

**San Personal Ornaments from the Later Stone Age at Blombos
Cave and Blomboschfontein, southern Cape,
South Africa**



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“What people wear, and what they do to and with their bodies in general, forms an important part of the flow of information – establishing, modifying, and commenting on major social categories such as age, sex and status, which are also defined in speech and in actions”.

Andrew Strathern (1981:15).

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ABSTRACT

A critical factor that distinguishes modern humans, *Homo sapiens*, from animals is the ability to communicate using symbols. One example is the use of personal ornaments. People in all cultures use personal ornaments to express something about themselves, and a wide range of functions and meanings can be applied to different ornamentation. The personal ornaments from three Later Stone Age sites in the Blomboschfontein Region, southern Cape, South Africa were analysed in order to determine variation within the manufacture of the ornaments, and how these functioned symbolically within the Later Stone Age society. The makers of these ornaments were the San, the indigenous people of southern Africa. The first method applied is microscopic analyses of the ornaments recovered from the sites to confirm their authenticity and to examine the manufacturing techniques used, as well as a range of possible functions of the ornaments. Ethnographic analogy from contemporary Khoesan culture is used as the second method in this thesis to establish the reasons for and the symbolic systems behind the manufacture and use of the ornaments.

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CHAPTER 1: INTRODUCTION

1.1 Introduction

It is generally agreed today that what most clearly distinguishes the human species from other life forms is the ability to use symbols (Renfrew & Bahn 1991:385). Speech and language are probably the best examples of such symbols of expression. However, since language itself does not fossilize, researchers are forced to rely on archaeological remains to provide clues to the culture and social behaviour of prehistoric people without written language (Hodder 1982:10, d'Errico *et al.* 2005:2). Personal ornaments, decorated tools, utilized pigments, engraved bones and stones, burials, grave goods, systems of notation, musical instruments, complex bone technologies etc. are all categories of potentially symbolic material culture. Of particular importance are the personal ornaments, beads and pendants used for adornment of body, clothing or accessories. Not only does their skilled production require sophisticated techniques, but personal ornaments are a form of symbolic artefact that can only assume cultural relevance in a complex social system of symboling and of value concepts (Bednarik 2003:89). Personal ornaments, as well as other kinds of body adornment (tattoos, body painting, cicatrices etc.) are used in a number of ways and for several purposes, and provide various forms of information about the wearer and his or hers status in a society (Bednarik 2005:1). At one level one might believe that personal ornaments are used simply to beautify the human body (Dubin 1987). This however, is without doubt an oversimplification. In modern western society, for instance, a finger ring might symbolize that the person wearing it is married and committed to another person. A recent study by Vanhaeren (2005) has identified fourteen different functions of personal ornaments in modern hunter-gatherer or other small-scale societies that might be of use to the study of prehistoric ornaments. Among these are expressions of group belonging or status within a group, ideology and religion, function as exchange media etc.

The transition from Middle Stone Age (MSA) to Later Stone Age (LSA) in most of southern Africa occurred around 22 000 years ago. The major difference between the MSA and the LSA lies in the material culture; new tools and a series of technological innovations mark this change in the archaeological record. The LSA is subdivided into the Robberg, Oakhurst/Albany, Wilton, Interior Wilton/Post-Wilton and Herder-Pottery Wilton/Smithfield time periods (Table 1.1). Each of these subdivisions represents differences in material culture

and the way in which people living in a region over a period of time preferred to manufacture their tools and other objects (Deacon & Deacon 1999:110). The introduction of domesticated animals and pottery-making occurs in the last LSA time period, at ca. 2 000 years ago. The LSA in southern Africa ends at ca. 200 years ago. The technological innovations in the southern African LSA include, among others, an extensive use of decorative items or personal ornaments like beads and pendants made of shells and ostrich eggshell. A few examples of personal ornaments and other decorative items are also found in MSA contexts, but they are not abundant in the archaeological record until the LSA. Seashell ornaments found at inland sites shows interaction between inland and coastal peoples (Mitchell 1996a). Ostrich eggshell is the most common raw material for manufacture of beads in the LSA, and the material is still used for bead-making today. During the last 10 000 years there is consistent evidence for deliberate burial of the dead, and LSA burials are often elaborately decorated with ostrich eggshell beads and marine shell beads and pendants, suggesting a symbolic meaning for the ornaments (Deacon & Deacon 1999:139-140).

I was given the opportunity to study in detail LSA personal ornaments from nine coastal sites located in the southern Cape, South Africa. The purpose of my study is to determine variation within the manufacture of personal ornaments and how these functioned symbolically within the LSA Khoesan society. The Khoesan are the indigenous peoples of southern Africa (see section 1.2), and my dissertation is based on studies of their personal ornaments recovered from the LSA levels from nine coastal sites in Garcia State Forest (GSF) and Blombos Nature Reserve, in the Blombosfontein region, southern Cape, South Africa. These sites are named GSF 1-9; the GSF 8 site is also known as Blombos Cave. The sites were excavated by Professor Henshilwood in 1991 and 1993 as part of his PhD project on Holocene archaeology in the Garcia State Forest (Henshilwood 1995). The excavations at Blombos Cave are ongoing with the focus now on the MSA levels. Findings from these levels have made an impact on the debate concerning the origin of modern human behaviour. Finely worked bone tools, bifacial points, a fragment of an engraved bone, engraved ochre pieces and deliberately perforated and worn *Nassarius kraussianus* beads that are among the earliest example of personal ornaments yet recovered, support an early origin of modernity in Africa at about 75 000 years ago (Henshilwood *et al.* 2001a, Henshilwood *et al.* 2002, d'Errico *et al.* 2003, d'Errico *et al.* 2005).

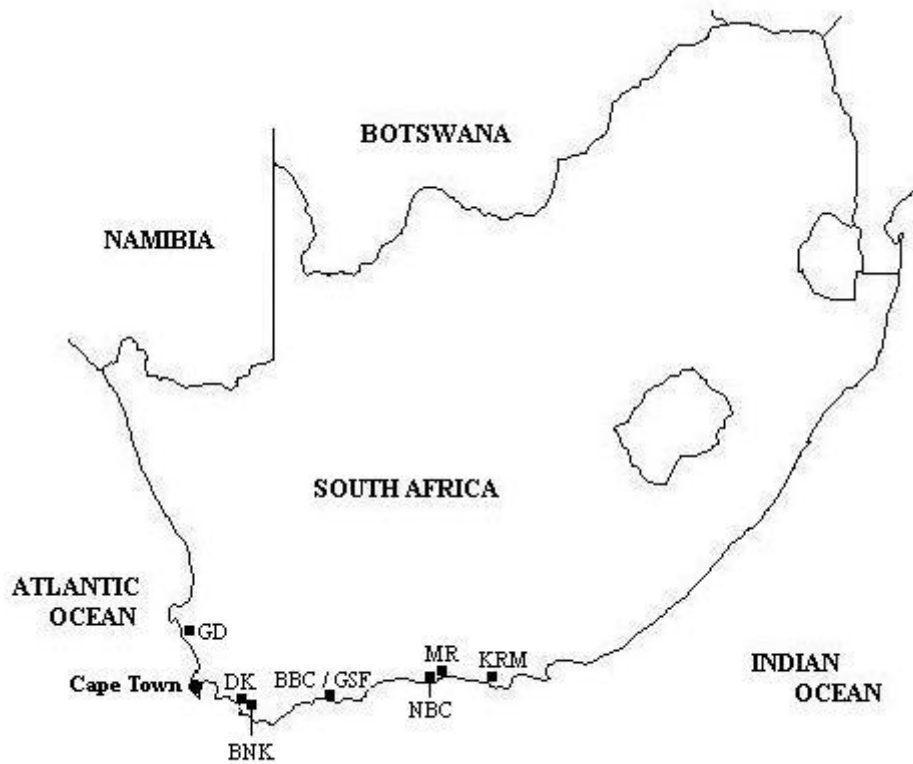


Fig. 1.1 Map of southern Africa showing the archaeological sites mentioned in the text.
Key to abbreviations: GD Geelbek Dunes, DK Die Kelders, BNK Byneskranskop, BBC Blombos Cave, GSF Garcia State Forest, NBC Nelson Bay Cave, MR Matjes River, KRM Klasies River Mouth.

Table 1.1 The LSA sequence in southern Africa.

Years BP	Coastal	Inland
22 000 - 12 000	Robberg	Robberg
12 000 - 8 000	Albany	Oakhurst
8 000 - 4 500	Classic Wilton	Wilton
4 500 - 2 000	Late Wilton or Post Wilton	Interior Wilton
2 000 - 200	Herder/Pottery Wilton	Smithfield

1.2 The Khoesan

The San are the indigenous people of southern Africa and for perhaps 20 000 years and more (Deacon & Deacon 1999) these hunter-gatherer people solely inhabited the area. About 2 000 years ago Bantu-speaking groups started migrating southward, from the east and west coasts of Africa, introducing live stock, pottery and the herder/pastoralist way of life to the southernmost parts of the continent. Around the same time as the Bantu migrations into southern Africa took place, the Khoekhoen arrived in the Cape. There has been considerable debate concerning the kinship between the Khoekhoen and the San. Although early historians speculated that the Khoekhoen, like the Bantu, also had migrated from the north, biological tests show that the Khoekhoen and the San share the same ancient southern African genetic heritage and can be traced back to the beginning of modern humanity (Deacon & Deacon:177). It seems clear that the Khoekhoen were originally San hunter-gatherers who adopted the practice of herding sheep and later cattle from neighbouring Bantu groups.

The word 'Khoisan' (now preferred to Khoesan) was coined by Leonhard Schultze in 1928 and is a collective term for the Khoekhoen and the San. There has been much confusion and controversy regarding the names used to refer to these two people. This confusion has been caused partly because the people themselves did not have any generic term in their vocabularies to describe their collective identity as hunter-gatherers and herders. Equally problematic was the first European travellers and settlers' need to classify the indigenous people into different generic groupings. Confusion in the grouping and naming of the two different economic groups led to many different terms in the early ethnohistoric accounts, the most common being "Bushmen" (hunter-gatherers) and "Hottentots" (herders). Today these terms, especially the latter, are considered derogatory by some groups, and it is now common to separate between the two different economic groups with different nomenclatures: 'San' (term used by the Khoekhoen) to describe the hunter-gatherers and 'Khoekhoen' (meaning 'men of men' or 'people of people' in Nama orthography) to describe the herders. However, there is still considerable debate around how to recognise the differences between them in the archaeological record. Various criteria, including physical features and anatomical size, language and economic system have been put forward, but the application of each criterion on its own has proved to be limited. Additionally, some people are difficult to classify;

“transitional categories for people falling in the grey area between the two may include hunters acquiring stock and becoming herders, herders losing stock and reverting to hunting and gathering, and various forms of clientship” (Henshilwood 1995:43).

Yet, in spite of differences in language and other aspects of culture, the Khoesan peoples share a great number of common features like territorial organization, gender relations, ritual, cosmology and kinship (Barnard 1992:3). As one researcher puts it:

“Perhaps the simplest way of viewing the Khoekhoen and the San is to accept that they came from the same stock. At some point, in the distant mists of time, they followed separate routes of development for reasons we will never know, and we should therefore consider them to be variations of an African human theme of great antiquity.” (Mountain 2003).

As a matter of form, I use the terms San, Khoekhoen and Khoesan in this thesis.

1.3 Approaching the problem

This thesis focuses on both the physical properties of the LSA personal ornaments recovered from the GSF site, as well as their social meanings and how they functioned symbolically within the LSA societies. I address three main questions of particular importance: how were the LSA beads and ornaments made, how were they used and what were they used for?

Different methods can be applied for interpreting and understanding the manufacture, use and meaning of personal ornaments. For the purpose of this thesis scientific analysis of the archaeological material itself, laboratory research, such as microscopy analyses and other observations of the physical properties of the ornaments, was carried out. In addition ethnographic material on Khoesan people was searched to find reference to how they made and used (and to a certain degree still makes and use) their ornaments. This combination of laboratory research of the archaeological artefacts and use of analogies from extant Khoesan societies will help provide some answers to these questions.

i) Khoesan ethnography

One way of trying to understand the meaning of personal ornaments from the past is to study the ethnography of modern hunter-gatherer and other small-scale societies. The ethnographic records are descriptions of human social phenomena described by anthropologists,

ethnographers, ethnoarchaeologists, historians and others who have travelled to, and studied societies different from their own. Ethnography can provide valuable insights for archaeologists on how people in the past may have lived, especially with regard to their social structures, religious beliefs and other aspects of their culture. The use of analogies from living societies and cultures can enrich the results of archaeological research and can be used to construct an archaeological history of the people and their forefathers. Some of the descendants of the LSA Khoesan people of southern Africa live today as hunter-gatherers or pastoralists and live today, to a certain degree, as their ancestors did. The San are among the most ethnographically studied indigenous peoples, particularly the Kalahari groups, and although ethnographic material of Khoesan groups from other parts of southern Africa is also available, it is on a much smaller scale.

The Khoesan until recently used artefacts similar to the LSA people, and we can be quite confident that the people who lived 20 000 years ago, maybe even further back in prehistory, are the direct ancestors of the modern Khoesan. However, it is important to keep in mind that the Khoesan people of today are not the makers of LSA artefacts (Deacon & Deacon 1999:130). People with this technology did not necessarily have the same beliefs, speak the same language, have the same social structure etc. as today's Khoesan. Moreover, it is unrealistic to assume that social organisation and religious beliefs have remained the same for hundreds and thousands of years. Thus, the available ethnographic methods and material must be used with care when used to interpret findings from the past.

ii) Laboratory Research

The excavated material from the GSF sites is stored and curated at the Iziko South African Museum in Cape Town, and this is also where the laboratory analyses were carried out. The purpose of these analyses was first to establish the authenticity of the ornaments, second to determine the manufacture techniques performed on the raw material from which the ornaments were made, and third to find out how the ornaments were used. The physical properties of an ornament can tell us something about manufacture and use. For instance, a detailed microscopic study of perforations or ground edges of a shell ornament can give clues as to how the ornament was made, whereas the appearance and location of worn areas on the shell might give an indication of how it was worn. A detailed description of the physical properties of each bead and ornament from the GSF sites and Blombos Cave analysed was recorded and all the information entered into a Microsoft Access database.

1.4 Thesis layout

Chapter 2 focuses on the archaeological sites that provided the material analysed for this thesis. It provides a brief presentation of previous work done at Blombos Cave and the other GSF sites, along with a short presentation of the personal ornaments recovered from the sites. Chapter 3 explains how Khoesan ethnography can be used as a method to interpret the archaeological material and remains of an extant society through the use of and analogy. Records of the manufacture and use of personal ornaments found in the ethnographic records are presented in detail. A discussion of the applicability of ethnography to interpret societies from the past is provided. The theories and methods applied to the scientific analyses of the GSF and Blombos Cave personal ornaments, and the laboratory research methodology, are explained in Chapter 4. The results of the laboratory analyses are in Chapter 5 and a discussion of the results follows this presentation. A final summary and conclusions are presented in Chapter 6.

CHAPTER 2: SITES AND MATERIAL

2.1 Location and dating

Garcia State Forest (GSF) is a 3.5 sq. km state controlled nature reserve 20 km west of Still Bay on the southern Cape coast of South Africa. Adjacent to the forest is a private nature reserve, Blombos Nature Reserve. Five archaeological sites on GSF and four in Blombos Nature Reserve with LSA deposits, named GSF 1-9 according to age, were excavated by Henshilwood in the period from 1991 to 1993 (Henshilwood 1995). As previously mentioned, GSF 8, or Blombos Cave, also has MSA deposits that are contributing directly to the debate concerning the origin of modern human behaviour (see Chapter 1.1). All nine GSF sites have been radiocarbon dated by conventional dating of shell and charcoal samples and AMS determination of sheep bones. The sites fall within the range of 6560 ± 70 BP to 290 ± 20 BP (Henshilwood 1995) (Table 2.1). A sterile layer of aeolian dune sand (seen as DUN in Fig. 2.4) separates the LSA layers from the uppermost MSA phase in Blombos Cave. The dune sand and the MSA layers have been dated by different methods, including thermoluminescence (TL), single-grain laser luminescence (SGLL) and single and multiple aliquot optically stimulated luminescence (OSL) to secure accurate dates (Henshilwood *et al.* 2001a). The dune sand is dated to $\sim 70\ 000$ years and the uppermost MSA layer is dated to $72\ 700 \pm 3100$ BP (Jacobs *et al.* 2006).

Table 2.1 GSF site dates, locations and types. Data provided by Henshilwood (1995). 400 years has been subtracted from the uncalibrated shell dates to correct for the marine reserve effect (Henshilwood *et al.* 2001a).

Site Name	Layer/Unit/Square	Dating Material	C14 Age BP	Calibrated Date	Location
GSF 1	Sq. B1	Shell	6560 ± 70	5363 BC	Open air shell midden
GSF 2	Sq. I3	Shell	6340 ± 70	5198 BC	Open air shell midden
GSF 3	Sq. B2	Shell	5560 ± 70	4322 BC	Open air shell midden
GSF 4	Sq. DB21	Shell	5280 ± 70	3985 BC	Open air shell midden
GSF 5	Sq. C2	Shell	5120 ± 70	3802 BC	Open air shell midden
GSF 6	Unit 6/12HBL	Shell	3670 ± 60	1981 BC	Open air shell midden
GSF 6	Unit 6/2 ASBA	Shell	3230 ± 70	1399 BC	Open air shell midden
GSF 7	Unit 7/1YSL, Sq.B2	Shell	2710 ± 50	801 BC	Open air shell midden
GSF 7	Unit 7/4HL3, Sq.B2	Shell	2770 ± 25	846 BC	Open air shell midden
GSF 8	Layer 5, Unit MC4, Sq. E4	Charcoal	1840 ± 50	225 AD	Cave
GSF 8	Layer 5, Unit MC4, Sq. E4	Shell	2000 ± 40	74 AD	Cave
GSF 8	Layer 5, Unit MC4, Sq. E4	Shell	1880 ± 50	133 AD	Cave
GSF 8	Layer 5, Unit MC4, Sq. E4	Shell	1940 ± 50	133 AD	Cave
GSF 8	Layer 1, Unit COK, Sq. E4	Charcoal	290 ± 20	1651 AD	Cave
GSF 9	Unit OH, Sq. A2	Charcoal	480 ± 45	1443 AD	Shelter
GSF 9	Unit OH, Sq. A2	Shell	540 ± 50	1493 AD	Shelter

Personal ornaments from the GSF sites are described by Henshilwood (1995), but further sorting of the material was required in order to extract any ornaments that might have been missed during excavations or previous sorting of the material, and also to extract the ornaments that might have been missed during excavations from the Blombos Cave LSA material from 1997 and later excavations. The ornaments recovered from the Blombos Cave LSA levels during the 1997-2000 excavations had not been analysed or described.

