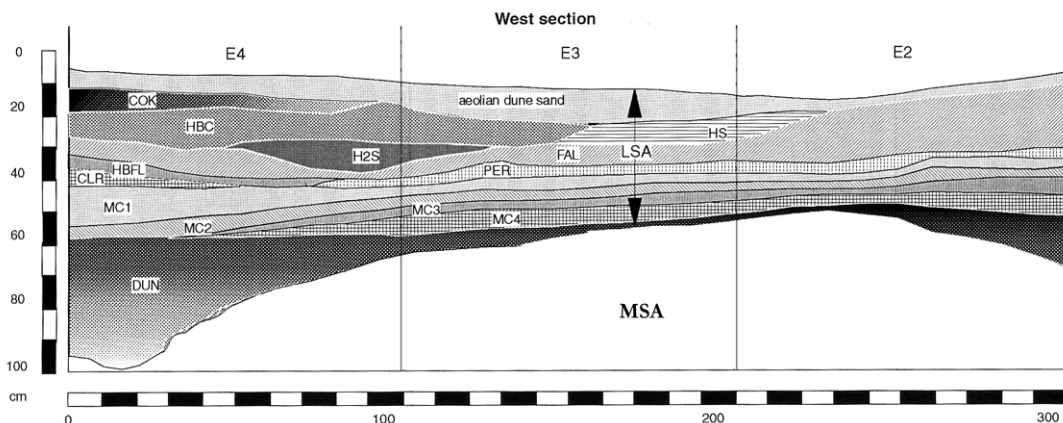


Figure 5: Blombos Cave: West section drawing of the LSA stratigraphy, squares E4, E3, E2.

### *Presentation of the material*

A variety of material has been recovered from Blombos Cave. The most important material for the problem at hand is the recovered lithic assemblage, the domestic fauna, the pottery and the personal ornaments.



The 1991-1992 excavations yielded approximately 1731 lithic artefacts larger than 10mm, only 10 of these with retouch (Henshilwood 1995:174). As a result of the subsequent excavations, the lithic assemblage from the LSA layers at Blombos Cave now consist of approximately 3500 artefacts larger than 10mm (table 3).

<b>Raw material</b>	<b>Tools</b>	<b>Cores</b>	<b>Grinding stones/ hammerstones</b>	<b>Debris</b>	<b>Knapping-waste products</b>	<b>Total</b>
<b>Quartzite</b>	3	6	77	1411	42	1839
<b>Quartz</b>	3	29	1	463	204	700
<b>Silcrete</b>	77	31	0	409	420	937
<b>Crypto-crystalline Substances</b>	4	1	0	2	5	12
<b>Total</b>	87	67	78	2285	971	3488

**Table 3: Rough overview of the lithic assemblage at Blombos Cave.**

Inaccuracies may occur as this table is an overview of all the years combined. Different methodologies have been used.

<b>Tools</b>	<b>Quartzite</b>	<b>Quartz</b>	<b>Silcrete</b>	<b>Cryptocrystalline substances</b>	<b>Totals</b>
Points	1	0	5	0	6
Reamer	2	0	0	0	2
Segment	0	0	1	0	1
Misc. backed	0	1	1	0	2
Backed scraper	0	0	7	0	7
Small scraper (<20mm)	0	2	30	4	35
Medium scraper (20-30mm)	0	0	5	0	5
Large scraper (>30mm)	0	0	16	0	16
MRP'S	0	0	12	0	12
<b>Total:</b>	<b>3</b>	<b>3</b>	<b>77</b>	<b>4</b>	<b>87</b>

**Table 4: Inventory of tools**

<b>Cores</b>	<b>Quartzite</b>	<b>Quartz</b>	<b>Silcrete</b>	<b>Cryptocrystalline substances</b>	<b>Total</b>
<b>Platform</b>	2	3	3	0	8
<b>Initial</b>	1	3	1	0	5
<b>Inclined</b>	1	1	7	0	9
<b>Bipolar</b>	0	5	14	0	19
<b>Multidirectional/amorphous</b>	0	6	5	0	11
<b>Indeterminate broken</b>	2	11	1	1	15

<b>Total</b>	6	29	31	1	67
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**Table 5: Inventory of cores**

	Pencils	Chunks	Ground	Debris	Total
Ochre	0	236	20	2	258

**Table 6: Ochre recovered from Blombos Cave**

Surprisingly, only 31 pieces of lithics were recovered from the excavation undertaken in 1999. This was explained by the sloping of the cave roof (personal communication Karen van Niekerk 2006).

In 1999, squares H and I was excavated, and these squares are placed in the back along the cave wall. The excavator of these squares, Karen van Niekerk, remembers that the roof of the cave was sloping so bad in this area that she was the only one who could fit in by laying flat on the ground (personal communication, Karen van Niekerk 2006).

Grinding stones made up most of these 31 artefacts, while hammerstones and ochre came in second. Besides these finds, only three pieces of quartzite debris was recovered. Obviously, the cave roof would also have been sloping in this area when the cave was last inhabited. This indicates that no work, knapping or other, could have been done in this area, because no person would have been able to sit upright here. Thus, this explains why lithic debris material is basically non-existent in this area.

Domesticated animals are represented from the 1991-1992 excavations by recovered sheep bones from layer 4, 5 and 6 from Blombos Cave. Two of the bones were dated (table 2) (Henshilwood 1995:95, 151-152). Unfortunately any analysis beyond dating was not possible on the sheep bones due to the small assemblage, and consequently it could not be determined if the fauna recovered from Blombos Cave was from breeding stock or not (Henshilwood 1995:151-155). Hence, the presence of domestic stock in the assemblage can not be used as a criterion to determine if the interaction between the herders and the hunter-gatherers were amicable or hostile at Blombos Cave. However, the small amount of domestic fauna implies the identity of the inhabitants to have been hunter-gatherers.

Pottery was recovered from the 1991-1992 excavations, but only in the form of small unidentifiable sherds. However, there seem to be a trend towards increased amounts of pottery in the youngest layers (Henshilwood 1995:201-202).

Personal ornaments recovered from Blombos Cave include bone tubes, perforated and ground conus shells, a turbo pendant, perforated *Nassarius* shells and ostrich-eggshell beads (Henshilwood 1995:180, 199-200; Ingrid Vibe, personal communication 2007). 290 ostrich-

eggshell beads, including 68 unfinished ones, were recovered from Blombos Cave as well as 79 imperforated fragments. The beads were found in all the layers while the unfinished ones were only found in layer 1 and 2. However, there was not recovered any stone tool which could have been used to perforate the ostrich-eggshell beads (Ingrid Vibe, personal communication 2007). In addition to the Ostrich eggshell beads, 1884 *Nassarius* shells were recovered, and only 367 of these were imperforated. Most of the *Nassarius* shells were recovered from layer 4 and 5a.

## **Summary**

Despite ongoing research, the interpretations based on the archaeological assemblage continue to be inconclusive as to the nature of interaction between the herders and the hunter-gatherers.

Part of the problem may be that these studies have been undertaken with the same basic typological approach. The *chaîne opératoire* methodology is in its infancy in South Africa and has not been applied to this aspect of the hunter-gatherer debate. The use of the *chaîne opératoire* methodology on this problem could potentially shed some new light on the issue of interaction between the herders and the hunter-gatherers. This will be tested out on the assemblage from Blombos cave, situated in the Garcia State Forest region in the Southern Cape of South Africa. Blombos Cave is chosen due to its significant well documented LSA deposit, which is dated to the time when herders migrated in to the area.

The suggested criteria will be examined based on the assemblage from Blombos cave, and the lithic assemblage will be analysed with the *chaîne opératoire* methodology.

Based on the initial excavations of Blombos Cave, it is expected that it will be evident in the material that the interaction between the herders and the hunter-gatherers at the cave started off amiable but grew more hostile with time.

## 4: Methodology- the *chaîne opératoire*

As has been presented in previous chapters, there have been no significant changes in the argumentation on the herder and hunter-gatherer debate in a really long time. A reason for this stalemate could be the continued use of methodological approaches, based on typology and quantification (Some examples are: Barham 1989; Binneman 1997; J. Deacon 1984; Orton 2002; Parsons 2003). However, in the past two decades, several South African archaeologists noted the shortcomings of the standard methodological approach (J. Deacon 1990:57-58; Mitchell 1995:80-82; Wurz 1999:39). Presently, the situation is changing with the introduction of the *chaîne opératoire* methodology in Southern Africa (examples are Barham 1987; Wurz 1999). However, to date, the *chaîne opératoire* approach has not been applied to LSA assemblages or to the herder and hunter-gatherer debate. Therefore, in attempt to produce new types of evidence, the *chaîne opératoire* will be utilized in this study. This chapter will not only provide a definition of the *chaîne opératoire*, but also outline the advantage of applying this approach to the problem at hand.

As briefly outlined in chapter 3, there are distinct limitations connected to any methodology based on typology and quantification. This approach is mainly descriptive. The results of this approach are focused upon individual tools and tool types, usually accounting for less than 5% of the total lithic assemblage; rather than the lithic assemblage as a whole. As a result the social context is often overlooked or ignored. The goal of a metric and numerical methodology is to uncover general trends in artefact morphology, diachronic change, group mobility, season of occupation, regional variations and functionality (J. Deacon 1984:363, 366-368; Binford 1980; Mitchell 1995:71-87). The actual social context of stone tool production clearly lies outside the bounds of the results of this approach. When attempting to uncover the nature of interaction between two different groups, obtaining a social perspective is clearly imperative. Consequently, if future research on interaction in the herder vs. hunter-gatherer debate continues to rely on a methodology of typology and quantification, the same type of results will also continue to be produced, as has been demonstrated above. The *chaîne opératoire* on the other hand, produces entirely different results, as it incorporates the entire assemblage and not simply the modified/retouched pieces. It is focused on producing results which can provide evidence of the social aspect/context of stone tool production.

### **The *chaîne opératoire*- an approach**

The *chaîne opératoire* (operational sequence) is a theoretically based research methodology for analysing lithic assemblages. It has been defined as “the ordered train of actions, gestures, instruments or agents leading the transformation of a given material towards the manufacture of a product, through steps that are more or less predictable” (Karlin and Julien quoted in Schofield 1995:5). All stages from procurement through production, technique, utilization, repair and discard are recognized and contextualized.

In addition; choice of raw material, technique, skill, production mistakes, reason for discard and different technical strategies are amongst the many aspects which can be “read” by applying the *chaîne opératoire*. The choice behind the production of artefacts and the desired ends of the production are stressed, not the individual artefacts themselves (Bar-Yosef *et. al.* 1992:511-515,543; Cahen *et. al.* 1979:661; Dobres 2000:164, 166-169; Edmonds 1990:57; Eren *et. al.* 2005:1190; Eriksen 2000; Gamble 1998:439; Hays and Lucas 2000:456; Inizian *et. al.*: 1995: 89, 100; Moloney and Shott 2003:xv; Pelegrin 1990:116; Runnels *et. al.* 2003:148; Schofield 1995: 6; Sinclair 1995:51,56,57,60; Whittaker 1994: 259).

Furthermore, the *chaîne opératoire* focuses on the tool-makers rather than the artefacts. It is this focus upon choice and decision making strategies which makes the *chaîne opératoire* an advantageous research methodology in the study of interaction.

### **The *chaîne opératoire*- a theoretically based research methodology**

It has been argued by some that *chaîne opératoire* also presents the possibility of exploring the social aspect of stone tool production (see for example Dobres 2000). This is based on statements presenting the *chaîne opératoire* as a conceptual framework as well as a research methodology. By adding a theoretical framework to the *chaîne opératoire* research, it is also possible to produce evidence which can be used to answer questions about “why” and not just questions about “how” as with other methodologies (Dobres 2000:155-159, 168-169, 173).

An example of this theoretical framework is provided by Dobres (2000: 166-169, 171-173). It is argued that technology is socially embedded, and that the *chaîne opératoire* can, and should be used towards the goal of uncovering these embedded relationships. Thus, by adding this social perspective to the equation, *chaîne opératoire* moves beyond “object making and use” (Dobres 2000: 166-179, 187, 192-196). The interest of study is more towards the people, individuals, their choices and context rather than function and material constraints etc. (Bar-Yosef *et. al.* 1992:533; Dobres 2000:131, 165; Gamble 1998:427-430; Hodder 1990:157; Robb 1998:330). Consequently, the focus is upon the tool makers as social

agents, not on the individual artefacts. This view of tool makers as social agents gives the *chaîne opératoire* methodology the potential to provide information about the social underpinnings of technology, and therein lays its power as an analytical tool (Dobres 2000:167-168, 191, 204; Schofield 1995:3, 6; Whittaker 1994:59, 281).

In summary, the advantage with the *chaîne opératoire* methodology is that decision-making strategies, sequences and practices, and the logic behind these operational sequences can be identified. With a conceptual framework linking material and social production in *chaîne opératoire* research, symbolic and social processes can also be inferred as well as identifying traces of norms and variants (Dobres 2000:154-157, 187).

### **The *chaîne opératoire*- applied to the problem of interaction**

Obviously, not all studies are suitable for the full application of the *chaîne opératoire* approach. Ideally, all aspects of the *chaîne opératoire*, as outlined above, would be applied. But clearly, where specific problems need to be addressed, the *chaîne opératoire* methodology needs to be adjusted to the research problem at hand (Dobres 2000:166; Eren *et al.* 2005:460; Panagopoulou *et al.* 2002:337; Wurz 1999:42). In the present study, this approach will be applied to the problem of determining the nature of interaction between the local hunter-gatherers and the immigrant herders at Blombos Cave.

Based on the criteria outlined in chapter 2, there are several problems which need to be addressed in the lithic assemblage to determine the nature of interaction. To quickly summarize again, these criteria are:

- Change in the location of sites identified as hunter-gatherer sites, indicating a *change in the preference of location*
- *Awareness with identity*, evidence in the form of personal ornaments, indicating the need for emphasizing group identity and uniting the band
- *Increased use of ritual* demonstrating the need for the strengthening of group values and uniting the band. Evidence in the form of rock art, shaman's paraphernalia and increased use of ochre.
- *Gift-exchange* indicating either amicable interaction or less amicable interaction between the herders and the hunter-gatherers.
- *Broadening of the subsistence base* on behalf of the hunter-gatherers as a result of the competition with the herders for food-resources.
- *Restricted access to resources* like raw material and wild game.

The criteria highlighted above are areas where the application of the *chaîne opératoire* can be used in an attempt to reveal new evidence. One of the problems which need to be addressed in the lithic assemblage is to determine if the assemblage reflects awareness of identity. In this case the *chaîne opératoire* will be focused on the retouched tools in the assemblage with

the attempt to identify lithic artefacts used as identity markers. Features that would be particularly important would be unusual or exotic raw materials being used (where the rest of the debris is not found at the site).

Another area to be investigated is to attempt to recognize if gift-exchange was practiced at the site. Again, the *chaîne opératoire* will concentrate on the tool assemblage, as well as the operational sequence of these tools, to determine if any of the lithic artefacts could have been produced as gifts or received as gifts. The operational sequence of the tools (the stages of manufacture from the procurement of raw material to discard) will be examined to establish if the tools were produced on site or originated elsewhere. This includes examining all the lithic pieces, also the “waste”, which is similar in raw material to the tool in question.

The lithic assemblage also needs to be examined to establish if the hunter-gatherers broadened their subsistence base as a result of the herders. Attributes of the *chaîne opératoire* analysis will focus on the complete assemblage and on evidence that would indicate the production of types of tools which are not diagnostic of a coastal occupation. This will be undertaken in an attempt to determine if these tools could have been part of the actual tool kit at the site and were not simply imported, for example from inland sites. This would involve the complete examination of the full operational sequence of these particular tools.

