Late Holocene archaeology in Namaqualand, South Africa: hunter-gatherers and herders in a semi-arid environment.

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Abstract

This study examines mid- to late Holocene Later Stone Age archaeological residues – specifically flaked stone artefacts, ostrich eggshell beads and pottery – from Namaqualand, north-western South Africa. Through its implication in all models so far proposed, Namaqualand is crucial to understanding the introduction of herding to the southern African subcontinent. Despite numerous publications on early herding, many key debates remain unresolved.

The study focuses on the northern and central Namaqualand coastline, but sites from other parts of Namaqualand are also described. The stone assemblages are grouped according to variation in materials and retouch and then, along with data from ostrich eggshell beads and pottery, analysed graphically for temporal and other patterning. A cultural sequence is then presented.

Using this sequence, key debates on early herding are explored and a hypothesis on its origins is constructed. Indigenous hunter-gatherers occupied the region throughout the Holocene and made Group 1 lithic assemblages from quartz and cryptocrystalline silica with frequent retouched tools primarily in cryptocrystalline silica. A new population – likely Proto-Khoekhoe-speaking hunter-gatherers with limited numbers of livestock – entered the landscape approximately 2000 years ago. They made Group 3 assemblages from clear quartz focusing on backed bladelets. Diffusion of stock and pottery among the local population occurred during this period. Later, *c.* AD 500, a new wave of migrants appeared. These last were the ancestors of the historically observed Khoekhoe pastoralists; they made Group 2 lithic assemblages on milky quartz without retouched tools. Bead diameter generally increases with time and contributes nothing to the debate. The pottery sequence is still too patchy for meaningful interpretation but differs from that elsewhere. Overall, the differing cultural signatures in western South Africa suggest that, although many questions will likely remain unanswered, a better understanding of southern African early herding will only be possible with a study addressing all regions simultaneously.

“Assumption is built upon assumption and a consensus is reached, but ultimately statements about the past are about the unobservable and they are unverifiable.”

“The leaps of faith that have to be made in interpreting archaeological data are great because so little is known and yet so much is said.”

--- Ian Hodder (1984:27, 28) ---

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- Excavation Permit No. 2009-04-001 (HWC);
- Excavation Permit No. 2010-04-002 (HWC);
- Excavation Permit No. 2010-10-005 (HWC);
- Export Permit No. 80/09/04/001/52 (SAHRA);
- Export Permit No. 80/09/10/001-020/52 (SAHRA);

- Export Permit No. 80/10/02/007/52 (SAHRA);
- Export Permit No. 80/10/09/004/52 (SAHRA); and
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Definitions and conventions

Namaqualand

Although the Orange River separates Great Namaqualand (in Namibia) from Little Namaqualand (in South Africa), I have, for convenience, referred to Little Namaqualand simply as 'Namaqualand'. References to Great Namaqualand are specified as Namibia.

Political and geographical regions

This thesis is set in the Western Cape and Northern Cape Provinces of South Africa. However, in referring to geographical areas south of Namaqualand it is sometimes more convenient to describe the area within about a 250 km radius of Cape Town as the 'south-western Cape' and the area to the east of this as the 'southern Cape'.

People

The various terms used by different researchers to refer to the indigenous peoples of southern Africa are discussed by Wilson (1986) and Barnard (1992). Most are objected to by someone. In the hope of remaining fairly neutral, and following Wilson who recommended the use of (socio-)economic terms by archaeologists, I use the following:

- 'Hunter-gatherers' refers to the aboriginal inhabitants of southern Africa present before 2000 years ago. These people continued to live in the area after this and some may have adopted herding to a greater or lesser degree.
- 'Pastoralists' and 'herders' refer to those people who tended domestic livestock in southern Africa from at least 2000 years ago. That they subsisted primarily by hunting and gathering is in no way denied through the application of these terms and Rosen's (1998) "herder-gatherers" may be a more appropriate term. While many authors use the two terms interchangeably, A. Smith (2000) makes the

distinction that pastoralists incorporate their stock into ritual activity (but see Homewood (2008:1) for a broader look at the scope of pastoralism). Herders merely keep stock as a cash resource. Although I prefer 'herder' and 'herding' due to the limited evidence for pastoralism so defined in southern Africa, I use 'pastoralist' and 'pastoralism' in the more general sense when appropriate.

The term 'Khoesan' (or 'Khoisan') is frequently used to refer generically to both ethnic groups and is avoided here. 'Khoekhoen' refers to the people (noun), while 'Khoekhoe' is the adjective (Smith & Webley 2000). For southern Africa's indigenous hunter-gatherers, 'Bushmen' is favoured over 'San', although both are acknowledged to be problematic and no suitable alternative exists (Wilson 1986).

Dating

Traditionally Stone Age archaeologists in South Africa have made little use of calibration, preferring uncalibrated radiocarbon years BP. This has recently begun changing and, in keeping with this trend, all Holocene radiocarbon dates presented below are calibrated and referred to in calendar years BC or AD at 95.4% probability. Where uncalibrated ages are preferred (i.e. for much older ages where calibration is unreliable) these are indicated by 'BP'. For consistency I have employed the Oxford Calibration Program throughout (OxCal; Bronk-Ramsey 1995, 2009). Terrestrial calibrations use the SHCAL04 curve (McCormac *et al.* 2004), while marine shell calibrations use MARINE09 (Reimer *et al.* 2009) and the newly calculated ΔR of 138 ± 98 (Dewar *et al.* 2012). Ostrich eggshell dates are corrected (-180 ± 120) prior to calibration following Vogel *et al.* (2001).

Many Namaqualand dates were conducted in other contexts, but those obtained for this research were run through the AMS facility at Oxford and the Centre for Applied Isotope

Studies at the University of Georgia, USA. All dates are calculated using the 5568 year half-life.

The phrases ‘pre-pottery period’ and ‘pottery period’ are used to denote the periods falling before and after approximately AD 1 respectively. Similarly, ‘pre-colonial’ or ‘prehistoric’ and ‘colonial’ or ‘historic(al)’ refer to periods before and after the commencement of European occupation of South Africa respectively. This change is not tied to any particular date since it began in Cape Town in 1652 and spread progressively northwards and eastwards, although historical observation ultimately began in 1488.

Chapter 1. Introduction and outline.

1.1 Introduction

Compared to other parts of South Africa, archaeological research in Namaqualand, north-western South Africa (Figure 1.1), is relatively youthful. Two doctoral theses (Dewar 2007, 2008; Webley 1992b) and a handful of published journal papers (Dewar *et al.* 2006; Dewar & Jerardino 2007; Jerardino *et al.* 1992; Orton 2007d, 2008a, 2008d; Orton *et al.* 2005; Webley 1992a, 2002, 2007) have been produced from the central region since the early 1990s, although commercial archaeologists began work in the coastal diamond mines around the same time. Publications have also resulted from research in the Richtersveld in the extreme north (Figure 1.1; Miller & Webley 1994; Orton 2007b; Orton & Halkett 2010.; A. Smith *et al.* 2001; Webley 1997a; Brink & Webley 1996; Webley *et al.* 1993), while new research projects there (Dewar & Stewart 2012) and in the far south (Mackay *et al.* 2010; Orton *et al.* 2011; Steele *et al.* 2012) are also underway. Underlining the tremendous archaeological potential of coastal Namaqualand, Parkington (1993:3), in one of the earliest commercial reports, noted the poor state of research there "with only a few cubic metres of archaeological excavation along some 400 km of coastline that almost certainly houses hundreds of thousands of cubic metres of fossiliferous deposits". Three decades of commercial work in Namaqualand have proved Parkington correct, but we still have a very long way to go in terms of properly understanding the region's prehistory.

Namaqualand is critical to understanding the spread of pastoralism through western South Africa and its introduction to the country in general, both much debated topics yet to find satisfactory resolution (Fauvelle-Aymar & Sadr 2008). A key aspect is the identification of pastoralist sites in the archaeological record – this despite the fact that we are looking at the most recent and well preserved period with the greatest number of sites. All the proposed routes of pastoralist dispersal include Namaqualand (Deacon *et al.* 1978:fig. 1) and the region offers the opportunity to examine a potentially simpler set of cultural residues, since, unlike the eastern parts of the subcontinent, only two groups of people, the Bushmen and Khoekhoen, were present during prehistory and overprinting and disturbance are greatly reduced. No attempt at distinguishing these two groups has yet been made on open coastal sites in Namaqualand and neither has the Holocene cultural sequence of the region been studied in any detail.

The search for the archaeological identity of hunter-gatherers and herders in South Africa is not new. The subject has been examined repeatedly through the years and has been underpinned by two central tenets:

- The belief that a ‘herder population’ migrated into South Africa some 2000 years ago bringing with it sheep and pottery; and
- Based on the excavated assemblages from the south-western Cape site of Kasteelberg (Figure 1.1; Klein & Cruz-Uribe 1989; A. Smith 1987, 2006a), the belief that ‘herder sites’ should contain both sheep and pottery.

It is only since the 1990s that new opinions have emerged, challenging the well-established and generally accepted theories. Championed primarily by Karim Sadr, the new ideas reject both the above beliefs. Briefly, the incursion is now suggested to have occurred through a process of diffusion[1] around AD 900–1200 with sheep and pottery having spread prior to this (Sadr 2003). Kasteelberg is seen as being a special purpose site and not the norm for herder occupations (Sadr 2004).

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[1] Diffusion is taken to refer to all mechanisms by which stock and pottery might have spread other than through migration of the Khoekhoe people themselves.

So, with an apparently well worn topic, what is there still to do? Based partly on the ideas put forward by Sadr and partly on my experience in the near-coastal Sandveld[2], I believe that the search for herder sites has been incorrectly carried out. Seeking sites with sheep and pottery is futile, since many herder sites are likely to contain neither, at least not in any quantity, while Bushman sites sometimes contain limited quantities of either or both. I, therefore, follow a different course. Based on the overall visual impression created by the stone artefacts in each assemblage, the assemblages are placed into three groups with strongly contrasting but regionally consistent features. Then, through study of the cultural sequence and comparison of the groups, the latter are explored in an attempt to ascribe cultural affinities to each. It is hoped that rather than studying sites in isolation, this fresh approach over a very wide area will yield results that can contribute to future studies of prehistoric stock-keeping.

By focusing on material culture and exploring new areas in southern Namaqualand I hope to compliment the work of Webley (1992b), who examined social change through the last 2000 years, and of Dewar (2008), who focused on subsistence and settlement strategies; both worked in central and northern Namaqualand. The Namaqualand cultural record consists primarily of stone artefacts, ostrich eggshell (OES) beads and pottery, which together form the heart of my study. The use of many single occupation sites should help refine the dating of particular cultural periods that are less easily separated at deep sequence sites (Villa & Courtin 1983 and references therein).

My research draws heavily on commercial excavations conducted by the Archaeology Contracts Office (ACO) of the University of Cape Town since 2001[3], the vast majority of which remain unpublished. These excavations focused on the coastal and near coastal

[2] Defined in Section 3.1.
[3] Now privatised as ACO Associates cc.

diamond mining areas of central Namaqualand adjacent to the towns of Kleinzee, Koingnaas and Hondeklipbaai (Figure 1.1; Halkett 2002, 2003; Halkett & Dewar 2007; Orton 2005a, 2005b, 2009a; Orton & Halkett 2005, 2006, 2007a) with far less between some 5 and 10 km inland (Orton 2007c; Orton & Halkett 2007a). The southern parts of Namaqualand, northwest of Vredendal (Figure 1.1), have had few excavations with all again being coastal or near coastal (Hart and Halkett 1994; Halkett *et al.* 1993; Hart & Lanham 1997), while in the Richtersveld one commercial excavation has occurred inland (Halkett 2001b) and one on the coast (Webley & Orton 2010).