2.2 The sites

The GSF sites are all coastal sites located within a 1.5 km radius. Seven of the sites, GSF 1-7, are open station shell middens and predate 2 700 BP. GSF 8, a cave, and GSF 9, a shelter, postdate 2000 BP (LSA levels) (Henshilwood 1995:8). GSF 1, GSF 2, GSF 3, GSF 4, GSF 5 and GSF 7 are located in Garcia State Forest. GSF 6, GSF 9 and GSF 8 (Blombos Cave) are located on Blombos Nature Reserve to the south of Garcia State Forest (Fig. 2.1). GSF 1-5 and 9 are considered to be single occupation sites. GSF 7 and Blombos Cave are multiple occupation sites. GSF 6 seems to have been a shellfish dump or processing area that was repeatedly re-used. GSF 5 may have been a shell processing site used during a single visit. The excavated material from all nine sites was sorted as described in section 2.3 below. However, as GSF 1, 2, 3, 5 and 9 yielded only a small amount of personal ornaments, and GSF 6 contained none, only materials from GSF 4, GSF 7 and Blombos Cave were chosen for further analysis (see Chapters 4 and 5). A short description of the three sites follows below.

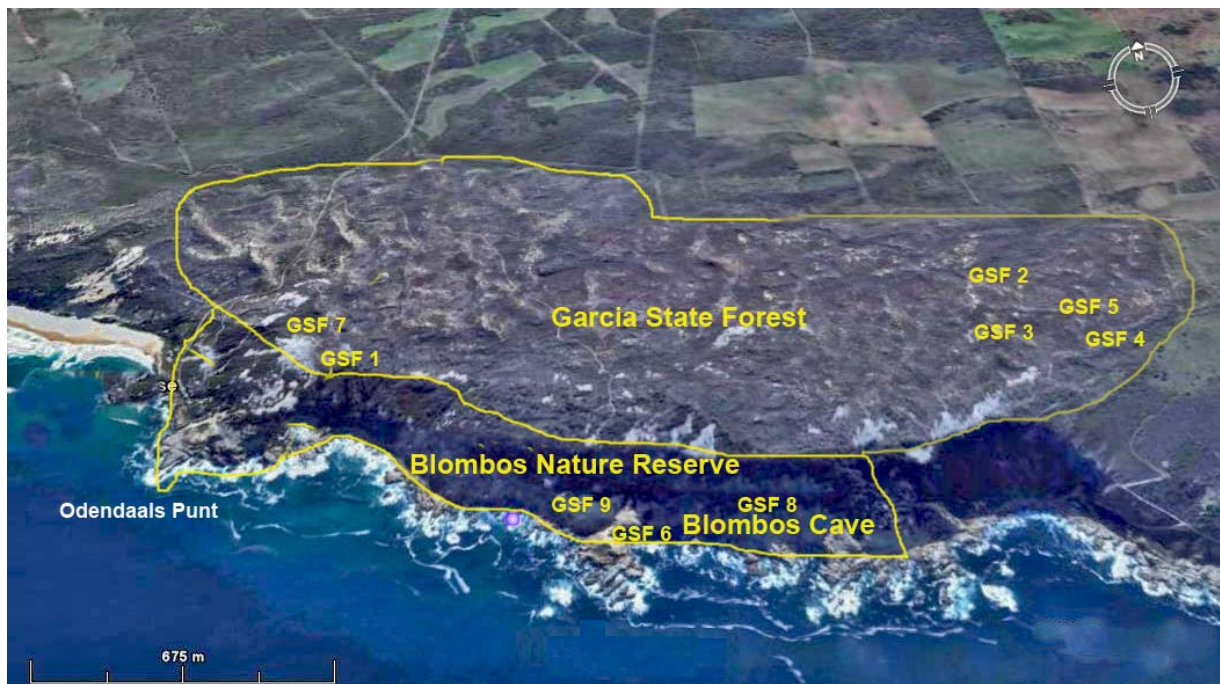


Fig 2.1 Map of Garcia State Forest and Blombos Nature Reserve. (Courtesy of C. Henshilwood)

i) Garcia State Forest Site 4 - GSF 4

GSF 4 is dated to $5\ 280 \pm 70$ BP, thus fitting within the Classic Wilton period. This period is characterized by stone artefacts with small scrapers, a wide variety of backed tools and segments, and ornaments and polished bone tools (Deacon & Deacon 1999:119). GSF 4 is a single occupation site elevated at 160 meters above sea level and is 800 meters from the coast (Henshilwood 1995). It is the largest site at GSF, covering 2 500 square meters. Wind and water action have exposed most of the surface of the site. An *in situ* deposit of 400 square meters, 5-10 cm thick, is underlain by a grey to black humic soil which also forms the surrounding matrix. White, aeolian dune sand underlies the remaining 2 100 square meters of talus scatter. The principal components of the site are marine shell and stone, predominantly silcrete with some quartzite. Microlithic backed scrapers and segments in silcrete are ubiquitous across the whole site.

ii) Garcia State Forest Site 7 - GSF 7

GSF 7, dated to $2\ 710 \pm 50$ BP – $2\ 770 \pm 25$ BP, is a Late Wilton site. Small scrapers and backed tools, but relatively small numbers of segments, characterizes this period. GSF 7 is located 500 m from the coast and is elevated at 110 m above sea level (Henshilwood 1995). The full extent of the site could not be determined as a layer of dune sand at least 1.5 meters deep mantles the deposit. The uppermost deposit lies in a matrix of yellow sand directly on

the surface of a dense, dark humic layer. GSF 7 is a multiple-occupation site with four stratigraphic units (Henshilwood 1995:89). The deposit is composed of marine shell, bone, ostrich eggshell and stone.

iii) Garcia State Forest 8 - GSF 8 / Blombos Cave

GSF 8, Blombos Cave, is elevated at 34.5 meters above sea level and lies some 100 meters from the sea and is situated on the southern end of GSF in the Blombos Nature Reserve (Henshilwood 1995, Henshilwood et al. 2001a). The six LSA layers in Blombos Cave (Layers 1, 2, 3, 4, 5a, 5b and 6) are dated to between 290 ± 20 BP and $2\ 000 \pm 40$ BP (Henshilwood 1995:99) and represents different occupations in the cave (Table 2.2). All occupations fit within the Herder/Pottery Wilton period. Two kinds of assemblages may be found that date to this period, and these may or may not contain pottery: 1) with informal stone artefacts on usually coarse grained rocks or 2) with pottery and stone tools on fine-grained rocks such as indurated shale, chalcedony, quartz or silcrete, which may have small scrapers with some backed bladelets but rare sediments (Deacon & Deacon 1999:119). The deposits in Blombos Cave fit best within the second category. Deposits within Blombos Cave extend over about 50 square meters, with a further 18 square meters of deposit forward of the drip line (Henshilwood *et al.* 2001a). Bone and organic materials are excellently preserved at Blombos Cave, due to the percolation of calcium-rich ground water and the presence of airborne halites, and the lower LSA layers of the cave deposit, particularly layers 4 & 5, are characterised by dense deposits of mammal and fish bone, and marine shell (Henshilwood 1995:84). Underlying the LSA layers is a relatively sterile layer of yellow dune sand in which the MSA layers lies directly below.



Fig. 2.2 Blombos Cave entrance to the right and coastal view. (Photograph by C. Henshilwood)

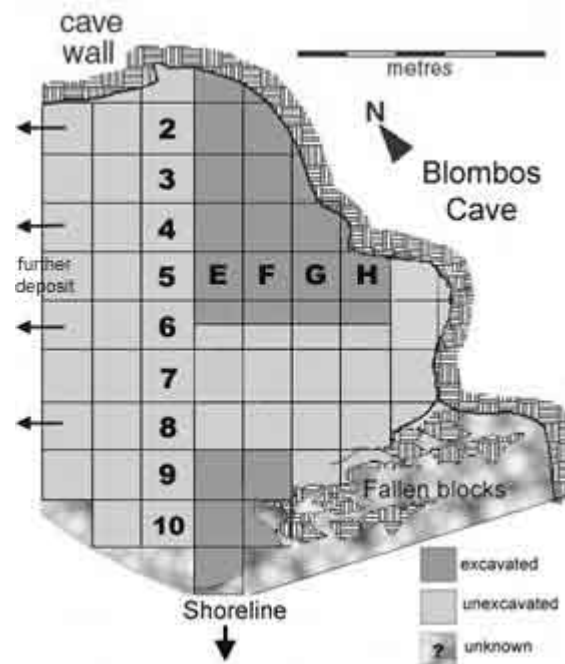


Fig. 2.3 Excavated areas in Blombos cave (Courtesy of C. Henshilwood).

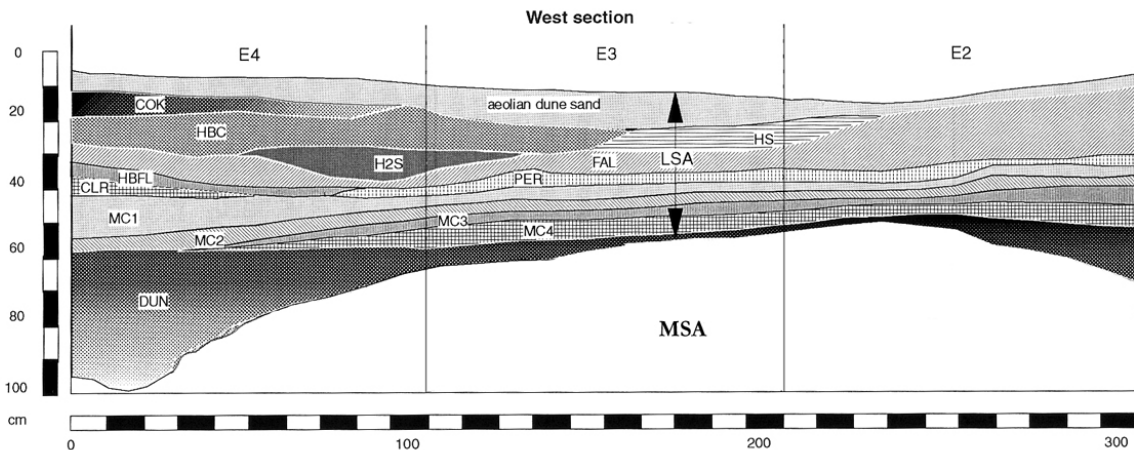


Fig. 2.4 West section of Blombos Cave LSA stratigraphy squares E4, E3 and E2 (From Henshilwood 1995).

Table 2.2 Blombos Cave stratigraphy (From Henshilwood 1995).

Layer 1			SUR				
	BBS	H S	ABS	H2S	COK	CBS	HBS
					HBC/HbCOK		HBSUR
					BSBCOK		
Layer 2			GAL				
			AAL				
	FLIM	LIM	FAL				
	HBFLIM	HBLIM	HBFL				
			PER				
Layer 3	BSACOC	WSACOC	COC '98	HACOC			
	CLR	DAS	ABD	HBCOC			
Layer 4	SC4	MC1	MCIMC4	MCITUR			
	MC123	MC2	PIN	TUR			
	HM123	MC3	HIMC3	MC13			
			HBM2				
Layer 5a	HARS	MC4	BMC4	RSMC4			
			HBM4	BSM4			
Layer 5b			RS1				
			KAR	RSKAR			
			KAR2	RSKAR2			
			HBKAR2				
			RAK1 & RAK2	THRAK			
			RSRAK	HBRAK			
Layer 6	BSDUN	DUN	GSDUN	RS			
	BASE OF DUN	TRS		SCRS			
Layer 7			BRI				
							HIATUS LAYERS

2.3 Later Stone Age Personal ornaments from the Blomboschfontein region

The shell, bone and residual material excavated from all nine GSF sites was sorted to extract personal ornaments that might have been missed during excavations or previous sorting of the material. The sorting of the material started in the first week of June and finished in the second week of October 2006. Over 100 Iziko South African Museum standard sized boxes of archaeological material recovered from the 1991, 1993, 1997, 1998, 1999 and 2000 Blombos Cave and GSF excavations were sorted. This process yielded over 800 “new” *Nassarius kraussianus* shells and several ostrich eggshell beads from Blombos Cave and a few “new” findings of ostrich eggshell beads from the other GSF sites. The total numbers of personal ornaments from the GSF sites are listed below.

i) Ostrich eggshell beads

Beads made of ostrich eggshell are by far the most frequent ornament type found in the LSA, and they are still produced and in use today, sewn onto clothing or made into accessories like necklaces, bracelets etc. All GSF sites, but one - GSF 6, yielded ostrich eggshell beads. The total numbers of ostrich eggshell beads (broken and complete, finished and unfinished) from the GSF sites are listed in the table below (Table 2.3).

Table 2.3 Ostrich eggshell beads at GSF sites 1-9.

Site	Total Beads
GSF1	13
GSF2	5
GSF3	10
GSF4	92
GSF5	5
GSF6	-
GSF7	110
GSF8 – Blombos Cave	290
GSF9	1



Fig. 2.5 Ostrich eggshell beads (Courtesy of S. Donà).

ii) *Nassarius kraussianus* shell beads

Nassarius kraussianus is a scavenging gastropod that lives in muddy estuarine flats ranging from Still Bay to Mozambique on the east coast and also on the west coast of South Africa (Kensley 1973). The estuaries closest to Blombos Cave are the Duiwenhoks and Goukou Rivers, located 20 km west and east of the cave respectively (d'Errico *et al.* 2005:10). Forty one perforated *N. kraussianus* beads were recovered from the 75 000 years old MSA levels in Blombos Cave during 1992-2002 and are amongst the earliest proved personal ornaments recovered in the world (d'Errico *et al.* 2005). Similar beads made on the same genus, *Nassarius*, are reported from Algeria and Morocco (Vanhaeren *et al.* 2006, Bouzouggar *et al.* 2007). These are dated to 90 000 and 82 000 BP *N. kraussianus* beads are found in varying amounts at other LSA sites in South Africa (see Chapter 4). In the GSF LSA deposits, *N. kraussianus* tick shells were found only at Blombos Cave and a total number of 1886 shells were recovered. Of these are 367 shells not perforated, but are counted into the total number as it is highly likely they were intended for bead manufacture. This is explained further in Chapter 5.2.



Fig 2.6 and Fig 2.7 *Nassarius kraussianus* shells (Left Courtesy of G. & P. Poppe, right C. Henshilwood).

iii) Other ornaments

Other types of ornaments, apart from ostrich eggshell and *N. kraussianus* beads were found only in the Blombos Cave and GSF7 sites. Blombos Cave yielded four *Glycimeris connollyi* pendants, one *Turbo sarmaticus* pendant, three *Conus sp.* pendants, one shell pendant (mother of pearl), three bone rings (of these one is broken) and one *Bullia digitalis* pendant. One *Turbo sarmaticus* pendant (not perforated) and one *Conus sp.* pendant was recovered from the GSF7 deposits.

iv) Other artefacts

In addition to the ornaments, a piece of string made from plant material was recovered from Blombos Cave. It is not possible to determine whether its use was related to any of the ornaments from Blombos Cave, but it may have been used to string beads. Regardless of its purpose, it is nevertheless interesting to see how strings of plant material were made. An analysis of the string is presented in Chapter 5.

Un-perforated ostrich eggshell fragments recovered from all sites were also counted, even though it could not be determined whether these were beads in the making. These fragments are listed below (Table 2.4).

Table 2.4 Numbers of ostrich eggshell fragments recovered at GSF sites 1-9.

Site Name	Fragments	Decorated fragments
GSF1	97	-
GSF2	1435	-
GSF3	334	1
GSF4	1149	19
GSF5	47	-
GSF6	7	-
GSF7	1020	-
GSF8 / Blombos Cave	79	-
GSF9	1	-

2.4 Summary

The nine LSA sites located in Garcia State Forest and Blombos Nature Reserve are all situated on or close to the coast. They are of varying dates, locations and use. All sites date to within the last 6 500 years and can be placed within the Classic Wilton, Late/Post Wilton and Herder/Pottery Wilton periods. Personal ornaments were found on all the sites, except for GSF6. GSF 6 is a processing site and it is unlikely that it was used as an overnight campsite, as it is exposed to particularly strong winds (Henshilwood 1995:77). This is probably the reason why no ornaments were recovered from GSF 6. GSF 7 and GSF 8 are multiple occupation sites; hence the higher number of ornaments. The high number of ostrich eggshell beads at GSF 4 can probably partly be explained by the large size of the site. Ostrich eggshell beads are the most common ornament type in GSF, but other types of ornaments made from marine shell are found at the sites. *N. kraussianus* shells were found in Blombos Cave only. Blombos Cave is the site with the most occupational layers, and also the one with the highest quantity of personal ornaments.

CHAPTER 3: KHOESAN PERSONAL ORNAMENTS IN THE ETHNOGRAPHIC RECORD

3.1 Ethnographic analogy as a method to interpret archaeological remains

The so-called “ethnographic record” is based on observations of anthropologists, ethnographers, ethno-archaeologists, travellers and historians who have recorded their impressions of the lifestyles of societies mostly different from their own. Ethnography in the traditional sense has its roots planted in the fields of anthropology and sociology. The method relies heavily on up-close, personal observation and possible participation, by trained researchers (Genzük 2003:1). People's behaviour is studied in everyday contexts and the focus is usually on a single setting or group, of relatively small scale. The ethnographic focal point may include intensive language and cultural learning, intensive study of a single field or domain, and a blend of historical, observational, and interview methods (Genzük 2003:1). The use of ethnographic analogies from living societies and cultures can enrich the results of archaeological research and can be used to help reconstruct past lifeways. Given a similar set of circumstances, archaeologists can in some cases infer that ancient societies lived similarly to their modern counterparts. Ethnography can provide insights into how people in the past may have lived, especially with regard to their social structures, religious beliefs and similar aspects of their culture.

Although ethnography, in the traditional sense, can be a useful tool for understanding or interpreting cultures from the past, it is still unclear how to relate most of the insights generated by anthropological research to archaeological investigations (London 2000). This may be due to the lack of emphasis that ethnographers place on the material remains created or discarded by societies. Studies of ancient peoples rely on inferences derived from the material culture of the past. Ethnoarchaeology is a method that fills the gap that traditional ethnography has not addressed. It focuses more on the material culture of people; how artefacts were made, why they were used and what they were used for. Ethno-history is the study of ethnographic cultures and indigenous customs by examining historical records, and uses both historical and ethnographic data as its foundation.

3.2 Ethnographic research in southern Africa – a brief history

As previously mentioned, the Khoesan are among the most studied indigenous peoples in the world, and although they used to inhabit large parts of southern Africa they are now “clustered” into fragmented areas in Botswana, Namibia, Angola and the northern Cape region of South Africa. While, travellers, historians and early ethnographers have recorded their impressions of Khoesan societies since the beginning of the European colonization, anthropological research based on on-the-spot investigations did not commence until the 1950's. Ethnoarchaeological research in sub-Saharan Africa only began as a distinct study in the late 1960's and early 1970's.