The final area to be addressed with regard to the list of criteria for interaction is the question of restricted access. In this respect, the *chaîne opératoire* approach will involve a careful examination of the various raw materials found at this site in an attempt to determine if there were any changes in the use of raw materials, as well as to search for indications of economizing behaviour patterns. This includes attempting to establish the intention, the starting point, and maintenance strategies and discard patterns, of the LSA knappers who inhabited Blombos Cave. This necessitates utilizing aspects of the *chaîne opératoire* which focus on the sources of raw material, the distribution of the raw material and the operational sequences within the raw material groups.

Obviously, the first goal for the application of the *chaîne opératoire* is to test and determine the integrity of the stratigraphy of the LSA layers at Blombos Cave. A sure way of gaining insight to this question is through selective attempts at refitting obvious blocks of material or tools from between the various layers (Inzian *et. al.* 1999:151). A few vertical refits between stratigraphic layers are enough to call into question the integrity of the site’s stratigraphic layers, no matter how pristine they appeared to be during excavation. This will be further discussed and described in the following chapter.

## **Summary**

As has been argued, a new approach, the *chaîne opératoire*, will be employed in this study to address the question of interaction between herders and hunter-gatherers. This holistic perspective with its focus on choice, decision making strategies, behavioural patterns and the social context of lithic production will hopefully produce new evidence to assist in breaking the present stalemate which has arisen from the continued use of the same long-standing methodologies.



## 5: Material Analysis

As stated in chapter 3, the LSA layers from Blombos Cave have been chosen for this study into the nature of interaction between the herders and the hunter-gatherers. Blombos Cave was selected based on its well-documented LSA assemblage, and additionally, because the excavator reported that there were indications that this site had been initially used by hunter-gatherers who had amicable contact with the herders which deteriorated over time (Henshilwood 1995:60-63, 151, 203, 248). Consequently, the assemblage from Blombos Cave presents an excellent opportunity to examine the proposed indicators of interaction, as discussed in chapter 2.

The Blombos Cave lithic assemblage consists of approximately 3500 pieces, which were reported to be divided into six different occupational layers, with several units within each layer. In the following pages, the results of the analysis of this assemblage based on the *chaîne opératoire* approach will be presented.

### **The application of the *chaîne opératoire***

As outlined in chapter 4, an aspect of the *chaîne opératoire* which will be relevant in the study of the interaction between herders and hunter-gatherers, is to examine the different raw materials recovered at the site, and to divide the resulting groups into possible operational sequences (including all the stages from procurement to final discard). Accordingly, the lithic artefacts from Blombos cave will be divided into groups of similar looking raw material and possible operational sequences based on characteristics such as colour, condition and structural grain size. Special attention will be given to the debris and the knapping waste material, and an attempt will be made to determine which stages of the *chaîne opératoire* (of all the stages from the procurement of the raw material until discard) were present. Evidence produced from this aspect of the *chaîne opératoire* analysis can shed light on questions of the site's integrity, gift-exchange, broadened subsistence base and restricted access. Additionally, examination of the tools and the cores in the assemblage will also produce information which could potentially contribute new information on areas of relevance to the debate such as awareness of identity, gift-exchange and broadened subsistence base.

Six months was spent examining and analyzing the LSA lithic assemblage from Blombos Cave. Although the material had been previously analysed it was till proved necessary to first clean the lithic collection, after which each piece was labelled and then entered into a database. The artefacts were classified and described based on the system used

by Paola Villa (personal communication, 2006) and Inizian *et. al.* (1999). Each piece larger than 10mm was examined and described individually according to raw material, type of artefact (for example, tool, core, hammerstone, flake, blade, debris, etc), level of burning, type of platform, breakage pattern, surface features, technique of removal and morphology of the piece. Debris material smaller than 10mm was not entered into the database, but were studied as a whole with the focus on size and raw material type. The lithic assemblage was photographed, and some selected pieces were drawn using the guidelines suggested by Lucille Addington (1986).

### **Raw materials from the Late Stone Age levels of Blombos Cave**

<b>Raw material</b>	<b>Debris</b>	<b>Knapping waste products</b>	<b>Total</b>
Quartzite	1411	342	1753
Quartz	463	204	667
Silcrete	409	420	829
Cryptocrystalline	2	5	7

**Table 7: Overview of the amount of knapping waste material and debris in the different raw material categories**

#### ***Site integrity***

In the process of initially sorting the different raw materials for each of the layers, it was noted that a number of highly characteristic raw materials were found in more than one layer. As this could potentially imply post-depositional disturbance, six easily distinguishable groups of raw material were selected for refitting. The raw material groups were based on raw material type, colour, quality and grain-size characteristics.

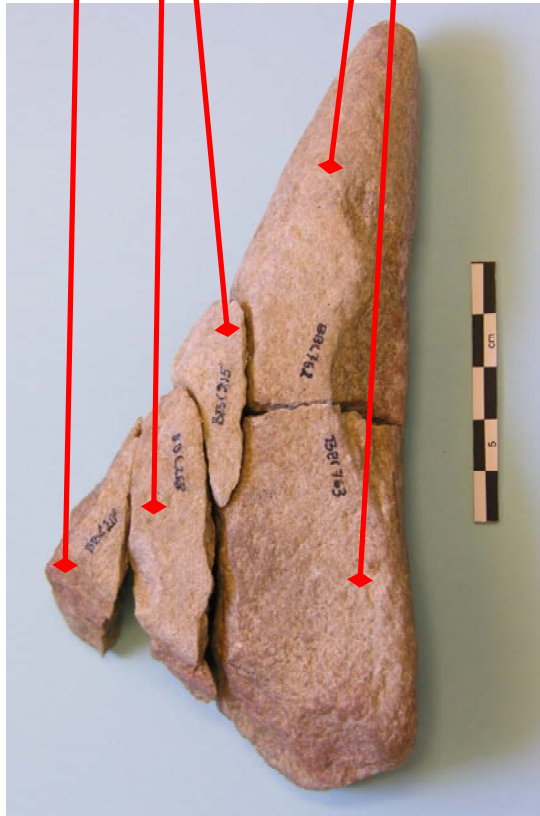
Three of these groups yielded pieces that refitted with pieces in other layers. In one instance a refitted flake consisting of three pieces (582, 583 and 1595) was refitted with two fragments from layer 3 (square F5, unit COC98), and one fragment recovered in layer 5a (square G4, unit MC4). In addition, a small scraper recovered in layer 3 (square E5, unit BSACOC) was refitted with a flake recovered in layer 4 (square E6, unit MC2).

The most impressive result however, is a refitted reamer (figure 6). Both pieces of the broken tool (762 and 763) were recovered in layer 4 (square G4, unit MC1), but three production flakes were also recovered and refitted. Flake (215) refits directly on to the reamer and was recovered in layer 1 (square F5, unit HBSUR). Flake no. 268 fits to number 215 and

was recovered in layer 2 (F4, GAL). The third production flake (217) was recovered in layer 1 (square F5, unit HBSUR), and refits to the dorsal surface of number 268.

The refitted reamer and its manufacturing flake debris then indicate connections between the Late Stone Age layers 1, 2 and 4 from this site. This combines with the two other refitted examples which demonstrate the connections between layers 3 and 5a and layers 3 and 4. Obviously a thorough refitting study would be necessary to determine the extent of the intermixing, but this limited attempt conducted on obvious material types indicates there is no question that intermixing has occurred in these layers.

**Figure 6: Intermixing at Blombos Cave**



**Picture of the refitted reamer**

**The table on the right displays the layers and the subunits within each layer at Blombos Cave. The picture above shows the refitted reamer with red lines drawn from each piece to the layer and the unit in which it was recovered. The refitted pieces were not recovered in the same layer, thereby showing intermixing.**

Layer	BBS	H S	SUR	H2S	COK	CBS	HBS
			ABS		HBC/HBOOK		HBSUR
Layer 1							
Layer 2			GAL				
			AAL				
		FLIM	LIM	FAL			
		HEFLIM	HBLIM	HBFL			
Layer 3			PER				
		BSACOC	WSACOC	COC 98	HACOC		
		CLR	DAS	ABD	HBCOC		
		SC*	MC1	MCMC4	MCITUR		
Layer 4		MC123	MC2	PIN	TUR		
		HMI23	MC3	HIMC3	MC13		
			HBMIC2				
Layer 5a		HARS	MC4	EMC4	RSMC4		
			HBMIC4	BSMC4			
Layer 5b			RS1				
			KAR	RSKAR			
			KAR2	RSKAR2			
			HBKAR2				
			RAK1 & RAK2	THRAK			
Layer 6			FSRAK	HEBRAK			
		ESDUN	DUN	GSDUN	RS		
		BASE OF DUN	TRS		SCRS		

**Table of the layers and the subunits at Blombos Cave, as presented by the excavator Christopher Henshilwood (1995)**

**Figure 6: Intermixing between the layers**

The flakes from the production of the reamer should logically be found either in the same layer as the reamer itself, or in layers older than the one from which the reamer was collected. In the latter case, it would mean that the person who made the reamer returned to the cave at a later date and disposed of the reamer. However, neither scenario is applicable, as the reamer was found in a layer predating the production flakes. In addition, the production flakes were not found in accordance with the operational sequence, where the first production flake should be found in the oldest layers and the last production flake in the youngest layer.

The dates obtained from Blombos Cave yield further information regarding this reamer (see table 2). Only two of the units are dated: MC4 in layer 5 dates to between 1840BP and 2400BP and COK from layer 1 to 290BP (Henshilwood 1995:95). Admittedly, these dates do not provide exact information for this tool and its manufacturing debris, as the two main sections of the reamer were recovered in layer 4 and the production flake in layer 1 (see figure 6). It is possible that if there was a hiatus between the fourth and the fifth layers of occupation, then layer 4 could be much younger than layer 5. Alternatively, if the four upper layers of occupation transpire to be relatively short term and happened in rapid succession, then this timeline could explain the distance between the production flake and the reamer. Regardless, these dates indicate that the time span between layers 1 and 4 is simply too long for the reamer to have been produced by the same inhabitants. The dates obtained from these layers of this cave do not help explain why the production flakes are found above the reamer itself.

No case of intermixing, concerning these particular squares or units, has previously been reported by the excavator (Henshilwood 1995), although he has assured that there is stratigraphic integrity within the MSA (Middle Stone Age) layers (Henshilwood 2005). Henshilwood (2005:444-445, 447-448) specifically mentions that LSA material has *percolated* into the MSA layers in a narrow band along the cave wall in squares F2, F3, G3, G4 and H5 and that there might be some intermixing in square D1 and D2 due to a burrow. In addition, there might be some disturbance in square E2/F2 and E3/F3 due to bedding hollows made by the LSA inhabitants.

Even though the above-mentioned article is written in reference to the MSA layers and units, it entails intermixing in the same squares in the LSA layers as well. Some of the refitted pieces are from these affected squares, but not all of them.

The question of intermixing and site integrity on Later Stone Age open-air sites has been addressed by Isabelle Parsons (2000:55). She is of the opinion that no artefact is *in situ* due to the formation processes, as all assemblages were once surface deposits. Therefore,

regardless of whether the site is open-air or a cave, it is not possible to claim stratigraphic integrity (Parsons 2000:55).

Another alternative explanation for this mixing is that there could have been more sleeping hollows, burrows and pits in the LSA deposits at Blombos Cave. Some were detected during excavation, but it is plausible that some went undetected.

The results of the refitting clearly demonstrates that there is intermixing besides the above mentioned-squares and burrows. Although the outcome of this investigation was limited to a select few pieces, this is still enough to conclude that there is in fact more post depositional disturbance at the site than originally indicated. Therefore, on the basis of the results of the refitting, I will be examining the LSA sequence at Blombos as one assemblage. Without the use of *chaîne opératoire* and refitting, the overall intermixing at Blombos would have remained undetected, with the exception of those cases where it was visible in the stratigraphy itself. This clearly demonstrates that refitting should be applied as a standard practice on sites to determine the level of intermixing.

### ***Quartzite***

Quartzite is the most abundant raw material in the lithic assemblage from Blombos Cave (Table 3). This is in line with the fact that numerous rounded waterworn quartzite pebbles are readily available on the beach below the cave (Henshilwood 1995:177-178).

With the exception of several large complete flakes, most of the quartzite material is represented by shapeless fragments. Based on the fracture pattern of quartzite, many pieces often lack the usual knapping characteristics of a bulb of percussion or a bulbar scar. Although most of the quartzite fragments have retained traces of being struck in some instances, it is difficult to determine if fragments are the result of human activity or if they are natural. Considering the abundance of quartzite in the immediate vicinity, it can not be ruled out that a small number of these fragments are indeed natural.

There are 22 primary quartzite flakes, as well as some debris and knapping waste material with cortex indicating that quartzite pebbles were worked at the site. Three refitted quartzite flakes with beach cortex further support this observation.

Only eight quartzite cores are recovered from Blombos Cave. This would appear to be too low a number considering the amount of quartzite debris and knapping waste products. On the other hand, the quartzite cores are relatively formal in character, even considering their large size, and the cores have produced several flakes. In addition, some of the several quartzite grindstones in the assemblage also bear traces of flake removals.

Based on the colour and the grain-characteristics of the raw material it is only possible to separate the quartzite material into four different types. Three of these are only represented by a single specimen.

One piece (BBC277) is a large blade which is made of a dark grey/bluish quartzite which is more fine-grained in character than the rest of the quartzite in the assemblage (figure 7). The second piece is a bladelike flake which is similar to the previous blade in morphology, but cruder. This piece is also made in a coarser grained and lighter coloured quartzite material. The last piece is a thick, weathered, blackened point or scraper, made from a brown fine-grained quartzite. These three artefacts are unlike any of the other pieces in morphology, characteristics and type of quartzite. Hence, they each represent an individual operational sequence, and it is considered unlikely that they were manufactured at the site.



**Figure 7: BBC277-quartzite blade**

The last of the four groups of quartzite includes eight cores, knapping waste products, debris and the reamer. This is the only group which is represented by more than one specimen, and probably the only group which originated at the site. As mentioned, only eight different cores were recovered in this group, indicating eight different operational sequences. However, based on the amount of quartzite in the group, in addition to the amount of material retaining

cortex, it is likely that several more operational sequences than those mentioned are represented.

In addition to the struck material, there are also numerous grinding stones and some hammerstones in the assemblage, all of which are made out of quartzite. Grinding stones make up 3% of the total, and 22% of these are ochre-stained. Several also appear to be charcoal-stained, or stained by some other black material. However; as the ochre pieces, the grinding stones and the hammerstones were all stored in the same finds-bags, it cannot be ruled out that contamination could account for some of these apparent ochre or charcoal stains. Hammerstones are virtually absent in this lithic assemblage, accounting for only 16 specimens, but 22% of the grinding stones have also been used as hammerstones.

### *Quartz*

The second largest group of material in the assemblage is quartz, although it is far less prevalent than quartzite. Even so, quartz is also found in abundance in the vicinity of the cave in the form of beach nodules or small outcrops (Henshilwood 1995:177-178). Quartz is usually considered to be a fine-grained raw material (Kusimba 1999:174), but at Blombos Cave this is not the case. Most of the quartz is very coarse-grained and of a poor quality. The exception is the 15 quartz crystal pieces that were recovered.

As with quartzite, most of the quartz artefacts are shapeless fragments of knapping debris. There are approximately twice as many pieces of quartz debris as there are quartz knapping waste products (artefacts with flake-characteristics). This can be explained by the fracture pattern of quartz which naturally results in a large number of shatter fragments when the material is worked. Regardless, a surprisingly large number of the quartz pieces do have obvious flake characteristics, as opposed to what was found for the quartzite finds. Virtually all the quartz debris could be determined as having been struck.

There are only two flakes of quartz which are considered to be primary flakes as they have retained the outer rind of the original pebble. In addition to this approximately 25 knapping waste products also bear traces of cortex, although the norm was for flakes or fragments with no cortex remaining. This obviously makes it much more difficult to determine how many cores or original blocks of material were knapped.

As with quartzite, it is difficult to divide the quartz at Blombos Cave into possible different operational sequences. Based on colour, grain-characteristics and quality there are at least four. However, there are in total 29 quartz cores in various sizes and shapes recovered



from Blombos Cave (six of these being quartz crystal). As a result, there are several more operational sequences represented than what can be detected.