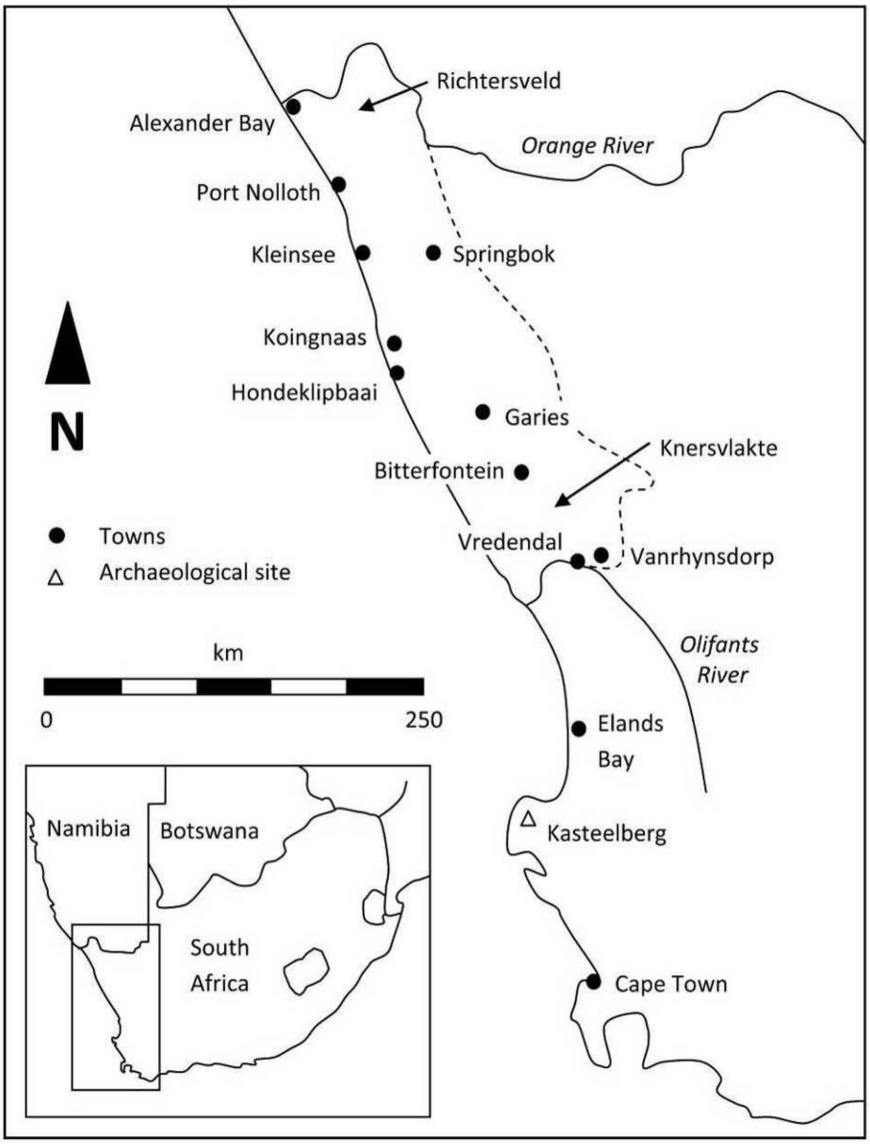

Figure 1.1: Map of western South Africa showing places mentioned in Chapter 1. The dotted line indicates the approximate eastern boundary of Namaqualand between the Orange and Olifants Rivers.

Although this work has documented material dating to the Early (ESA), Middle (MSA) and Later (LSA) Stone Ages, the last few thousand years of the latter period are by far the best represented. A climate unsuited to farming left Namaqualand sparsely settled by European colonists such that historical sites are only thinly spread over the landscape and few contact period sites have been documented (Orton 2009a; Webley 1984, 1986; Orton *et al.* 2011). This thesis incorporates LSA material from the coastal areas and Richtersveld as well as newly excavated sites from the Knersvlakte. Although material dating throughout the latter half of the Holocene is discussed, the last 2000 years are emphasised, with the specific goal of reassessing the distinction between the cultural remains of hunter-gatherer and herder groups.

Until late in the twentieth century archaeologists concerned themselves primarily with the description of material before switching to a deeper concern with social organisation and cultural processes (Kusimba 2003). This new approach has in recent years led to many new ideas and a potent theoretical debate over the origins of pastoralist society in southern Africa. However, we seem no closer to resolving many of the topical issues. Bearing in mind Arthur's (2008) suggestion that we need to change the way we look for herder sites, I have elected to revert to the descriptive approach, focusing on typology, but from a different angle, and will combine my results with ideas emerging from the more theoretical debates in formulating an interpretation of the Namaqualand archaeological record.

Ultimately this thesis has five primary aims:

- To present and analyse the material cultural signatures of the prehistoric occupants of the far western and north-western parts of South Africa throughout the second half of the Holocene;
- To attempt to differentiate hunter-gatherer and herder archaeological signatures;

- To examine the interactions between hunter-gatherers and herders as revealed by their cultural artefacts;
- To examine a poorly understood late Holocene industry emphasising clear quartz and backed artefacts and occurring in the central Sandveld; and finally
- To summarise the late Holocene archaeological sequence in Namaqualand.

1.2 Structure of the thesis

Chapter 2 examines some of the contentious and problematic issues that have beset pastoralist and hunter-gatherer studies through the last few decades and that are explored further in this thesis. In so doing, it presents the theory behind our current understanding of early herding in South Africa. Chapter 3 describes the study area and establishes the environmental, palaeoclimatic and past research context in which the thesis is set. I consider both published and unpublished archaeological reports (grey literature) in order to assess what is currently known for each physiographic region of Namaqualand.

In Chapter 4 the research methodology is described. This includes the rationale behind selection of sites for further study and describes the excavation methods and typological classification systems employed. Chapter 5 presents the sites and data studied in this project, region by region. Relevant data and statistics pertaining to the cultural material are given, along with some brief interpretation. Based on this evidence, Chapter 6 analyses the patterns present in the cultural assemblages and builds a basic chronology through establishing the Sandveld sequence then comparing it with wider Namaqualand. Chapter 7 then explores the last 2000 years in Namaqualand via various topics that arose during the study, after which the final chapter sums up and concludes the thesis.

Chapter 2. Pastoralist and hunter-gatherer studies in South Africa

Pastoralism was widespread in the western and south-western parts of South Africa at the time Europeans arrived in the subcontinent. The first European explorer reached the area in 1488, while a colony was established by the Dutch East India Company (VOC) at Cape Town in 1652. Many remarked on the presence of Khoekhoe herders with very large herds of cattle and flocks of sheep (Raven-Hart 1967; Van Riebeeck 1952, 1954). Archaeological evidence, however, has not been forthcoming and one of the most deep-seated questions in southern African archaeology remains: 'Where are the residues of these herders with their massive herds?'

Pastoralism has long been recognised as "an exotic cultural pattern to South Africa that can only have been introduced from the north" (A. Smith 1983: 79). Several authors have reviewed the evidence for its origin in the LSA of southern Africa at great length (Deacon *et al.* 1978; Klein 1986; Mitchell 2002b; Sealy & Yates 1994; A. Smith 2005a, 2006a; Webley 1992b), with Webley (2007) attempting an updated and Namaqualand-specific assessment. Despite limited evidence, a surprisingly large volume of literature on the topic has arisen. Here I review and discuss the primary contentious issues to have emerged. I first examine the key issue of the identification of hunter-gatherer and herder remains on the ground, following this with a look at the origins of pastoralism in South Africa (this discussion is limited to the LSA Khoe speakers, since a later (Early Iron Age) introduction of domestic stock and agriculture occurred via Bantu speakers in the eastern half of the subcontinent). LSA pastoralism is thus restricted primarily to the semi-arid west that was too dry for Iron Age agropastoralism, although B. Smith & Ouzman (2004) do also find evidence for a Khoekhoen presence in north-eastern South Africa. Table 2.1 lists dates relevant to the introduction of sheep and pottery to South Africa, many of which are discussed below, and Figure 2.1 identifies the locations of key sites. Sadr and Sampson (2006) provide a more comprehensive listing relevant only to pottery and covering a wider geographical area.

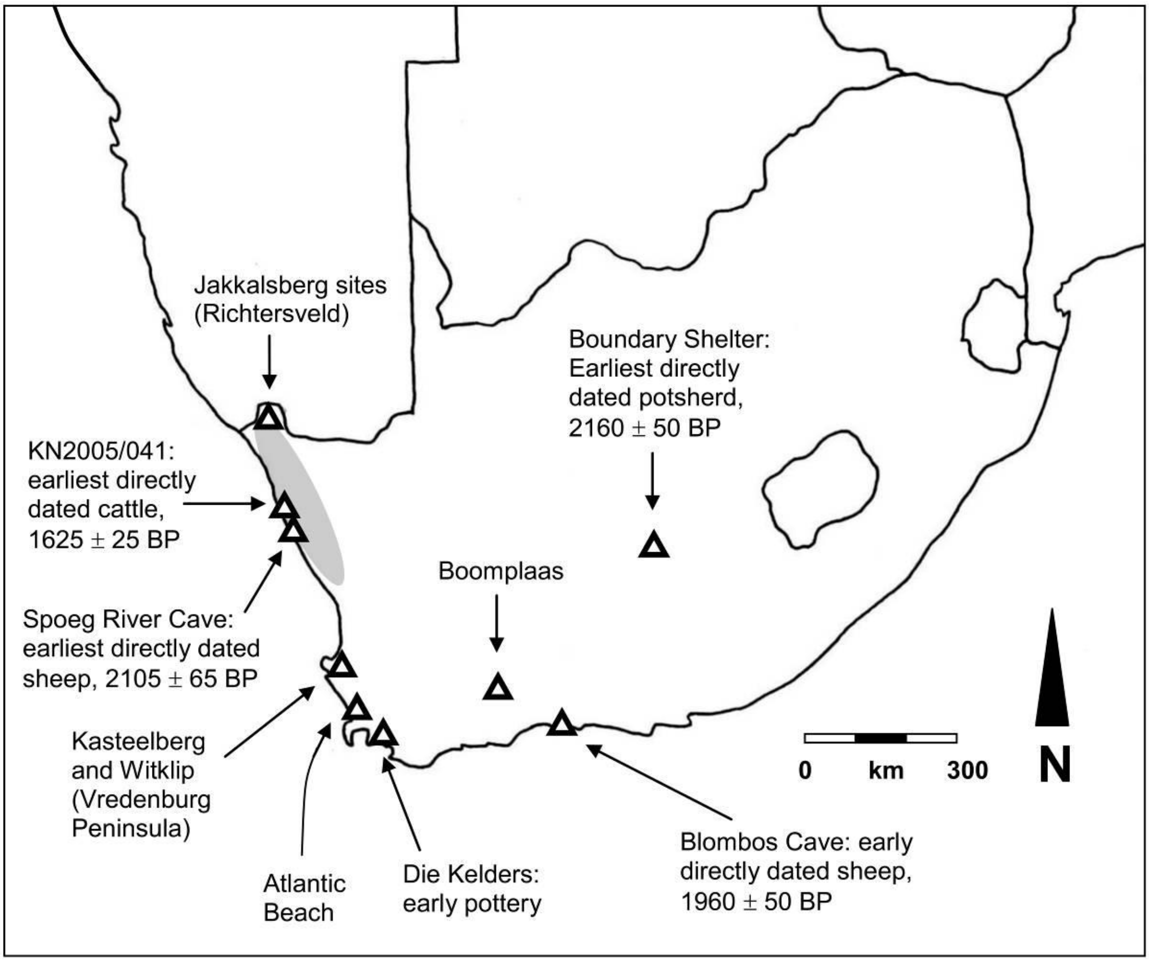

Fig. 2.1: Map showing the locations of sites significant to the discussion of early pastoralism in South Africa. The grey shading indicates the current study area (see Table 2.1 for references).

Table 2.1: Dates discussed in this chapter that are specifically relevant to the introduction of sheep, cattle and pottery to the western and southern parts of South Africa. This list is necessarily selective and does not include all dates from each site. The dates are listed alphabetically by site and those in bold highlight directly dated stock bones and pot sherds. Calibrations were conducted on OxCal (Bronk-Ramsey 1995, 2009).