The most detailed descriptions from South Africa on the technology, economy and religious beliefs of the San are from a small group of /Xam San recorded in the 1870s. German linguist Dr. Wilhelm Bleek and his sister-in-law, Lucy Lloyd interviewed four /Xam men, //Kabbo, /Han#Kass'o, Dia!Kwain and #Kasin, and one /Xam woman, #Kasin's wife !Kweten-ta-//Ken. Some of the records were published by Bleek as *Specimens of Bushman Folklore* in 1911 and by Bleek's daughter Dorothea for the journal *Bantu Studies* in the 1930's. However, the /Xam San are chiefly known through folklore studies, and little is known of /Xam kinship, ecology or political organization (Barnard 1992:13). Until the middle of the 19th century the /Xam San inhabited several areas of the north-western Cape Colony, but as they were hunted by white farmers, the /Xam San were already dying out at the time ethnographers first encountered them, and they are now extinct (Barnard 1992:79).

The first systematic study of the Khoesan peoples was Schapera's (1930) classic work *The Khoisan Peoples of South Africa*. This was based on the descriptions of early travellers, missionaries, hunters and explorers. The best known of all Khoesan peoples is the Kalahari !Kung San. Among the early ethnographers are the Marshall family in the 1950's (Thomas 1959, Marshall 1976) and Richard Lee and Irven DeVore in the 1960's (Lee 1979a, 1979b and 1984, Lee & DeVore 1976). Among the latter are Lee's and DeVore's students; Biesele on symbolism and communication (1976), Draper on gender and socialization (1975), Katz on the medicine dance (1982), Shostak's biography of a !Kung woman (1981, 1983), and Yellen on ethnoarchaeology (1977). Later, and especially worth mentioning here, is Polly Wiessner's (1982, 1984, 1986) contribution on material culture and reciprocity.

Studies on other San and Khoekhoen groups have also been conducted elsewhere in varying degrees (Silberbauer 1981, Tanaka 1980 etc.) Much of this, and the previously mentioned work, have been summed up and revised in Alan Barnard's book *Hunters and Herders of Southern Africa* (1992).

In this chapter I present some references to the manufacture, use and meaning of Khoesan personal ornaments derived from the ethnographic record (i.e. ethnographic, ethnoarchaeological and ethnohistoric). Ornaments made of sea shells are seldom mentioned, obviously because most of the Khoesan peoples studied did not, or do not, live in close vicinity to the coast. However, references to ostrich eggshell beads and ornaments made of metals and beads traded from Europeans or Bantu-speaking groups are numerous. These references can give some insight and clues as to how the LSA Khoesan people made and used their personal ornaments, and similarly to the meanings and functions of the LSA personal ornaments found in Blombos Cave and the other GSF sites.



Fig. 3.1 Map of southern Africa showing areas of Khoesan groups mentioned in the text.

3.3 The manufacture of Khoesan personal ornaments - examples from the ethnographic record

The most common bead type in the southern African LSA archaeological record are those made from ostrich eggshell (Robbins 1999). They are still being manufactured today, although imported glass beads have taken over much of their previous role. The beads are either made up into women's aprons, armbands, necklaces, headbands, women's coronets etc., or sewn on to clothing, pouches and satchels (Silberbauer 1980:227, Marshall 1976:304). They are also used to make harnesses for babies who have not yet learned to walk (Silberbauer 1980:227). According to Silberbauer (1980:227), an apron measuring 22 x 28 cm and containing 4 000 beads, represent nearly 200 hours of work, while a complete harness represent some 60 hours of work. The manufacture of beads and bead-working is typical women's work among the Khoesan (Marshall 1976, Schapera 1930, among others).

Silberbauer (1980:227, on the G/wi San) is among those who have recorded the process of manufacture of ostrich eggshell beads:

“The shell is broken into pieces about 1 x 1 cm and a hole is drilled through each piece by means of an awl twirled between the palms. This takes about 30 seconds. Between 120 and 150 such pieces are then strung together on a sinew thread. The assembled string is placed against a firm surface, such as the side of a mortar, and rubbed with a piece of gastropod calcrete (a soft stone). In about 20 minutes the string is ground to an even cylinder, that is, each piece is rounded off into a disc.”

A similar account is found in Schapera's *The Khoisan Peoples of South Africa* (1930:66-67):

“The eggshell is broken into small pieces which are softened in water and pierced with a small stone or iron borer. They are then threaded on to a strip of sinew and the rough edges chipped off with a horn. Soft bark fibre is next twisted between the beads, making the chain very taut, and the edges are finally rubbed smooth with a soft stone. The beads thus made are used as single chains or worked into more complicated ornaments. “

The tools involved in the manufacturing processes described above are all made of natural materials (stone or products from hunted game), which also were available in the LSA. A more recent study of the manufacture of ostrich eggshell beads, carried out by British researcher Chris Wingfield in 1993 (Wingfield 2003), shows how the tools involved in the

manufacture of ostrich eggshell beads in some areas have been replaced with modern ones. In D'Kar, a relatively urbanised area in Botswana, the tools involved are shop bought items like nail cutters for roughly shaping the beads, and twine from maize meal sacks to string them. Wingfield's study shows that archaeologists must consider that radically different resources in a landscape would be accompanied by a radically different social environment. The technological differences depend on the resources in the landscape. Furthermore, the significance of ostrich eggshell beads has presumably altered significantly with the availability of imported items of adornment and the reasons for making beads could also be quite different today. Still, whichever tools were used, the process of bead-making seems to be much the same: small pieces of ostrich eggshell are pierced with a tapering object. The pierced pieces are then threaded together; the rough edges are chipped of and finally rubbed smooth.

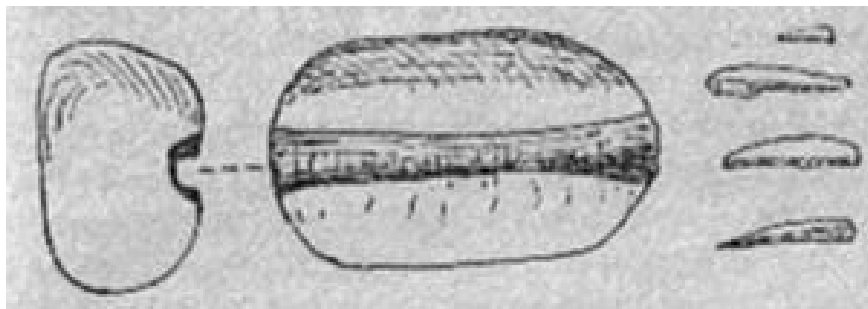


Fig. 3.2 Probable tools for ostrich eggshell bead production. Stone borers and rubbing stone found at Wilton sites (From J.D. Clark 1959).

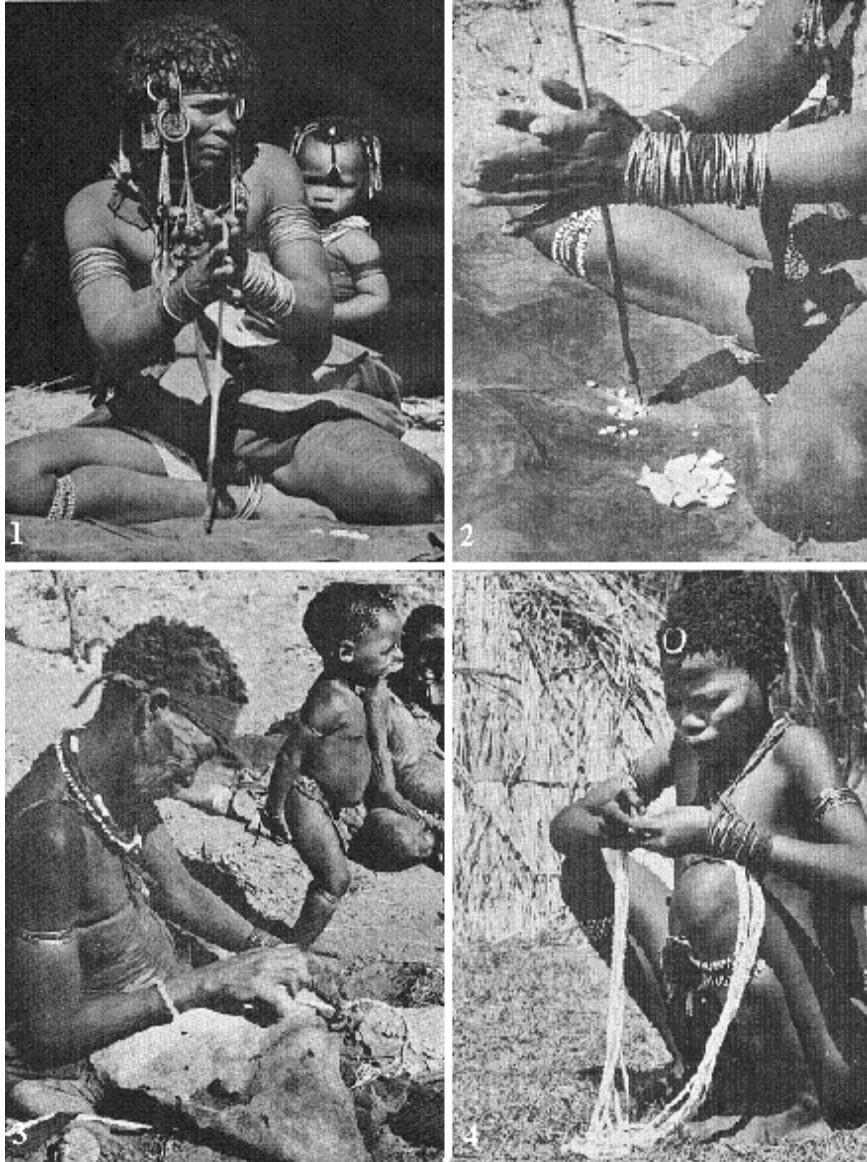


Fig. 3.3 Kalahari San women making ostrich eggshell beads
1 & 2: perforating eggshell
3: grinding perforated eggshell
4: finished string of beads (From Mertens 1966).

References describing how seashell ornaments and *N.kraussianus* beads were made are absent from the ethnographic record. Shell beads are some of the ornament types present in the Blombos Cave and GSF collections. There are a few references however to how shells were worn in hair, sewn on to clothing or integrated in other beadwork (Schapera 1930, Schapera & Farrington 1970).

3.4 The use and functions of Khoesan personal ornaments - examples from the ethnographic record

To claim that people wear personal ornaments simply to adorn themselves is clearly an understatement (see Chapter 1.1). The 14 different functions of personal ornaments identified by Vanhaeren (2005) are: aesthetic expression and self-assertion, courtship, ethnic marker, social marker, individual marker, ritual objects, offerings, amulets and talismans, prophylactics, exchange media, inalienable possessions, communication systems and counting devices. Some of these functions can be applied to the ornaments of the Khoesan peoples. The functions I have identified by surveying the Khoesan ethnographic record are described in the following sections.

i) Everyday use

There can be no doubt that the ornamentation of body and clothing has been, and still is, important to the Khoesan peoples. Although most Khoesan today have abandoned the hunter-gatherer lifestyle, and although their dressing today is highly influenced by western clothing, some people have kept some of the traditions of adorning themselves with traditional beadwork and ornaments. Ostrich eggshell beads are still being manufactured today, although as previously mentioned, imported glass beads have taken much of their previous role. Some of the earliest accounts we have on the Khoesan provide clues as to how these people (some of them now extinct) used to wear their ornaments.

From the writings of Johannes Gulielmus de Grevenbroek “An Account of the Hottentots” (1695) (Schapera & Farrington 1970:253), we are told about the Cape Khoekhoen

“Both men and women cover their private parts with a sheepskin or some other kind of skin. Their hair is sprinkled over with various ornaments and gauds, including sea-shells, and many things cast up by the sea; their ears are heavy with pendants [...]. Hanging from

the neck, ears and thighs the women wear chains, loops, pendants, threads, cords and strings of coral, or copper, ivory, iron or glass beads; on their fingers are various rings, and on both wrists, as a rule, similar treasures.”

Olfert Dapper (1668) (Schapera & Farrington 1970:37) writes about the Nama Khoekhoen

“The women all go with dressed animal skins fastened round the body [...]. These skins are decorated with many [...] glass beads [...]. The men bind a plate, very artistically made of ivory, in front of their private parts, and wear a bracelet of the same material on one arm, as well as many copper rings.”

Comments on the Khoekhoen in general, (Schapera 1930:68-69) based on early accounts, include:

“[a woman’s apron’s] lower parts was cut into long thin strips to form a fringe, and was variously decorated with shells, beads, and other trinkets. [...] A leather strap or sometimes a long string of perforated ostrich eggshell beads was also passed round the waist above the aprons[...] The style of ornament have equally [to their clothing] changed . Both men and women still carry small leather pouches hung round the neck, and containing the knife, pipe, tobacco, money, etc. Little horns, tortoise-shells, and other odds and ends are also worn as finery or as charms. But formerly armlets of ivory and copper were found among the men, while the women wore iron and copper rings and armlets, as well as necklaces of ostrich eggshell beads, teeth, or shells. Frequently also the sewed strips of raw hide round their legs in the form of rings, which, when dry, rattled against each other and made noise when they moved. Copper trinkets and rings were worn in the ears by people of both sexes, or were attached freely to the knots of their hair. All these have given place to glass beads, glass or wire bangles, and similar objects obtained from European traders.”

The San, in general, are described as follows (Schapera 1930:65-67):

“The women wear a hanging apron in front, consisting in a piece of skin attached to a leather belt passing around the loins. It is often ornamented with beads or other tassels [...] Babies go naked, save for a trifling ornament, till they are about a year old. The boys are given a tiny belt with a semi-circular flap of leather in front, the girls a small apron decorated with tassels and beads [...]. All women and children and the younger men also wear ornaments. Chief among these are ostrich egg-shell beads [...]. Bands of [beads] are worn on the hair, sometimes encircling the whole head, more often tied on either side, while a long

narrow strip may hang down the forehead or on to the neck behind. Necklaces and bracelets of these beads are also seen, and very long chains are fastened three or four times round the waist. [...] Besides these beads any other ornaments obtainable are worn by the women. These include arm and leg bands made of leather and bark strips or twisted from the tail hairs of a wildebeest or gnu, as well as grass chains and bracelets, berries and shells. [...] The men usually content themselves with leather and bark bands, worn round the arm above the biceps and on the leg below the knee. [...] girls often tie small ornaments such as beads or shells into their hair.”

ii) Exchange media

To reduce risk and reproduce social values is crucial in an egalitarian society where people depend on each other in order to survive. Sharing, giving and tying social bonds in order to be able to rely on other peoples help in times of need constitutes the basis in such a society.

Demi, a !Kung man explained how exchange is often a social, rather than a purely economic transaction in noncapitalist societies:

“If people do not like each other but one gives a gift and the other must accept, this brings a peace between them. We give to one another always. We give what we have. This is the way we live together.” (Marshall 1976:311).

Hxaro is a gift exchange relationship among the !Kung San. This interaction involves a balanced, but non-equivalent delayed exchange for gifts, whose continuous flow gives both partners information of an underlying relationship – a bond of friendship accompanied by mutual reciprocity (giving and receiving) and access to resources (Wiessner 1986:105). By the time of marriage, the average !Kung will have between ten and sixteen *hxaro* partners, drawn from their immediate family, members of their own band or members from other more distant bands (Wiessner 1982:72-74). The exchange system serves to maintain networks of mutual aid, essential for group survival. If a person has an unproductive day of foraging he knows that he can rely on his *hxaro* partner for help. If there is a general shortage of food, the band will turn to their *hxaro* partners in other bands, and if the problem is widespread they will move to the lands of most distant *hxaro* partners and stay there until the crisis has passed. Beadwork is by far the most frequently given *hxaro* gift, although outside influences might have substituted glass beads for much of the original use of ostrich eggshell beads. Although *hxaro* gifts are symbols of underlying relationships, they are also highly valued for their own

inherent worth, beauty, utility or comfort. Receiving a valuable gift confers social status, because it is a sign that others care greatly about that person. The Nharo San of Botswana have a system of formalized exchange, //aĩ , identical to the !Kung idea of *hxaro* (Barnard 1992:141).

An exchange system similar to the !Kung *hxaro* and the Nharo //aĩ is found among the Nama Khoekhoen. *Sorigus*, or *magus* (“giving to each other”), is a ceremonial form of gift-giving with, according to Schapera (1930:321), “*mutual form of obligation and assistance in all aspects of life*”. Each person may demand or take from his *sori* partner whatever he wants, thus making it a more powerful relationship than the exchange system among hunter-gatherers (Schapera 1930:321).

In addition to exchange within !Kung society, there has long been trade between the !Kung and the Bantu, as well as with the Nama and Damara, and with other San groups (Barnard 1992:55). Barter, i.e. buying and selling items without the obligation to reciprocate gifts further as in *hxaro*, is widely documented when considering exchange between San and non-San (Mitchell 2003:37). Ethnohistoric accounts report a wide range of items going in: iron, tobacco, grain and glass beads (Schapera 1930, Barnard 1992). Among the most popular outgoing goods are ostrich eggshell beads. Exchanges, of many kinds, have linked the !Kung and other San with the outside world for more than a millennium (Barnard 1993, Denbow 1984).

iii) Social and personal markers

In a case study by Wiessner (1984) research on San intragroup and intergroup relations and corresponding stylistic variation in artefacts was carried out with special regard to the manufacture and use of beaded headbands. The study was carried out among seven !Kung, Nharo, G/wi and !Xo San groups in the Kalahari, and the recorded assemblage of headbands was categorized into nine major and five background designs. This was done to see if there was a connection between different San groups and different headband styles. Beaded headbands are made by sewing glass beads into patterns with thread of either sinew or plastic. Prior to the availability of glass beads they were made of ostrich eggshell beads. Headbands are made and primarily worn by women, although occasionally by men, and they are among the San’s most prized possessions. They are worn on occasions when “*the heart soars*” and are associated with happiness, festivity, plenty and beauty (Wiessner 1984:200). They are also

popular as *hxaro* gifts, thus part of an important network of giving and receiving to maintain or establish relationships between kin in near and distant areas (Wiessner 1984:207).

With a few exceptions, a common design repertory was shared by all groups in the study. Inter-individual differentiation in style is kept within the bounds of a shared repertory. In areas with high rates of beadwork women have more opportunities to engage in stylistic comparison, thus allowing certain styles to become specific to specific areas (Wiessner 1984:215). Nevertheless, differences in design frequency between neighbouring areas are often greater than those between distant ones, because stylistic differences are largely attributed to the higher rate of interaction within these areas than between them (Wiessner 1984:211-217). Headbands for *hxaro* gifts are made in the style common in the host's area. This is done to demonstrate knowledge and respect of the values and practices of persons in the area visited (Wiessner 1984:218). Bead-working can also be used to gain individual respect and recognition in the San community. A high degree of individual differentiation allows San to occupy different niches in daily tasks, thereby avoiding competition and fostering mutual dependence (Wiessner 1984:220). The study thus showed that beaded headbands participate in two kinds of identity relationships; 1) in strengthening relationships of loose affiliation with kindred members and affinal kin, and 2) in negotiating individual identities and carving out individual niches (Wiessner 1984:210).