If comparing the amount of quartz debris and knapping waste products to the amount of cores, it appears that the number of cores is too high. The rest of the operational sequence appears to be missing. However, unlike the quartzite cores, most of the quartz cores have only been struck a couple of times before they were discarded. Thus, each core produced less debris and less knapping waste products than the quartzite cores. The other possible operational sequences appear to have been worked on site as they are all represented by several pieces, both cores and debris. Hence, at least 23 different quartz cores seem to have been worked on site, though the resulting operational sequences may be very short as the cores were only struck a couple of times before they were discarded.

Quartz crystal is only represented by 15 specimens; ix of these being tiny cores and three other being minute tools. Obviously, parts of the operational sequence are missing. Hence, it would not appear that the quartz crystal was worked on site.

### *Silcrete*

Silcrete is the second most abundant raw material type at Blombos Cave. 99% of the tools and 45% of the cores are made from this material. Unlike quartz and quartzite, more than half of the silcrete is knapping waste products (all of which have flake-characteristics). The few which can not be positively determined are thermally altered fragments.

Unlike quartz and quartzite, silcrete is not locally available entailing at least a 30km walk away from the site (Henshilwood 1995:175-179). Even though silcrete was less accessible than quartz and quartzite it was still the preferred raw material for tool production.

The silcrete debris and knapping waste products are of a much smaller size than is found to be the case for quartz and quartzite. They are also of a more formal character, but this can be accounted for by the fracture pattern of this material which makes these traits more easily recognizable. Six primary silcrete flakes were recovered from the site, as well as 94 additional pieces that had remnants of cortex: silcrete appear to have been worked extensively at this site.

Based on characteristics of the raw material at least 11 different groups of silcrete seem to be represented. One of these groups incorporates 18 of the 27 small scrapers. Based on the grey, very fine-grained silcrete material these scrapers are made of, they are likely to originate from the same block of material. In addition to the 18 small scrapers, this group also

contains two exhausted cores and 23 complete flakes (12 of these with cortex) and several small fragments. Hence, as several stages of the operational sequence are represented by this material group, it is likely that these cores were worked at the site and that the tools were also made there.

One group of silcrete artefacts is characterized by dark blue to red fine-grained material. This group is represented by one exhausted irregular core, eight scrapers, 14 complete flakes and several fragments; 11 pieces have cortex. The largest piece in this group is the core which is approximately 30mm on the longest edge. This type of silcrete was also obviously worked from nodule to tools at the site. Further support for this is that a small scraper can be refitted to a flake of this material.

Another group of silcrete has a greenish colour, with lighter spots and stripes. This group consists of 11 bipolar cores, 16 complete flakes and several fragments, many of them thermally altered. All the silcrete bipolar cores in the assemblage are made out of this type of material, although it was not used to make tools. Some of the flakes in this category stand out compared to the rest of the raw material group and to the rest of the silcrete artefacts because of their large size. There are no large cores in the assemblage that can explain the size of these flakes, and in addition there is no knapping waste or debris in this group which is similar to the traces on the bipolar core. Hence, in this group of silcrete several stages of the operational sequence appear to be missing.

The next group of raw material is of a coarse-grained type, with different colours in the same block of material ranging from red, to orange, to grey and black. The group consists of one large discoidal core, two broken bifacials, 23 flakes and several fragments. There are no retouched tools except for the bifacials, and no obvious tool-blanks.

If the two bifacials originated from this core this happened at an earlier stage, as the bifacials are larger than the core. Even though there are some relatively large flakes; there is no debris, or knapping waste material of the same size as the two bifacials or larger than them. In addition, the debris and knapping waste material does not match the colour nuances on the bifacials, even though it is still possible they originated from the same block of material.

However, the debris and knapping waste material is closer to the colour nuances on the core. Hence, it is possible that the smaller flakes and fragments were struck from the core in the group, but the two bifacials are apparently without context. The stages of the operational sequence which resulted in the bifacials are, therefore, missing. Additionally, the

core and the bifacials are morphologically and technically distinct from the rest of the lithic assemblage at Blombos Cave.

The most intriguing silcrete raw material group consists of approximately 30 pieces (for an example of an artefact in this raw material group see figure 21 and 25). The material is fine-grained with a grey colour and a dull appearance. The surface of all specimens from this group is to a greater degree coated by a thick layer of yellow to orange patina. There are no artefacts which resemble the grey raw material which do not also have this patina. The group consists of three cores, seven tools in the form of large scrapers, 15 flakes and six fragments.

The seven tools differ markedly from the rest of the tool assemblage. They are larger and thicker, and are classified as either large scrapers or as miscellaneous retouched pieces. The seven tools are made by secondary retouch which cuts through the thick layer of patina. The cores also have secondary removals. Due to the patina and the size, it is obvious that none of the tools are made from any of the cores found in this group. The fragments and most of the flakes are of a small size, and the patina has been cut through on these as well. Thus, in addition to the low number of knapping waste products and debris; it seems more likely that the flakes and the fragments in this group are a result of the secondary removals (resharpening) on the cores and on the tools, than knapping waste from the original operational sequence. The original operational sequences of the tools and the cores in the assemblage appear to be missing. Hence, they were probably not made at the site. It seems like only the secondary resharpening of these artefacts was conducted at Blombos Cave.

The last group of silcrete raw material is only represented by six pieces. There is one fine-grained red broken core and five fragments. It is difficult to determine if these fragments originated from this core as the core is fractured due to thermal alteration. The colour and the grain-characteristics prior to alteration could have been different. Either way, the fragments are not large enough to be the result of the removals on the core. Hence, this material group also represents an incomplete operational sequence, and the core seems to have been brought into the cave in its present state.

In addition to the above mentioned raw material groups, there are four individual artefacts, all of which are large scrapers, with secondary retouch which do not resemble each other or any of the other raw material groups. Hence, only the end result of the operational sequence is represented, and the artefacts were probably made elsewhere and brought to the cave as finished objects.

Even though silcrete was worked at the site, it also seems evident that some of the silcrete artefacts were not produced or further worked at the site. This is particularly true of the larger silcrete artefacts. Some of these artefacts are distinctly different in morphology and technique from the rest of the artefacts in the assemblage.

### *Cryptocrystalline Substances*

There are only 13 pieces of cryptocrystalline in the entire lithic assemblage from the LSA layers at Blombos Cave. This is in accordance with the fact that cryptocrystalline substances are not found anywhere near the site, and that the nearest outcrop has not been located (Henshilwood 1995:175-179). In fact, the relatively high number of cryptocrystalline artefacts is surprising compared to the other sites in the Garcia State Forest area. Retouched cryptocrystalline artefacts are only found at one other site (GSF4) (Henshilwood 1995:177), while at Blombos Cave cryptocrystalline was recovered from all the stratigraphic layers.

The 13 pieces of cryptocrystalline consists of a tiny nodule that is in poor condition and was only struck once, one tiny indeterminate broken core which has suffered from thermal damage, two small flakes, a core-rejuvenation flake, three pieces of debris, one knapping waste product and four small scrapers (see table 3). The cryptocrystalline artefacts in the assemblage are about the size of a finger nail. The exception is the nodule, the core and the core-rejuvenation flake which is approximately 15mm in diameter.

All of the cryptocrystalline pieces have a different colour. None of the pieces seem to originate from the same core or the same operational sequence. One of the cryptocrystalline pieces is a rejuvenation flake with crystal inclusions. These inclusions have made the material hard to work, even though the material itself is extremely fine-grained and normally easy to work. The piece had to be removed in order to rejuvenate the core because of several hinges and step-fractures. The core itself has not been recovered from the site. Further, this suggests that all the cryptocrystalline pieces were brought into the cave in their present state, even the debris material; there is no indication that cryptocrystalline was worked at this site.

### *Ochre*

Ochre makes up 7% of the total lithic assemblage with 258 pieces (see table 6). This is a marked change compared to the earlier dated Garcia State Forest sites, where ochre is virtually absent in comparison (Henshilwood 1995:180). Ochre is not found in the vicinity of the cave (Henshilwood 199:178).

According to Henshilwood's (1995) classification system ochre can be placed in three categories: pencils, chunks or ground. Pencils are elongated in shape; they have at least one abraded surface and are pointed at the end. Chunks are pieces which do not have any traces of being worked. Ground pieces are pieces with any shape or form which have traces of being striated from rubbing or working. In addition to these categories, two pieces of ochre had traces of knapping removals.

## Tools

Tools include all artefacts which have been further modified (Inizian *et. al.*'s 1999:157). As for the scrapers, there does not seem to have been a preference for either sidescrapers or endscrapers. Consequently, the scrapers were not further subdivided according to the location of the retouch. However, it seemed to be purposeful to subdivide the scrapers according to Deacon's size-classes (J. Deacon 1984:384-387). Thus the scrapers are divided into small (<20mm), medium (20-30mm) and large (>30mm) scrapers.

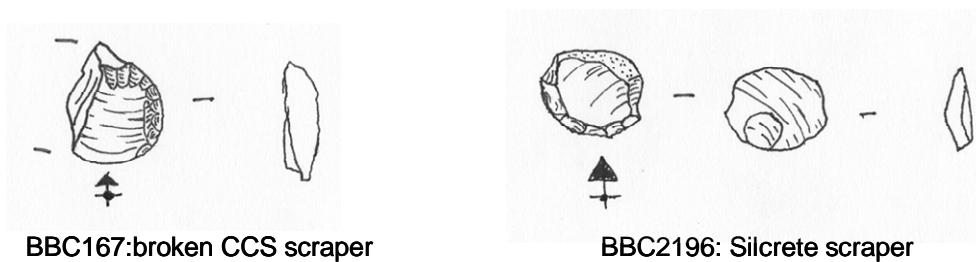
The recovered tool assemblage from Blombos Cave includes scrapers, reamers, backed pieces and miscellaneous retouched pieces (MRP'S) (see table 4).

### *Small scrapers*

Small scrapers are scrapers which measure less than 20mm in length. In this assemblage most of the small scrapers are approximately 15mm long. This category is the most abundant formal tool category in the lithic assemblage at Blombos Cave (table 4).



Figure 8: A selection of the small scrapers recovered from the LSA layers in Blombos Cave



**Figure 9: Drawing of two of the scrapers. Scale 1:1.**

The complete or virtually complete scrapers all have a more or less similar elongated rounded shape. Most of them are made on tiny flakes or flake fragments, none are made on blades or bladelets and some are made on knapping waste products. Three of the scrapers have a blade-like dorsal scar pattern, but the flake itself does not meet the criteria of a blade or bladelet. There is no indication of blade-technology at Blombos Cave in the LSA. The rest of the scrapers have a multidirectional dorsal scar pattern – they were made on flakes. Three of the scrapers are made on core-rejuvenation flakes, and ten of them have traces of cortex. Obviously, the tool-makers would make use of pieces usually considered to be waste material as tool blanks.

Out of 35 small scrapers, 22 are broken. All the four cryptocrystalline scrapers are also broken, as well as the quartz crystal scraper. Most of the small scrapers are broken opposite the retouched edge, some perpendicular to the retouched edge, and some are broken on all edges. The complete small scrapers are very small and brittle, and for this reason resharpening might have been too difficult.

The retouched edge has been analysed with the help of the criteria suggested by Inizian *et. al.* (1999:87). The majority of the scrapers are convex, and they have direct continuous retouch. There is only one scraper where the retouched edge is not the longest continuous edge. Based on the fact that the location of retouch is normally the longest edge, and not based on the preferences of the knapper, the scrapers have not been further subdivided into categories such as sidescrapers or endscrapers. The angle of retouch is low to semi-abrupt, and the extent of retouch is short. This is probably due to the tiny size of the scrapers, which gives the scrapers a standardized form.

The retouch applied is normally sub-parallel, but several, specially the broken ones, have secondary stepped retouch. This is the case with the cryptocrystalline scrapers. They are different from the others due to the severe breakage on all of them, and because of the very abrupt and stepped retouch. This may indicate that the inhabitants used the cryptocrystalline pieces more extensively and exhausted them completely before discarding them.

### ***Medium scrapers***

Only five scrapers measured between 30 and 40mm: all are made of silcrete. Based on colour and grain size, it is not likely that any of these pieces came from the same block of material. Neither is it likely that these were made with a specific shape in mind. With only five pieces it is hard to find any patterns, but in any case there is no standardization in shape or form in this category. The retouch on these pieces are mostly short, abrupt, direct and continuous. Other than that, there is no pattern concerning delineation, location or morphology; and there seem to be no standardization of shape or form in this category.

One scraper has cortex, and two of the medium scrapers are made on core rejuvenation flakes. Hinging and stepping are visible on the dorsal side, and the flake has been removed in order to remove the part of the core with the knapping mistakes. One of the core-rejuvenation flakes even has traces of a second platform. Thus, as in the small scraper category, pieces usually considered to be waste material have been used in the production of these scrapers.

### ***Large scrapers***

Large scrapers are measured more than 30mm in size (figure 10). At Blombos Cave there are 16 scrapers in this category; all of them in silcrete. They are made on flakes, hinged flakes, fragments, as well as on antique tools. Antique tools are tools which are not diagnostic of the context in which they were recovered; but of an older context. Moreover, antique tools did not originate at the site where they were recovered. The existence of antique tools will be explored in a later section.

In contrast to the small scraper category, most of the large scrapers have a retouched edge that is irregular or concave and the angle of retouch is abrupt. Direct retouch seems to have been the preferred position of the retouch in all the scraper categories, and most of the retouch is also continuous.



**Figure 10: Blombos Cave, LSA, large scrapers**

The morphology of the retouch in the large scraper category is mostly sub-parallel, but in most cases there are also some secondary stepped retouch on the working edge (12 of 16). On pieces which have two retouched edges, the retouch is most often placed on opposing sides. Large scrapers are by some believed to have been hafted, and two opposing retouched edges may then indicate that the piece was reversed in its mount (see for example Henshilwood 1995:191, J. Deacon 1984:391). Based on the retouch on the examples from Blombos Cave, one of the edges seems to have been used more heavily than the other.

Due to the convex or rectilinear retouch and the secondary stepped retouch on the working edge (for an example, see figure 11), several of the large scrapers would have been classified as adzes according to South African terminology (J. Deacon 1984: 391). On the other hand, according to Bordes' terminology these would be designated as scrapers with abrupt retouch (Villa *et. al.* 2005:409). Parsons (2000:57) also mentions this distinction made by some archaeologists, but chooses to regard these tools as scrapers: I will do the same.





**Figure 11: Two large scrapers with abrupt retouch**

Aside from some patterns that were evident on the retouched edge, and unlike the small scraper category, there are no similarities or standardization evident in shape or form in this group. On the other hand, the working edge had to meet specific criteria. It had to be slightly concave and very abrupt. Apparently there was a need for larger tools, but the emphasis was on the working edge, not the overall shape of the tool.

Eight of the 16 large scrapers are made on antique tools. This is evidenced by secondary retouch which has cut through the thick layer of patina which has formed after the first application of retouch. One of the large scrapers is also made on a bipolar core. Yet another of the large scrapers has had three lifecycles; first as a core, then as an endscraper and in the end as a sidescraper. Three of the large scrapers also have cortex on them. The large scrapers follow the trend seen in the small and medium scrapers of using waste products as tool blanks.

### ***Backed artefacts***

Henshilwood (1995:193) claims that the only backed pieces from Blombos Cave are two backed flakes. As a result of a second consultation, these flakes are not considered to be backed in this reanalysis. However, the subsequent excavations in 1997-1999 resulted in the recovery of ten backed artefacts from Blombos Cave. Nine of these are made of silcrete, while one is of fine-grained quartz.

The backed artefacts recovered from the LSA layers at Blombos Cave are divided into segments, backed scrapers and miscellaneous backed artefacts. Backed scrapers are further subdivided into three different types based on the location of the backed edge using Mazel (1989:36) system. Type I: Backed opposite the working edge. Type II: Backed along one parallel perpendicular to the working edge. Type III: Backed along laterals perpendicular to

the working edge. All the retouched pieces have been described according to the type, location, position, angle etc. of the retouch according to the seven characteristics posed by Inizan *et. al.* (1999:87).