Site	Lab No.	^{14}C age (BP)	Material	Calibrated date at 2 σ (95.4%)	Relevance / Context	References
/Ai tomas	Pta-5530	1980 ± 80	Charred bone	159 BC–AD 317	Early sheep and pottery, Richtersveld	Webley 1992b
Boundary Shelter	**Gr-A13564**	**2160 ± 50**	**Fibre temper**	**355 BC–AD 18**	**Early pottery (directly dated, fibre temper), Upper Karoo**	**Sadr & Sampson 2006**
Blombos	**OxA-4543**	**1960 ± 50**	**Bone**	**34 BC–AD 237**	**Directly dated sheep bone, earliest sheep, south coast**	**Henshilwood 1996**
Blombos	**OxA-4544**	**1880 ± 55**	**Bone**	**AD 62–344**	**Directly dated sheep bone, early sheep, south coast**	**Henshilwood 1996**
Boomplaas	UW-338	1700 ± 55	Charcoal	AD 255–543	Base of dung deposit indicating kraal	H. Deacon *et al.* 1978.
Boomplaas	UW-337	1630 ± 50	Charcoal	AD 384–604	Top of dung deposit indicating kraal	H. Deacon *et al.* 1978.
Byneskranskop	**Beta- 232590**	**1740 ± 40**	**Bone**	**AD 241–526 †**	**Directly dated possible cattle bone, south coast**	**Horsburgh 2008**
Byneskranskop	**Beta-232588**	**1840 ± 40**	**Bone**	**AD 128–380 †**	**As above**	**Horsburgh 2008**
Byneskranskop	**Beta-232591**	**1880 ± 40**	**Bone**	**AD 79–324 †**	**As above**	**Horsburgh 2008**
Byneskranskop	**Beta-232589**	**2100 ± 40**	**Bone**	**174 BC–AD 54 †**	**As above**	**Horsburgh 2008**

Site	Lab No.	^{14}C age (BP)	Material	Calibrated date at 2 σ (95.4%)	Relevance / Context	References
Cape St Francis, SFB1/1	Pta-9311	1770 ± 50	Charcoal	AD 140–431	Earliest pottery on Eastern Cape coast	Binneman 1995, 2001
Cape St Francis, Unspecified	Pta-5982	1560 ± 40	Bone††	AD 433–642	Earliest sheep & cattle on Eastern Cape coast	Binneman 2001
Die Kelders	Gak-3878	2620 ± 100	Charcoal	896–409 BC	Early pottery, south coast (but considered unreliable by excavator)	Schweitzer 1979
Die Kelders	Gak-3877	1650 ± 90	Charcoal	AD 255–637	Early pottery, south coast	Schweitzer 1979
Die Kelders	GX-1688	1960 ± 85	Charcoal	109 BC–AD 336	As above	Schweitzer 1979; Wilson 1996
Die Kelders	Gak-3955	1600 ± 120	Charcoal	AD 223–763	As above	Schweitzer 1979
Die Kelders	GX-1685	1465 ± 100	Charcoal	AD 420–862	Layer 2 containing large numbers of sheep	Schweitzer 1979
Dunefield Midden 11	Pta-8912	2220 ± 20	Marine shell	AD 92–521 *	Earliest pottery in Elands Bay area	Orton 2004, 2006
Equus Cave	Pta-2452	2390 ± 60	Charcoal	749–204 BC	Sheep/goat in hyaena lair, Northern Cape	Beaumont & Vogel 1984; Vogel *et al.* 1986
Hawston	Pta-834	1860 ± 60	Charcoal	AD 68–317	Early sheep, south coast	G. Avery 1975
Hawston	Pta-835	1900 ± 40	Charcoal	AD 77–382	Early sheep, south coast	G. Avery 1975
Kasteelberg A	Pta-3711	1860 ± 60	Charcoal††	AD 77–382	Early sheep and pottery on Vredenburg Peninsula	A. Smith 1987, 2006a; Klein & Cruz-Uribe 1989

Site	Lab No.	^{14}C age (BP)	Material	Calibrated date at 2 σ (95.4%)	Relevance / Context	References
Kasteelberg A	**OxA-3864**	**1630 ± 60**	**Bone**	**AD 343–613**	**Directly dated sheep bone at same level as Pta-3711**	**Sealy & Yates 1994**
KN2005/041	**OxA-22933**	**1625 ± 25**	**Bone**	**AD 421–559**	**Directly dated cattle bone, earliest cattle in central Namaqualand**	**Orton *et al.* in press**
Nelson Bay Cave	GrN-5703	1930 ± 60	Charcoal	AD 34 BC–237	Immediately below first pottery	Inskeep & Vogel 1985; Vogel 1970
Nelson Bay Cave	**OxA-873**	**1100 ± 80**	**Bone**	**AD 780–1158**	**Directly dated sheep bone from same layer as above NBC date**	**Gowlett *et al.* 1987**
Noetzie	UGAMS-3063	2240 ± 30	Marine shell	AD 230–457 **	Early pottery and sheep, south coast	Halkett & Orton 2009; Orton & Halkett 2007b
Spoeg River Cave	**OxA-3862**	**2105 ± 65**	**Bone**	**350 BC–AD 115**	**Directly dated sheep bone, earliest sheep, west coast and South Africa**	**Sealy & Yates 1994**
Tortoise Cave	Pta-3312	1680 ± 50	Charcoal	AD 260–559	Earliest sheep in Elands Bay area	Robey 1987

* Marine shell date with ΔR 146 ± 85 (following Dewar *et al.* 2012)
** Marine shell date with ΔR 205 ± 30 (following Southon *et al.* 2002)
† These early dates for cattle are possibly unreliable as the species identifications are now regarded as requiring confirmation through further study (A. Horsburgh, pers. comm. 2012)
†† Materials unpublished but supplied by S. Woodborne (pers. comm. 2012)

2.1 The archaeological identity of hunter-gatherers and herders

2.1.1 Cultural remains

Whether hunter-gatherers and pastoralists/herders can be distinguished on the basis of material culture has been widely debated in South Africa, especially since the publication of a seminal paper by A. Smith *et al.* in 1991. After reviewing their model, I examine in more detail stone artefacts, pottery, campsites and kraals as the main identifiers of possible pastoralist occupation. Not enough work has been done on ostrich eggshell beads to enable further discussion on them, although it is generally accepted that smaller beads predate larger ones, with the latter being linked to herders – this seems to be based purely on their presence in sites dating after the introduction of domesticates and pottery (Jacobson 1987; A. Smith *et al.* 1991; Yates *et al.* 1994).

Using excavated evidence from a suite of sites on the Vredenburg Peninsula and its hinterland, A. Smith *et al.* (1991) proposed a typical cultural signature expected on hunter-gatherer sites with Witklip as their prime example. This they contrasted with residues suggested to be from herder sites, of which Kasteelberg B was considered typical.

Hunter-gatherer sites were said to have the following characteristics among their cultural artefacts:

- relatively high frequencies of retouch in their stone artefact assemblages;
- relatively high frequencies of fine-grained stone materials, especially among the retouched component;
- low densities of potsherds;

- presence of shell scrapers made on the sand mussel, *Donax serra*; and
- ostrich eggshell beads with mean external diameters less than about 5.5 mm and mean aperture diameters less than 2.0 mm (although A. Smith (2005a:48) later set the upper margin for external diameter at 5 mm).

These cultural residues were expected to accompany relatively small quantities of seal and sheep bones and larger numbers of wild fauna. By implication, the residues of herders would reflect the opposite. These contrasting signatures were identified in coeval, nearby sites and interpreted as reflecting the continued independent existence of aboriginal Cape hunting societies, both in the face of a growing population of pastoralists, and until after the onset of colonial occupation (A. Smith *et al.* 1991). Despite its dating though, the consistent presence at Witklip of certain stone artefacts characteristic of mid- to late mid-Holocene occupations (particularly segments and backed scrapers) calls into question the reliability of the site as a typical late Holocene accumulation. Instead, it may have mixed assemblages and a comparison between it and Kasteelberg A and B may thus be invalid.

Nonetheless, A. Smith *et al.* (1991) readily assigned their assemblages to their hunter or herder groups, although in a subsequent paper Yates and Smith (1993) suggested that the material composition of hunter sites was far more distinctive than that of herder sites. Apparently contradictory evidence (namely large ostrich eggshell beads in hunter sites), particularly in the most recent period, was said to be the result of "an acceptance [by hunter-gatherers] of cultural material or norms of manufacture from the herder communities" (A. Smith *et al.* 1991:89). This cultural exchange was said to be unidirectional, since large beads were found in Smith *et al.*'s (1991) hunter-gatherer sites but very few small beads entered the herder deposits. Their most obvious example was Voëlvlei with its impressive assemblage of retouched tools, pottery and large beads (8.2 $\pm$ 1.2 mm). Some other Western Cape sites also fit the model quite well (Table 2.2).

Table 2.2: Selected Western Cape pottery period hunter-gatherer and herder sites identifiable by A. Smith *et al.*'s (1991) criteria.

	Site	References
Hunter-gatherer	Grootrif G	Jerardino (2007b)
	Bakoond	Orton (2009b)
	Klein Kliphuis	Van Rijssen (1992); Orton & Mackay (2008)
Herder	Heuningklip	Sadr & Smith (1991)
	Boomplaas upper pottery levels	H. Deacon *et al.* (1978); Klein (1978); Von den Driesch & Deacon (1985)
	Atlantic Beach	Sealy *et al.* (2002)
	Smitswinkelbaai Cave	Poggenpoel & Robertshaw (1981)

A. Smith *et al.* (2001) felt able to separate hunter-gatherer and herder residues at Bloeddrift 23 in the Richtersveld, while in the central Northern Cape Beaumont *et al.* (1995) suggested a similar distinction, going as far as identifying distinct industries – the Swartkop and Doornfontein respectively – belonging to the two groups. These industries were poorly described but Parsons (2007) has collated the available information. She notes the Swartkop to be blade-rich and made mostly on hornfels with backed blades being common retouched elements. Pottery occurs and increases with time. The Doornfontein is an informal industry based primarily on quartz and associated with much pottery.

Despite these apparent consistencies, A. Smith *et al.*'s (1991) model has begun to crumble in recent years. Specifically, Sadr *et al.* (2003) have shown, using some of the same Vredenburg Peninsula sites along with others, all from Kasteelberg (Figure 2.1), that the cultural remains, specifically pottery (Table 2.3) and ostrich eggshell beads that have clear stylistic characteristics, show far more overlap than A. Smith *et al.* (1991) described. They found no evidence for two signatures representing two population groups. This conclusion was already reached by Schrire (1992) who added that it would have been very difficult for two distinct ethnic groups to have successfully avoided each other (and their camp sites) within the confines of the approximately 450 km^2 Vredenburg Peninsula over a period of nearly 2000 years. Although stone artefacts showed more disparity, Sadr *et al.* (2003) proposed that the variation might reflect functional differences in subsistence strategies with more mobile groups focusing their foraging inland and more sedentary groups concentrating on coastal resources.

Table 2.3: Thin-walled pottery in south-western Africa. Compiled from Sadr (2008a), Sadr & Sampson (2006) and Sadr & Smith (1991). This sequence was first described from Kasteelberg by Sadr & Smith (1991) and subsequently clarified by Sadr & Sampson (1999).

Pot features	Decoration	Temporal occurrence	Comment
	Plain	Late first millennium BC to early first millennium AD	Inland examples are fibre tempered.
Small, short-necked vessels with spouts	Decorated necks and sometimes extends to body: incised lines, punctuates, jab-and-drag, scoring on lip	Early to mid-first millennium AD (to AD 650 in south-western Cape)	Inland examples fibre tempered; incision and comb-stamping sometimes co-occur. Comb-stamping with *Donax serra* shell (Wilson & Halkett 1981).
Small, short-necked vessels with spouts, sometimes with a boss opposite shoulder	Decorated necks and spouts only: impressed	mid- to late first millennium AD (AD 650–850 in south-western Cape)	
Larger necked jar with lugs and pointed base	Undecorated	Late first to early second millennium (AD 850–1250 in south-western Cape)	
Larger necked jar with lugs and pointed base	Parallel incised lines and impressed dots	Mid- to late second millennium AD (Post-AD 1250 in south-western Cape)	Widespread, most recent pottery tradition

Of course, this type of debate is not new and recalls that of Bordes and Binford (ethnicity versus functionality) in the European Mousterian. In reviewing that debate, Mellars (1996) suggested that simple chronological change might be responsible. Parsons' (2007) research into the Swartkop and Doornfontein industries also suggested a lack of clarity; the variability displayed by most artefact classes resulted in significant overlap between the two assemblage types. Wilson (1996) also found A. Smith *et al.*'s (1991) criteria to be unsatisfactory, since, using them, he could not say whether hunters or herders had occupied the coastal site of Die Kelders in the south-western Cape, a conclusion already alluded to by Schweitzer (1979). Possibly invalidating the whole debate, Barnard (1992:159) suggested that the "equation of ethnicity with the hunter/herder boundary is, arguably, an invention of European commentators" and saw the Khoe-speakers who arrived in South Africa to have included both hunter-gatherer and herder populations as reviewed by Mitchell (2010:75).

While some sites do fit the A. Smith *et al.* (1991) model as noted above, many others do not. Pottery sites at Jakkalsberg (JKB A, B, K and M; Figure 3.1) conform in some respects but not in others (Orton 2007b; Webley 1997a). All have informal, quartz-dominated lithic assemblages, but ostrich eggshell bead sizes and frequencies of domesticates and pottery vary considerably, suggesting the Smith *et al.* (1991) model to be inappropriate there. JKB M, in particular, contained highly contrasting remains that included much pottery, relatively small beads (mean 4.9 ± 0.9 mm), and a predominantly wild fauna with a few sheep bones (R. Klein & T. Steele, pers. comm. 2006; Orton 2007b). Of these four sites, only JKB K (AD 1212–1459, GX-32761; Orton & Halkett 2010) was perhaps recent enough to have experienced the exchange of material culture claimed by Smith *et al.* (1991:89) to have occurred within the last 500 years. The other three all date to the first millennium AD (Orton 2008d; Webley 1997a). In southern Namibia, Skorpion Cave, dating within the last 1500 years, also provides contrasting evidence. Large beads accompany numerous potsherds but there are no domesticates and the stone artefacts include some formal tools (J. Kinahan & J.H.A. Kinahan 2003). In northern Namibia, J. Kinahan (2001) found sites containing retouched tools and pottery but no positively identifiable sheep. Unfortunately, bead sizes were not provided.