Wiessner found no evidence that headbands were used in other social strategies such as boundary maintenance or demonstrating conformity to norms. In areas where stylistic differences are found, there is no evidence that these differences are enhanced by inter-areal competition or desire for differentiation. As Wiessner puts it: "*To the contrary, San minimize inter-areal differences to facilitate mutual access to resources.*" (1984:217).

iv) Courtship and marriage

Personal ornaments are not only exchanged as *hxaro* gifts or trade goods. Gift-giving on special occasions, such as at betrothals and in marriage ceremonies seems to be fairly common among the Khoesan peoples, and beadwork and other ornaments are among the most popular gifts. According to Marshall (1976:309) gifts are required on three ritual occasions among the !Kung of Nyae Nyae: at courtship/betrothals, at weddings, when the parents exchange gifts and give to the young couple, and at the ritual of a baby's first haircut, when the person after whom the baby is named should give him a fine present. Gift exchange

between the mother-in-laws or gift-giving from groom to mother-in-law, before or after a marriage, seems to be fairly common in Khoesan societies (Barnard 1992, Marshall 1976, Schapera 1930).

Schapera (1930:105) claims that a San man have to bring gifts to the girl's mother to win the consent of her parents before he can marry her. And after marriage he also has to present his wife with "a full woman's kaross, as well as other articles of clothing and ornaments [...]" Marshall (1976) provides accounts from a !Kung wedding: "*The mothers exchanged gifts. Kuan//a gave Di!ai a necklace of five strings of ostrich eggshell beads which reached to the umbilicus (shorter strings would have been inappropriate) [...]*" (Marshall 1976:272). Among the Hai//om San the boy, through his sister, will present gifts of beadwork to his new mother-in-law after marriage (Barnard 1992:216).

Beadwork and other ornaments as gifts for special occasions seem to have been important among the Nama Khoekhoen too. According to Schapera (1930:247) a boy courting a girl will come at night into the hut of her parents and lay down next to the girl in her bed. The day after, he will leave lying behind him a waistband of ostrich egg-shell beads for his mother-in-law, as a gift for the use of the bed. The official marriage feast is celebrated the same day:

"The groom must provide a sheep or a cow, which is slaughtered for the bride [...] The bladder of the slaughtered animal is then blown up and tied to the head of the girl; the fat is stewed with buchu [a powder made of crushed leaves of particular species of fragrant plants] by the women, and this she must wear around her neck; while the sinews are threaded through ostrich egg-shell beads, which she must wear around her legs." (Schapera 1930:247)

The Nama also practices remarriage ceremonies (when a widow marries a young man, a widower a young woman, or a widow a widower), and after the wedding ceremony the guests will come in to greet the couple and give them beads or bracelets or other similar small gifts (Schapera 1930:255). According to Barnard (1992:80) there is no recorded evidence of bride service, wedding ceremonies or of marriage or childbirth gifts among the /Xam San. It is possible that these customs did not exist among the /Xam or that they had disappeared at the time of field research. It is also possible that they were missed or dismissed as not being of much relevance by ethnographers.

v) Girls' initiation rites or puberty ceremonies

Gift-giving during or after girls' initiation rites or puberty ceremonies also seems to be fairly common among the Khoesan. They often involve slaughter of an animal and a feast where the animal is eaten. At a late stage of the ceremony, or after it, the girl is presented with gifts, often beads and other ornaments, to celebrate her new status as a young woman. Schapera (1930:120) describes a puberty ceremony among the Hei//om San that lasts for several days. Finally, *"On the last day, after the dancing has ceased, the girl is presented with various trinkets by the women who took part in the ceremony."*

Among the Nharo San, a female grand relative gives the girl a gift at the end of the celebrations (Barnard 1992:155). The Damara (a Namibian people with *"cultural attributes which align them as much as with the Khoekhoen as with the Bushmen"* - Barnard 1992:199) too, celebrates a girl's first menstrual period with a feast. However, the girl herself does not take much part in the festivities as she is confined in her hut, in silence, and tended by her mother and other female relatives, who will bedeck her in ornaments (Vedder 1928:50).

Among the Nama Khoekhoen a girl's puberty ceremony is held as soon as a girl has her first menstruation. The ceremony involves a ritual cleansing, and after the girl has been cleansed of her *axa/uip* ("child dirt") with melted butter and cow dung, she is given a complete set of new clothing. Next the girl prepares a meal for the other women assembled to meet her. Schapera (1930:274-275) explains:

"The girl is now ready to receive visitors as an oaxais, a young marriageable woman. All her relatives and friends pour in, each with some presents of beads, or earrings, or other finery. A great deal of this is only lent, and is returned later. The girl shines with clean, well-greased skin, she is scented all over with the buchu she and her friends have ground, her face is painted in various curious patterns with red and white mineral powder mixed with fat, and her body is loaded with the presents."

vi) Burial, grave goods

Schapera (1930:164-165, 360) provides some accounts of burial ceremonies among the San and Khoekhoen. He suggests that there was some variation in burial customs. Among the Naron San *"The dead are buried in all their clothes and ornaments, and all their possessions are placed in the grave..."* (Schapera 1930:164). The !Kung San women are buried with their ornaments. In the eastern Kalahari the San add the dead person's ornaments to the grave as a

rule (Schapera1930:165). Among the Cape Khoekhoen, however, no objects of any kind were placed in or on the grave (Schapera1930:360).

In contrast to the simple burial practices recorded ethnographically, LSA burials are often elaborately decorated (Deacon & Deacon 1999:139). The body was often buried with beads and other ornaments, and in some instances with artefacts, shells or animal bones (Deacon & Deacon 1999:140). Ground ochre was sometimes placed in or over the grave shaft. There are few reports of formal hunter-gatherer burials in caves from the LSA in South Africa.

According to Deacon & Deacon (1999) the practice was largely confined to open-site shell middens along the Western Cape and Eastern Cape coast and in the Cape Fold Mountains. No burials are known from the GSF area or Blombos Nature Reserve.

3.5 Khoesan personal ornaments - some examples from an ethnographic collection

Iziko South African Museum holds an extensive collection of ostrich eggshell artefacts collected from various Kalahari San groups in Botswana. Some examples from the collection are presented here, as they illustrate how ostrich eggshell beads are used, and can be used.



Fig 3.4 Girls' apron, Kalahari southern San, unknown collection date. Courtesy of Iziko South African Museum, item # SAM-AE 430 (Photograph by I. Vibe).



Fig. 3.5 Apron. Nharo San, Ghansi, Botswana. Collected in 1966. Courtesy of Iziko South African Museum, item # SAM-AE 9313 (Photograph by I. Vibe).



Fig 3.6 Headband collected in Kalahari, Botswana in 1936. Unclassified San.
Courtesy of Iziko South African Museum item # SAM-AE 7571 (Photograph by I. Vibe).



Fig. 3.7 Detail of a belt ornament collected in Kalahari, Botswana in 1936. The beads are covered in red ochre. Courtesy of Iziko South African Museum, item # SAM-AE 7572 (Photograph by I.Vibe).

3.6 Discussion

Wadley (1987:IV) describes Khoesan ethnography as “*The southern African archaeologist’s Rosetta Stone for decoding prehistoric social relations*”. It seems clear that ethnographic analogy can be useful to bridge the gap between the past and the present, and that southern African archaeology most certainly does benefit from excellent hunter-gatherer ethnography. The ethnography demonstrates that there are close associations between the LSA archaeological record and recent and present San peoples (Mitchell 2005:162-163). Artefacts and media similar to those of the ethnographically known Khoesan societies include rock art, ornamented artefacts, personal ornaments, specialized hunting and gathering equipment and formal burials. The question is: how much can ethnography really tell us about past societies, and how certain can one be of the applicability of the method of ethnographic analogy? One researcher puts it like this: *It is [...] much easier to recognize similarities between ancient and modern societies than it is to detect differences.* (Sealy 2006:569).

Ethnographically informed social theory derived largely from contemporary Kalahari peoples, was first introduced to archaeology to help elucidate the meanings of San rock art, but now incorporates themes as diverse as exchange, gender and the socio-spatial organization of campsites (Mitchell 2005:151). Wadley used San ethnography on *hxaro* gift exchanges and seasonal movements to explain the differences observed in LSA levels at Cave James and Jubilee Shelter in the Magaliesberg, north-west province of South Africa. Wadley termed these two phases the “public” and the “private” phases of social life, and used her model to explore changes in social relations over time (1987). Each phase is associated with quite different patterns of ritual activity, exchange, visiting, and gender relations, all with possible implications for the archaeological record. Wadley claims that aggregation sites, where people come together to socialise, make and exchange gifts, and to arrange rituals, are characterized by a wide range of cultural artefacts, such as ostrich eggshell beads and other ornaments. Dispersal sites, in which the extended family bands live away from each other and focus largely on subsistence tasks do not include items like beads used for gift-exchange.

Other researchers too have focused upon ethnographically known gift exchange systems to interpret archaeological remains. Hall and Binneman (1987) noticed that some of the buried bodies of infants dated to within the last 5000 years at Klasies River Mouth and Welgeluk Shelter (Eastern Cape) were more elaborately decorated than those of adults. They suggest that this relates to a well developed gift exchange system like *hxaro* in which the children

involved were too young to be formally involved in the exchange network. The gifts buried with them therefore symbolized for their families the potential that death had made the child unable to achieve; to be part of a gift exchange network. The ornaments recovered from the burials included ostrich eggshell beads, *Turbo sarmaticus* “buttons”, *Fissurella aperta* shells, *Bullia digitalis* shells, *Tricolina sp.* shells, oyster pendants and *Nassarius kraussianus* shell beads (Hall & Binneman 1987:142).

According to Mitchell (2005:161) it is by no means clear from wider consideration of San ethnography that exchange has to take the form of *hxaro*, or imply particular sets of kinship-based social relations. In his view exchange needs to be better argued and does not have to take the form of *hxaro*. This important aspect is supported by !Xõ ethnography. The !Xõ is a Kalahari San group who does not practice delayed, reciprocal exchange at all (Barnard 1992:67). Ornaments are not only used as *hxaro* gifts. As seen in the ethnographic record, they can also be used as everyday items, as ceremonial objects or gifts in girls’ initiation rites etc.

Wiessner (1982:70) suggests that “*hxaro networks may have developed out of previous trade networks, speculation that would have to be tested by archaeological research*”. This is an important question as we do not know if the practice of *hxaro* has ancient roots in the Kalahari or other areas the San used to inhabit. In the case of ostrich eggshell beads, considered one of the most popular items for gift-exchange, it may be impossible to prove that they are exotic to the sites in which they are found. Whether archaeological ostrich beads were being traded or not cannot be answered due to the lack of methods to identify the specific source areas of ostrich eggshell (Robbins 1999). However, finds of seashells at LSA sites far inland suggest that at least trade in ornaments, and possibly gift exchange as well, have a long history in southern Africa (Mitchell 1996a).

Archaeologists have concentrated much of their interpretations based on only a few Khoesan communities, and especially on Kalahari San groups, and the now extinct /Xam. The question is how much one can rely on ethnography to interpret the archaeological remains of LSA people, not only from the ethnographically studied areas, but also from other now extinct groups that used to live further south. The Kalahari debate deals with the question of the applicability of Kalahari San ethnography to interpreting the ways of life of now extinct Khoesan groups (Marshall 1976, Lee 1979b, Schrire 1980, Denbow & Wilmsen 1986, Sadr

1997, Smith 2001). The debate revolves around two basic issues: 1) whether or not Kalahari San can be regarded as genuine foragers who have remained isolated throughout their history, but still have adapted to outside pressures without losing their identity; and 2) whether or not the “original” hunter-gatherer culture have survived today among such groups. These questions are difficult to answer. Mitchell (2002:225) puts it this way:

“While physical and genetic similarities are strong, and continuities of material culture between LSA people and San societies of the ethnographic present far-ranging and often profound, they can also limit our reconstructions of the past.”

While Parkington (1984:172) emphasises the need to “de-!Kung” LSA archaeology, Mitchell (2005:163) suggests expanding the sample of San societies that we use to include, for example, those who did not practice seasonal aggregation and dispersal or *hxaro* exchange. The diversity among ethnographically recorded Khoesan groups such as seen in Barnard’s work (1992) needs to be assigned greater attention by the archaeologists who use ethnography to study prehistoric societies.

Another problem lies in the lack of an unbroken ethnographic record that connects historically studied Khoesan groups with LSA people. The ethnohistoric accounts are based upon the depictions from early travellers and historians, some of them clearly coloured by a eurocentric view besides being inaccurate. Sustained, long-term anthropological studies only commenced in the 1950’s.

To sum up, ethnographic records that refer to the manufacture and use of personal ornaments can be a valuable source when trying to interpret how LSA ornaments were made, and what they meant to LSA people. For instance, finds of tools probably used for the manufacture of ostrich eggshell beads, and beads in different production stages from the archaeological record (see Chapter 4), in some cases correspond with references to the production of ostrich eggshell beads in ethnographic accounts. However, the symbolic meanings of the ornaments are more difficult to interpret. The analogical method depends on drawing out similarities, but the ethnographic records show that there are regional and cultural differences regarding use of personal ornaments among the recent and contemporary Khoesan. Differences most likely occurred in the LSA too. It is important to take in to consideration the aspect of time and space when using ethnographic analogies to interpret archaeological artefacts. It is unlikely that the Khoesan cultural identities, beliefs, cosmology etc. have remained the same for hundreds and thousands of years, and the functions and meanings of the ornaments may have

changed over time. Variable access to resources, changes in the natural environment and different types of economy must also be taken in to consideration. Therefore, when using ethnographic analogies to interpret the archaeological record, at least some cultural continuity between the past and the present must be clearly demonstrated if it is to be applied, and even then with caution.

CHAPTER 4: METHODOLOGY: MATERIALS ANALYSIS

In the previous chapter I explained how ethnography can give us clues on how personal ornaments from the archaeological record were made and used. Another method to establish the manufacturing techniques of the ornaments, and how the LSA people used these artefacts, is to study the physical attributes of the ornaments themselves. Traces of production techniques and wear, and other physical properties, might give us some answers. In this chapter, I present the methods applied to record the physical attributes of the LSA personal ornaments from Blombos Cave and the GSF sites. The results of the analyses are presented in Chapter 5. An overview of previous and similar research is provided first.

4.1 Previous and similar research on personal ornaments from southern Africa

i) Ostrich eggshell beads

Ostrich eggshell beads are the most common bead type found in LSA sites in southern Africa (Robbins 1999). The manufacture and use of ostrich eggshell beads has been well documented ethnographically (Marshall 1976, Silberbauer 1980, Wiessner 1982, 1986, Wingfield 2003 etc.) (see Chapter 3). Other scientific research carried out in laboratories has also been conducted in order to establish how the beads were made and used (Plug 1982, Jacobson 1987a, 1987b, Yates 1995, Conard & Kandel 2005).

According to Jacobson, base or aggregation camps are likely to yield the greatest variability with regard to bead production stages. His view is shared by Wadley (1989) (see Chapter 3). While Jacobson only mentions three production stages (complete, incomplete and broken), Plug (1982) defined seven steps to outline the stages associated with production of ostrich eggshell beads. A similar sequence was expanded to 12 stages by Conard & Kandel (2005). (Table4.1)

Table 4.1 Ostrich eggshell bead production sequences established by Plug (1982) and Conard & Kandel (2005).

Plug, Bushman Rock Shelter, Option 1*	Plug, Bushman Rock Shelter, option 2*	Conard & Kandel, Geelbek Dunes
1. Eggshell fragment	1. Eggshell fragment	1. Angular blank
2. Perforated fragment	2. Trimmed blank	2. Rounded blank
3. Broken perforated fragment	3. Broken trimmed blank	3. Complete, partially drilled blank
4. Trimmed bead	4. Trimmed bead	4. Broken, partially drilled blank
5. Broken trimmed bead	5. Broken trimmed bead	5. Complete, perforated blank
6. Ground bead	6. Ground bead	6. Broken, perforated blank
7. Broken ground bead	7. Broken ground bead	7. Complete, perforated, slightly formed bead
		8. Broken, perforated, slightly formed bead
		9. Complete, perforated, almost bead form
		10. Broken, perforated, almost bead form
		11. Complete, finished bead
		12. Broken, finished bead

*Plug recognised two different sequences in Bushman Rock Shelter; one where the beads were perforated before they were trimmed and another where the beads were perforated after they were trimmed.

Jacobson (1987a, 1987b) suggests that the size of ostrich eggshell beads can be a stylistic marker that identifies herder and hunter-gatherer sites. His study of the ostrich eggshell beads from seven sites of pre-herder and herder age in central Namibia showed that there was an increase in mean bead size between the older (pre-herder age) and the younger (herder age) sites, and that the assemblages with beads greater than 7.5 mm in diameter belong to the later time period, i.e. after the arrival of herding (1987a:57). He identified three types of sites that were characterized by a tendency towards the production of (1) mainly small finished beads, (2) a mixed distribution of small and large finished beads, and (3) mainly large finished beads. Jacobson assumes that the small finished beads are associated with pre-herder/pottery hunter-gatherers, and that a mixture of small and large finished beads indicates a contact or mixed period, while groups of post-pottery herders preferred large finished beads. Thus, Jacobson suggests that this method can indicate whether a site was occupied by hunter-gatherers or herders after the appearance of the latter in southern Africa. In a later study of ostrich eggshell beads from one of the sites, stratigraphically controlled statistical analyses of finished beads confirmed that bead and aperture size increases over time and that the changes are associated with the appearance of pottery after 2000 BP (Yates 1995). The results of this study also showed that a divide at 5 mm in external diameter for the beads is appropriate.