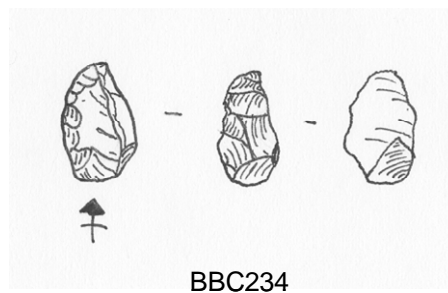
There is only one segment (broken) in the Blombos Cave assemblage. This is in line with the other Garcia State Forest sites, when considering the overall low numbers of recovered segments from the area. However, compared to other sites in South Africa, the Garcia State Forest sites seem to have fewer segments in the assemblage than the norm, even though the overall formal tool component is in decline after 2000BP. On the other hand, while no blades or bladelets are recovered from Blombos Cave, the other Garcia State Forest sites have some blades and bladelets in their assemblages. This makes the one segment at Blombos Cave quite doubtful. If it is indeed a segment, it could have been brought into the site (Henshilwood 1995: 54-57, 170-172, 181-197).

Backed scrapers make up most of this backed artefact category. Six of the seven backed scrapers are broken: all in the same way -the tip where the backed edge and the retouched edge intersect is broken off.

Six of the backed scrapers have scraper retouch along one edge and then collateral backing (backing applied from both sides of the edge) on the opposite (Type I backing). One has backing on the lateral edge perpendicular to the working edge (type II). All of them have a similar triangular cross-section and ellipsoidal shape which gives these tools a standardized form. The retouched edge, which defines the backed piece, is normally short, semi-abrupt, direct and continuous. There is no pattern in the delineation and localization of the retouch.

In addition to the backed artefacts described above, there are two miscellaneous backed artefacts in the assemblage both of which are smaller than 10mm. The original intention cannot be detected, but by definition they must be considered to be backed.

Even though not many pieces are backed, backing was clearly a part of the tool manufacture procedure at Blombos cave in the LSA.



**Figure 12: Drawing of backed scraper. Scale 1:1.**

### ***Reamers***

Reamers are tools which are used for making the hole in the bored stones that are attached to digging sticks as weights. “The working end is therefore round in cross-section and has been smoothed to a blunt point by utilization. The butt of the tool opposite the working end is generally roughly flaked to improve the hand grip. The length varies but is usually at least 100mm. Preferred raw materials are quartzite and hornfels” (J. Deacon 1984:393).

The two reamers are the only tools made of quartzite. Both of the reamers were broken at approximately the same place at the handle, which suggests that the handle might be a weak point in the tool. Only the distal end was recovered of one of the reamers, but both the distal and the broken-off proximal end of the other reamer were recovered. Furthermore, on this tool it was possible to refit three flakes from the production sequence onto the now complete reamer (figure 6, shown earlier in this chapter).

Both of the reamers have clearly been used, because they have striations at the working end and the tip is smoothed. They probably broke during use, as the break is exactly where pressure would have been applied at the handle. The flakes from the production of the reamer are undeniable proof that the reamer was produced on site. Additionally it was obviously used and broken on the site. The refitted tool also appears to have been better suited to a right-handed person as it is made out of a relatively flat quartzite beach cobble, and several flakes have been removed on both sides to produce a handle that fits nicely into the right hand.

### ***Miscellaneous Retouched Pieces***

There are 11 pieces which can be classified as miscellaneous retouched pieces in this assemblage. The miscellaneous retouched pieces are either broken to such an extent that the original tool can not be determined, or the retouch is of such a nature that the piece cannot be classified within a tool type category. These pieces are similar in size to the large scrapers. Three of the pieces have secondary retouch. As with several of the large scrapers, a layer of patina has formed between the two incidences of retouch.

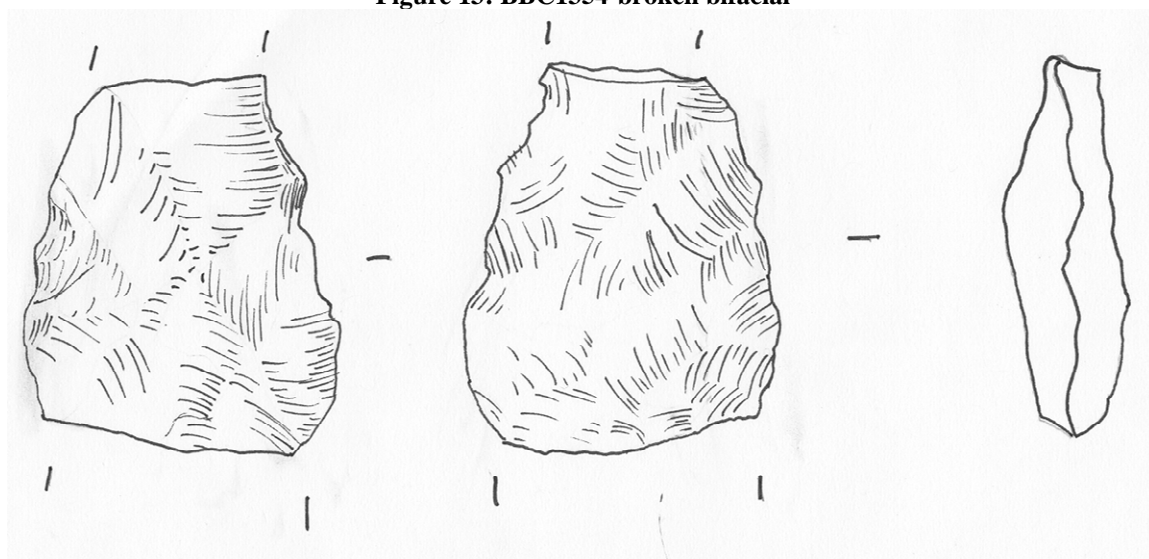
### ***Points***

There are six artefacts with pointed shapes in the assemblage. One of these has been reassigned as a flake. The five remaining points bear a strong resemblance to pieces recovered from an MSA rather than an LSA context. Two of these artefacts points are broken bifacial worked pieces that are similar to Stillbay points (figure 13 and figure 14). These two

pieces are made in the same material, and appear as if they could have originated from the same core.



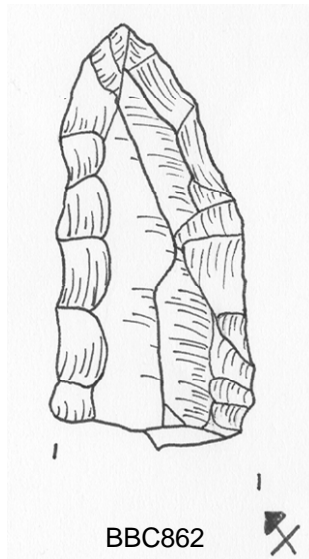
**Figure 13: BBC1354-broken bifacial**



**BBC1354**

**Figure 14: Drawing of BBC1354 in photograph above. Scale 1:1.**

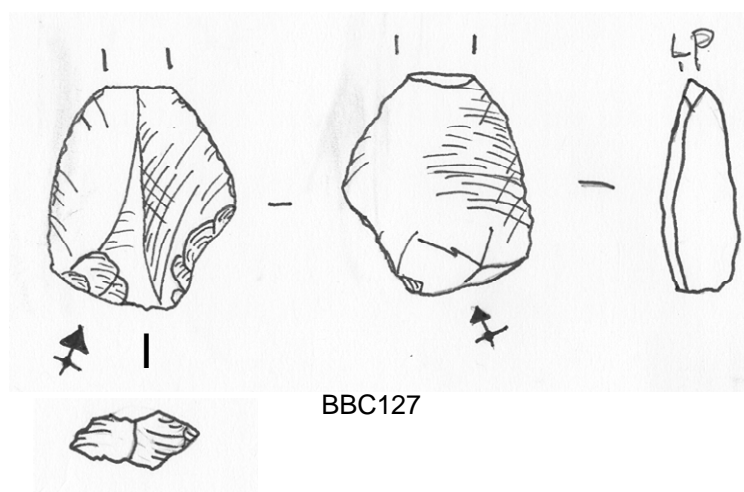
One of the remaining three points is an extremely weathered unifacial point unlike anything normally found in an LSA context (figure 15).



**Figure 15: Drawing of BBC862-unifacial point. Scale 1:1.**

On another of the five points, the base and the left edge are perpendicular to each other. The piece is classified as a point because of its shape. The right edge is retouched, and it could just as well been classified as a scraper rather than a point. This piece has a thick layer of patina; the same patina is found on several of the large scrapers that also have secondary retouch.

The last point is the only one that might have been a projectile point (figure 16). Regardless, this piece is far more characteristic of the MSA than the LSA. It has a thick proximal end, converging dorsal scars, and a retouched notch on the right edge, which might have accommodated hafting. This piece is also somewhat weathered and is reminiscent of points dating to the MSA/LSA transition.



**Figure 16: Drawing of point with a retouched notch. Scale 1:1.**

## Cores

Cores were classified as initial, inclined (including discoid cores), platform, bipolar, multidirectional (amorphous) or indeterminate broken cores according to the classification system invented by Conard *et. al.* (2004).

Bipolar cores are the most common core type (see table 5 in chapter 3). All of these are made of a similar looking silcrete, except for the six that are made out of quartz crystal (figure 17). Silcrete is also the most abundant raw material type in the inclined cores category, while silcrete and quartz as raw material are equally abundant in the multidirectional category. In the rest of the categories, quartz is the most abundant raw material. Only eight cores are made out of quartzite and one indeterminate broken core is made of cryptocrystalline substances. The cryptocrystalline core has suffered from thermal damage.

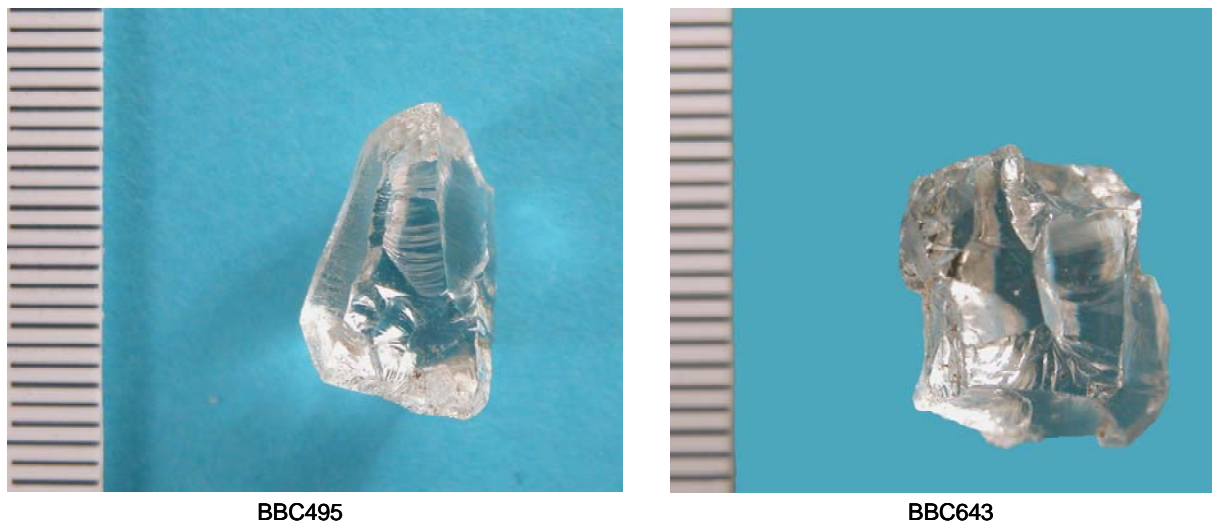


Figure 17: Quartz crystal bipolar cores

Within the bipolar core category, and within the multidirectional/amorphous core category, the cores have the same shape and form. Furthermore, the cores are very small and appear to have been worked to exhaustion before they were discarded (figure 18).



Bilde 3: BBC2033, Amorphous core

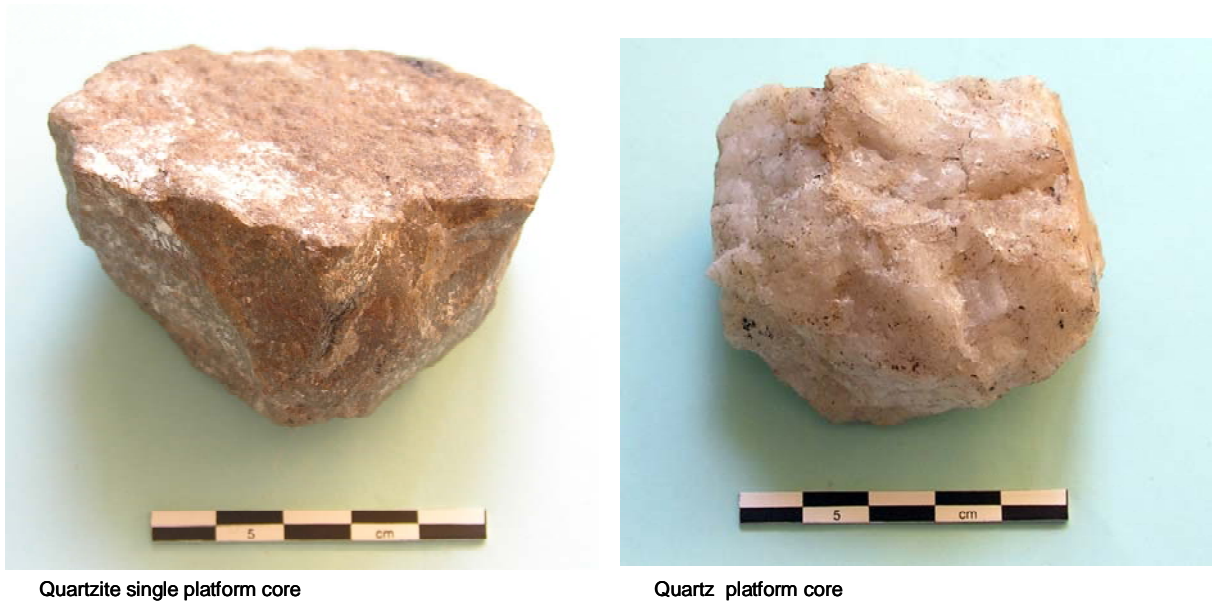


Bilde 4: BBC2188, Bipolar core



Figure 18: Two silcrete cores and an anvil

In the other categories (see table 5 in chapter 3) there is a lot of variation. Most of the quartz cores have only been struck a few times before being discarded. This is due to the poor quality of the material. As quartz was available in close proximity to the cave, there was little point in working a core to exhaustion when it was in bad condition. These cores are larger than the cores in the bipolar and multidirectional categories. The quartzite cores are also more standardized and formal than the quartz cores (figure 19). Several removals have been removed from both the quartzite inclined (discoïdal) core and the quartzite single platform core.



**Figure 19: Quartzite core and quartz core**

In addition to the above-mentioned cores; two nodules, one silcrete and one in cryptocrystalline, have both been struck once in attempt to use them as a core. However, they were discarded before further use due to the poor condition of the raw material. These nodules were about 20mm in diameter.

### **RESULTS OF THE *CHAÎNE OPÉRATOIRE* ANALYSIS**

In order to test the above-mentioned criteria with the Blombos Cave lithic assemblage, the *chaîne opératoire* had to be adjusted to the research problem at hand, as outlined in chapter 4. In accordance with this, the lithic assemblage has been divided into possible operational sequences within each raw material group (presented above), and special attention was also paid to the tools and the cores. In the following section these results will be further explored with the attempt to identify patterns in the lithic assemblage, focusing on patterns in the artefacts and on patterns concerning the intention, the starting point and the maintenance strategies of the knapper. This focus has the possibility of providing evidence which can be used to determine if there was a change in the use of the raw materials and whether economizing behaviour characterized tool production. These questions are important to determine if there was for example restricted access to raw material resources at Blombos Cave.