On the Cape south coast, the early first millennium AD levels at Die Kelders (GaK-3877, GX-1685, GX-1688; Figure 3.1; Schweitzer 1979) and Noetzie (UGAMS-3063; Halkett & Orton 2009; R. Klein & T. Steele, pers. comm. 2008; Orton & Halkett 2007b) have numerous potsherds and minimal sheep remains. The mean diameter on 14 ostrich eggshell beads from Noetzie's pottery-period layers is 5.25 ± 0.61 mm with only two falling between 6 mm and 7 mm (own data); following A. Smith *et al.* (1991) this is clearly not a herder signature, although a single broken large bead (~12 mm in diameter) found on the surface may indicate contact. The lower 'herder' layers at Boomplaas contain an apparently typical hunter-gatherer lithic assemblage, but with pottery, dung and a few sheep; again, no bead sizes are given (Deacon et al. 1978; Klein 1978). It seems unlikely that all these assemblages with mixed signatures are the result of overprinting or of hunter-gatherer/herder interactions.

H. Deacon *et al.* (1978:58) suggest that the Boomplaas evidence is "more in keeping with acculturation models than with the displacement of local hunter-gatherers by immigrant herders." In contrast, Barth (1969) sees cultural diversity as a product of interaction rather than isolation. Webley (1992b) agrees, suggesting that the greater the degree of contact between two cultural groups, the more likely they would want to express their separate identities; if hunter-gatherers desired pastoralist material culture, such as pottery (the markings of which can be very strongly tied to group or family identity (Gatto 2002; Hodder 1982; Pikirayi 2007)) or large ostrich eggshell beads (claimed by A. Smith *et al.* (1991) to be strong indicators of the Khoekhoen), how would they maintain their identity? Stow's (1905:252-256) description of the great hostilities between the Bushmen and the Namaqua during the late eighteenth and early nineteenth centuries offers further support for a desire to maintain their respective social and cultural identities, at least in more recent times. The archaeological examples above do not support this though, with many sites showing apparently mixed signatures.

At Oudepost 1 on the Churchhaven Peninsula, south of Vredenburg, historical sources show Khoekhoe people and Dutch colonists interacting. Schrire and Deacon (1989) found that the Stone Age artefacts associated with the historical occupation debris were similar to the majority of late pre-colonial (and usually hunter-gatherer) assemblages in the south-western Cape. Assuming these artefacts to represent the documented indigenes, they argued that the assemblage, and by implication similar ones from elsewhere, could thus not be readily assigned to either hunter-gatherers or pastoralists. Schrire (1980) had previously criticised Parkington and Poggenpoel's (1971) ascription of the De Hangen assemblage to hunter-gatherers, when both they and herders were known to have been active in that area historically and the assemblage could support occupation by either group. Schrire and Deacon (1989:112) asserted, perhaps somewhat contentiously (see below), that "it is the context of the artefacts rather than their form or typology that will inform on who made them."

The implication here is enormous, since many of the small rock shelters (like De Hangen) thought by others to have been occupied by hunter-gatherers could be interpreted to represent "herders doing whatever they did in the foothills and mountains of the south-western Cape" (Schrire & Deacon 1989:112). While this suggestion is important and should be borne in mind, three problems are pertinent: the Oudepost deposits were heavily churned by dune moles (*Bathyergus suillus*; Schrire *et al.* 1990); no evidence of a pre-colonial midden was found (Schrire & Deacon 1989); and the variable composition of the small assemblage suggests some mixture of deposits of varying origin (Wilson *et al.* 1990). This last point is supported by the bimodal distribution of Oudepost bead diameters (Yates & Smith 1993), while I regard the presence of a backed scraper in the Oudepost 1 collection (Schrire & Deacon 1989: figure 2) as particularly strong evidence for the inclusion of material in excess of 2000 years old. On the Vredenburg Peninsula backed scrapers are always >2000 and usually >3000 years old (Sadr 2009; Sadr & Gribble 2010). The same is true in Namaqualand (Dewar 2008) and, with one exception, at Elands Bay (Orton 2006; Robey 1987).

While the lithic assemblages of some sites could be interpreted either way, as suggested by Schrire and Deacon (1989), some west coast assemblages are clearly different to other late assemblages containing retouched artefacts. Examples are Atlantic Beach 1 and 3 (Figure 2.1; Sealy *et al.* 2002) where the flaked artefacts are highly informal, strongly dominated by quartz and found in association with pottery, large beads and reasonable numbers of sheep bones (they were the most commonly identified species at Atlantic Beach 1). Similarly informal artefacts have been documented in Namaqualand deflation hollows overlooking the Buffels River, sometimes associated with pottery (Orton 2007c), as well as in coastal shell middens (e.g. Dewar 2008; Dewar *et al.* 2006; Orton 2007d; Orton & Halkett 2005, 2006).

Shott (1986) argues that the more mobile a community, the less diverse its technology will be; as mobility increases the toolkit must be reorganised into fewer classes with each being more flexible in terms of its application. Veth (2005:106) puts it another way: sites with fewer artefacts exhibiting a lower degree of modification signify lower intensity occupation and more expedient use of local materials. It could be that sites with small, informal assemblages simply represent very brief occupations by highly mobile groups with far simpler tool kits, although, following Wadley (1987), these could also represent dispersal sites. Conversely, Wadley sees aggregation sites as having more standardised tools and curated artefacts, like beads, and more debris related to the manufacture of presumed gift exchange items such as ostrich eggshell beads.

A particular type of stone artefact in use by contemporary pastoralists for working hides was documented by Webley (1990, 2005). It is a rough sandstone pebble known as a *//khom* stone (Nienaber & Raper 1977) which is used to scrape (with a rubbing motion) the fatty tissue off the inside of a skin (Webley 1990). These artefacts are identified by the fatty residues adhering to them and Webley (2005) sees the *//khom* stone from Spoeg River Cave (Figure 2.1) as further evidence for the presence of pastoralists at the site *c.* AD 770. She suggests that these stones replaced conventional retouched scrapers and might be the reason for the lack of retouched scrapers in pottery-period deposits. Unfortunately organic residues do not preserve well on the open sites of Namaqualand and, with just one exception from Buzz Shelter in the far south (Orton *et al.* 2011), no other examples of *//khom* stones are known from that region (Lita Webley, pers. comm. 2011), although another was reported from Renosterkop 1, near Kakamas (Morris & Beaumont 1991), and they do seem to have been used by hunter-gatherers in Lesotho as late as the nineteenth century (Mitchell 2006/2007).

Turning now to pottery, two main types of thin-walled LSA pottery are recognised in western South Africa: 'Cape coastal ware' and 'fibre-tempered ware'. The latter are primarily flat-bottomed bowls from the central interior of South Africa and ascribed to Bushman hunter-gatherers (Bollong *et al.* 1993, 1997; Rudner 1979), but J. Deacon (1972) reports small fragments from Wilton Large Rock Shelter in the southern Cape and one fibre-tempered sherd was found in southern Namaqualand at VR003 (unpublished data). Of relevance here is the Cape coastal ware, which was first fully described at Kasteelberg (Sadr & Smith 1991). This pottery is ascribed to the Khoekhoen and occurs throughout south-western South Africa. Its presence, however, does not confirm the identity of a site's occupants, since exchange undoubtedly occurred and the vast majority of sites in the region seem to have stronger hunter-gatherer affinities despite the presence of pottery. It is perhaps only in sites with abundant pottery (a rare phenomenon in western South Africa) that it can be informative: in the Seacow Valley, Hart (1989) and

Sampson (2010) used the relative frequency of Cape coastal sherds to fibre-tempered sherds to determine the ethnicity of site occupants but this obviously cannot be used on the west coast where fibre-tempered sherds are all but absent. Sadr *et al.*'s (2003) ceramic index[4] can be applied, however. It calculates the proportion of potsherds represented in the sum of all ceramic and stone artefacts in an assemblage[5]. Using this index Sadr *et al.* demonstrated that hunter-gatherer and herder sites had indices of <20% and >60% respectively.

At the site level, Webley (1986:60) noted that the campsites of recent herders in Namaqualand are recognisable through the presence of “stones for anchoring the huts, baked mud and dung hut floors, the raised and baked hearths of the kookskerms [cooking screens] and dung floors of kraals [stock enclosures]” (parentheses mine). This pattern has yet to be identified archaeologically, although Webley (1984, 1986) did find two posts, an ash heap and some calcined dung at Bethelsklip, a site known to have been used by herders during historic times. Webley (1984) described how ropes thrown over the tops of the huts were anchored with rocks to keep the huts together and also saw stones used as hut anchors among recent herders in the Kamiesberg Mountains (Webley 1982). In the Little Karoo, a set of very ephemeral sites includes a few rocks under some old acacia trees that may well indicate archaeological evidence for hut anchors (Orton 2008c). Other remains were minimal – just a few flakes and manuports – and it is unlikely that these Little Karoo sites could be proved to have been used by either herder or hunter-gatherer groups. Although dung layers are known from rock shelter deposits (H. Deacon *et al.* 1978; Sandelowsky *et al.* 1979), Shahack-Gross *et al.* (2003) have demonstrated that sediments from open livestock enclosures are visually indistinguishable from regional sediments within thirty years of abandonment of the site.

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[4] ‘Ceramic index’ is referred to as ‘pottery index’ in this thesis.
[5] Note that Yates & Smith (1993:97) originally calculated the pottery index as “the total number of sherds divided by the total number of pieces of flaked stone”. I use Sadr *et al.*’s (2003) method.

Through her work in the central Hardeveld area of Namaqualand, Webley (1986) suggested that summer camps will be more readily reoccupied and hence should contain higher densities of finds, particularly the bones of domestic stock that are more likely to have been slaughtered during the lean summer months. Being clustered around water sources, these camps would have been occupied by larger groups and witnessed more frequent ceremonial activities. By contrast, sites occupied during winter and spring, as she suggests was the case at Bethelsklip, would contain very few bones of domestic animals and would be smaller, more ephemeral and more widely dispersed.

An element of material culture seldom considered in the far western parts of South Africa is stone-walled settlements or livestock enclosures (kraals). These have been much recorded in central South Africa (Hart 1989; Hart 2005; Sampson 1985) and Namibia (J. Kinahan 2001; Noli & Avery 1987 and references therein), but have only recently been discovered in western South Africa (Jerardino & Maggs 2007; Orton & Hart 2005). There is generally no rock with which to build in Namaqualand, but in some areas the layout and form of bushes would make kraal manufacture very simple through the relocation of a few bushes into gaps around clearings (personal observation). Such kraals obviously would not be found today.

In terms of the Smith *et al.* (1991) model, no obvious herder sites have been located in coastal Namaqualand, although sites with many formal tools (mostly made on fine-grained materials) and generally no pottery have been distinguished from those with highly informal lithic assemblages often including pottery (e.g. Dewar 2008). Orton *et al.* (2005) noted that the limited Namaqualand data of the time were provisionally weighted towards the A. Smith *et al.* (1991) model, but that this was by no means certain.

A relatively new avenue of research in the Central Limpopo Basin (CLB) in the far north of South Africa has suggested a new aspect of material culture that might reflect the

Khoekhoen. There, geometric rock art that appeared as a new and distinctive tradition with no precursor in South Africa was described and linked with Khoekhoe herders (Eastwood 2003; Eastwood & Smith 2005; B. Smith & Ouzman 2004).

2.1.2 Subsistence remains

Sheep are the most frequently identified domesticate in the region and their presence at a site indicates various possibilities. One view is that hunter-gatherers deposited the bones. Occasional sheep or parts of sheep may have been obtained from herders, perhaps via exchange or theft, or hunter-gatherers might have owned stock in small numbers themselves resulting in what Sadr (2003:196) terms “hunters-with-sheep”. In the latter case Yellen (1984:59) imagines “the integration of goats and sheep as a single element into what remained an essentially hunting and gathering society”. It is equally possible, however, that the site represents the residues of a herder occupation where sheep were slaughtered and eaten. Archaeological faunas demonstrate that herders still relied quite strongly on hunted fauna rather than limiting themselves to their domestic stock (e.g. Klein 1978; Klein & Cruz-Uribe 1989; Sadr *et al.* 2003; Sealy *et al.* 2002; Smith 2006a) and, as such, even herder residues likely contain very few sheep bones. In support, pastoralists only slaughter stock out of necessity (Paine 1971; Poppov 1966) or for special purposes, such as sacrifice, feeding the sick or communal celebrations (Galaty 1979), while Sealy *et al.* (2002) suggest that coastal and near-coastal sites may under-represent the importance of sheep in the herding economy due to the close proximity of plentiful marine foods. Historical accounts from the Cape are conflicting. Ten Rhyne (1686 in Schapera & Farrington 1933) and Kolbe (1741 in Fauvelle-Aymar 2004) recorded the special purpose slaughtering of stock among seventeenth and eighteenth century Khoekhoen and noted that in general they did not eat much meat. In contrast, Grevenbroek (1695 in Schapera & Farrington 1933:179) noted that “They live for the most part on beef, mutton, all sorts of game, and other flesh that suits their taste...”