Extensive analyses were done on the LSA ostrich eggshell beads recovered from the Geelbek Dunes site in the Western Cape, South Africa (Conard & Kandel 2005). In addition the

research team also recorded the colour of the beads and whether the beads were burned or not. This was to establish the production sequence and to test Jacobson's bead size variability hypothesis. The result supported the division of difference in size at 5 mm (Conard & Kandel 2005:1716-1717). To complement the archaeological research, they also conducted two experiments in which eggshell was burnt. This was done to establish how colour differentiation is achieved on ostrich eggshell. The first experiment attempted to recreate the range of colour of ostrich eggshell by varying the intensity of burning, regulating the oxygen concentration and adding organic material to modern ostrich eggshell collected at the Geelbek Dunes. The organic materials that were added were grass, tortoise shell, oil, salt or sand (Kandel pers. comm. 2007). The second experiment examined natural variation in colour on burned ostrich eggshell fragments collected after a large natural bushfire had occurred eight kilometres from the Geelbek Dunes in 2000 (Conard & Kandel 2005, Kandel pers. comm. 2007)

The results of the experiments indicated that:

"[...] intentional use of fire at a low to moderate temperature under a reducing atmosphere with the addition of organic materials enabled the makers of the beads to control their colour." (Conard & Kandel 2005:1717-1719).

ii) *Nassarius kraussianus* shell beads

Finds of *N. kraussianus* shells have been reported from many sites in southern Africa (Goodwin 1938, Deacon & Deacon 1963, Deacon, J. 1972, 1984, Deacon, H.J. 1976, 1995, Deacon, H.J. *et al.* 1978, Schweitzer 1979, Schweitzer & Wilson 1982, Mazel 1986a, 1986b, 1988, 1990, 1992, Hall & Binneman 1987, Inskeep 1987, Parkington & Poggenpoel 1987, Thackeray 1988, Kaplan 1990, Mitchell 1996b, 1996c, Döckel 1998, Henshilwood *et al.* 2004, d'Errico *et al.* 2005). However, very few of these finds have been studied and analyzed further after excavation. A detailed study of the ca. 75 000 year old MSA *N. kraussianus* shell beads was carried out to determine whether these were in fact human made and if so, how they were made and used by the MSA people (Henshilwood *et al.* 2004, d'Errico *et al.* 2005). Taphonomic, morphological and microscopic analyses were among the methods carried out for this purpose.

Their analysis showed that the presence of perforated *N. kraussianus* shells in the Blombos Cave MSA levels cannot be due to natural processes or accidental transport by humans. The shells could not have derived from inside the cave because they live only in estuarine

environments. They were not brought to the site accidentally by animals, because the shell's only known predator, *Natica tecta*, is a gastropod that also only lives, like *N. kraussianus*, in estuarine environments. A controlled test aimed at extracting the meat out 100 collected shells showed that the MSA shells are too small to be leftovers from human food (d'Errico *et al.* 2005:10). Furthermore, the shells from the Blombos Cave MSA levels include shells of adults only, and it is therefore highly unlikely that they were brought in with wracks of dead *Zostera capensis*, a grass used for bedding by LSA hunter-gatherers, as all age classes would be present.

Non-human taphonomic processes are known to produce pseudo personal ornaments that appear morphologically similar to human-modified and used beads (d'Errico & Villa 1997, d'Errico *et al.* 2005). To establish the authenticity of the MSA beads from Blombos Cave morphometric and morphological variables of modern shells from two estuaries close to Blombos Cave were recorded. The modern shells were then compared with the archaeological specimens from Blombos Cave MSA and LSA levels and those from the LSA levels at Die Kelders site (Henshilwood *et al.* 2004, d'Errico *et al.* 2005). The analysis showed that *N. kraussianus* shells with keyhole perforations on the dorsal side do not exceed 0.4% in living and 30.6% in dead populations. All recovered MSA shells are perforated, and 88% of them have dorsally perforations near the lip or larger perforations extending from the lip toward the right edge (Fig. 4.6 Type 6 and 8). These perforation types are absent in living populations and accounts for only between 5.4% and 8.6% of naturally pierced shells in modern thanatocoenoses. It is unlikely that natural mechanical processes repeatedly produced the perforations seen on the MSA beads. Marine gastropods from the MSA levels of similar size to the *N. kraussianus* shells do not have the same perforations as the *N. kraussianus* shells. None of the MSA shells show evidence of decalcification, sedimentary abrasion, alteration, root etching or other traces of natural perforation, and none of them have evidence on the ventral side of holes typically drilled by *N. tecta*.

French researchers Francesco d'Errico and Paola Villa (1997) have established criteria for differentiating perforations in shell made by natural agents and by humans, for documenting use-wear, and also for recognizing the traces of perforations, engravings, long term handling, transportation, suspension etc. left on objects of materials like bone, antler and ivory by combining optical and scanning electron microscopy (SEM). The appearance and location of worn areas on all Blombos Cave MSA shells, some LSA shells and a sample of modern shells

were recorded with a microscope equipped with a digital camera (d'Errico *et al.* 2005:15). Worn areas on a sample of seven MSA, LSA and modern shells were thereafter inspected using a SEM microscope. SEM enables the user to analyse different layers of a sample separately. The analysis revealed that wear was present on the MSA and LSA shells, and a distinct use-wear pattern consistent with friction from rubbing against thread, clothes, or other beads was recorded on the MSA shells. This is the principal factor that defines the MSA shells as beads. Microscopic residues of ochre detected inside four of the shells suggest that either the material in contact with the beads or the beads themselves were coloured red.

Lastly, the research team reconstructed the perforation technique and tested different tools that might have been used on the MSA Blombos Cave *N. kraussianus* beads through experiments on modern shells (d'Errico *et al.* 2005). Two techniques were tested; punching the body whorl, first through the aperture, and then from the dorsal side. Three types of tools were used; retouched lithic points, bone awls, and pincer claws of a small crab that lives in the same habitat as *N. kraussianus*. The result of the experiment showed that the location, shape, size and associated microscopic features of perforations on MSA shells are consistent with piercing the shell through the aperture with a sharp, probably bone tool that is elliptical in section.

4.2 Methodology - Laboratory research and analyses

The excavated material from the nine GSF sites was sorted to extract personal ornaments that might have been missed during excavations or previous sorting of the material (see Chapter 2.3). During this sorting, each bead, pendant, ornament or ornament fragment recovered from the GSF sites was given an individual number, and the site, unit and section it was recovered from was noted. The data was entered into a Microsoft Access database, and this created the framework for data entry during the subsequent laboratory analysis.

As mentioned in Chapter 2.3, Blombos Cave is the only archaeological site in the GSF/Blombos area containing *N. kraussianus* shells. Ostrich eggshell beads were found in varying amounts, with especially small quantities in GSF 1, GSF 2, GSF 3, GSF 5 and GSF 9 (13 beads in GSF 1, and less in the other sites), and none in GSF 6. Other ornament types were found in the GSF4, GSF7 and Blombos Cave material only. It was therefore decided that only the ornaments from GSF 4, GSF 7 and Blombos Cave would be further analysed. The

information on the physical properties of the ornaments from the selected sites was noted, and the data entered into the database. These attributes include measurements, colour, production stage, wear-traces, perforation types and other modifications done to the raw material (shell, ostrich eggshell or bone). This is explained in detail in the following sections. The equipment utilized during the analyses was:

- A Nikon microscope with 40X magnification (during the initial analyses) (Fig. 4.1)
- A Leica S8AP0 microscope equipped with a Canon digital camera attached to a computer (during the final analyses) (Fig. 4.2).
- A digital caliper for measuring the beads (Fig. 4.3)



Fig. 4.1 (left). Initial analyses with a Nikon microscope. Fig. 4.2 (right) final analyses using a Lecia S8AP0 microscope equipped with a Canon digital camera attached to a computer (Photographs by T. Kjosvold and I. Vibe).



Fig. 4.3 Measuring beads with a digital caliper (Photograph by H. Strandman).

i) Physical properties of the ostrich eggshell beads

For each ostrich eggshell bead (or fragment) analyzed from GSF 4, GSF 7 and Blombos Cave, the following information was recorded:

- o Production stages (1-10)
- o Direction of perforation
- o External measurement – diameter
- o Internal measurement – aperture size
- o Colour and burning
- o Ochre staining

A reconstruction of the production sequence of ostrich eggshell beads was established based on the chronological steps of bead manufacture known from the ethnographic accounts (as described in Chapter 3.3), and the ostrich eggshell finds from GSF4, GSF7 and Blombos Cave. From the ethnographic accounts we know that the bead-making process starts when an ostrich eggshell breaks, either intentionally or unintentionally. The broken fragments are then pierced and modified into beads. The “cycle” of an ostrich eggshell bead ends when it breaks and is discarded or lost. The production sequence of ostrich eggshell beads in the GSF sites and Blombos Cave consists of 10 steps, starting with a partially perforated fragment, and ending with a finished, broken bead (Fig. 4.4). The 10th step can thus represent a bead that was either broken in the last stage of manufacture, or a bead that was broken after being in use for a while. I have chosen to exclude unworked fragments without perforations, so-called “blanks” or “disks” (Plug 1982, Conard and Kandel 2005) (Table 4.1), as I believe it is impossible to decide whether or not these were in fact intended for bead manufacture. They could simply be broken fragments of water containers or discarded remnants of a meal. The so called rounded or trimmed “blanks” included in sequences established by other researchers (Plug 1982) and Conard & Kandel (2005) (Table 4.1) are also excluded here, simply because no such un-perforated fragments with clear traces of being deliberately rounded or shaped by breaking or chewing were found in the Blombos or GSF deposits. This suggests the beads manufactured in GSF4, GSF7 and Blombos Cave were perforated before trimming and grinding. In some cases a microscope was used to determine the production stage on a bead or fragment where this was indeterminable with the naked eye.



Fig. 4.4. Ostrich eggshell bead production sequence at GSF 4, GSF 7 and Blombos Cave. Production stage 1-10 from left to right. See Table 4.2 for key (Photograph by I. Vibe).

Table 4.2 Ostrich eggshell bead production sequence at GSF 4, GSF 7 and Blombos Cave.

Code	Production stage
1	Partially perforated fragment
2	Partially perforated fragment, broken
3	Perforated fragment
4	Perforated fragment, broken
5	Trimmed bead
6	Trimmed bead, broken
7	Ground bead
8	Ground bead, broken
9	Finished bead
10	Finished bead, broken

The direction of perforation was recorded where this was detectable; that is where the sides of the ostrich eggshell bead are clearly distinguishable from each one another and the direction of perforation itself is visible. Unworked ostrich eggshell has a glossy yellowish white colour and shows tiny grooves on the outside. On the inside it is matt and clear white. Perforations on ostrich eggshell beads are known, from the ethnographic records, to be made with a sharp object that is drilled through the shell. The perforation can be thus seen as funnel shaped where the wider part of the perforation will be on the side where the tool first pierced the shell. Smaller and thoroughly ground ostrich eggshell beads do not generally reveal the direction of perforation. In GSF and Blombos Cave all beads and fragments with detectable direction of perforation are perforated from the internal side of the ostrich eggshell.

The external diameter and bead aperture size on finished beads (production stage 9) and finished broken beads (production stage 10), where more than half the bead was intact, were recorded with an electronic digital caliper (Fig 4.3 and 4.5). Measurements were made where the diameter of the bead or the aperture is at its largest. All beads, in all stages of the

production sequence, were divided into colour groups: white, beige, light brown, light grey, grey and black. The black and grey beads are visibly burnt beads. Ochre staining, where detectable, was recorded on beads in all production stages. A microscope was sometimes used to detect the ochre.

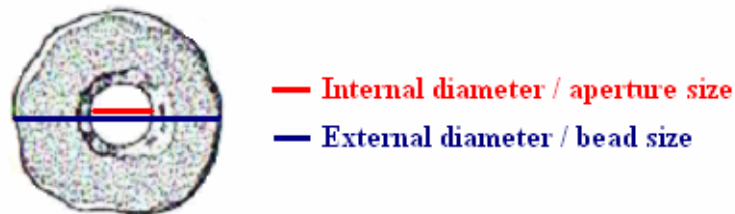


Fig. 4.5 Figure showing how bead and aperture sizes were measured on ostrich eggshell beads (Edited from Schweitzer 1979).

ii) Physical properties of the *Nassarius kraussianus* shells

The following attributes of the LSA *N. kraussianus* shells from Blombos Cave were recorded:

- o Condition (intact shell, perforated, broken)
- o Length measurements
- o Perforation type
- o Use-wear location

In addition to this, a random sample of shells from each level was inspected for ochre traces.

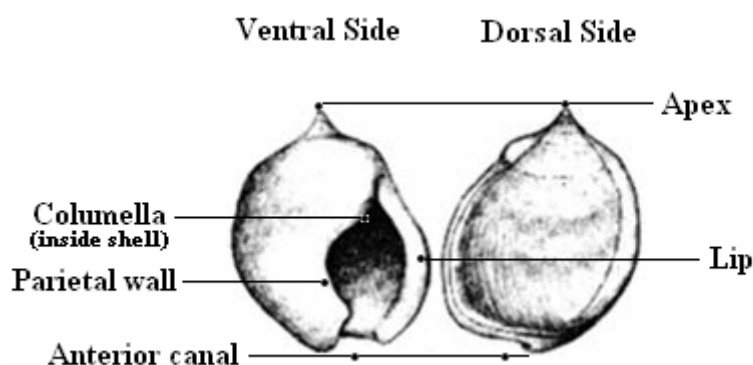


Fig 4.6 Drawing of *N. kraussianus* shell (Edited from Kensley 1973).

The condition of the shells was recorded under four categories: 1) intact (un-perforated), 2) perforated with intact lip and columella, 3) perforated with broken lip, 4) perforated with broken lip and columella. Length measurements (from apex/tip to end of anterior canal) were made on shells from category 2 using an electronic digital caliper (Figs. 4.3 and 4.6). The perforation type on all category 2 shells was recorded following the system established for the Blombos Cave MSA beads by d’Errico et al (2005) (Fig. 4.7).

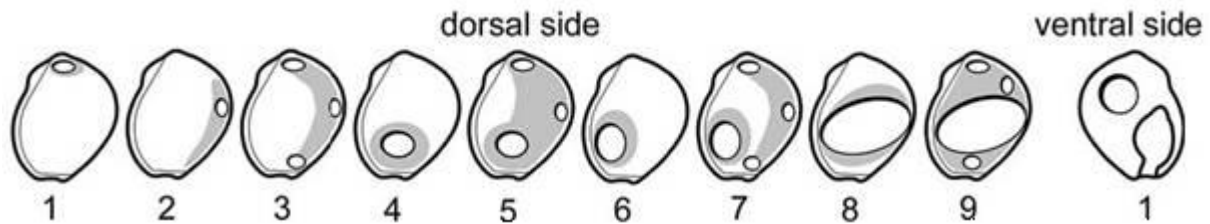


Fig. 4.7 Different types of perforations on *N. kraussianus* shells (From d’Errico et al. 2005).

Using the microscopes, use-wear traces on the category 2 shells were recorded where detectable/present. Use-wear is present on the perforation edge, the lip and on the parietal wall of 78.6 % of the shells (Fig 4.5, Table 5.9). Wear along the perforation edge is the most common and protruding use-wear type. A sample of shells with use-wear traces were recorded using the Leica S8AP0 microscope equipped with a digital camera.

iii) Other ornaments

The other ornaments recovered from GSF 4, GSF 7 and Blombos Cave includes four *Glycimeris connollyi* pendants, two *Turbo sarmaticus* pendants (one of them not perforated), four *Conus sp.* pendants, one shell pendant (mother of pearl), one *Bullia digitalis* pendant and three bone rings. Similar artefact types are reported from the Holocene levels in other sites in the southern Cape, e.g. Die Kelders, Byneskranskop 1 and Nelson Bay Cave (Schweitzer 1979, Schweitzer & Wilson 1982, Inskeep 1987). The ornaments were registered in the Microsoft Access database and analysed and described in the same manner as the ostrich eggshell beads and the *N. kraussianus* shells.

iv) Other artefacts

A recovered string made of plant material was examined under the Leica S8AP0 microscope and photographed. No further analyses of the un-perforated ostrich eggshell fragments were carried out.

4.3 Summary

I describe here how laboratory analysis of the LSA Blombos Cave, GSF 4 and GSF 7 ornaments were conducted and mention some relevant previous analyses carried out by other researchers on similar items. I have also tried to explain how these analyses can help to understand the processes used in their manufacture and the possible uses of personal ornaments. Every bead and ornament from GSF 4, GSF 7 and Blombos Cave was examined in detail. The detailed results of these analyses are presented in Chapter 5.

CHAPTER 5: RESULTS OF MATERIAL ANALYSIS

The methods applied to record the physical attributes of the LSA personal ornaments from Blombos Cave and the GSF sites are explained in Chapter 4. The results of these laboratory studies are discussed below.

5.1 Ostrich eggshell beads

Ninety two ostrich eggshell beads (finished and unfinished) were recovered from GSF 4 during excavations and later sorting, while the GSF 7 deposits yielded 110 beads. Ostrich eggshell beads were found in all layers at Blombos Cave, except Layer 5b. Of the total of 290 beads from Blombos Cave, finished and unfinished, 115 beads came from Layer 4. Three beads came from Layer 6 and the rest are evenly distributed in Layers 1, 2 and 5a (Table 5.1).

Table 5.1 Distribution of ostrich eggshell beads in all layers in Blombos Cave.

Layer	Number of OES beads
1	32
2	36
3	22
4	115
5a	56
5b	-
6	3
Un-defined*	26
Total	290

1) Un-defined = section cleanings etc.

A production sequence consisting of 10 stages was established based on ethnographic recordings of ostrich eggshell bead production (see Chapter 3.3), and the ostrich eggshell finds from GSF 4, GSF 7 and Blombos Cave (Fig. 4.4, Table 4.2). Analyses of the ostrich eggshell beads from GSF 4, GSF 7 and Blombos Cave show that it is likely that production of beads took place on site. In GSF 4 the recovered beads are evenly distributed in the production sequence, with a slightly higher concentration of stage 4 (perforated fragment, broken) and 9 (finished bead) beads (Table 5.2, Fig. 5.1). In GSF 7 not all stages are represented, however stages 1, 3, 4, 8, 9 and 10 are present (Table 5.2, Fig. 5.2). Traces of production are recorded in Layers 1 and 2 in Blombos Cave, the rest of the layers contained

stages 9 and 10 beads exclusively. In Layers 1 and 2 the majority also consists of stage 9 and 10 beads, the rest is evenly distributed in stages 3-8 in Layer 1 and 5-8 in Layer 2 (Fig. 5.4).

Table 5.2 Numbers of ostrich eggshell beads in different production stages at GSF 4, GSF 7 and Blombos Cave.

	GSF 4	GSF 7	Blombos Cave
Stage 1	1	3	-
Stage 2	2	-	-
Stage 3	3	8	4
Stage 4	29	17	2
Stage 5	-	-	6
Stage 6	6	-	5
Stage 7	10	-	3
Stage 8	14	3	10
Stage 9	24	50	223
Stage 10	1	3	37
Indeterminable*	2	26	-
Total	92	110	290

*The high number of indeterminable beads in GSF 7 is due to the quality of the on site preservation of the beads.