This section will start by exploring the pattern of larger antique tools in the assemblage, before moving on to identifying patterns in the intention of the knapper, in the starting point of the knapper and in the maintenance strategies used.



### **The presence of antique pieces in the assemblage**

There are several artefacts in the assemblage which did not originate at the site, and which are not diagnostic of LSA assemblages (figure 20). This applies to 11 of the 16 large scrapers and three of the cores; all of which have a layer of patina which have been cut through by secondary retouch. These pieces were clearly much older artefacts that had been worked prior to the formation of the patina. In addition to these pieces, eight artefacts are more diagnostic of MSA assemblages.



**Figure 20: Artefacts where the patina has been cut through by secondary retouch**

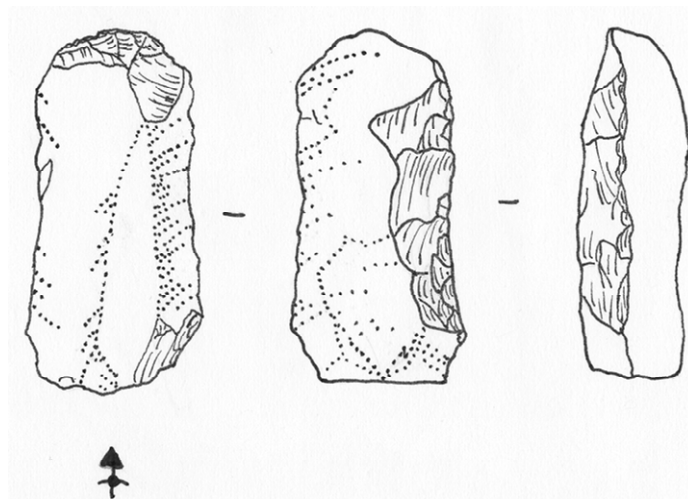
These artefacts were made with another knapping technique than the rest of the artefacts in the LSA assemblage. On all the antique artefacts, with one exception, the butts are large and faceted. The retouch also consists of larger removals than the rest of the tool assemblage. The retouch is all more or less the same, with large, abrupt, sub-parallel, invasive retouch.

Ten of the 14 reworked pieces have the same thick orange /yellowish patina and original grey, matt fine-grained silcrete (figure 21 and figure 22). There are some variations

in the shade of the colour of the patina, but it seems plausible that all ten pieces originate from the same site because of the original raw material and the same amount of weathering. The different colour variations of the patina may be due to different levels of exposure to the elements.



**Figure 21: BBC1963- Reworked antique artefact**



**BBC1965**

**Figure 22: Drawing of BBC1963 (photographed above). Scale 1:1**

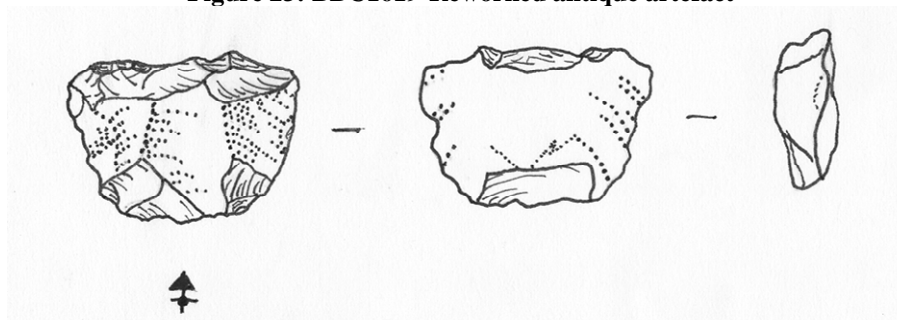
Four more pieces have patina as evidence of reworking. These artefacts have a different type and colour of patina, and also a different original raw material. These four pieces are different

from each other and the other artefacts in the assemblage. For example, the type of retouch and the butt types are different. This suggests that these pieces originated from different sites.

On one piece the same retouched edge is resharpened again after a thick coat of patina has formed, and the bulb has also been removed (figure 23 and figure 24). You can still see trace of the old bulbar scar. Removal of the bulb indicates possible hafting, implying that the piece was recycled as a hafted implement in its second lifecycle.



**Figure 23: BBC1619-Reworked antique artefact**



**BBC1619**

**Figure 24: Drawing of BBC1619 (photographed above). Scale 1:1.**

All the reworked cores with patina were also used as cores before they were abandoned and the patina formed (figure 25). The recycled cores have the same type of patina and the same type of original raw material, which indicates that they originated from the same site, even though they are very different in shape and form. Two are inclined cores, and the third is a single platform core. It proved possible to only extract a few new removals from the cores before they were abandoned for the second time.



**Figure 25: Reworked antique core**

### **Intention of the knapper**

The aim of the knappers as seen in the assemblage from the LSA layers at this site seems to have been to produce standardized small scrapers and larger scrapers with a regular working edge. Silcrete is the preferred raw material for stone tool production, accounting for 99% of the tools. This can be explained by the superior knapping properties of silcrete.

The reamers are the only two quartzite tools in the assemblage, and these are produced at the site. However, based on the number of large complete quartzite flakes with a natural cutting edge it is plausible that the inhabitants employed both a curated and an expedient technology.

If there was an immediate need for a tool, a knapper could with relative ease pick up a quartzite cobble at the beach and produce large flakes with a good natural cutting edge. He would then discard the core, and use one of the flakes for the task at hand. Considering the abundance of quartzite, there was no point in saving the flake, and hence the flake was discarded after the task was completed. Quartz might have had a similar expedient function as quartzite, but quartz is more brittle and leaves more fragments and smaller sized flakes.

Hence, the intention of the knapper was probably to use fine grained material to produce small scrapers and larger tools with a characteristic working edge. In addition, the

intention could be to produce flakes of the readily available quartzite and quartz for expedient use.

### **Starting point of the knapper**

Based on the fracture pattern, and evidence provided by the tool assemblage, quartz and quartzite was not the ideal material for tool production. At least not for retouched tools. However, silcrete sources are at least a 30km walk away from the site, which makes it less accessible than quartz and quartzite (Henshilwood 1995:177-178). Nevertheless, the inhabitants obviously required the finer grained raw material. As a result, silcrete was probably a more valuable raw material because it was more time-consuming to acquire.

Cryptocrystalline on the other hand, were possibly even more valuable than silcrete. No outcrop has yet been found (Henshilwood 1995:175-179), and based on the 13 recovered cryptocrystalline artefacts; cryptocrystalline was most likely not worked at the site. Hence, the cryptocrystalline artefacts were brought into the site as they were, probably from long distances.

The size of the blocks of raw material supports the idea that cryptocrystalline and silcrete is more valuable than the coarser grained quartz and quartzite. Based on the quartz and quartzite cobbles found near the cave today, it is safe to say that the quartzite blocks were relatively large, while quartz was found in various sizes. In addition, the original size of the cores can be discerned because only a few flakes were struck from the cores before they were discarded.

The silcrete cores are either tiny bipolar cores or tiny amorphous cores, both worked to exhaustion, which makes it hard to determine the original size of the blocks of raw material. However, based on the small silcrete scrapers in the assemblage and the size of the debris and knapping waste products, they seem to have been of a small size. In addition; two recovered nodules, both approximately 20mm, support this. Regardless of their small size, they have been struck once and broken open to determine the quality/condition of the material. The nodules were obviously considered for further manufacture, but as both were in poor condition, possibly due to thermal damage, they were discarded. When even small nodules like this were considered for manufacture, it is indicated that the fine-grained material was not easily accessible and very valuable.

Based on artefacts with cortex and initial flakes; at least some of the quartzite, quartz and silcrete seem to have been brought into the cave as nodules and worked at the site. However, this is not true for all the material. In common with the 13 cryptocrystalline pieces,

some of the silcrete seem to have been brought into the cave basically ready made. This particularly applies to several of the large scrapers and all of the so called points; including the quartzite point. In common for these pieces, is that they seem to be too large for the available cores. In addition, 11 of the larger tools (large scrapers and miscellaneous retouched pieces) have secondary retouch as confirmed by patina.

### **Maintenance strategies**

In the case of quartz and quartzite cores, there appears to have been no core preparation. Core preparation and core maintenance was not necessary to maximize the productivity as the raw material was readily available. The goal was to remove suitable flakes for immediate use without further retouching, and they used the best natural platform to accomplish that goal. The flakes were discarded immediately after use, and hence maintenance of expedient tools was not necessary. There are a couple of single platform cores, but most of the cores were struck from several directions. A couple of large quartzite flakes, which seem displaced in the assemblage, have a prepared butt, but overall it seems like core preparation and core maintenance was not a necessary step for the knapper to achieve his goal.

The goal with the silcrete cores was to maintain a suitable platform and to maximize the productivity to produce flakes of about the same size as blanks for the small scrapers. This is based on the fact that virtually all the silcrete cores are used to exhaustion. Some core preparation is evident in the form of cortex flakes and core-renewal flakes, but not on a large scale. Most suitable flakes and fragments have been turned into scrapers, even the core-preparatory flakes and the core-maintenance flakes. In other words, removing the cortex does not seem to have been a way of preparing a core for flake production.

The small scrapers made of silcrete and cryptocrystalline shows the same pattern of use and resharpening until exhaustion. The recovered small scrapers seem to be the rejects, as most of them are broken and the rest are too brittle for use. The four small cryptocrystalline scrapers seem to be even more exhausted than the silcrete scrapers due to the abrupt retouched edge and the extensive breakage.

Several of the larger silcrete tools are also resharpened. In addition, several of them have secondary retouch indicating maintenance of the artefact.

Hence, the maintenance strategies at Blombos cave seem to have been focused upon maximizing the productivity and conservation of the fine-grained raw material.

## Summary

Most of the quartzite and quartz are represented by all the stages of the *chaîne opératoire*, and hence, quartzite and quartz were worked extensively at the site. Silcrete was also worked from nodule to tool at the site, but there are many silcrete pieces which were brought into the site ready made and only resharpened here; in particular the larger artefacts. In all probability, none of the cryptocrystalline specimens were worked or produced at the site.

The most abundant tool categories are small standardized scrapers and larger tools with a characteristic working edge. Hence, there seems to have been a need for these particular tools. Silcrete and cryptocrystalline substances are the preferred raw material for the retouched tools, but quartzite and quartz might have had a function as expedient tools.

Artefacts normally considered to be “waste” material have been used in the production of tools. These include unidentifiable fragments, core-rejuvenation flakes, cortex flakes and antique tools.

One particular group of tools and cores is made by secondary retouch on old artefacts which did not originate at the site. These tools are different from all the other tools and cores in the assemblage. Even though these artefacts did not originate at Blombos Cave, several of them seem to have originated from a single site somewhere in the vicinity. Some of the artefacts in the assemblages which did not originate at the site were not worked at the site. Several of these are artefacts you would expect to find in an MSA context.

Based on the results in this chapter I anticipate I will be able to comment on the increased use of ritual, gift-exchange, broadening of the subsistence base, and in particular about restricted access. These aspects, along with the location of the site and the awareness with identity, will be explored as evidence of the interaction between herders and hunter-gatherers in the next chapter.

## 6: Discussion

As has been demonstrated in previous chapters, the debate in South African archaeology concerning the nature of interaction between herders and hunter-gatherers is at a stalemate. Several reasons for this stalemate have been suggested, for example: no indisputable criteria of interaction and the limitations to the approach previously applied to the problem. In chapter 2, several criteria were suggested to be able to assist in determining the nature of interaction. To overcome the limitations posed by the methodology, a new approach, the *chaîne opératoire*, was applied when examining the lithic assemblage from Blombos Cave in this attempt to produce new answers to the issue of interaction. In the following discussion, the different indicators of interaction will be explored in light of the evidence produced by the application of the *chaîne opératoire* approach. The proposed indicators will be compared with data from other sites, as well as with the evidence from Blombos Cave, in the hope of determining the nature of interaction at this particular site.

### LOCATION OF THE SITE

Following the arrival of the herders at about 2000BP, several archaeologists report a change in the preference of location of hunter-gatherers' sites from open-air sites to more remote cave or shelter sites. This change is regarded as a result of the interaction with the herders (Henshilwood 1995:154-155, 248; Parkington *et. al.* 1986:322-324; Smith 1986:39-40; Smith 1990a:57; Smith *et. al.* 1991:89; Wallace 1996:20).

There are obvious differences between open-air sites and caves/shelters. One example is that caves and shelters are restricted; hence the organisation of space and activities, and the social agency may have been affected by the change in preference of type of site (Bordes 1961:803; Parkington *et. al.* 1986:322-324; Straus 1979:332, 333, 337).

In line with this, it is claimed by Walthall (1998:225) that rockshelter sites and caves may cause more social problems because the space is more restricted than in open-air sites. If a hunter-gatherer group found it necessary to move from an open-air site into a cave/rockshelter as a result of the competition with the herders, they may have had trouble replicating the structure and organization of space at their new location (Walthall 1998:225).

Hence, a move to a more restricted cave could cause reorganization and restructuring of the group and the lifestyle, for example the group might have chosen to split into smaller bands. It is implied that reorganization at this level in all probability caused the hunter-gatherers stress (Parkington *et. al.* 1986:314, 319; Walthall 1998:225). The possibility of



increased social stress, point towards an involuntary change in the location of the site. On the other hand, a change might have been necessary due to the increasing competition with the herders over resources (Smith 1986:36; Parkington *et. al.* 1986:325).

However, there are also examples of caves which were inhabited by the hunter-gatherers prior to the influence of herders. Strathalan Cave A in Maclear District, Eastern Cape, is an example of such a cave (Opperman 1999). In this case, interaction with the immigrant herder population cannot explain why the hunter-gatherers inhabited caves; the change may have been voluntary. If so, this provides evidence that the occupation of caves does not have to be considered as disadvantageous. Consequently, on the basis of this data the change in location of sites may not be an indicator of more hostile interaction with the herders.

A change in the location of sites is reported in the Garcia State Forest Nature Reserve as well. Only Blombos Cave and one other site, GSF9, of the nine sites Henshilwood excavated in 1991-1992, were caves or rockshelters. Both of these are dated to post 2000BP, while GSF1-7 dates to before 2000BP (see table 2) (Henshilwood 1995:3). Thus, a change in the preference of the location of sites, from open-air sites to caves and shelter sites, following 2000BP is implied. As demonstrated above, this can be the result of choice, or alternatively, due to interaction with the herders.

In Blombos Cave the floor measure 45sq. m, and the height to the cave roof, before the excavation commenced, was restricted to between 1 and 1,5m, meaning that the height to the cave roof during the last period of occupation was the same (Henshilwood 1995:78). This indicates that Blombos Cave was a small site and due to the restricted space, the cave was probably not an ideal living site during the last occupations. Moreover, both the cave-sites (Blombos Cave and GSF9) reported by Henshilwood (1995:3) are located closer to the shore in the coastal cliffs to the south while the open-air sites are situated further inland. Thus, the location of the cave sites was even more remote than the earlier dated open-air sites. Hence, the change in the preference of the location of sites also included a preference of a more remote location of sites in the Garcia State Forest area. It is indicated that Blombos Cave did not only represent a social challenge because of the restricted space, but also due to the remote location.

The choice to use a cave that has restricted living space and is in such a remote location in the landscape in Garcia State Forest Nature Reserve can be seen as an indicator of the interaction with the herders and not as a voluntary choice - a motivator for the move from open-air sites to shelters. Looking once again to the evidence from Strathalan Cave, in the

Eastern Cape, it can be seen this site, which was inhabited by hunter-gatherers before herders entered their area, does not contradict the pattern seen in the Garcia State Forest. Even though Strathalan cave can be considered to be large enough for the inhabitants not to cause social stress, the abandonment of this cave-site coincides with the time when the herders first came into the area (Opperman 1999:77). Hence, Strathalan Cave might not have been remote enough for the inhabitants to escape the competition presented by the herders. The combined evidence from these two areas indicates that the interaction between the hunter-gatherers and herders was not totally amicable: it appears to have been the reason for the change in the preference of location.