It has been proposed that when sheep are found in reasonable numbers at a site then the occupants could be discerned from the age profile of the slaughtered sheep. A high frequency of young animals and a number of older, post-prime individuals should indicate the kind of flock management strategy likely to be employed by herders aiming to achieve a mix of meat and milk yield (Klein & Cruz-Uribe 1989), but Webley (1992b) saw this strategy as being aimed more at maximising only the milk yield of the flock. Brink and Webley (2007) noted that modern Khoekhoen in Namaqualand consider a wide variety of factors when choosing an animal to slaughter and suggested that high frequencies of juveniles in archaeological sites could well relate to natural mortality. In the contrasting signature, hunter-gatherer sites should contain a mixture of ages depending on what they were able to obtain, by fair means or foul. The former signature seems present to some degree at Kasteelberg A and B on the Vredenburg Peninsula (Klein & Cruz-Uribe 1989), presumably suggesting occupation by full-scale herders. However, we might still question the degree to which hunter-gatherers may have applied the same sort of strategy with a small flock of animals. Clearly though, the very small number of sheep bones in most sites means that we can seldom employ this line of evidence to discern whether the occupants were hunter-gatherers or herders.

At a larger scale, and because he does not believe that hunter-gatherers could rear stock, A. Smith (2005b, 2006a) suggested that, no matter who deposited them, any number of sheep bones in a site must imply the presence in the surrounding landscape of herders with large flocks. Based on Dahl and Hjört's (1976) review of East African and Middle Eastern data he assumes that in South African conditions of *c.* 2000 years ago at least 100 sheep would have been required to sustain the flock assuming an off-take for meat and milk; he later (A. Smith 2008b, 2009) reduced this figure to 60 animals. I discuss this issue further in Section 2.3.

It seems from Kasteelberg that herders (or at least people with sheep) also had a great interest in seals (A. Smith 2006b). These animals contain much fat and the practice of smearing their bodies with fat and ochre is well documented among the historic Khoekhoen and other pastoralist groups (e.g. Andersson 1857; Dapper 1668 in Schapera & Farrington 1933; Raven-Hart 1967), although butter fat may have been preferred (A. Smith & Pheiffer 1993). At Kasteelberg seal bones are more numerous than any other animal, with sheep second in importance (Klein & Cruz-Uribe 1989; A. Smith 2006a, 2006b). Two residue analyses confirm the use of pots in processing marine mammal fat at Kasteelberg (Copley *et al.* 2004; Patrick *et al.* 1985), with the more recent assuming their sherds to be from spouted vessels. These conclusions may well support the use of seal fat as mentioned above. However, it is probably only possible to assign a large seal bone collection to herders when in the company of reasonable numbers of sheep bones, since we know from sites on the Namaqualand coastline that seals were also extensively collected in the absence of sheep (Dewar 2008; Dewar & Orton, in prep.; Orton 2007c; Orton *et al.* 2005).

Given the general rarity of domestic stock bones in Namaqualand sites, it is impossible to comment further on the identification there of hunter-gatherer and herder sites through subsistence remains. Furthermore, given the extreme importance of cattle within historical Khoekhoe society as documented by Kolbe (1741 in Fauvelle-Aymar 2004) and the scarcity of their bones in archaeological sites, it might well be that true pastoralists (of the sort that, following Fauvelle-Aymar (2004), we understand the historic Khoekhoen to have been) were generally infrequent in western South Africa until relatively recently. Sadr (1998: footnote 5) even speculates as to whether specialised pastoralism may only have developed in response to the European demand for beef and mutton.

On the south-eastern coast of South Africa Binneman (2001) found that sites with pottery and domesticates usually contained shellfish yielding a high meat mass, generally the bivalves, while those with pottery but no domesticates emphasized *Perna perna* (brown mussels) and *Oxystele* sp. from the upper Balanoid zone. Such distinctions have yet to be explored elsewhere.

2.1.3 Archaeological visibility

Many have remarked on the likelihood of seeing and identifying the remains of nomadic herder camps on the landscape (see Cribb 1991: 65-68). Recognising this issue in southern Africa, Robertshaw (1978a) studied a recently abandoned pastoralist camp in the Richtersveld. He noted that structures left little trace after ten to twenty years and that what was there would soon disappear. He also supposed that if one were to substitute prehistoric materials for the modern items, and assuming that bone would not last more than one or two decades on the surface, then "one would be left after a few years with only a surface scatter of stone artefacts and potsherds" (Robertshaw 1978a:29). Of course, to this we should add ostrich eggshell which is ubiquitous on sites of various age throughout the Northern Cape. On the strength of this study and further work on south-western Cape archaeological sites he went on to comment that "the identification of pastoralists in the archaeological record remains a problem both in the Cape and in other regions" (Robertshaw 1979:251). Yellen (1984) suggested that, in the absence of kraals, hunter-gatherer and pastoralist camps would not differ much from one another in terms of their residues with both having low archaeological visibility, while M. Hall (1987) suggested that pottery was often the only thing that could distinguish a hunter-gatherer from a herder camp (this, as shown above, is not necessarily true). The implication of these statements was that herders made use of existing indigenous technology. While the above generally refers to the identification of pastoralist residues, Kusimba (2005) questions whether we can really even identify hunter-gatherer lifeways archaeologically – particularly those we think we know so well from ethnographic studies.

Supporting Robertshaw's study on preservation, A. Smith (2005a) found that most items of material culture owned by African pastoralists were of non-preserving organic materials such as skin, fibre and wood. He also noted that in the earlier years of their presence in South Africa the low visibility of pastoralists may be attributable to their sparseness on the landscape and that later, after AD 1100 when Kasteelberg occupation ceases, the different needs of cattle, which he suggests might have increased in number about that time, would have forced pastoralists to become even more highly mobile. The more mobile they are, the less likely we are to find traces of their camps. However, Fauvelle-Aymar *et al.* (2006) see no reason why the residues of mobile pastoralists should be any less visible than those of mobile hunter-gatherers whose open-air sites have been widely documented. They see the presence of vitrified dung to be key in the identification of past kraal locations and hence pastoralist sites. From an analysis of historical sources they concluded that Khoekhoe kraals would likely have been several kilometres inland rather than on the coast and that these sources would help locate kraals on the ground. They concluded that without historical sources and knowledge of where kraals are likely to be found it would remain difficult to identify contact period kraals. Arthur (2008) agreed, seeing the dominant research bias of rock shelters and shell middens to be misleading – Khoekhoe sites, as observed historically, will be large, open-air camps along rivers. This, of course, certainly applies to the ecologically rich and more productive southern Cape where Arthur was working, but the semi-arid west may be different: Carstens (1969) believed that Khoekhoe settlements in Namaqualand were very small. A. Smith (2008a) suggested that ephemeral inland camps were probably destroyed by modern ploughing and that known herder sites tended to be along the coast where marine shell increases their visibility and the greater pottery frequencies might indicate their more intensive use. Being clustered around water sources, the more strongly recognisable pastoralist summer camps described by Webley (1986) are far more likely to have been destroyed by recent settlement, further impacting on our ability to recognise clear herder camps.

Arthur's (2008) observations on archaeological visibility that are key to my research. He considers some of the main reasons for the apparent low visibility of herders to be the very rigid definitions of hunter and herder sites that have typically been applied and the lack of consideration given to possible diversity within each group. What others explained as the result of cultural exchange or contact (e.g. A. Smith *et al.* 1991), he proposes, may simply be variability. Arthur (2008:217) suggested that new ways of looking for herders should be developed and concluded that "it may yet turn out to be that pastoralists were not invisible after all; it was just that we did not know how to see them."

2.2 The origins of the Khoekhoen, domestic stock and pottery

The Khoekhoen and their languages are widely accepted to have originated outside southernmost Africa, which was seemingly occupied only by the Bushmen before about 2000 years ago. Most researchers agree that the region of northern Botswana, southern Zambia and the Namibian Caprivi Strip was either a primary point of Khoekhoe origin or that dispersal southwards occurred via that area. Pottery and domestic stock are seen to have come from or via the same area, originating either from Iron Age people or perhaps an earlier pastoral society (A. Smith 1998a). Directly dated sheep (83 BC–AD 131; Beta-186669) and cattle (162 BC–AD 75; Beta-190488) bones from Toteng 1, in northern Botswana, show that both species were present there some 2000 years ago (Robbins *et al.* 2005). Genetic research supports the spread of people through Tanzania to southern-central Africa (Henn *et al.* 2008) but, due to a lack of samples, so far offers no resolution further south. However, a demic diffusion of Khoekhoen into southern Africa some 2000 years ago is postulated.

Turning to linguistics, Westphal (1963) hypothesised that the Khoekhoe language had its roots in north-eastern Botswana. He based this on linkages between the Tshu-Kwe and ‘proto-Cape Hottentot’ languages and the likelihood that the Tshu-Kwe had not moved. Following on from this, Elphick (1985) argued that the Khoekhoen in that area obtained stock from Bantu speakers to the north, then, under the pressure of their own population, began expanding southwards into South Africa. More recently, Güldemann (2008) has agreed with northern Botswana as a place of origin but cautions against equating the historically known Khoekhoen with the people responsible for the introduction of pastoralism to the Cape.

Archaeological support for an origin in Botswana and subsequent expansion southwards might be found in the distribution of Bambata pottery. In southern Africa this controversial and poorly understood pottery style may have originated amongst farming communities in Angola but was later used by LSA hunter-gatherers rather than Iron Age farmers in the eastern and central parts of southern Africa (Huffman 2005; Reid *et al.* 1998; Sadr 2008a). It seems to have again been used by mixed farming communities in southern Africa after about AD 350 (Huffman 2005). Its distribution is confined to Botswana, southern Zimbabwe and northern South Africa (Huffman 2005: fig. 3) and it is associated with very early sheep remains there (Reid *et al.* 1998; Walker 1983), of which those from Toteng 1 are now directly dated (Robbins *et al.* 2005). The only directly dated Bambata potsherd is from Toteng 3 at AD 259-534 (Robbins *et al.* 2008). That this earliest pottery is not found elsewhere may support an origin for pastoralism in Botswana as Elphick (1985) thought.

Barnard (1992:30) considered it “likely that pastoral Khoekhoe society began with the acquisition of … livestock and material culture, by southern African Bushmen, from a people of northern origin” and suggested that more than enough evidence existed to support a subsequent Khoekhoe migration through southern Africa. When and by what routes this might have happened are highly contentious and, focusing on the South African evidence, I now review and discuss the main arguments.

2.3 The possible routes and timing of entry of the Khoekhoen, domestic stock and pottery into southernmost Africa

Within southernmost Africa two main routes, through the west and central regions, have been suggested in various combinations for both the southward migration of the Khoekhoen and, by implication, the introduction of domestic stock and pottery (Figures 2.2 to 2.4). However, it is important to remember that these hypotheses sought primarily to identify the movements of the people rather than their stock and pottery (H. Deacon *et al.* 1978). By contrast, Bousman (1998) and A. Smith (1992, 2008a) have mapped possible routes of entry of stock (Figures 2.5 to 2.6).

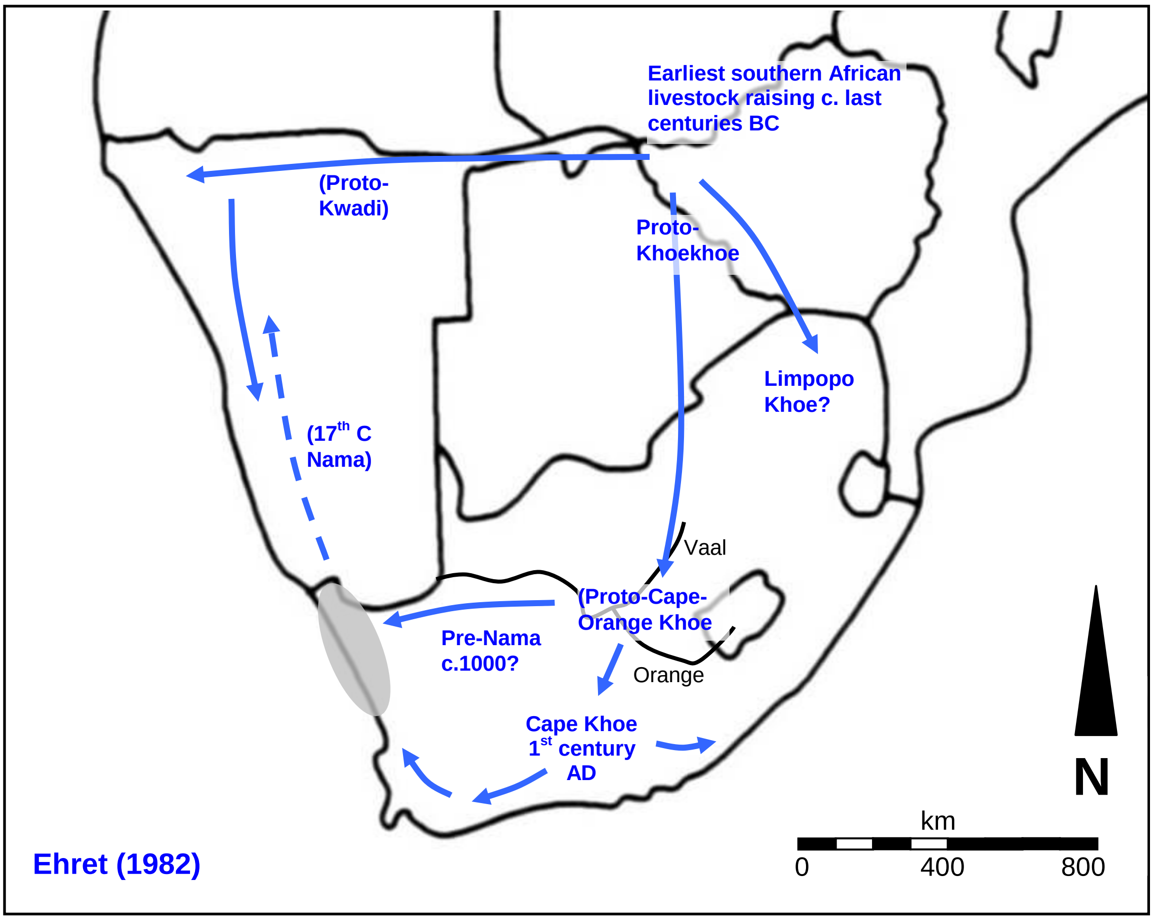


Figure 2.2: Ehret's (1982) suggested routes of entry of the Khoekhoe into southern Africa (modified from Ehret 1982: map 13). My research area is indicated by the shaded grey area.