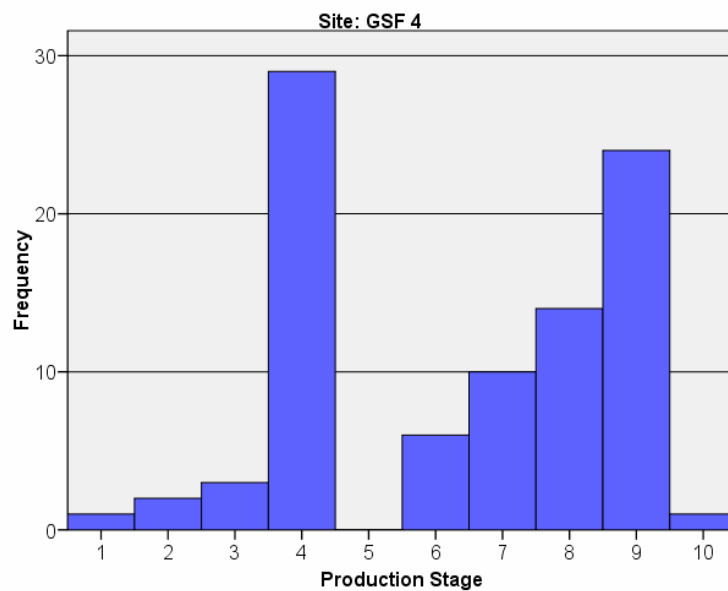


Fig. 5.1 Distribution of ostrich eggshell bead production stages at GSF 4.

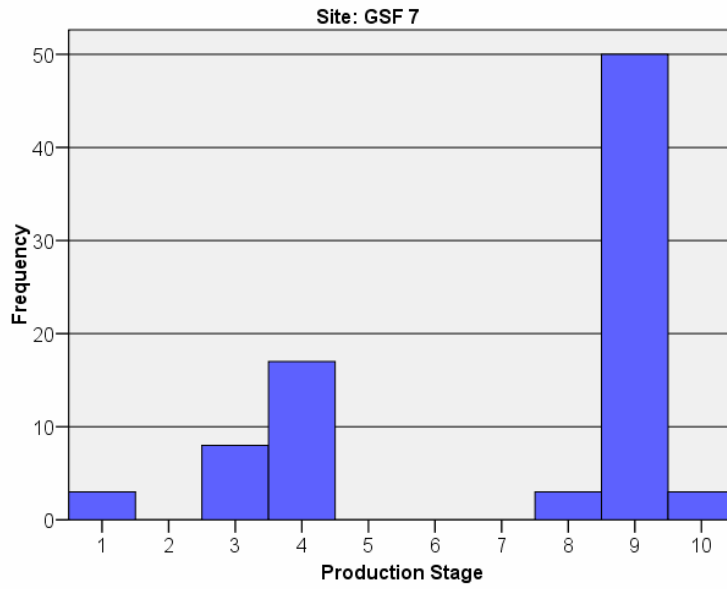


Fig. 5.2 Distribution of ostrich eggshell bead production stages at GSF 7.

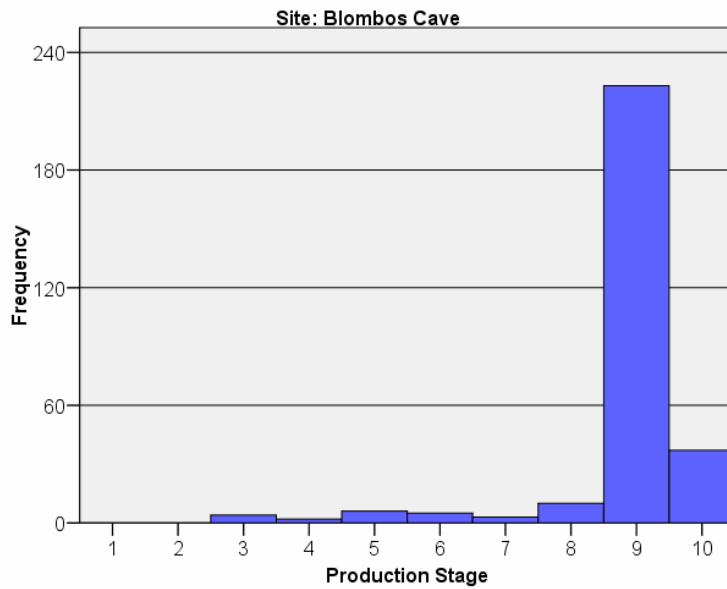


Fig. 5.3 Distribution of ostrich eggshell bead production stages in Blombos Cave.

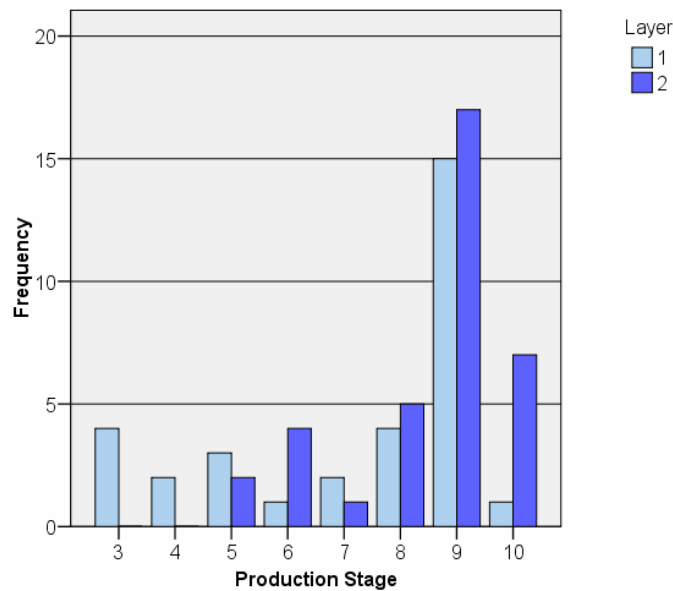


Fig. 5.4 Distribution of ostrich eggshell bead production stages in Layers 1 and 2 in Blombos Cave.

The size of production stage 9 and 10 beads (on stage 10 beads where more than half of the bead were intact) was recorded using a digital caliper (see Chapter 4.2). In GSF 4 the mean external diameter of ostrich eggshell beads is 4.05 mm with a standard deviation of 0.506 mm (Fig. 5.5). Measurements of the GSF 7 beads give a mean external diameter of 4.61 mm with a standard deviation of 0.582 mm (Fig. 5.6). The mean external diameter of the Blombos Cave ostrich eggshell beads is 4.67 mm with a standard deviation of 1.118 mm (Fig. 5.7). A comparison of the various layers at Blombos Cave show that the mean external diameter of the beads are gradually increasing from the oldest layer (Layer 6) to the youngest layers (Layers 1 and 2) (Fig. 5.8). This result confirms the hypothesis that there is a small increase in the size of the Blombos Cave ostrich eggshell beads over the years. If the results from GSF 4 and GSF 7 are examined together with the dates of the sites, then the ostrich eggshell bead size in the Garcia State Forest and Blombos Nature Reserve increases slightly over time (Table 5.3).

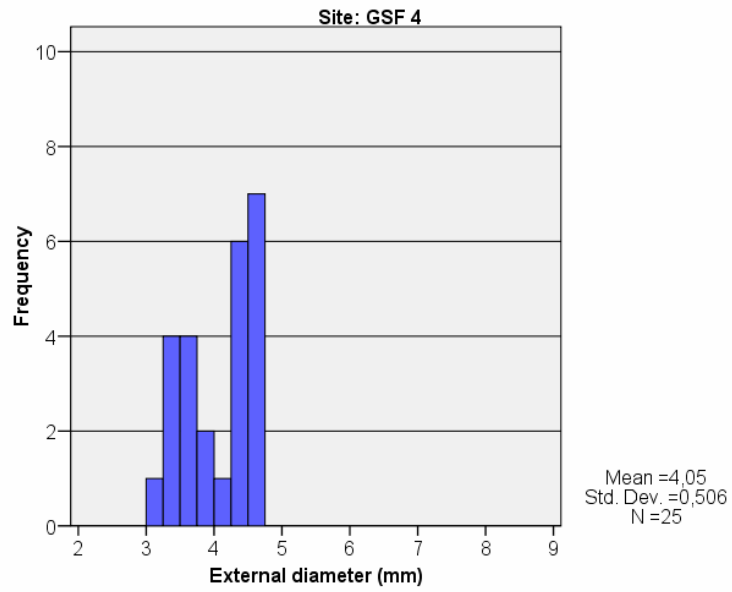


Fig. 5.5 Distribution of external diameter (mm) of ostrich eggshell beads at GSF 4.

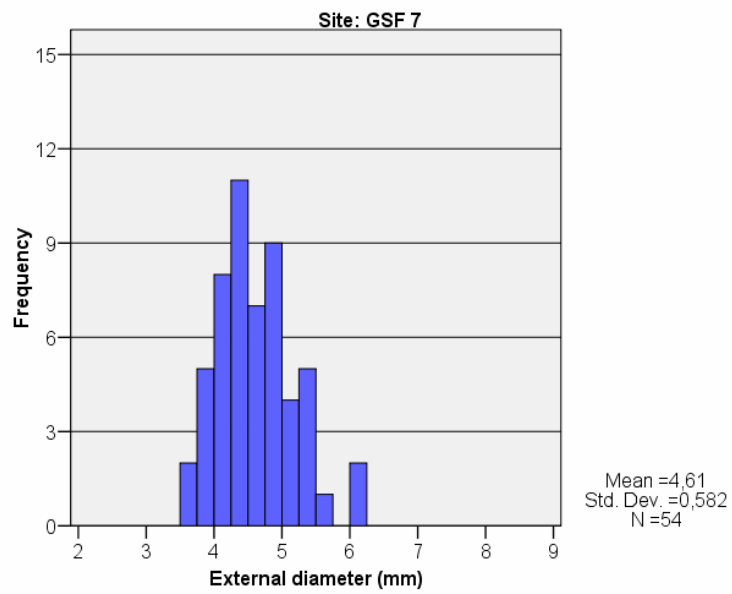


Fig. 5.6 Distribution of external diameter (mm) of ostrich eggshell beads at GSF 7.

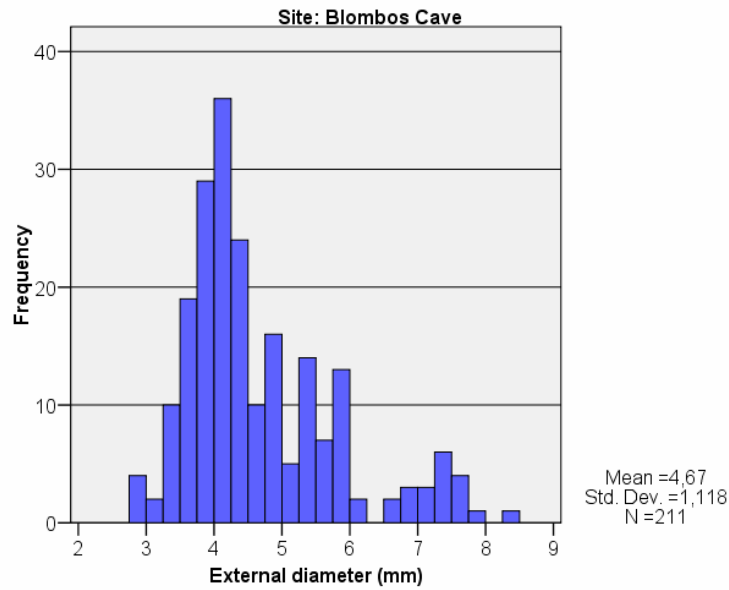


Fig. 5.7 Distribution of external diameter (mm) of ostrich eggshell beads in Blombos Cave.

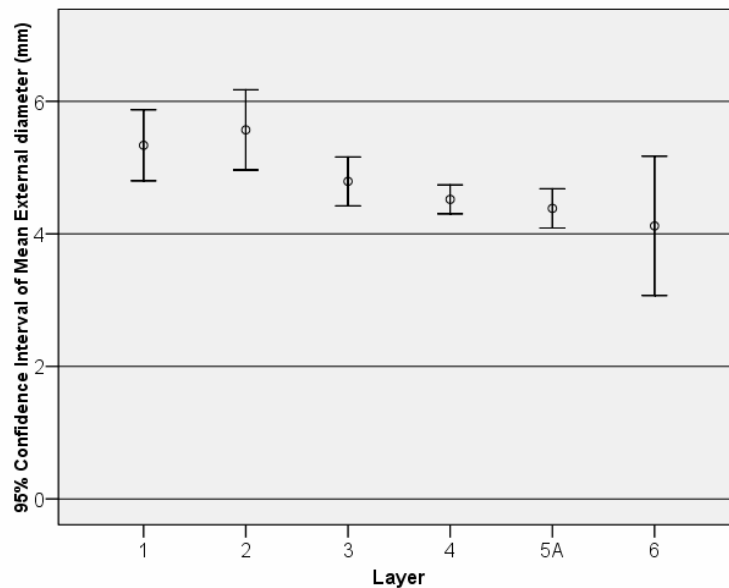


Fig. 5.8 Mean external diameter (mm) and statistical confidence interval of the mean of ostrich eggshell beads in all different LSA layers in Blombos Cave.¹

¹ Fig. 5.8 shows the mean external diameter of the ostrich eggshell beads in each layer in Blombos Cave. Each circle in the figure identifies the mean, while the vertical bar indicates the statistical confidence interval (SCI) of the mean. In Layer 1 the mean is 5.3 mm, and it can be calculated with 95 % certainty that the mean for all beads in this layer is between 4.8 and 5.8 mm. The SCI varies with the sample size and the variation of external diameter within the sample. If the sample is small and the variation is large, SCI will also be large. On the other hand, a large sample with little variation will give a small SCI. If all units had the same diameter, there would be no variation, and thus no statistical uncertainty. It cannot be assumed that very small samples, like Layer 6, are representative, and thus we cannot calculate SCI's for such samples. If the SCI of two samples overlap, it cannot be established with certainty that the means of the two samples are significantly different. This is the case for Layers 3, 4 and 5. On the other hand, the mean of Layers 1 and 2 are significantly larger than the means of Layers 4 and 5A, while the mean in Layer 3 is somewhere between Layers 1 and 2, and Layers 4 and 5. One can therefore conclude that there is a tendency for increasing external diameter of the beads over time.

Table 5.3 Mean diameter (mm) of ostrich eggshell beads in different LSA time periods in the Garcia State Forest and Blombos Nature Reserve.

Site	Layer	LSA time period	Mean diameter of ostrich eggshell beads
GSF 4	-	Classic Wilton	4.05 mm
GSF 7	-	Late Wilton	4.61 mm
Blombos Cave	6	Herder/Pottery Wilton	4.12 mm
Blombos Cave	1	Herder/Pottery Wilton	5.34 mm
Blombos Cave	All	Herder/Pottery Wilton	4.67 mm

Measurements of aperture were also made on measurable production stage 9 and 10 beads (on stage 10 beads where more than half the bead was intact). The mean diameter of the aperture of the ostrich eggshell beads from GSF 4 is 1.73 mm, with a standard deviation of 0,275 (Fig. 5.9). Measurements give a mean internal diameter of 1.77 mm, with a standard deviation of 0.355 mm on the beads from GSF 7 (Fig. 5.10). The mean internal diameter on the beads from Blombos Cave is 1.9 mm, with a standard deviation of 0.667 mm (Fig. 5.11). A comparison across sites and over time in the area shows that the internal diameter of the aperture and the external size of the ostrich eggshell beads increase over time. If the results from GSF 4, GSF 7 and Blombos Cave are examined together with the dates of each site, then the aperture size of ostrich eggshell beads in Garcia State Forest and Blombos Nature Reserve also increases slightly over time (Table 5.4).

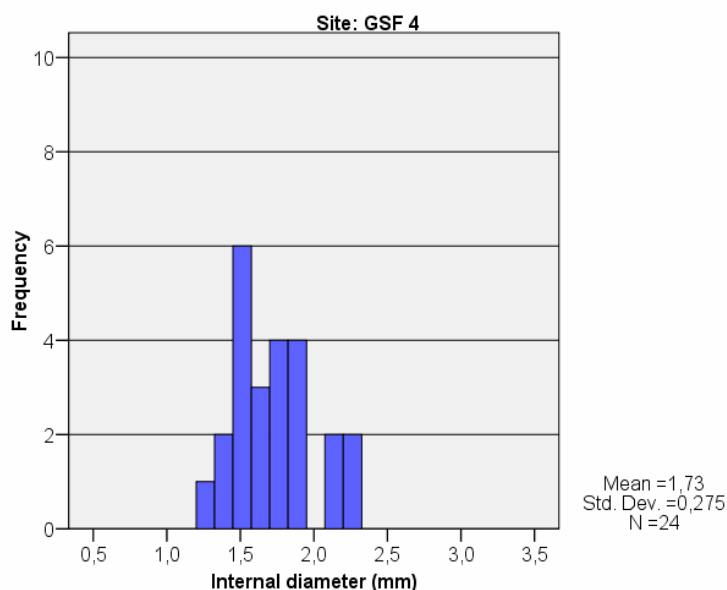


Fig. 5.9 Distribution of internal diameter (mm) (aperture size) of ostrich eggshell beads at GSF4.

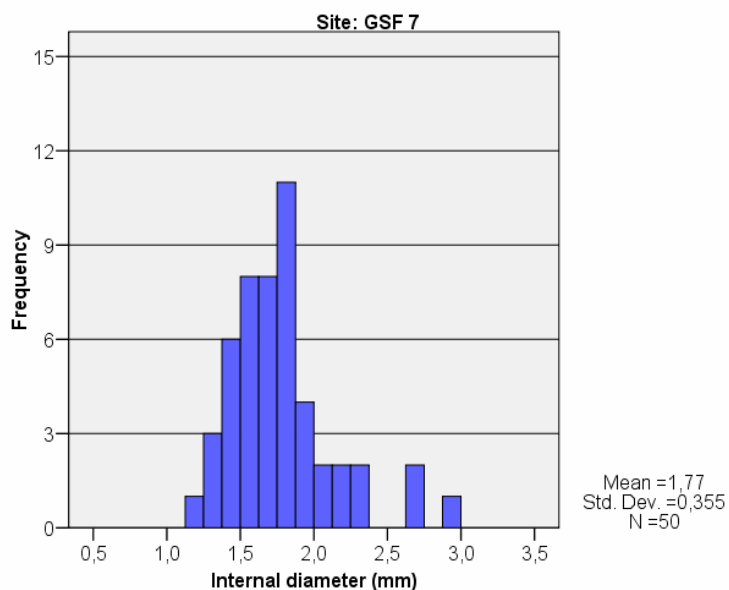


Fig. 5.10 Distribution of internal diameter (mm) (aperture size) of ostrich eggshell beads at GSF7.