### **AWARENESS WITH IDENTITY**

Several archaeologists claim that with increasing competition between populations, belonging and conformity within the group was symbolized through the use of material culture (examples are: Backwell *et. al.* 1996; Hodder 1977, 1979:451; Wiessner 1983:256-257, 270-271). In addition, identity becomes more important when interacting with a foreign population. Therefore, awareness of identity as a result of interaction is most likely an indicator of less than amicable interaction as the different identities are emphasized. Personal ornaments and projectile points are just two examples of artefact categories which have been seen to relate to identity (Henshilwood 1995:200; Hodder 1977, 1979; Kandel and Conard 2005; Wiessner 1983).

Personal ornaments in the form of ostrich eggshell beads have been recovered from the LSA layers in Blombos Cave. In fact ostrich eggshell fragments and beads have been recovered from all the sites in the Garcia State Forest area, with the exception of GSF1, 2, and 6. The sites with the majority of the beads are GSF7, followed by GSF4 and then Blombos Cave (GSF8) (Henshilwood 1995: 199-200). However, GSF4 is the only site that yielded decorated ostrich-eggshell fragments. On the basis of analysis from this site it does not appear there was any change in the occurrence of ostrich-eggshell beads or fragments that can be related to interaction with the herders. However, it must be kept in mind that GSF4 has the largest overall assemblage and has been interpreted as an aggregation site (an aggregation site is characterized by curated artefacts, production debris from bead-working and arrow making, and objects which indicate intensified ritual activity like decorated objects, art and shaman's paraphernalia, as well as a sizable site). What is being seen at this site could then be interpreted as identity markings between the various bands of local hunter-gatherers (Henshilwood 1995:200). Therefore, it can be anticipated that group identity

might have been expressed quite differently at Blombos Cave, as here it was more important to signal their differences to the herders rather than to other local hunter-gatherer groups.

The other decorative items, marine shell beads, bone beads and bone tubes, recovered from Blombos Cave, represent something new and very different when compared to the finds from the older sites. Of special note are the 1884 recovered *Nassarius* shells which can definitely be seen to mark a new awareness of identity compared to the earlier sites in the Garcia State Forest area. These items may then be indicative of marking a new sense of belonging or they could be accounted for by gift exchange (see the section on gift-exchange later in this chapter) (Bousman 2005:207-208; Hodder 1979:447-452).

Turning now to the lithic artefacts it has been noted that judging by the conformity of the shape and form of the small scrapers at Blombos Cave, the shape and form of the tool was clearly just as important as the retouched working edge. The conformity of these small scrapers could have been intentional as they served as symbolic markers for group identity.

Supporting evidence for this interpretation is presented for example by Wiessner (1983:272-273) and Smith (1986:39-40). It is observed that Kalahari San use projectile points as identity markers (Wiessner 1983:272-273). Moreover, observations suggests that microlithic assemblages are only associated with hunter-gatherers (Smith's 1986:39-40). Hence, microlithization could be a symbolic marker to the hunter-gatherers to identify them as distinct from the herders, or for that matter from other hunter-gatherer groups.

However, as small scrapers were unlikely to have been used as projectile points, there may be other functional explanations as to why the herders did not employ a microlithic technology. As a result, the personal ornaments, particularly the *Nassarius* shells, are the best indicators of awareness with identity as well as markers of interaction with herders at Blombos Cave.

## **INCREASED USE OF RITUAL**

Based on the literature, one of the main indicators of the interaction between herders and hunter-gatherers is increased use of ritual (Backwell *et. al.* 1996:84; Hodder 1979:447-450; McCall 2007b:227-229; Parkington *et. al.* 1986:314-315; Smith 1986:38; Sporton, Thomas and Morrison 1999:441; Wadley: 1989:46; Wallace 1996:21-22). This is due to the fact that in times of stress ritual activity will give an increased sense of belonging and unite a group.

Artefacts considered to be related to ritual activity are for example shaman's paraphernalia, painted stones and increased use of ochre. In addition, there also seems to be a broad consensus that rock art is an important manifestation of increased ritual activity

(Backwell *et. al.* 1996:84; McCall 2007b:229; Parkington *et. al.* 1986:314-315, 321, 324; Smith 1986:38; Wallace 1996:21-22). Twyfelpoort shelter, in the eastern Free State, is an example of a rock art site where indications of stress has been interpreted and reported (Backwell *et. al.* 1996:84; Wallace 1996).

The amount of ochre recovered in the LSA layers at Blombos Cave represents a marked difference compared to the earlier dated open-air sites. Nearly twice the amount of ochre was recovered from Blombos Cave as from all the other Garcia State Forest sites combined (Henshilwood 1995:180). This can be explained by the excellent preservation conditions in the cave (Henshilwood 1995:80), or alternatively, it can be related to ritualistic activity. Having in mind the distance the residents had to walk to acquire the material (Henshilwood 1995:178), in addition to the fact that ochre was often used for ritual purposes (Wallace 1996:23), it seems likely that ochre now played a major role in comparison to earlier times. In addition to the ochre pieces, several grinding stones with traces of ochre on them were recovered. Hence, the increased amount of ochre could be an indicator of stress due to interaction with the herders at Blombos Cave.

Other than ochre, there are no signs of trance-dancing, rock art or any other objects related to ritual activity at the cave. Compared to other sites, and to what many expect to be the manifestation of ritual and stress, Blombos Cave does not have any additional evidence to support the hypothesis of increased ritual activity, with the exception of the marked increase in the amount of ochre. This increase, however, would seem to indicate that *something* was happening with the inhabitants. Turning to Twyfelpoort Rock Shelter, in the eastern Free State, increased use of ochre has been interpreted as indicating the intensification in the use of ritual and symbolism (Wallace 1996:23). It is therefore reasonable to assume that the increased amount of ochre can be used as evidence of increased ritual activity at Blombos Cave as well. Moreover, as increased ritual activity is related to stress, the evidence of this in the archaeological assemblage at Blombos Cave can be interpreted as indicating less amicable interaction between the herders and the hunter-gatherers.

## **GIFT-EXCHANGE**

Gift-exchange is one possible reaction to economic and social stress (Backwell *et. al.* 1996:93-94; Bousman 2005:207-208; Hodder 1979:450; Parkington *et. al.* 1986:315; Wadley 1989:49; Wallace 1996:21-22). In addition, ceremonial gift-exchange between two competing populations can also be a means of maintaining the peace between them (Hodder

1979:50). Consequently, gift-exchange is an indicator of interaction, and even though it is often related to stress, the interaction might have been amicable or hostile.

However, not all populations under stress practice gift-exchange. Increase in ritual and reciprocity are regarded as mechanisms to cope with stress when it is local in origin, short-term or when it occurs in the initial stages of long-term stress (Wadley 1989:46-49; Wallace 1996). In these cases, reciprocity maintains a network between bands and makes it possible for the band under stress to move in with neighbours. However, if the stress is regional reciprocity will not alleviate the situation. If this is the case, it is anticipated that very few gift-exchange items will be recovered at the site. Instead the group may practise social exclusion (Wadley 1989:46-49; Wallace 1996:21, 22) and if the situation does not improve, the structure will eventually collapse (Wallace 1996:21).

There is some evidence of gift exchange at Blombos Cave. As noted above, the ostrich eggshell beads, the *Nassarius* beads and the small scrapers might have been exchange items. The unfinished ostrich eggshell beads would appear to indicate that some production took place at Blombos Cave, if only on a small scale. Large scale production was only found at the site of GSF4 (Ingrid Vibe, personal communication 2007). Alternatively, *Nassarius* beads were undoubtedly produced at Blombos Cave. Of the 1884 *Nassarius* shells recovered from the excavations, as many as 1517 of these were perforated: several of these also had ochre staining and wear traces (Ingrid Vibe, personal communication 2007). In common with the ostrich-eggshell beads, no tools that could have been used to produce these items were recovered. Results from experimental replication would indicate that bone awls or a crab's claws were likely piercing tools (d'Errico et. al. 2005:13).

Bone tubes and pendants of shell have also been recovered from Blombos Cave. However, even though several of them have wear traces, there is nothing to suggest that they were produced on the site.

The evidence from the personal ornaments recovered from Blombos cave can imply that the residents produced *Nassarius* shells and some ostrich-eggshell beads, exchanging them in a gift-exchange network for ornaments made of bone and shell.

In addition to the personal ornaments, the cryptocrystalline scrapers can also be seen as evidence of gift-exchange. Unlike the small silcrete scrapers, the cryptocrystalline scrapers are not produced on site. Furthermore, there are no known sources of cryptocrystalline within reach of the site. Hence, the cryptocrystalline scrapers have travelled a considerable distance before ending up in Blombos Cave: this was an exotic raw material.

The small scrapers have a standardized shape and form, but the cryptocrystalline scrapers vary slightly from the other small scrapers. They are slightly thicker than the small silcrete scrapers, and they are made in brightly coloured raw materials. In addition, all of them have suffered from extensive breakage; more so than the silcrete scrapers. Moreover, all the cryptocrystalline scrapers have secondary retouch, indicating re-use, which the silcrete scrapers do not have.

The cryptocrystalline scrapers might have been more heavily used simply because cryptocrystalline was an exotic raw material and underwent more maintenance and reuse than more easily attainable raw material types (Bamforth 1986:41, 46, 47-48). Regardless this does not affect the possible interpretation that the cryptocrystalline scrapers at the site are the result of gift-exchange.

Based on the evidence, gift-exchange could very well be an indicator of interaction characterized by stress at Blombos Cave. However, when it is taken into account that the interaction with the herders is one of the sources of the possible stress this situation was not local or short term. As a result, the evidence of gift-exchange at the cave could potentially represent the initial stages of stress, marking a time when the group still considered the situation to be local or short-term. This interpretation is supported by the fact that the other cave site, GSF9, has even less evidence of formal behaviour, such as gift-exchange. GSF9 may then be the last sign of occupation of hunter-gatherers in the area, and as such marks the collapse of the hunter-gatherer band. In this case it is not possible to determine if gift-exchange with the herders is evidence of amicable or hostile interaction. However, the presence of gift-exchange items would indicate that in either case, the inhabitants of Blombos Cave were suffering from stress.

## **BROADENING OF THE SUBSISTENCE BASE**

There is an overall pattern of decrease in the amount of formal tools following 2000BP. In general, the assemblages from coastal sites illustrate variations from the pattern at inland sites as they have even lower formal tool components than are found on inland sites. This is explained by the fact that coastal occupations relied on marine resources rather than terrestrial resources and therefore, did not require a high formal tool component (Deacon and Deacon 1999:126; J. Deacon 1984:297; Henshilwood 1995:58, 62,173,187,247; Schweitzer 1979:128,208).

Additionally, an overall change in the subsistence base has been reported at several sites following 2000BP. There are indications that the exploitation of marine, estuarine and

terrestrial resources and a whole range of domestic activities were now taking place when compared to the contents of coastal sites predating 2000BP. These changes are in most cases linked to the incoming herders (Jerardino 1998:24; Parkington *et. al.* 1986:319; Wadley 1989:49). One explanation for this phenomenon is that incoming domestic stock would compete with the wild game for grazing areas, resulting in the wild game becoming more and more scarce (Smith 1990a:57).

However, there is also evidence to the contrary indicating there was no competition for grazing. For example, there is a reported case of a tendency for a shift in the herders stock from smaller to larger sized bovids (Jerardino 1998:24). In this situation domestic stock would not compete with the wild game for grazing. On the other hand, it is also reported this is linked with a change in subsistence towards a more varied activity base due to the herders (Jerardino 1998:24). Hence, the herders could possibly have affected the subsistence base in this case as well, even though the change of subsistence base may have been of a different character than what has been reported at other sites.

Based on the fairly dense deposit, Blombos Cave has been interpreted as an occupation site where a range of activities were undertaken and not just a specialized activity site. Compared to the open-air sites, Blombos Cave represents a change from short to longer-term occupations (Henshilwood 1995:85, 234-239, 242-243). Hence, a change is indicated not only in the location of the sites as mentioned earlier, but also in the use of the site: this change is further supported by the artefact assemblage.

Based on the recovered fauna, the hunting of wild game was clearly an important activity at the cave. Unfortunately, it is not possible to compare these finds with those recovered from the earlier dated Garcia State Forest sites, but Henshilwood (1995:167-168) reports a decrease in the amount of large wild game, in favour of smaller sized animals. However, as post-depositional disturbance now has been established for the LSA levels at this site, this evidence must be regarded with caution.

Marine resources have been exploited as the main source of food at all of the Garcia State Forest sites, but the deposit at Blombos Cave indicates that other resources were of equal importance. This is reflected in the tool assemblage.

For example, the amount of small convex scrapers found at Blombos Cave indicates the importance of additional resources to the marine resources. An example of this type of behaviour is provided by Schweitzer (1979:214) who argues that small convex scrapers are an inland site phenomena linked to plant food gathering. Therefore, the lack of these tools at coastal sites is explained by the replacement of plant foods with shellfish (Schweitzer

1979:214). This would mean that the presence of the small scrapers at Blombos Cave can be used as further evidence of a more varied economic base.

No bored stones which are used as digging stick weights were recovered from Blombos Cave. Again, this can be explained by the fact that digging sticks are also normally regarded as an inland site phenomenon. Shellfish were thought to take over for plant foods as the main food source at the coast (Henshilwood 1995:57). Conversely, the two reamers recovered at the cave are normally considered to be used for making digging stick weights. As noted previously, the refitted reamer confirms that this tool was made, used and broken at this site. Thus, indicating that plant foods were a food source for the inhabitants of the cave. In addition, some of the grinding stones recovered could have been used for grinding roots and nuts.

The tool category of adzes is often believed to have been connected with woodworking (Mazel and Parkington 1981:17, 21-22). For this reason; adzes are normally related to inland rather than coastal sites (J. Deacon 1984:297; Henshilwood 1995:171, 191; Inskeep 1987:284). Finally, adzes are believed to be virtually absent from sites postdating 2000BP (Henshilwood 1995:54-55, 171). However, as a result of the recent excavations at Blombos cave, large scrapers that are highly reminiscent of adzes make up about 12% of the formal tool assemblage. Thus, the formal tool pattern at this cave seems to differ from other coastal sites dating to the same period. Conversely, there are reports of other coastal sites where the amount of adzes increased as a response to the immigration of the herders (see for example Parkington *et. al.* 1986:319). It appears then, that increased amounts of adzes at coastal sites post-dating 2000BP could imply competition and less amicable interaction with the herders.

If indeed adzes are associated with wood working, the presence of these in the assemblage might explain the presence of the reamers, as the large scrapers could have been used in the production of digging sticks. Although the digging sticks and the bored stones were not recovered, the tools to make them were. The digging sticks could have been removed from the site when it was abandoned. Thus, the reamer and the large scrapers could indicate increased reliance on other resources in addition to marine food at Blombos Cave. The grindstones, the two reamers and the amount of large scrapers with adze-like retouch recovered from the site testify to the reliance on underground plant foods (Mazel and Parkington 1981:21-22) which was obviously complimenting the diet at the coast.

However, there is yet a further possible explanation for the exceptional tool assemblage at Blombos Cave. According to Schweitzer (1979:128-129), the formal tool



component at Die Kelders, a coastal site on the Western Cape, is expedient and limited. However, at this site a formal bone and shell tool component provided possible replacements or alternatives to their lithic counterparts (Schweitzer 1979:128-129). The lack of a similar bone or shell tool component at Blombos Cave can possibly be explained by the continued presence of the formal stone tool assemblage (Henshilwood 1995:205). Conversely, grindstones, reamers and large scrapers are not tools which are easily replaced with their bone counterparts. Thus, a broadened subsistence base due to the interaction with the herders is a more plausible explanation at Blombos Cave. Since the hunter-gatherers had to change their subsistence base more hostile interaction is suggested.