Initially, by examining oral traditions, Stow (1905) suggested that pastoralists moved from East Africa, through the northern part of southern Africa into Namibia and then southwards into the Western Cape (he placed this *c.* AD 1400). Cooke (1965) later supported this route using rock art evidence, although he saw the traverse westwards occurring further south. Elphick (1985) proposed movement from northern Botswana southwards towards the confluence of the Orange and Vaal Rivers and then westwards along the Orange into Namibia and the Northern Cape, as well as southwards through the eastern Karoo into the southern and south-western parts of the Western Cape (Figure 2.3). Interestingly, and in support, he thought that the historically observed differences between the Nama and Cape Khoekhoen may have been from the resulting long period of separation between west and south coast Khoe groups. Bousman's (1998) suggested western route for sheep begins in the region of Zambia and traces a line into northern Namibia and then southwards along the west coast to the Cape. He saw this as a 'Khoisan' route with a slightly later Iron Age equivalent occurring through south-eastern Africa. In reviewing these routes and their possible timing I focus first on the western route, then move onto evidence potentially supporting both routes and finally examine evidence from the central interior.

Limited archaeological support for the west coast routes exists. At Warmquelle, in northern Namibia, J. Kinahan (1981; Vogel & Visser 1981) reported pottery associated with a date of 350 BC–AD 49 (Pta-2552), while Pleurdeau *et al.* (2012) directly dated two caprine teeth to 358–45 BC (Beta-270163) and 388–180 BC (Beta-270164). Several sheep bones were found in layers dated close to 2000 years ago in Spoeg River Cave (Webley 1992a; Vogel *et al.* 1997), and a first phalange directly dated to 350 BC–AD 115 (OxA-3862; Sealy & Yates 1994) remains the oldest direct evidence for sheep in South Africa. Other sheep bones came from layers dating up to 518–366 BC (Pta-7200; Webley 1992a; Vogel *et al.* 1997), but without direct dates their true ages cannot be guaranteed. Nearby KN2005/041 has recently produced an age of AD 421–559 (OxA-

22933) on cattle bone – this is the oldest dated cattle bone in South Africa (Orton *et al.* in press).

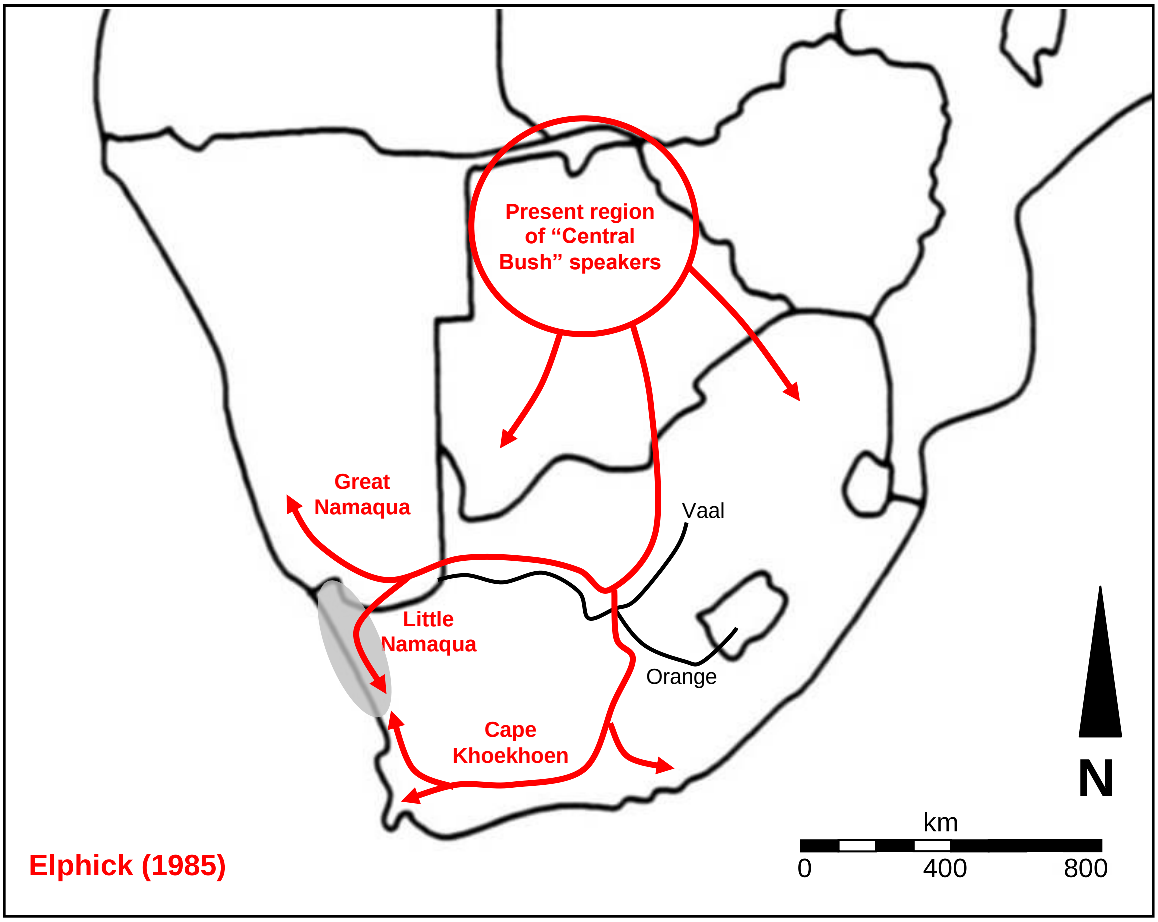


Figure 2.3: Elphick's (1985) suggested routes of entry of the Khoekhoe into southern Africa (modified from Elphick 1985: map 1). My research area is indicated by the shaded grey area.

Aside from KN2005/041, sheep and cattle have yet to be identified at open coastal sites with most of the best faunal collections already analysed (Dewar 2008). Although probable cow bones were found at a few sites (R. Klein, pers. comm. 2006), two were unsuccessfully tested for DNA content by Ann Horsburgh (pers. comm. 2008). Interior sites in central Namaqualand also contain very minimal remains of possible domesticates. It is only when one looks northwards to the Richtersveld that domestic fauna are present in reasonable numbers. /Ai tomas has a good sample, including two sheep/goat bones in a layer dated to 159 BC–AD 317 (Pta-5530; Webley 1992b). However, given the vastly different ages of deposits at similar depths in different parts of the site, the presence of several pits and the lack of clear stratigraphy, it may be prudent not to emphasise this early date without directly dating the relevant bones (c.f. Sealy & Yates 1994, 1996). Other Richtersveld sites with sheep are a few hundred years younger (Brink & Webley 1996). Spoeg River Cave thus remains the only site with reliable early sheep remains in Namaqualand.

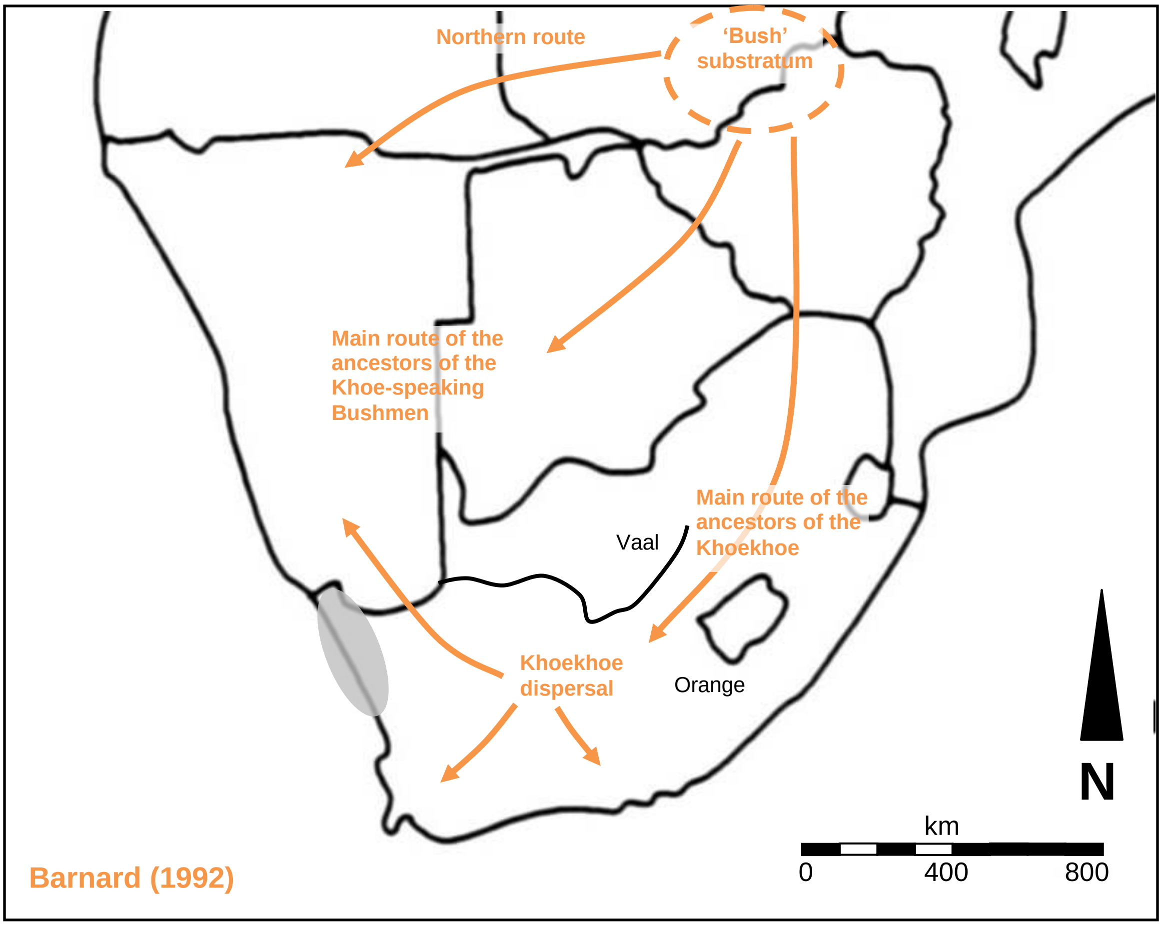


Figure 2.4: Barnard's (1992) suggested routes of entry of the Khoekhoe into southern Africa (modified from Barnard 1992: fig. 2.6). My research area is indicated by the shaded grey area.

Environmental support for the west coast route also exists. A study of micromammal species composition at Spoeg River Cave suggested that the Namaqualand climate of 2000 years ago was amenable enough to support sheep, with a subsequent deterioration (D. Avery 1992). Their salt and water needs (Dahl & Hjört 1976) could easily have been met by the small springs and seeps at the interface of bedrock and aeolian overburden along the coast (Orton *et al.* in press). North of the Orange River, Andersson (1857:248) found “a kraal of Hottentots … living in a locality altogether destitute of water”. He noted that they got all their liquid from the milk of their livestock and the animals in turn lived off a succulent plant common in the region. Further north, just inland of Walvis Bay, he also reported good water and grazing that he thought would make adequate cattle fodder.