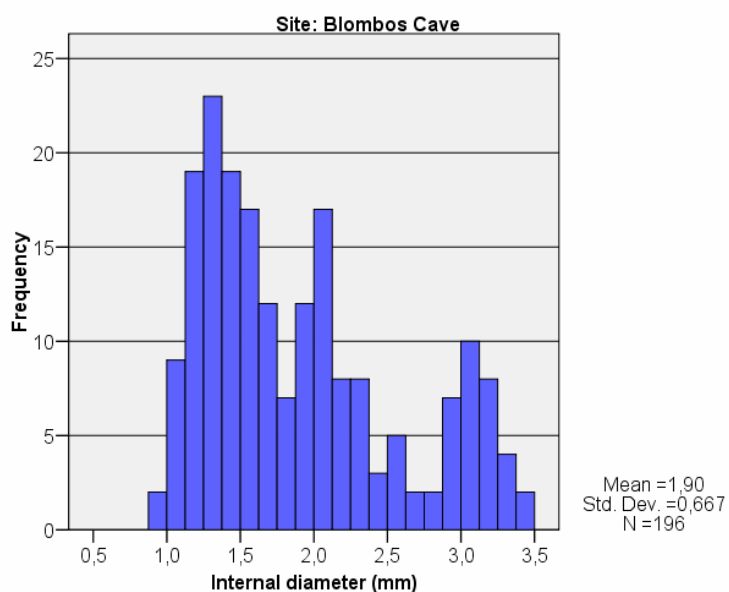


Fig. 5.11 Distribution of internal diameter (mm) (aperture size) of ostrich eggshell beads in Blombos Cave.

Table 5.4 Mean internal diameter (aperture size) of ostrich eggshell beads in different LSA time periods in the Garcia State Forest and Blombos Nature Reserve.

Site	Layer	LSA time period	Mean aperture size of ostrich eggshell beads
GSF 4	-	Classic Wilton	1.73 mm
GSF 7	-	Late Wilton	1.77 mm
Blombos Cave	6	Herder/Pottery Wilton	Not available*
Blombos Cave	1	Herder/Pottery Wilton	2.22 mm
Blombos Cave	All	Herder/Pottery Wilton	1.9 mm

*The apertures of the beads in Layer 6 in Blombos Cave were not measurable.

As explained in Chapter 4.1 colour differentiation on ostrich eggshell beads is achieved by intentional use of fire along with added organic material during burning (Conard & Kandel 2005). The presence of visibly burned beads (black or grey) and the division of ostrich eggshell beads in GSF 4, GSF 7 and Blombos Cave into colour groups shows that colouring of ostrich eggshell did occur (Table 5.5). However, a large amount of the beads were not coloured (74% in Blombos Cave, 59% in the three sites together). The small presence of black beads may be due to the delamination that occurs on thoroughly burnt ostrich eggshell (Conard & Kandel 2005:1716). Burnt eggshell is fragile and may break more easily.

Table 5.5 Colour of ostrich eggshell beads at GSF 4, GSF 7 and Blombos Cave.

	GSF 4	GSF 7	Blombos Cave	Total
Beige	38 %	15 %	3 %	12 %
Black	1 %	2 %	1 %	1 %
Brown	7 %	11 %	6 %	7 %
Grey	15 %	21 %	12 %	15 %
Light brown	-	10 %	4 %	4 %
Light grey	7 %	1 %	-	1 %
White	33 %	40 %	74 %	59 %

All ostrich eggshell beads from GSF 4, GSF 7 and Blombos Cave were inspected for traces of ochre. Of the ostrich eggshell beads from Blombos Cave 74% show traces of ochre. In contrast to this, ochre is visible on only 2% of the GSF 4 beads and 12% of the beads from GSF 7.

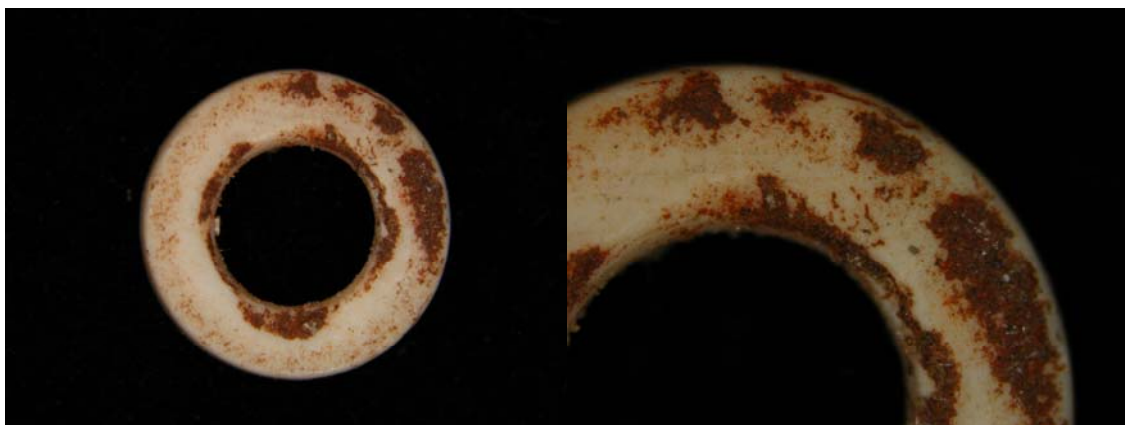


Fig. 5.12 Different magnification scales with a microscope clearly shows ochre traces on an ostrich eggshell bead from Blombos Cave. (Photographs by I. Vibe)

5.2 *Nassarius kraussianus* shell beads

Of the GSF sites, *Nassarius kraussianus* shell beads were found only in Blombos Cave and occur in the LSA and MSA layers (see Chapter 2.3). *N. kraussianus* shells are found in all LSA layers in Blombos Cave, with a particularly high concentration (55% of the total number) in Layer 4 (Table 5.6). There are no unperforated *N. kraussianus* shells in the MSA levels; all the shells of this species were used as beads.

The condition of the shells was recorded within four categories: (1) intact shell (unperforated), (2) perforated with intact lip and columella, (3) perforated with broken lip, (4) perforated with broken lip and columella. Analyses show that 19 % of the shells are intact with no perforation. 29 % are perforated but otherwise intact, 49 % are shells with broken lip, and the last 3 % of the shells are missing both the lip and the parts of the columella (Table 5.7). This is more or less the tendency in all layers.

Table 5.6 Number of *N. kraussianus* shells in each LSA level in Blombos Cave.

Layer	Level		Layer	Level		
1	BSBOK	13	4	HAMC1	2	
	CBS	2		HBMC2	39	
	COK	30		HBMC3	26	
	FLIM	2		MC1	204	
	HBCOK	3		MC123	22	
	HBSUR	8		MC1MC4	8	
	SUR	3		MC2	296	
Total	61	MC3		195		
2	FLIM	18		TUR	9	
	AAL	3		TURMCI	136	
	GAL	23		Total	937	
	HAPER	1		5A	BSMC4	24
	HBFLIM	5			HARS	41
	HBLIM	1	HBMC4		28	
	LIM	21	MC4		268	
	PER	10	RSMC4		1	
Total	82	Total	362			
3	BSACOC	77	5B	KAR	8	
	COC	110		KAR2	2	
	DAS	5		RAK	12	
	HACOC	2		RSKAR	3	
	HBCOC	2		RSKAR2	1	
Total	196	Total	26			
			6	BSDUN	7	
				DUN	17	
				RS	3	
				TRS	10	
			Total	37		
			All	Total	1701*	

*185 shells from section cleanings etc. are excluded from the total sample of 1886.

Table 5.7 Distribution of condition of *N. kraussianus* shells in different LSA layers in Blombos Cave.

	Category 1	Category 2	Category 3	Category 4	Total
Layer 1	6	16	34	5	61
Layer 2	23	24	34	1	82
Layer 3	20	54	115	7	196
Layer 4	193	274	445	25	937
Layer 5a	68	114	166	14	362
Layer 5b	6	8	12	-	26
Layer 6	7	11	19	-	37
Total	323	501	825	52	1701*

*185 shells from section cleanings etc. are excluded from the total sample of 1886.

It is likely that the unperforated shells were intended for manufacture of beads. As previously explained in Chapter 4.1 the shells must have been brought into the cave by human beings (Henshilwood *et al.* 2004, d’Errico *et al.* 2005). The shells are too small to be leftovers from food (Henshilwood *et al.* 2004, d’Errico *et al.* 2005:10). As mentioned in Chapter 4.1 it is highly unlikely they were brought into the cave on wracks of dead *Zostera capensis*. If *Z. capensis* was brought to the site, one would expect that the amounts of juvenile and sub-adult *N.kraussianus* would constitute c. 50% of the shells. This assumption is based upon the age classification of a sieved living population of *N. kraussianus* from Duiwenhoks estuary (d’Errico *et al.* 2005). Juvenile and sub-adult *N. kraussianus* shells have thinner lips and are generally smaller than adult shells. It was observed that juveniles and sub-adults were virtually absent among the 1886 shells from the LSA layers. Furthermore, it is unlikely dead wracks of *Z. capensis* were transported 20 km from its closest estuarine to the site (Henshilwood *et al.* 2004, d’Errico *et al.* 2005).

The length of each measurable shell with perforations (category 2) was measured from apex/tip to end of anterior canal using an electronic digital caliper (Fig. 4.3 & 4.6). The average length of the LSA shells is 7.15 mm (Fig. 5.13). In contrast the average length of the MSA shells is 8.7 mm (d’Errico *et al.* 2005:9, my calculation). I suggest the explicit presence of broken, perforated beads (49 %) in the LSA layers is related to the size of the beads. The LSA beads are much more fragile than the MSA beads, and therefore they tend to break more easily, either during perforation or during wear. Many of the category 3 shells clearly shows wear along the remaining perforation edge (Fig. 5.14 & 5.15).

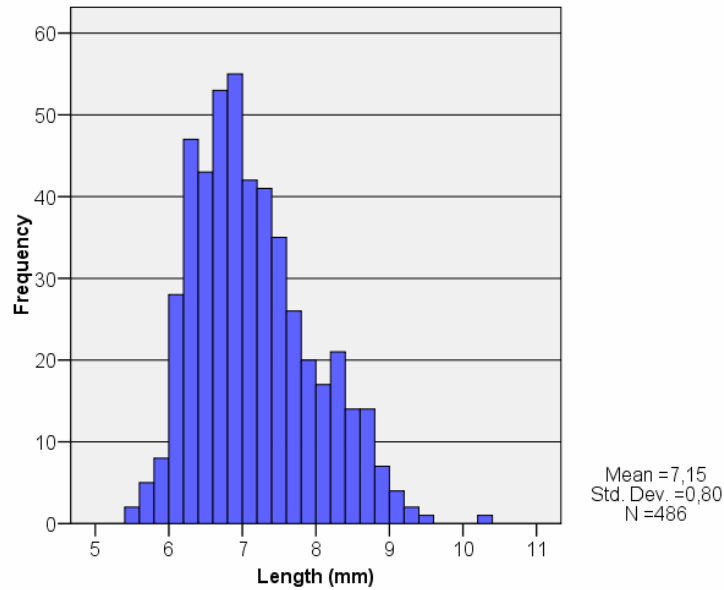


Fig. 5.13 Distribution of length (mm) of LSA *N. kraussianus* category 2 shells in Blombos Cave.

The perforation type on all intact shells with perforations (category 2) was recorded with a system based on the method established by d’Errico et al. (2005) for the Blombos Cave MSA shells (Fig. 4.7). Perforation types 3, 5, 6, 8, and 9 are present on the LSA shells (Table 5.8). Perforation type 8 is by far the most common (88 % of the total number of 501 category 2 shells). This perforation type is absent in living populations of *N. kraussianus* and only account for 8.6 % in modern thanatocoenoses (d’Errico *et al.* 2005:11). These large perforations are probably due to the prolonged use of the shells as threaded beads (d’Errico *et al.* 2005:15). Ventral perforations typically drilled by *Natica tecta* are found on 38 % to 89 % of shells from modern thanatocoenoses, whereas only 11 of the 501 category 2 LSA shells have this perforation type. This also implies the LSA people were selective in which shells they chose to collect.

Table 5.8 Different types of perforations on LSA category 2 *N. kraussianus* in Blombos Cave.

Perforation Type	Layer 1	Layer 2	Layer 3	Layer 4	Layer 5a	Layer 5b	Layer 6	Total	%
3	-	-	-	1	-	-	-	1	0.1%
5	-	-	-	1	-	-	-	1	0.1%
6	-	-	2	5	-	1	-	8	1.6 %
8	15	17	46	244	102	7	10	441	88 %
9	1	7	5	23	12	0	1	49	10 %
Ventral	-	(2)	1(2)	(5)	(1)	-	(1)	1(11)*	0.1%

*10 shells with additional perforation type 8 or 9.

Where detectable or present, use-wear traces were recorded on the category 2 shells using a Nikon microscope with 40X magnification. Some of the shells with use-wear traces were later photographed using a Leica S8AP0 microscope equipped with a Canon digital camera. Use-wear is present on the perforation edge, the lip and on the parietal wall of 78.6 % of the shells. These kinds of wear-traces are similar to the ones seen on the Blombos Cave MSA shell beads, although the wear-facets that flatten the parietal wall and the lip close to the anterior canal are more visible and obvious on the MSA beads. Wear along the perforation edge is the most common and obvious use-wear type for the LSA shells. On some of the shells the perforated edge is completely smoothed (Fig. 5.14).

Table 5.9 Different locations of wear-traces on LSA category 2 *N. kraussianus* shells in Blombos Cave.
Key to abbreviations: P = perforation edge, L = lip, W = parietal wall, No = no wear traces

	P	L	P, L	P, W	P, L, W	No
Layer 1	9	-	4	1	-	2
Layer 2	12	-	3	-	6	3
Layer 3	35	-	5	5	4	5
Layer 4	160	1	34	3	18	58
Layer 5a	63	1	9	-	4	37
Layer 5b	5	-	-	-	2	1
Layer 6	9	-	1	-	-	1
Total	293	2	56	9	34	107
%	58,5 %	0,4 %	11,1 %	1,8 %	6,8 %	21,4 %



Fig. 5.14 (Left) LSA *N. kraussianus* shell with wear all along the perforation edge. Fig. 5.15 (Right) LSA *N. kraussianus* shell with broken lip and wear along the perforation edge (Photographs by I. Vibe).

Figure 5.16 shows wear facets similar to the ones on the MSA beads. As mentioned above, the LSA beads presumably broke more easily than the MSA beads. Thus, the LSA beads also lasted for a shorter time than the MSA beads. This may explain why the wear traces are less visible and obvious on the LSA beads than on the MSA beads.



Fig 5.16 Wear-facets on Blombos Cave LSA *N. kraussianus* shell similar to those on the MSA shells. (Photograph by I. Vibe).

A random sample of 15 category 2 shells from each level (7 from Layer 5b, 11 from layer 6) was inspected for ochre traces. This examination showed that 46 % of the beads had traces of ochre.



Fig. 5.17 Different magnification scales with a microscope clearly shows ochre traces on a LSA *N. kraussianus* shell (Photographs by I. Vibe).

5.3 Other ornaments

Other types of ornaments were found only at GSF 7 and in Blombos Cave. At GSF 7 one *Turbo sarmaticus* pendant came from the HL3 level (Fig. 5.18). It is oblong in shape and measures 2.1 x 4.2 cm. Its edges are perfectly ground and rounded, otherwise it is not worked. It is not perforated, but it is highly likely it was intended for ornamentation as other similar non-complete “pendants” have been found at other sites along with finished ones (Schweitzer 1979, Schweitzer & Wilson 1982, Inskeep 1987). A *Conus sp.* pendant, 3.1 cm long, was recovered from the YSL level (Fig. 5.19). This shell is perforated, probably by punching, and very worn.

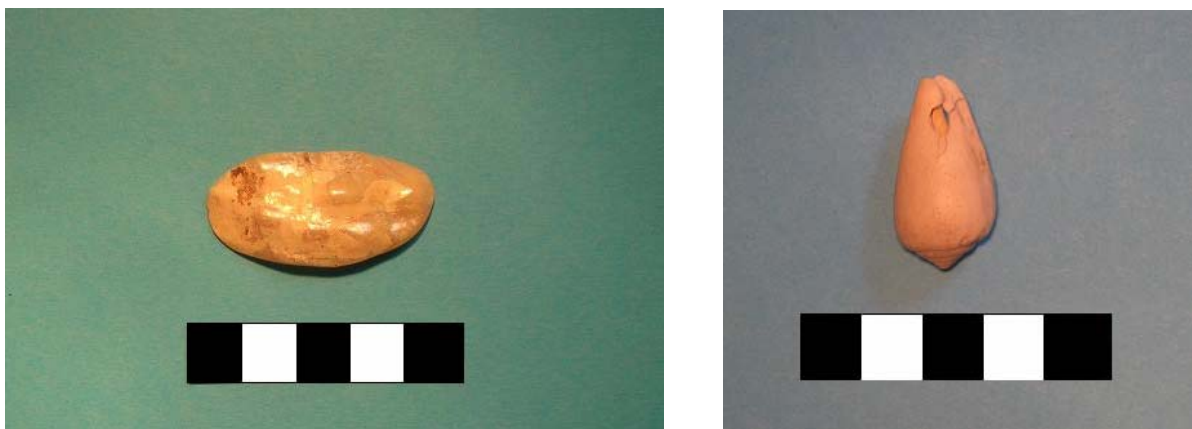


Fig. 5.18 (Left) Unperforated *T. sarmaticus* pendant from GSF 7. Fig. 5.19 (Right) *Conus sp.* Pendant from GSF 7(Photographs by I. Vibe).

Four *Glycimeris connollyi* pendants (Fig. 5.20) were recovered from the LSA layers in Blombos Cave. They measure between 9 x 9 mm and 14 x 15 mm. Two of them were found in the same square in level HBLIM (Layer 2), and are probably from the same beadwork item. They are both perforated (probably by punching) on the apex, and wear traces are visible on the perforation edges. The other two *G. connollyi* pendants were found in the MC1 and MC3 levels (Layer 4). They have perforations on the apices consistent with drilling through the shell by *Natica tecta* or another similar predator. However, they both show traces of wear on the perforation edges, probably from being strung. All four pendants are stained with ochre.

One *Turbo sarmaticus* pendant was recovered from the MC 4 level (Layer 5b) in Blombos Cave (Fig. 5.21). It measures 14 x 36 mm, is oblong in shape and is perforated on one end. The perforation (perforated from the inside of the shell) shows no traces of wear. The pendant may not have been used as it probably is an unfinished product. Similar pendants with worked

edges have been found at other sites, e.g. Die Kelders, Byneskranskop 1 and Nelson Bay Cave (Schweitzer 1979, Schweitzer & Wilson 1982, Inskeep 1987). One perforated shell pendant from a mother-of-pearl coloured shell, possibly *Haliotis sp.* or *Turbo sp.*, was recovered from the HS level (Layer 1) in Blombos Cave (Fig. 5.21). It measures 18 mm, and is broken on one side.