### **RESTRICTED ACCESS**

A result of herders entering an area occupied by hunters and gatherers can be that access to resources that were once freely available become restricted and therefore a source of increased stress. Changes in the frequencies of raw materials and formal tools, economizing behaviour (Henshilwood 1995:177-178, 203; Wadley 1992), as well as decrease in the amount of fauna, can be indicators of this situation. This is the case at the aforementioned site of Twyfelpoort shelter, in the Eastern Free State, where a change has been observed in the preference of raw material from opaline to coarser grained raw material. This change has been attributed to the presence of immigrants (Backwell *et. al.* 1996:93-94).

As noted above the recovered fauna from Blombos Cave can not be relied upon because of post-depositional disturbance. Hence, I will rely on the lithic assemblage to determine restricted access and in particular explore the occurrence of scavenged antique artefacts found in this assemblage.

### **Scavenging of lithic artefacts as an indicator of stress**

In the lithic assemblage from the LSA layers at Blombos Cave there were 22 artefacts that bear traces of having been scavenged (see preceding chapter for detailed descriptions). Of these, 14 specimens are reworked, and several are more diagnostic of MSA (Middle Stone Age) contexts. The occurrence of antique pieces, including the MSA specimens and reworked artefacts in the assemblage, is not an unknown phenomenon in South African archaeology (Ambrose 2002:14; Backwell *et. al.* 1996:89; Inskip 1987:30, 51,148; Mitchell 2002:252; Schweitzer 1979:171, 176-177; Schweitzer and Wilson 1982:73; Wadley 1989:45; Wadley 1992:9-10; Wadley 2000:93; Wallace 1996:23, 25). However, the behavioural implications of this phenomenon are seldom explored, as more often than not these occurrences are simply

mentioned in passing. The most likely explanations for the presence of these pieces in this LSA assemblage at Blombos Cave could be post-depositional disturbance, ritual activity, or scavenging. These points will be explored in the following.

Post-depositional disturbance - the hiatus between the LSA layers and the MSA layers at Blombos Cave varies between 5-50cm deep (Henshilwood 2005:441). Therefore, it is possible that materials could have worked upwards from the MSA layers to be recovered from the surface during LSA occupation. However, no artefacts were found in the sterile sand between the two main periods and the excavator notes specifically that no such mixing occurred (Henshilwood 2005:442-444). However, as the patina on several of the pieces has been cut through by secondary retouch, this is not a likely explanation.

Ritual activity – some authors are of the opinion that these artefacts are part of a shaman's paraphernalia (Wadley 1989:45; Wallace 1996:23). MSA tools were recovered in LSA layers at both Twyfelpoort shelter and at Jubilee shelter but here they were found together with quartz crystals and therefore categorized as possibly representing something quite different than just MSA tools (Backwell *et. al* 1996:89; Wadley 1989:45; Wallace 1996:23).

It has also been suggested that the MSA tools in these contexts could simply be unused blocks of raw material (Backwell *et. al.* 1996:89). It has not been reported if any of the MSA tools from Jubilee have been reworked (Wadley 1989), but it has been noted that this was the case for pieces recovered from Rose Cottage Cave (Wadley 1992; Wadley 2000) where their presence is attributed to limited access to raw material. Additionally, four of the eight MSA tools from Twyfelpoort shelter are reported to have been reworked (Backwell *et. al.* 1996:87, 89). Thus, based on the fact that some artefacts are reworked, the suggestion of the MSA pieces as raw material is just as plausible as the MSA tools being part of a shaman's paraphernalia. Neither researcher explores these incidences any further. However, at Blombos Cave there is evidence to support the fact that the antique scavenged pieces are at least not ritualistic in origin.

As previously noted, MSA tools in an LSA context were suggested to be ritualistic in origin as they were recovered in connection with quartz crystals. However, the ritualistic nature of quartz crystals can be questioned. An example is provided by Lombard (2005). She discusses Lewis-Williams and Pearce's argument regarding quartz crystals and their spiritual significance as shaman's paraphernalia in her article concerning Howiesons Poort (Lombard 2005:45). Lewis-Williams and Pearce stated that shamans related the "glistening stones" to the light they would see while in trance. Lombard on the other hand, stresses the lack of

supporting ethnographic evidence of quartz crystals being part of shaman's paraphernalia among the San, and argues for a number of alternative explanations (Lombard 2005:45).

A search of the literature related to stones and shamanism revealed that there appears to be no record of ethnographic or modern ritualistic reworking of antique artefacts. Stones that are regarded as spiritual are "untouched" rounded smooth pebbles, often with a special colour or shape (for example, Heaven and Earth Jewellery 2007; Mystic familiar 2005; Rocks and Minerals 2007).

However, not all of the MSA and antique pieces are reworked (Backwell *et. al.* 1996:89; Wadley 1989:45; Wadley 1992:9-10; Wallace 1996:23). Yet, to enable them to be classified as MSA tools they must have been struck. In other words, the pieces which are not recycled are also not of the preferred shape for the LSA. Moreover, although some archaeologists assume that the antique pieces were recognized "for their great antiquity and link to the past" (Wadley 1989:45; Wallace 1996:23), this assumption might not be justified. Based on the fact that the residents produced stone tools, it can be assumed that they would recognize an antique piece as humanly worked, but it can not be assumed that they would understand its antiquity. To them it might simply have been knapped by another hunter-gatherer band with another technique. If this was the case, this could potentially be a source of stress as another band was present in the area they inhabited. Furthermore, if they did indeed recognize it as a technique of the past, it can not be assumed that they would have any comprehension of how far back in time that could be. It is more likely they recognized the quality of the raw material.

Moving away from the spiritualistic explanations, alternatively the presence of the antique pieces could indicate that they were collected as blocks of raw material (Backwell *et. al.* 1996:89; Wadley 1992). At Twyfelpoort shelter the overall amount of fine-grained raw material in the assemblage decreased over time, but it was still the preferred raw material for the production of formal tools (Backwell *et. al.* 1996:89, 93-94). The same situation is observed at Blombos Cave. This occurrence could possibly indicate limited access to fine-grained raw material at both Twyfelpoort shelter (Backwell *et. al.* 1996:89, 93-94) and at Blombos Cave.

Reworked MSA flakes have also been recovered from Nelson Bay Cave (Inskeep 1987:51, 148). Additionally, in common with Blombos Cave and Twyfelpoort shelter, no source of fine-grained raw material has been reported near by Nelson Bay Cave to account for the fine-grained raw material found at the site. Hence, it is presumed that the fine-grained

raw material has been brought by the residents when they returned to the cave from their seasonal cycle (Inskeep 1987:289-290).

Arguably, there seem to be a link between the access to fine-grained raw material and the scavenging of lithic artefacts from other sites. However, in the case of Nelson Bay Cave this phenomenon was not related to stress, as Inskeep (1987:289-290) relates the limited access to the distance to the source, rather than by restrictions placed on the residents by an immigrant population. However, others do relate this to stress caused by the interaction with the herders (Inskeep 1987:301-302). There were herders in the area of Nelson Bay Cave from  $1100 \pm 80$ BP, and even though the excavator relates the abandonment of the cave to the fact that the hunter-gatherers simply lost interest in the coastal environment, H. J. Deacon interprets this abandonment to competition with the herders (referred in Inskeep 1987:301-302). Hence, even though the distance to the source caused limited access to the raw material, the presence of herders might have resulted in further restrictions. Thus, the scavenging of artefacts can be regarded as an indicator of less amicable interaction at Nelson Bay Cave.

Conversely, the situation at Rose Cottage Cave may be different. Social stress was reported in the area by European travellers in the 1830's (Wadley 1992:8). However, the assemblage does not display any significant changes, except for the pattern of scavenging of MSA artefacts (Wadley 1992). Regardless, scavenging as evidence of stress is questioned, as the recovered fauna in the assemblage contradict interpretations of restricted access (Wadley 1992). In addition, all the artefacts at this site were made from fine-grained raw materials: here it was not limited to tool-production. If limited access had caused social stress, it is likely that the fine-grained raw material would have been restricted to tool-production. On the other hand, the use of fragments in the production of tools does indicate some economizing of the raw material (Wadley 1992:8-11).

Thus, without the account from the European travellers, stress would probably not have been determined at Rose Cottage Cave as scavenging is questioned as evidence. Consequently, it is concluded by some that lithic assemblages may not be used as an indicator of social changes (Wadley 1992:11). Additionally, the evidence used to discredit stress at Rose Cottage Cave is contradictory. In the case of Rose Cottage Cave, the high number of formal tools was used as an argument to *discount* the possibility of stress (Wadley 1992:11). On the other hand, there are also examples where this same piece of evidence has been used to *support* the possibility of stress (Backwell *et. al.* 1996:93). In line with this, evidence in the form of a high number of formal tools can not be used to discount the possibility of stress at Rose Cottage Cave. However, when considering the reworked pieces at this site, a pattern

emerges which *could* possibly be used as evidence of stress. The reworked pieces at Rose Cottage Cave are most often turned in to large scrapers/adzes (Wadley 1992:9). This indicates that scavenging was necessary to meet the demand for larger pieces. Hence, in the case of Rose Cottage Cave where stress has been reported, scavenging of artefacts may in fact be an indicator of this stress.

However, there are also examples of sites where scavenging is not an indicator of hostile interaction. One such example is found at the site of Die Kelders (Schweitzer 1979:171), where MSA artefacts have also been reported to be found in the LSA deposit. However, in this case, limited access can not be inferred because fine-grained raw material has been found at a source near the cave (Schweitzer 1979:171); meaning that restricted access due to interaction with the herders can not explain the occurrence of the scavenged pieces at this site.

Die Kelders is the only site other than Rose Cottage Cave where it has been reported what artefacts have been scavenged and how they were reworked (Schweitzer 1979:171, 176, 177). At this site there are virtually no formal tools in the assemblage, but 32 of the 39 utilized artefacts are classified as MSA tools based on the technique of manufacture and the morphology of the pieces. However, there is no patina or secondary retouch on these pieces (Schweitzer 1979:171, 176, 177) and consequently, it is claimed to be impossible to determine whether or not these pieces were reworked. Furthermore, the utilized pieces are regarded as unimportant as only seven of these originated in the LSA levels (Schweitzer 1979:171, 176, 177). However, the fact that all the scavenged artefacts were utilized pieces would indicate that specific pieces were chosen and scavenged. Additionally, at this site, antique pieces were readily available on the surface nearby the cave: there was virtually no effort involved in collecting these pieces (Schweitzer 1979:171). Thus, Die Kelders might be an example of a site where reworking of artefacts was chosen because it was the most efficient strategy for tool production; scavenging was not the result of restricted access.

Another example of this behaviour pattern is found at the site of GSF7 where two scavenged pieces were recovered. The amount of silcrete artefacts recovered from this site relative to the other raw materials exceeds that found at Blombos Cave (Henshilwood 1995:175). Thus, it would appear there were other reasons behind the scavenging of raw material at GSF7. Probably these pieces were recycled for the same reason as the pieces at Die Kelders; simple efficiency. As such, the utilized pieces are not unimportant even though they were not originally manufactured in the LSA. This behaviour pattern is significant for

understanding the LSA inhabitants and how they maximized the efficiency of stone tool production.

In some instances it can be clearly demonstrated that the occurrence of antique pieces can be interpreted as an indicator of stress. At the very least the behavioural implications for the incidence of these artefacts must to be taken into consideration and explored more fully before alternative explanations such as spiritual behaviour are concluded. In the following section the evidence from Blombos Cave will be compared to the information above in order to determine if the presence of scavenged artefacts at this site are indicators of hostile interaction with the herders and stress.

### **The evidence of scavenging of antique artefact from Blombos cave**

Some raw material changes are evident when comparing the lithic assemblage at Blombos Cave with the other Garcia State Forest sites. After 2000BP it can be observed that the amount of quartz increases, while the occurrence of the use of silcrete decreases markedly. The amount of quartzite used, on the other hand, stays more or less the same - this is related to easy access to this particular raw material (Henshilwood 1995:175-178). The decline in the use of silcrete has been suggested as signifying that it was no longer considered to be a desirable raw material for the production of formal tools (Henshilwood 1995:203).

However, as approximately 99% of the tools are produced in silcrete, it was, in fact, still the preferred raw material for tool production (table 4). Moreover, it was still the preferred material type even though quartzite was readily available and silcrete was over 30km away (Henshilwood 1995:175-179) making it much more costly to procure than the coarser grained raw material.

The same is found to be the case at Twyfelpoort shelter. Even though the amount of fine-grained raw material declined in overall numbers it was still the preferred raw material type for the production of formal tools (Backwell *et. al.* 1996:93-94).

The size of the silcrete nodules and waste at Blombos Cave indicates that the available silcrete cores were very small, which is reflected in the size of the scrapers. The tiny cryptocrystalline nodule and one silcrete nodule, as well as the cortex flakes/cortex tools and the debris material support this. Larger tools would have been impossible to produce from the available materials. This is suggested by the fact that the larger tools in the assemblage are all “one-offs” - the rest of the operational chain for production is missing. Scavenging then might have been the only way to acquire fine-grained raw material in large enough blocks to produce the large scrapers. Both small scrapers and large scrapers were obviously a necessity

since the procurement of the necessary raw material must have come at a considerable cost, but it was a cost they were willing to pay.

Although hafting could explain the standardized shape and form of the small scrapers (Keely 1982:798-799, 802), it can not explain their size. Larger tools from Blombos Cave are known to have been hafted. In addition, the larger silcrete tools recovered have been determined as being produced elsewhere. They were brought into the cave in their present state and only resharpened at the cave. This would imply that it was the size of the nodules that were available that limited the size of the scrapers and not the hafting. Thus, even though the function for which they were intended might have limited the size somewhat, in accordance with Bamforth (1986) the available raw material was the critical factor determining the size of the tools. They could not have made the small scrapers bigger even if they wanted to, and the small scrapers might have been the best way of economizing the existing silcrete nodules (Mitchell 1995:75).

The cores in the assemblage also support this interpretation that the available silcrete nodules were small. The core-reduction technique employed for the silcrete cores differs considerably from that of the quartz and quartzite cores. While the quartzite cores, and especially the quartz cores, were only struck a few times before they were discarded, the silcrete cores were used to exhaustion.

There are two different types of silcrete cores. One of them has an amorphous multidirectional pattern aimed at maintaining a suitable platform and producing tool blanks in the form of small flakes that are almost square. The other type is small bipolar cores: the products of these cores could not be determined. As a result of experimentation, Barham (1987) demonstrated that bipolar cores are the end product of an exhausted core, and that the technique "...provides a means of maximizing resources..." and "a strategy for coping with a distinct set of raw material limitations" (Barham 1987:49).

The interpretations presented by Barham (1987) further indicate that the residents of Blombos Cave were experiencing restrictions in the use of raw material. The core-reduction technique of silcrete focused on maximizing productivity.

It has also been claimed by some that the bipolar technique is widely used when additional non-technological aspects (for example: social activities, subsistence activities, warfare, etc.) demand more time and energy (Jeske 1992). In situations like these, there will be less time and energy available for tool production. Subsequently, there will be fewer formal tools and lithic technology in general will be cruder. The bipolar technique would be efficient in such a situation (Jeske 1992:467, 468, 472, 477). In addition, it is reported that the

bipolar technique was used by Paleo-Indian groups in North America to recycle old tools made from high quality fine-grained raw material when these were not available locally (Jeske 1992:472, 477).

However, this situation does not entirely correspond to that at Blombos Cave. Even though the formal tool component declined at this site when it is compared to the other Garcia State Forest sites, it does not seem to be an adaptive response by the inhabitants. Based on the fact that the inhabitants spent considerable amounts of time and energy on acquiring the fine-grained raw material, the decline in use was probably due to limited access to the raw material sources. Hence, at Blombos Cave, the bipolar technique employed to work the silcrete cores as well as the small scrapers, clearly demonstrates a need to economize the raw material.

The fact that cortex flakes, core rejuvenation flakes, exhausted tools and fragments were used in the production of formal tools, further adds to the interpretation that there was a shortage of fine-grained raw material caused by restricted access. These pieces would not have been used if silcrete was abundant and there was no need to economize the raw material.