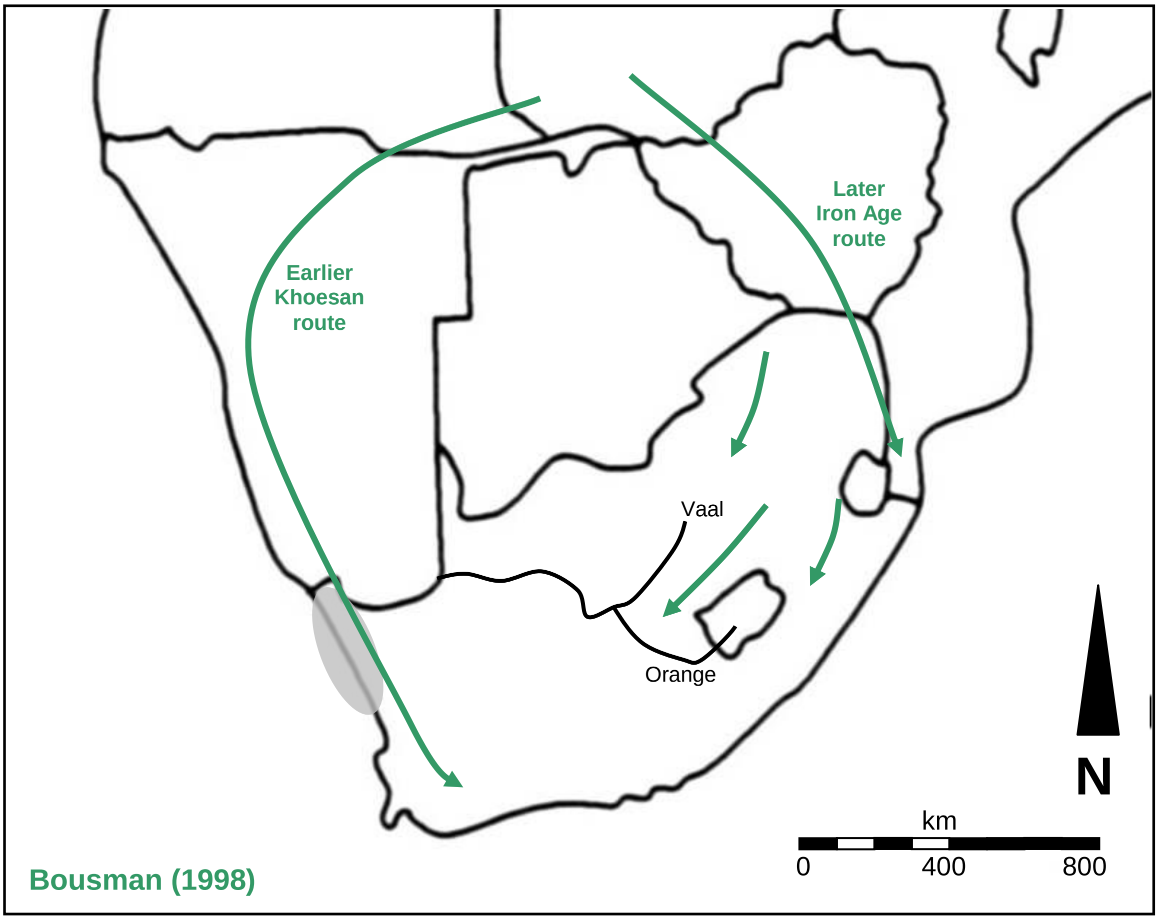


Figure 2.5: Bousman’s (1998) suggested routes of entry of domestic stock into southern Africa based on radiocarbon dates (modified from Bousman 1998: fig. 4). My research area is indicated by the shaded grey area.

While the preceding discussion serves the western arm of Elphick’s (1985) route, excavated evidence that could support either route comes from both cave and open sites in the southern Cape. At Blombos (Figure 2.1) two directly dated sheep bones yielded dates of 34 BC–AD 237 (OxA-4543) and AD 62–342 (OxA-4544; Henshilwood 1996), while sheep and pottery come from a layer dated to 20 BC–323 AD at Nelson Bay Cave (Inskeep & Vogel 1985). A sheep bone from this latter layer has, however, been directly dated to AD 780–1158 (OxA-873; Gowlett *et al.* 1987). Slightly inland, the relatively low frequency of wild animals (Klein 1978) and the presence of dung deposits at Boomplaas Cave provide evidence of *stock-keeping*, as opposed to just *stock-eating*, just after AD 255–543 (H. Deacon *et al.* 1978). Further west, both sheep and pottery were found at AD 68–382 at Hawston (Pta-834, Pta-835; G. Avery 1975). Although Horsburgh (2008) reported a directly dated and genetically identified cattle bone at 174 BC–AD 54 (Beta-232589) from nearby Byneskranskop (Figure 2.1), she now doubts the identification of this and three other early first millennium AD bones as replications of the experiments have produced inconsistent results. She is now applying new next generation DNA sequencing technology in an attempt to resolve the issue (A. Horsburgh, pers. comm. 2012).

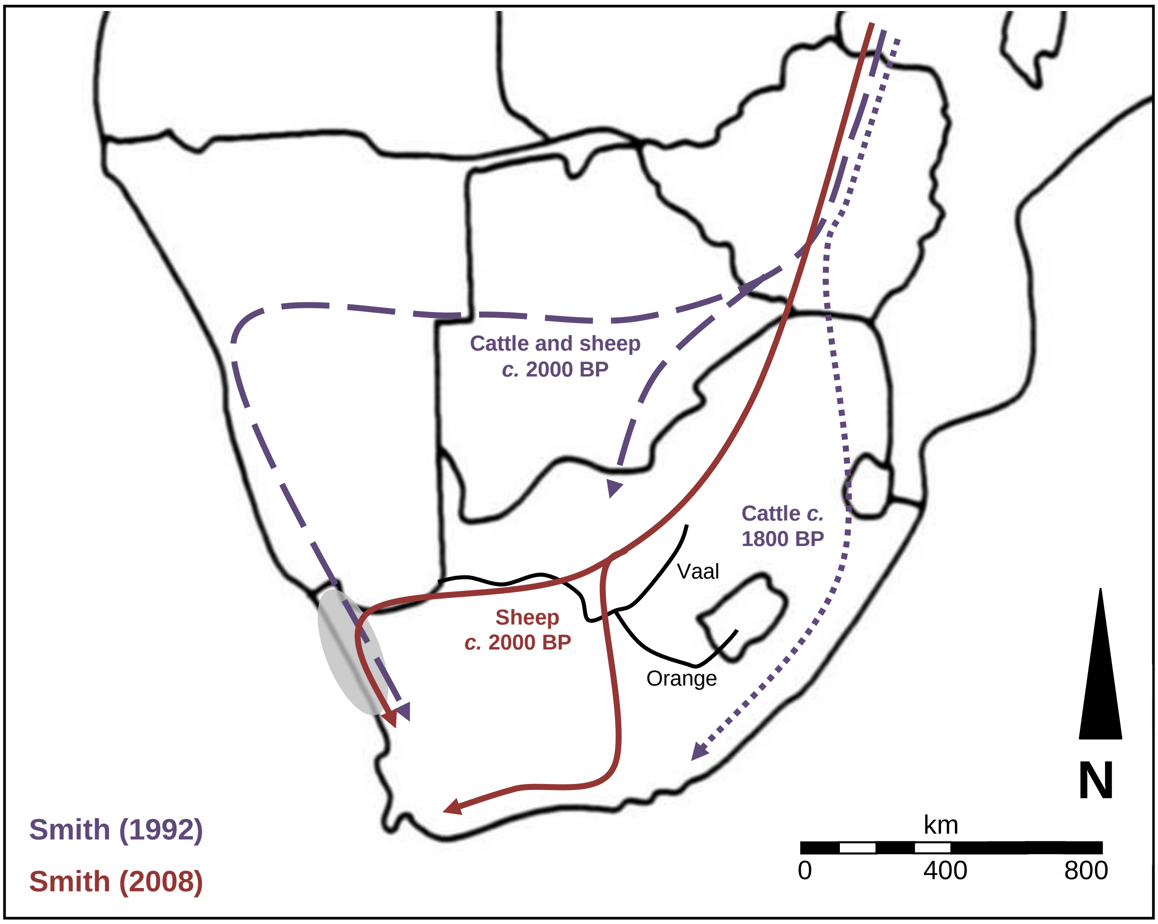


Figure 2.6: A. Smith's (1992, 2008*a*) suggested routes of entry of domestic stock into southern Africa (modified from A. Smith 1992: fig. 10.1; 2008a: fig. 12.4). My research area is indicated by the shaded grey area.

During construction of his two-pronged model, Elphick (1985) noted two key features of Khoekhoe culture: (1) significant cultural differences occurred between the historic Cape Khoekhoen and the Nama to their north, possibly signifying separate directions of entry to their respective areas, and (2) the south-western Cape Khoekhoen acknowledged their eastern neighbours as being of more senior kinship, suggesting an east to west flow. Archaeological support for Elphick's model may be seen in the relatively late appearance of both sheep (AD 260–559 at Tortoise Cave; Pta-3312; Robey 1987) and pottery (AD 92–521 at Dunefield Midden 11; Pta-8912; Orton 2006) in the extremely well researched Elands Bay area, since it might have been one of the last areas to experience the introductions (Figure 2.3). Slightly to the south, on the Vredenburg Peninsula, sheep and pottery are associated with a date of AD 77–382 at Kasteelberg A (Pta-3711; A. Smith 2006a), but both are earlier at Spoeg River cave in Namaqualand (Vogel *et al.* 1997; Webley 2002) suggesting either entry from the north, or perhaps both directions. Note that the very few sheep bones found in pre-pottery levels at Steenbokfontein (Jerardino & Yates 1996, table 2) and Kasteelberg G (Sadr 2004, table 1) are likely to be intrusive. This is suggested by the out-of-sequence dating at Kasteelberg G (Sadr 2004, table 2), perhaps a sign of bioturbation, and the surface truncation of the strata at Steenbokfontein (Jerardino & Yates 1996: fig. 4). Direct dating of these bones would undoubtedly provide further valuable insights. Using the admittedly small set of available direct radiocarbon dates for early sheep, Russell (2004) conducted statistical analyses that lent more support to an Elphick-type (1985) model than to a west coast route[6].

Turning now to the central interior, Sadr and Sampson (2006) reported four directly dated potsherds from the Seacow Valley with the oldest at 355 BC–AD 18 (GrA-13564) but, being fibre-tempered, these sherds are ascribed to Bushman hunter-gatherers, not

[6] Note that Elphick explored the spread of the *Khoekhoen* and not specifically that of sheep.

Khoekhoe pastoralists (Bollong *et al.* 1993, 1997; Thorp 1996). Evidence relating to sheep remains poor. From the far eastern Northern Cape, Beaumont and Vogel (1984) reported caprine teeth associated with a date of 749–204 BC (Pta-2390) from a hyaena lair known as Equus Cave. They claim the teeth were distributed throughout a 45 cm layer with the date being from its 23 to 30 cm level. This could thus be the earliest evidence of sheep in the central interior, supporting Elphick's (1985) route, but given the small size of teeth and the ease with which subterranean movement of small items takes place, especially in dry, sandy substrates (Gifford-Gonzalez *et al.* 1985; Richardson 1992; Villa & Courtin 1983), these data are not fully reliable without direct dating. The extremely well surveyed Seacow Valley would be the most probable line of movement between the Orange River and the south coast and was described by Barrow (1801:255) as having long stretches of open water up to "five or six miles in length, and deep enough to have floated a line-of-battle ship". He noted on the surrounding plains "springboks in countless troops, hartebeests, and bonteboks … quachas from fifty to a hundred in a troop were hourly seen" (Barrow 1801: 263). That the Seacow River could support so much wild game certainly suggests that it could have been a conduit of sheep and pastoralism to the south coast. Known herder occupation of this valley is, however, quite late, with the three earliest dates associated with sheep, pottery and dung all post-dating AD 600 (Pta-6302; SMU-1850; SMU-1925; Bollong & Sampson 1996; Bousman 1991, 1998; Hart 1989; Plug *et al.* 1994; Sampson & Vogel 1995). Many interior sites contain no sheep at all (Klein 1979) and directly dated sheep bones from some have turned out to be far younger than expected (Sealy & Yates 1996). We thus still lack direct early evidence for sheep in the Karoo and this potentially precludes this area as an early route of sheep movement. Although possibly due to a lower intensity of research (the Seacow Valley excluded) and the presence of fewer caves, the lack of early dates in the interior favours the west coast route of entry for sheep with a rapid spread to the south coast. Barnard (1992: fig. 2.6) also supports this route steering east of the harsh central Kalahari region but, again, other archaeological evidence is lacking (Mitchell 2004a).

Brief mention must be made of the antiquity of sheep relative to pottery. Although Robertshaw (1978b:120) thought that the appearance of pottery and domestic stock was almost simultaneous and that their spread through the Cape was linked, it now seems that pottery is more frequently associated with early dates than are sheep (see Sealy & Yates 1994). Views as to which appeared first in southern Africa have shifted with time and with the resolution of radiocarbon dating we may never know the answer.