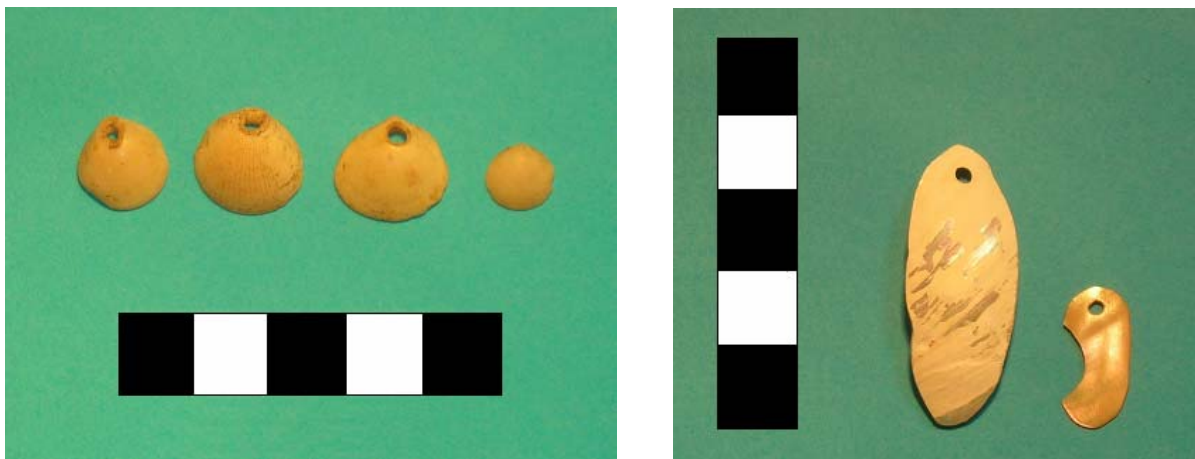


Fig. 5.20 (Left) *G. connollyi* pendants from Blombos Cave. Fig. 5.21 (Right) *T. sarmaticus* pendant and mother-of-pearl shell pendant from Blombos Cave (Photographs by I. Vibe).

The three *Conus sp.* pendants recovered from Blombos came from three different levels: FLIM and PER in Layer 2 and BSACOC in Layer 3 (Fig. 5.22). All three pendants have v-shaped grooved perforations on the anterior end consistent with deliberate filing. The pendants measure between 21 and 29 mm in length. One of them is burnt. Two of them have very worn perforations, suggesting they were strung. All show traces of ochre. One *Bullia digitalis* pendant measuring 25 mm was recovered from the MC 3 level (Layer 4) (Fig. 5.23). It is perforated by punching and show wear all along the perforation ridge. It also shows traces of ochre.

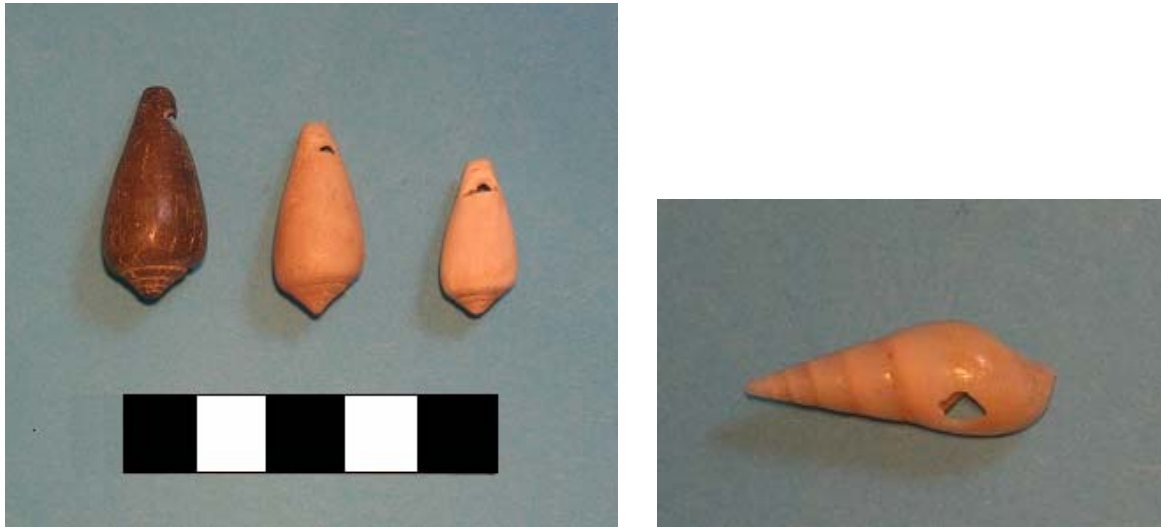


Fig. 5.22 (Left) *Conus sp.* pendants from Blombos Cave. Fig. 5. 23 (Right) *B. digitalis* pendant from Blombos Cave (Photographs by I. Vibe).

One broken bone ring was recovered from the MC 1 level (Layer 4) (Fig. 5.24). Two intact ones, measuring 9.3 and 9.9 mm in diameter, were found in the same square (E3) in the MC 3 level (Layer 5b), suggesting they come from the same beadwork item (Fig. 5.24). These two bone rings also show traces of ochre. All three are finely worked and polished.



Fig. 5.24 Bone rings from Blombos Cave (Photograph by I. Vibe).

5.4 String

One piece of string made from plant material was recovered from the MC 2 level in Layer 4 in Blombos Cave (Fig. 5.25). It is not possible to determine whether its use was related to any of the ornaments, but it may have been used to string beads, and is thus accounted for here. The string is +/- 15 cm long, ca. 2 mm thick, and weighs about 20 grams. It is a 12/6 ply string, meaning two and two fibre lengths, or strands, are twined into 6 strings which again are twined into one string. It has no knots. The string is coated in deposit from the cave, including tiny pieces of silica and quartz (Henshilwood pers. comm.).



Fig. 5.25 String of plant material from Blombos Cave, a) exposed parts of the string showing how it is twined, b) and c) string covered in deposits, d) covered and exposed parts of the string (Photographs by I. Vibe).

5.5 Discussion

The laboratory analyses of the personal ornaments in GSF 4, GSF 7 and Blombos Cave show that production and wear of ornaments is present in the area throughout the later Holocene. Raw materials available in the area, such as ostrich eggshell, sea shells and bone, were used in their production. The likely tools used for their production consist of stone borers, grinding stones, and bone tools.

From my analyses of the ostrich eggshell beads and the established production sequence it seems clear that the ostrich eggshell beads in GSF 4, GSF 7 and Blombos Cave were made by first; perforating a shell fragment from the internal side and next; preparing the fragments by trimming and grinding (see Chapter 4.2). Colour differentiation was achieved by burning some of the beads and adding different organic materials during burning (Conard & Kandel 2005). Quartzite grindstones and combinational hammer- and grindstones, some of them stained with ochre, are found in all three sites (Henshilwood 1995:188). It seems evident that some of them were used to grind ochre; it is possible some of these were used to grind ostrich eggshell beads and shaping seashell ornaments as well. Two lithic borers were recovered from GSF 7. These may have been used to drill holes on ostrich eggshell and make perforations on sea shell ornaments. No borers were found at GSF 4 or in the LSA layers in Blombos Cave (Henshilwood 1995, Heidi Strandman pers. comm. 2007). Kalahari San women are ethnographically known to carry their unfinished beadwork and toolkit around in bags (Vanhaeren 2005:535). This enables them to pick up the beadwork and start making beads whenever and wherever the occasion arises (although ethnographic accounts tells us this was a social activity where a group of women sat together making beads). Thus, I suggest the tools lacking at GSF 4 and Blombos Cave may have been deposited or lost elsewhere. The presence of finished beads only in Layers 3, 4, 5b and 6 in Blombos Cave suggests production of these beads took place elsewhere.

Analyses of the ostrich eggshell beads from GSF 4, GSF 7 and Blombos Cave show that there is a small increase in bead size within the area and within Blombos Cave over time. The GSF 4 and GSF 7 beads have a mean diameter less than 5 mm, which is the suggested division between hunter-gatherer associated and herder associated beads (Yates 1995, Conard & Kandel 2005). A total comparison of the beads from Blombos Cave also gives a mean diameter less than 5 mm, but a comparison of beads in different layers shows that the mean is

increasing over time. GSF 4 and GSF 7 are pre-herder sites and Blombos Cave a post-herder site. The changes in the size of the beads from each of these sites, over time, confirms the hypothesis that bead size increases only after the arrival of herders in the region (Jacobson 1987a, 1987b). However, the increase is very small, and if the hypothesis is valid, the Blombos Cave beads may not imply a herder occupation at the site.

Taphonomic, morphological and microscopic analyses prove the authenticity of the LSA *Nassarius kraussianus* shells as human made beads. They have perforations and show use-wear traces consistent with bead manufacture and use. Wear-traces are visible on 78.6 % of the perforated category 2 shells with intact lip and columella. These wear-traces are similar to the ones seen on the MSA beads. The LSA shells are smaller than the MSA shell, and break more easily. This is the reason why the wear-traces on the LSA beads are less visible than on the MSA beads. The production of *N. kraussianus* shell beads is somewhat less complicated than making ostrich eggshell beads. The shell is simply perforated to make a hole so that it can be strung and worn as a necklace/bracelet, attached to a garment, or in the hair etc. The shells were most likely perforated using bone awls (d'Errico et. al 2005:15). Six bone awls were recovered from the Blombos Cave LSA layers (Henshilwood *et al.* 2001a). One of the awls derived from Layer 3, while the other five were recovered in Layer 4. These layers have the highest frequency of *N. kraussianus* shells, along with Layer 5b (see Table 5.6), and it is likely these bone tools were used for piecing the shells. Analysis shows that the LSA beads were made and worn in much the same way as the MSA beads, although a much more extensive production of *N. kraussianus* beads in the LSA is evident.

The other ornaments from GSF 7 and Blombos Cave consist of bone beads and marine shell pendants. The *Turbo sarmaticus* pendant from Blombos Cave is most likely an unfinished product, and thus probably made on the site. The same conclusion can be applied for the GSF 7 *T. sarmaticus* pendant which is not perforated. The other ornaments, the *Conus sp.* pendant from GSF 7 and the bone rings and sea shell pendants from Blombos Cave, all show wear traces. All the marine shell species used to occur in the vicinity of the sites and were possibly collected there.

Use of ground ochre is common on the LSA ornaments from Blombos Cave, and present on some of the beads from GSF 4 and GSF 7, suggesting a symbolic role for the ornaments. Grinding stones with traces of ochre in Blombos Cave and GSF 4 shows that grinding of

ochre took place at the sites, implying that ritual activities took place at the sites. Ochre is widely used at LSA sites, and is also used for making rock art and in burials. Watts (1999) argues that ritual use of ochre was common in girls' initiation rites, the red colour acting as a symbol for fertility and reproduction. Use of ochre during girls' initiation rites is also recorded ethnographically (Marshall 1999:100). Different puberty rites known from the ethnographic record are discussed further in Chapter 3.

String is highly perishable and is seldom recovered. The string recovered from Blombos Cave is of interest as it provides information on how string was made in the LSA and also suggests that string of this type may have been used to string beads.

CHAPTER 6: CONCLUSION

6.1 Summary

Personal ornaments are symbols that express something about its wearer, whether it be social status, group belonging or, as is often the case in modern western societies, wealth. The use of personal ornaments can show our ability to think in a symbolic way, and the latter is the main factor that defines us as modern human beings. People in all cultures use personal ornaments for different purposes. The MSA and LSA people that inhabited the Blomboschfontein region are no exception, and the recovery of *N. kraussianus* shell beads in the MSA layers in Blombos Cave support the theory that humans were behaviourally modern in southern Africa at least 75 000 years ago. Interestingly, the same bead type was still in production, although on a larger scale, at the site in the LSA, c. 73 000 years later.

The personal ornaments in this study were made from raw materials that occurred naturally in the Garcia State Forest and Blomboschfontein region throughout the Holocene. The symbolic meaning and functions of these ornaments are not so easy to interpret, but comparison with the ethnographic record of contemporary Khoesan peoples suggest these LSA may have been used as (1) social or personal markers, (2) ritual items and gifts during courtship, marriage and girls' initiation rites, (3) grave goods or (4) exchange media. The presence of ochre on ornaments reinforces the suggestion that these ornaments carried symbolic meaning. Grinding stones with traces of ochre are also indicative of ritual activity that took place in Blombos Cave and GSF 4. No burials were recovered in the study area, but burials containing ornaments have been excavated in the Western and Eastern Cape (Hall & Binneman 1987, Deacon & Deacon 1999) suggesting the importance that ornaments may have had after death and possibly in afterlife. From !Kung San ethnography it is evident that personal ornaments play an important role in the reciprocal gift exchange system *hxaro*. *Hxaro* or other well functioned organized exchange systems are important in egalitarian societies, where people are dependant on each others contributions and good relations in order to survive. Evidence of *hxaro* is however not self evident in the study area.

In Chapter 3 I express certain scepticism about the use of ethnographic analogy as a method to interpret archaeological remains in Chapter 3. “*Comparing apples to oranges*”, so to speak, can be the unfortunate outcome if ethnographic analogy is used carelessly (Fahlander

2004). It is important to keep in mind that today's Khoesan are not the makers of LSA artefacts. The ethnographic record shows a great variety in meanings and functions of personal ornaments, and there are good reasons to believe similar variations and differences existed in the LSA as well. Some of the functions of LSA personal ornaments may no longer exist and will therefore remain unknown to us. Southern Africa is a large territory with a great variety in natural landscape types and resources. It is also important to take the aspect of time and space into consideration. Nevertheless, archaeological remains do not speak for themselves and different methods must be applied in order to interpret their functions. When used with care, ethnographic analogy can be a useful tool for the understanding of archaeological artefacts.

The LSA occupational layers in Blombos Cave coincide with the Herder/Pottery Wilton period, a transitional period during which an economy based on keeping live stock was gradually introduced to southernmost Africa. Blombos Cave could potentially be a herder site, as two sheep bones and a few pottery shards recovered from Layers 5 and 6 indicates the presence of sheep here by 2 000 bp (Henshilwood 1996). On balance it seems this was not the case due to the very low amount of cultural remains that are typically Khoekhoen, for example pottery and bones from domesticated animals. The site is also small and difficult to access for people who kept live stock, with no area nearby where sheep could be corralled. The very small increase in ostrich eggshell bead size over time, demonstrated in this study, also does not support a possible presence of Khoekhoen inhabitants, as typically their beads were larger than those found at the Blombos site. A more plausible scenario is that the Blombos inhabitants had contact with the Khoekhoen and somehow acquired a few sheep through theft or barter. The faunal remains at Blombos Cave show an extensive reliance on marine resources, and range of terrestrial animals for food suggests the inhabitants were San hunter-gatherers (Henshilwood 1995).

As we can be almost certain that the inhabitants of the GSF sites and Blombos Cave were hunter-gatherers, this study then provides a unique insight into the personal ornaments of the San people who occupied this region in pre- and post 2 000 BP period. The high frequency and production of personal ornaments in this period at Blombos Cave, after c. 2 000 BP, fits with the theory of regional environmental stress after the arrival of stock owners and fighting for resources between San and Khoekhoen people (Wadley 1989). Wadley (1987, 1989) argues that *hxaro* becomes more important for the San in times of stress, thus resulting in an

increasing production of beads and pendants for *hxaro* gifts to strengthen relations with other San. However, Henshilwood (1995) suggests “*the seasonal rounds of hunter-gatherers making use of the coastal resources were not disrupted, possibly due to a limited presence of herders in the GSF area or because there was no threat to hunter gatherer bands in the GSF area from Khoi herders.*” In either case, it seems likely that the presence of Khoekhoen in the greater region, if not in the GSF area, must have been the cause of considerable stress for the San people, especially just after 2 000 BP. The reason for the relatively high presence of personal ornaments at GSF 4 may be different. According to Henshilwood (1995) GSF 4 was occupied by a larger band of people, possibly 30-40 individuals. Henshilwood suggests it was an aggregation site where people gathered to exchange ritual *hxaro* gifts and for social interaction (Henshilwood 1995:237). This is based upon the find of formal tools, numerous traces of ochre on grindstones and the site’s size and layout.

Production of ostrich eggshell beads in GSF 4, GSF 7 and in Layers 1 and 2 in Blombos Cave, and production of *Nassarius kraussianus* beads in all layers in Blombos Cave, is evident from the presence of unfinished ostrich eggshell beads and un-perforated *N. kraussianus* shells. Layers 3, 4, 5a and 6 in Blombos Cave contain finished ostrich eggshell beads only, suggesting they were made elsewhere. One possibility is that in times when ostrich eggshell beads were not produced at Blombos Cave they were obtained from exchange of *N. kraussianus* beads. Finds of *N. kraussianus* beads at sites situated far inland indicates that exchange was widespread (Mitchell 1996a). However, other possible exchange systems besides *hxaro* should also be considered.

6.2 Conclusion

The main aim of this thesis is to establish how LSA Khoesan personal ornaments were made and used, and what they were used for. For this purpose I have searched the ethnographic records of different Khoesan groups in order to find references to the manufacture and use of ornaments. I have also analysed the ornaments recovered from three LSA sites in the Blomboschfontein region. The results of these analyses have yielded answers regarding their production techniques and the wear pattern that were observed on the ornaments, while the ethnographic material reveals a wide range of possible functions for the ornaments. The study also contributed to establish that hunter-gatherer people were the most likely inhabitants of Blombos Cave also after the arrival of herders in the area.

There is no doubt that the ornaments were of great importance to the San people that used to inhabit the Blomboschfontein region. The relatively large number of ornaments recovered implies an extensive use of beads and pendants, and the ground ochre present on many of the ornaments supports their important symbolic role. The exact answers to why the ornaments from GSF 4, GSF 7 and Blombos Cave were made and what they were used for, however, will probably largely remain an enigma.

Nevertheless, the new information that came out of this study may be helpful in reconstructing a 5 000 year long history of the area. The presence of the *N. kraussianus* beads, made and used in much the same manner in the LSA and MSA at Blombos Cave, suggest they may take part in an even longer tradition of ornament manufacture and use in the region.

The results presented here make it clear that personal ornaments should not be regarded as mere trinkets. To the contrary, they contribute as fundamental components in a complex social and cultural system and convey information about the wearer. Personal ornaments can be used in several ways and for many purposes. They make an excellent exchange media. Due to their size and lightness they can travel long distances. They can circulate in a gift network to reinforce social ties, or function as marriage payments or grave goods. They may be used as symbols of social identity and status, and can be accumulated through mutual exchange. Personal ornaments are important cultural artefacts as they take part in a general system of symbol-based communication, of which language is the foundational form.

The ability to communicate using symbols is the main factor that defines us as modern human beings. Language is probably the best example of such symbolic expression. As mentioned in the introduction in Chapter 1, language is not something that preserves in the archaeological record, and therefore archaeologists must rely on material remains to interpret the culture and social behaviour of prehistoric people without written language. Because personal ornaments are symbolic artefacts that express a function or a meaning, they have played an important role in the modern human behaviour debate. Personal ornaments have unique advantages that can contribute to this, given that their function is exclusively symbolic and their use have been recorded ethnographically in traditional societies, as demonstrated here.

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