Additionally, the 13 cryptocrystalline pieces also indicate economizing behaviour. Cryptocrystalline has even better knapping properties than silcrete, and would therefore have been regarded as even more valuable. Based on the different colours, none of the cryptocrystalline pieces originated at the site. The pieces are of a tiny size, with the nodule measuring approximately 20mm in diameter being the largest. Nevertheless, only four of these specimens are tools indicating that the inhabitants collected even the tiniest of fragments with the hope of getting some use from it.

When comparing the results of the lithic analysis from Blombos Cave and the other sites in Garcia State Forest, with research done by Bamforth (1986), it becomes evident that the inhabitants of Blombos Cave experienced severe shortages of raw material, probably due to limited access. Bamforth (1986:40) criticizes Binford (for example Binford 1980) for ignoring local patterns of raw material availability in his model of curated technologies. This critique could also be used against Bousman (2005). Even though a curated technology would be the most efficient technology during times of stress (argued by Bousman 2005) and with more complex subsistence strategies (argued by Binford 1980), local raw material shortages is the defining criteria for tool curation as it is a response to such shortages (Bamforth 1986:38-41, 46-49).

An efficient technology is defined as a technology which fulfils the requirements of the specific group with minimum expended effort (Bamforth 1986:39). If there were



shortages of a raw material necessary for tool production, then conservation of the raw material would be more important than efficient energy expenditure during production (Bamforth 1986:39). A result of raw material conservation is that broken tools in a lithic assemblage tend to be made in the non-local raw material (of which there are shortages) and the complete ones are made from the local and abundant raw material. In addition, the local material is used to produce tools that are expediently used (Bamforth 1986:41, 46, 47-48).

This conforms to what was found to be the case in the LSA lithic assemblage from Blombos Cave. The results presented by Bamforth (1986:41, 46, 47-48) are evident in this assemblage. The broken small scrapers in the tool assemblage are made out of silcrete and cryptocrystalline substances. The small scrapers produced in the most exotic raw material have also suffered the most breakage. Quartzite is the most abundant local raw material at the cave, but quartzite is only used in an expedient fashion. It can then be concluded that there was a shortage of fine-grained raw material at Blombos cave: the herders were restricting the access to the source which was more than 30km away.

At Blombos Cave the scavenged artefacts may be part of a strategy to conserve the fine-grained raw material (Bamforth 1986). To recycle a tool would only require resharpening of the piece and potentially would also save on production time. On the other hand, the use-life of this specific tool would be considerably shorter as it had already been in use and abandoned. Hence, it would need to be replaced more quickly and more energy would be spent in the search of a new nodule or artefact. However, as fine-grained raw material is not readily available at Blombos Cave but still necessary, recycling of antique pieces, tool curation and reuse would be an efficient strategy to acquire and conserve it.

This restricted access to fine-grained raw material implies more hostile interaction, and restricted access would add further stress on the residents of Blombos Cave. As a result, scavenging has been determined to be an indicator of stress at Blombos Cave.

## **SUMMARY**

In this chapter, the criteria of the nature of interaction were examined and discussed based on the evidence from Blombos Cave. The criteria, which include: the location of the site, the awareness of identity, increased use of ritual, gift-exchange, broadening of the subsistence base and restricted access, implies a more hostile relationship and interaction characterized by stress between the hunter-gatherers who inhabited Blombos Cave, and the herders in the vicinity. The location of the site, the broadening of the subsistence base and restricted access

are the criteria which have the most substantial evidence. The evidence will be summarized in the next chapter.

## Summary and Conclusion

The aim of this thesis was to contribute to the ongoing discussion about the hunter-gatherers and the herders by exploring different indicators of interaction between the two groups and what these indicators can say about the nature of the interaction between them. The *chaîne opératoire* approach was used in this study, specifically to analyze the lithic assemblage from the LSA layers at Blombos Cave which formed the material basis for this examination. These points have been covered in the previous chapters, and will be briefly summarized in this chapter.

Even though interaction has been the subject of considerable research, the results have often proven to be inconclusive. One area that has proven to be a particular stumbling block is that there is no clear and indisputable criteria as to what form the interaction between these groups could take, how the various groups could be identified, and how this would manifest itself in the archaeological record.

In order to examine the interaction between the two groups, criteria for identifying the inhabitants of the site first needed to be explored. Based on the literature on the subject several criteria were chosen: the amount of domestic fauna in the assemblage, the accessibility of the site, the size of ostrich eggshell beads and pottery. However, due to reported inconsistencies when using the tool assemblage as a marker (Henshilwood 1995:59-60; Parsons 2000:64-66; Wilson 1996:80-82), this can not be regarded as an identifying criterion. In addition, the information that could be extracted from an examination of ostrich eggshell beads and pottery has also proven to be inconclusive. This is because not enough research has been conducted to assign ostrich eggshell beads either to herders or hunter-gatherers, and in the case of the analysis of pottery, the results have been proven to differ based on the quantifying methods used (Wilson 1996:80, 82). Consequently, that leaves only the amount of domestic fauna and the location of the site which can be used as conclusive criteria.

The literature also provided several indicators of the interaction between herders and hunter-gatherers. Through the course of investigation specific indicators of the interaction were chosen for testing: the presence of domestic fauna in the assemblage, the location of the site, awareness with identity, increased use of ritual, gift-exchange, broadening of the subsistence base and restricted access. Unfortunately, not enough domestic fauna were recovered at Blombos Cave to be able to use it as a criterion at this site.

One factor that joins all the previous research is the use of the same methodological approach which is based on typology and quantification. As briefly outlined in chapter 3, there are specific limitations related to this methodology. Consequently, to overcome these limitations a new approach, the *chaîne opératoire*, was applied to the lithic analysis in this study of interaction. To date, the *chaîne opératoire* approach has only been applied to MSA contexts in South Africa, hence making this study one of the first LSA studies where this approach has been employed.

The LSA sequence from Blombos Cave was chosen as the material basis in this study because it was recently excavated, well documented, and dates to the period when herders arrived in the area. Moreover, based on the initial research on these layers it was an excellent test case as the excavator had concluded that the inhabitants were hunter-gatherers, and it was suggested that the interaction with the herders had first been amicable but relations had deteriorated over time (Henshilwood 1995: 61-62, 154-155, 203, 248). Hence, Blombos Cave presented a unique opportunity to examine the nature of interaction between the herders and the hunter-gatherers.

The identity of the herders at Blombos Cave was determined by the excavator based on the presence of domestic fauna in the assemblage and the location of the site. Henshilwood had drawn the conclusion that the site was then a hunter-gatherer site on the basis of the low number of recovered domestic fauna and the difficulty of access to the cave. If the site had been a herder site, more fauna would have been recovered, and in any case the accessibility of the site makes it basically impossible for herders with domestic stock to inhabit the cave (Henshilwood 1995:155, 248). On the other hand, the evidence for increasing hostile relationship between the herders and the hunter-gatherers and restricted access at Blombos Cave was suggested based only on the decreased amount of silcrete in the cave compared to older dated sites in the area (GSF1-7), and the inaccessibility of the cave (Henshilwood 1995:61,154, 203). Consequently, the suggested criteria for determining the nature of interaction, as noted above, remained to be tested on the Blombos Cave assemblage. In the following paragraphs, the evidence which can be used to determine the nature of interaction at the cave will be briefly summarized.

A change in the preferred location of a site is suggested as a criterion to determine the nature of interaction. This is because this change coincides with the immigration of the herders (Henshilwood 1995:154-155, 248; Parkington *et. al.* 1986:322-324; Smith 1986:39-40; Smith 1990a:57; Smith *et. al.* 1991:89; Wallace 1996:20). Further, it has been suggested that cave sites and shelters are more likely to encounter social problems and stress due to the

restricted living space options when compared to open-air sites (Walthall 1998:225). Consequently, it can be suggested that this move to more restricted sites and areas is unlikely to have been a voluntarily choice by the inhabitants. As such, a change in the preferred location can indicate hostile interaction with the herders.

In line with this criterion, Blombos Cave confirms the pattern of inhabiting smaller caves in more remote areas after the herders entered the area, when compared to the period before 2000BP when open-air sites were the norm (see table 2). In addition, the size and the dimensions of Blombos Cave confirm that the cave was not the ideal living site for the hunter-gatherers during the occupation. Accordingly, the nature of interaction at Blombos Cave was probably characterized by hostility which would have caused the inhabitants stress.

Another criterion to determine the nature of interaction is awareness with identity (examples are: Backwell *et. al.* 1996; Hodder 1977, 1979:451; Wiessner 1983:256-257, 270-271), in the form of for example personal ornaments and projectile points (Henshilwood 1995:200; Hodder 1977, 1979; Kandel and Conard 2005; Wiessner 1983). In the case of interaction with a foreign population, increased awareness of identity is assumed to indicate less amicable interaction as different identities are emphasized. The recovered personal ornaments, especially the pierced *Nassarius* shells, and other artefacts such as the small scrapers, could be symbolic markers of identity at Blombos Cave. However, the standardized morphology of the scrapers can also have different explanations, and hence, only the personal ornaments are likely to be identity markers. Thus, the personal ornaments indicate awareness of identity, which again could possibly indicate less amicable interaction and in all probability stress at Blombos Cave.

Increased ritual activity is one of the criteria to determine the nature of interaction which has the most consensus in the literature (Backwell *et. al.* 1996:84; Hodder 1979:447-450; McCall 2007b:227-229; Parkington *et. al.* 1986:314-315; Smith 1986:38; Sporton, Thomas and Morrison 1999:441; Wadley: 1989:46; Wallace 1996:21-22). The only object which would be considered to be evidence of increased ritual activity in the LSA at Blombos cave is ochre. At this site, twice as much of ochre is recovered in comparison to all the other Garcia State Forest sites combined. Hence, the increase of ochre implies the increase of some activity involving ochre. This activity might be ritual in origin, as suggested by the evidence from for example Twyfelpoort Rock Shelter (Wallace 1996:23). Hence, the increased amount of ochre could be an indicator of interaction characterized by stress at Blombos Cave.

Gift-exchange is a criterion of interaction which is related to stress, but it can also signify both amicable and more hostile interaction (Backwell *et. al.* 1996:93-94; Bousman

2005:207-208; Hodder 1979:50; Parkington *et. al.* 1986:315; Wadley 1989:49; Wallace 1996:21-22). Possible gift-exchange items recovered from Blombos Cave include, once again, the personal ornaments and the cryptocrystalline scrapers. Some of the beads are obviously produced on the site (*Nassarius*), while others are not (the bone tubes). In addition, the cryptocrystalline scrapers are not produced on site, and they are exotic due to the raw material which has no known outcrop in the area. Hence, these artefacts could have been part of a gift -exchange system. Consequently, these types of artefacts could indicate either hostile or amicable interaction at Blombos Cave but as suggested by the literature, either way, gift-exchange indicates that the interaction at Blombos Cave was characterized by stress.

A broadening of subsistence base by the hunter-gatherers has also been suggested as a possible criterion of interaction with the herders, as this happened subsequent to the immigration of the herders (Jerardino 1998:24; Parkington *et. al.* 1986:319; Wadley 1989:49). For example, coastal sites usually have remains related to coastal resources like shellfish and artefacts related to shellfish processing. However, at Blombos Cave there are also recovered artefacts which are normally associated with inland sites rather than to coastal sites. The small scrapers, the reamers, and the large scrapers are artefacts commonly connected to plant food processing on inland sites (J. Deacon 1984:297; Henshilwood 1995:57, 171, 191; Inskeep 1987:284; Schweitzer 1979:214). The existence of these artefacts at Blombos Cave can be interpreted as indicating a broadened subsistence base, which could then mean potential hostile interaction with the herders in the form of competition over resources.

The indicator of interaction characterized by hostility and stress which is most prominent at Blombos Cave is restricted access. This has been confirmed through the results of the application of the *chaîne opératoire* on the lithic assemblage. On the basis of the results from the application of this methodology it was noted that several artefacts are lacking their entire operational sequence at Blombos Cave. Most of these artefacts are not diagnostic of the LSA, and several of them are clearly reworked as a thick layer of patina on these pieces has been cut through by secondary retouch. As presented in the discussion, these artefacts are demonstrated to be the result of scavenging and not post-depositional disturbance from upward movement within the cave or from any ritual activity.

The small-scrapers, the silcrete cores, the debris and knapping waste products, and the “waste” pieces used in tool production, are evidence that the only fine-grained raw material available to the inhabitants were small nodules. At the same time, an examination of the tool

assemblage indicates that there was a need for larger tools. To fulfil this need most of these tools were produced on the scavenged antique artefacts.

Consequently, there is strong evidence testifying to restricted access to raw material sources at Blombos Cave: this can also indicate hostile interaction with the herders. Further, scavenging of artefacts can be a strategy to overcome the resulting raw material shortages, and can therefore be seen as an indicator of stress at Blombos Cave.

In summary, the results of this re-examination of the LSA layers at Blombos Cave has not only confirmed the excavator's original interpretation regarding restricted access and increasingly hostile interaction between the herders and hunter-gatherers, but has also revealed a range of new information regarding various forms of interaction between these groups within this period of occupation. It is argued that the hunter-gatherers had a strained relationship with the herders which resulted in a number of changes, as seen in the preference of location of the site, in the personal ornaments indicating awareness of identity, in increased amounts of ochre indicating ritual activity, as well as personal ornaments and exotic tools indicating gift-exchange. Further indications of stress are the recovery of tools at Blombos Cave that are more diagnostic of inland sites than of coastal sites as evidence of broadening of the subsistence base, in restricted access to raw material resources and finally, in the particular behaviour pattern of scavenging of antique tools as a site-specific indicator of stress. Individually some of the criteria at Blombos Cave would have been too weak to permit conclusions to be formed regarding the interaction between the herders and the hunter-gatherers in this area and the level of stress it caused, but in combination these results form a clear and convincing pattern.

However, the original interpretation that the interaction between the herders and the hunter-gatherers began amicably but deteriorated over time has not been upheld by this re-examination. The results of refitting indicate intermixing between the layers, resulting in the decision to analyze the assemblage as a single unit. The exact time frame for this period of occupation then remains an open question. Regardless of the length of duration of the habitation during the LSA by the hunter-gatherer of Blombos Cave it can only be concluded that the nature of interaction between them and the herders and was hostile and characterized by stress.

## Glossary

South African and European terminology and lithic classifications differs in some respects. This thesis will be read by both users of European terminology and users of South African terminology. Hence, I have included a short glossary of some the expressions/terminology I use which could potentially cause confusion for either reader.

<i>Adze</i>	Large scraper with abrupt retouch (Villa et. al. 2005:409). See figure 11.
<i>Antique artefacts/tools</i>	Artefacts/tools which are not diagnostic of the context in which they were recovered; but of an older context. These artefacts did not originate at the site where they were recovered.
<i>Debris</i>	Shapeless humanly manufactured fragments where the original intent can not be detected
<i>Knapping waste products</i>	Flakes or flake fragments which are not retouched, predetermined or conceived as potential tool blanks.
<i>LSA</i>	Later Stone Age (22 000years ago-historical times)
<i>MSA</i>	Middle Stone Age (250 000 years ago-22 000 years ago)
<i>Reamer</i>	Tools which are used for making the hole in the bored stones that are attached to digging sticks to weigh them down. “The working end is therefore round in cross-section and has been smoothed to a blunt pint by utilization The butt of the tool opposite the working end is generally roughly flaked to improve the hand grip. The length varies but is usually at least 100mm. Preferred raw materials are quartzite and hornfels” (J. Deacon 1984:393).
<i>Reworked artefact</i>	Artefact that has been worked again (secondary retouch), and thereby converted into another tool; giving the artefact a new lifecycle.
<i>Scavenged artefact</i>	An antique artefact that has been intentionally collected by somebody much later on. Can then have been reworked.
<i>Tools</i>	All artefacts that have been further modified.



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