The original timing of the Khoekhoe arrival has recently been questioned by Sadr. Excavated evidence in the form of changing pottery styles suggests that the Khoekhoen may have only reached the south-western Cape by the late first millennium AD with indigenous herders occupying the area before then (Sadr 1998, 2003, 2004, 2005a). Güldemann (2008:126), on linguistic grounds, hints at a similar timing.

In the CLB area Eastwood and Smith (2005; B. Smith 2006) used various lines of evidence, including the borrowing of Khoekhoe herding vocabulary by Bantu speakers (Ehret 1998) and the super-positioning of the different types of art to propose an early first millennium AD influx of the Khoekhoen to that area. While their conclusion is probably best regarded as tentative, and perhaps based on somewhat controversial linguistics (see Argyle 1994/95; Blench 2006; Güldemann 2008), they do make for interesting thought.

Whatever the origin of the Khoekhoen, it is pertinent to note that the Namaqua origin myth related by Smith & Pheiffer (1992) and the story about the origin of hunters and herders recorded by Bleek (1864) suggest some degree of common ancestry between pastoral (Khoekhoe) and hunter-gatherer people. One of them (Smith & Pheiffer 1992) even describes the progenitors of the two groups as having been brothers. The implications of this are quite significant given the suggestion that the two groups should be archaeologically distinguishable on the basis of their respective cultural materials (see

Section 3.1 above). A mid-nineteenth century interview with an elderly Korana man revealed a Korana legend that "in ancient times the whole nation of Hottentots lived close together along the banks of the Vaal and Orange River(s)" (Wuras 1929:290). After a quarrel they apparently split three ways, one group moving down the Orange River, another moving southwards and the third remaining behind; Barnard (1992) sees some support for this story in linguistic evidence. Stow (1905) recounted a further Korana tale (alluded to above) that he supposed was played out in about *c.* AD 1400. In it the people came from the northeast where there was plenty of water (Stow interprets this to mean the Great Lakes area). Then, as a result of Bantu incursions, they fled westwards until halted by the coast which they subsequently followed south. With the arrival of the Dutch they were said to have returned north to the vicinity of the Orange River and then inland. Whether these tales can be used as hard evidence is debatable, but they certainly seemed to Elphick (1985) to offer partial support for some of his dispersal routes as described above.

2.4 The nature of introduction of domesticates and pottery to southernmost Africa

Pottery and sheep are generally accepted to have first appeared in the south-western Cape by the early first millennium AD (Sadr 1998), although the manner of their introduction remains debated (Sadr 2003). On current evidence, both appeared in widely disparate parts of southern Africa at similar times, suggesting a rapid spread (J. Deacon 1984a). New research allows us to include cattle in the discussion as well (Orton *et al.* in press). It was long considered that the Khoekhoen migrated into southern Africa some 2000 years ago bringing sheep and pottery with them but, despite dogged support from Andrew Smith (2006a, 2008b), this view has begun changing in recent years. Although a migration probably did occur, whether it occurred *c.* 2000 years ago or close to a millennium later as discussed above is open to debate. Also, Sadr *et al.* (2003) found the cultural residues from six first millennium AD putative hunter and herder sites (three of each) at Kasteelberg to be similar enough to not support any distinction at that time.

There are two schools of thought with regard to the nature of sheep, pottery and Khoekhoen arrival at the Cape. The classic view, supported by many writers until the mid-1990s, saw them arriving together through a population migration into the southern and south-western Cape some 2000 years ago (e.g. Barnard 1992; Boonzaier *et al.* 1996; Ehret 1982; Elphick 1985; Parkington 1984; Parkington *et al.* 1986; A. Smith 1983, 1992; Walker 1983). Sadr (1998, 2004; Reid *et al.* 1998) is the main proponent of the alternative diffusion hypothesis in which the acquisition of knowledge, pottery and domestic stock through sharing and exchange is said to have occurred prior to the arrival of the Khoekhoen themselves, although J. Kinahan (1994/1995) had earlier postulated a similar process in the Namib. More than a decade earlier Klein (1984:287) had already suggested diffusion as a likely means of spread of pastoralism, saying that “the earliest herders were probably very similar physically to the hunter/gatherers they encountered and probably shared a great deal of culture with them, including the manufacture of stone artefacts and a considerable reliance on hunted and gathered foods”. These common features, he suggested, would have facilitated diffusion. Similarly, Webley (1984:193) suggested that “the introduction of livestock and pottery was a complex process involving both the movement of herders as well as the diffusion of herder elements.” Although direct evidence of diffusion is limited, several ideas support a late migration and, by implication, an earlier diffusion of pastoral products.

Along with a partial shift towards a more terrestrially-oriented diet *c.* 2000 years ago, Sealy’s (2010) analysis of skeletons has documented a shift from C_3- to C_4-based foods in the early second millennium AD which, she argues, is likely due to the increased dietary importance of domestic stock, specifically cattle. She also documents evidence for a new burial style and sees the two features as early evidence of the historically-known Khoekhoen. In support, Güldemann (2008) finds the linguistic homogeneity of Khoekhoe to be difficult to reconcile with a 2000 year antiquity in South Africa.

Hausman (1982) found no skeletal evidence for population change among coastal populations *c.* 2000 BP, while a recent study of skeletal characteristics in the Eastern Cape concluded that no new genetic stock was added *c.* 2000 BP (because body shape remained unchanged) and that change in body size was linked to external factors (Ginther 2008). Specifically, reducing body size post-3500 BP was seen to reflect increasing nutritional stress on the population, while, as also suggested by A. Smith and Pheiffer (1993), a post-2000 BP increase was probably due to the increased nourishment provided by milk. These studies support a local adoption of domestic stock with the Khoekhoen arriving sometime later. Only in the last 500 years when variability in body shape and size is greatest is a genetic influx from immigrant Bantu agropastoralists possibly supported (Ginther 2008). Stynder (2009) saw craniometric data supporting neither a large-scale immigration of a genetically distinct people nor a long-term co-existence of genetically distinct populations: either local hunter-gatherers adopted stock or there was a small-scale immigration of herders whose genetic signature would have been quickly absorbed into the local gene pool. These studies were conducted in southernmost South Africa and it seems more likely that genetic absorption or dilution would have occurred in the north where the populations initially mixed. Unfortunately, too few dated skeletons come from northern South Africa to allow similar research there.

If the Khoekhoen did only arrive in south-western South Africa *c.* AD 900-1200 (Sadr 2003), then the implication is that pottery and sheep were a firmly established part of the indigenous economy prior to their arrival and that the earliest herders were not Khoekhoen. The possibility of pottery being obtained from Iron Age people was dispelled by Sadr and Sampson (2006) who showed that Later Stone Age pottery preceded its Iron Age counterpart in southern Africa by 200 to 400 years. Similarly, M. Hall (1987) postulated that stock must have been in the hands of herders half a millennium before the advent of the Iron Age in eastern Botswana/western Zimbabwe, a notion supported by the *c.* 2000 year old sheep and cattle in a LSA context at Toteng in northern Botswana (Robbins *et al.* 2005) and the slightly older caprines from Leopard Cave in central Namibia (Pleurdeau *et al.* 2012).

Andrew Smith uses two primary arguments to support a migration around 2000 years ago. Firstly, he considers the Vredenburg Peninsula archaeological signatures to be different enough to represent two culturally and economically distinct groups – hunters and herders – and that these can be distinguished throughout the last 2000 years (A. Smith 1998b, 2006a; A. Smith *et al.* 1991). Problems with this interpretation have already been covered, both at Kasteelberg and further afield (see Section 2.1). Furthermore, however, the high frequencies of pottery (Sadr & Smith 1991; A. Smith 1998b) and sheep (Klein & Cruz-Uribe 1989) led Sadr (2004, 2005a) to consider Kasteelberg a special purpose feasting locality rather than a typical herder site. A feature at Kasteelberg B in particular is the presence of numerous grinding grooves in the bedrock (Boonzaier *et al.* 1996: fig. 16; A. Smith 1998b, 2005a: fig. 6.11) that A. Smith (1998b:211) concedes might be "an indication of selective social activity, perhaps even of a ceremonial nature". He later added that "Kasteelberg may have been a ritual aggregation site for pastoral ceremonial purposes" (A. Smith 2005a: 173; see also A. Smith & Webley 2000:89). The significance of the bedrock grooves is two-fold: (1) because of their depth and great number at Kasteelberg, A. Smith (1998) notes that much energy had to have been expended in their creation and that they must therefor have been very important, and (2) on the basis of portable upper and lower grindstones being ochre-stained, he assumes the bedrock grooves to have also been used to grind ochre that might have been ritually used. Similar grooves are recorded at Heuningklip, southeast of Kasteelberg (A. Smith 2006a) and at occasional sites in the Kamiesberg, but they are abundant in western Bushmanland (Orton & Webley 2012b; Webley 1992b).

Besides Heuningklip, the Kasteelberg Hill is also geologically distinctive in the Western Cape environment. Whether occupied by herders or Sadr's (2003) 'hunters-with-sheep', that Kasteelberg is unique in both appearance and content seems undeniable and it should not be considered a typical herder occupation. Artefactual evidence opposing Smith's ideas is reviewed below.

Smith's second line of evidence is theoretical. Shared by Parkington *et al.* (1986), it revolves around the idea that hunter-gatherers with an immediate-returns economy, as defined by Woodburn (1980:99), would have been unable to nurture, maintain and protect a herd of domestic stock and that an ingrained sharing ethic would have prevented the accumulation of wealth in the form of stock (A. Smith 1990, 1992, 1998b, 2006a). Oddly, and in contrast, A. Smith (1998b:209) actually supposes that hunter-gatherers might in fact have herded domestic stock for the Khoekhoen. Smith argues that hunter-gatherers would see any herbivore as food and that should sheep be acquired by them, they would immediately be killed, shared and eaten, or exchanged rather than herded. In this way hunter-gatherers would not be able to build up a viable flock, let alone one of 100 individuals (A. Smith 2006a). In rejecting diffusion, A. Smith (2005a, 2006a) also suggests that a long term relationship with food-producers, and perhaps some incorporation into their society, was needed before the skills of animal husbandry could be acquired; he guesses that several generations might be necessary. These theories raise several concerns.

Woodburn (1980:98) listed several groups of hunter-gatherers who were familiar with and practised a delayed-returns economy and Kusimba (2005) found such strategies to be widespread among African hunter-gatherers. Proponents and critics alike quote recent ethnography in support of their respective arguments on the ability of hunter-gatherers to keep stock, but modern analogues may not be appropriate given the contrasting evidence that exists. Parkington *et al.* (1986:317) discussed ethnographic examples of hunter-gatherers struggling to maintain stock due to their sharing obligations, while Kent (1992:49-50) and Hitchcock and Ebert (1984: table 1) showed that twentieth century Kalahari Bushmen subsisted in diverse ways with the spectrum including hunting, gathering, herding, farming and all manner of combinations thereof. Stepping back in time, Humphreys (1988) noted that early nineteenth century Bushmen living in 'villages' along the Vaal River were said by historic travellers (e.g. Burchell 1822, 1824) to own sheep, goats and cattle and to have been far better off than their compatriots to the west. He stresses that the historic distinction between the Khoekhoen (then termed Hottentots) and Bushmen was reliable, although in earlier accounts this was not the case (Wilson 1969). It seems, though, that at least some of this stock was "part of plunder obtained from the Caffres" (Burchell 1822:436) or even from white farmers – "that they were stolen, I had no doubt ... the greater part of the oxen ... belonged to a boor[7] named Cobus Pretorius" (Burchell 1824:197). That they "guarded and corralled them, rather than butchering and eating them on the spot" seems, to Schrire (1980:23), significant. A. Smith (2000) counters that hunters with small herds are not pastoralists unless they incorporate their stock into ritual activity. Either way, goat-raising is prominent among the Kalahari Bushmen today, although perhaps largely due to promotion by the Botswanan government in the 1980s (Ikeya 1993). The sum of the evidence presented suggests it best not to read too much into recent analogues and it seems unwise to project too much onto the indigenous populations of two thousand years ago. Indeed, as Woodburn (1980:95) puts it: "projection backwards seems to me as a social anthropologist to be an enormously difficult task and likely to yield no more than, at best, plausible hypotheses". He also emphasises that hunter-gatherers live the way they do through conscious choice and not because of their environment or because they lack the means to live another way. As we know today, people will change their social choices and behave anti-socially if they perceive it necessary to fulfil their needs.

[7] Farmer

Archaeological evidence to surmount Woodburn's difficulty is scant. Although few indigenous southern African groups likely practised delayed-returns economies, the enormous mussel-dominated 'megamiddens' deposited between about 1100 BC and AD 300 on the western Cape coast may provide one archaeological exception: Henshilwood *et al.* (1994; Parkington 2012) suggested that mussel meat might have been dried in large quantities for transport inland. While this may have occurred, Jerardino and Yates (1997) argued that sufficient other debris relating to animal butchery and artefact production is present at Mike Taylor's Midden near Elands Bay to argue for its use as a domestic camp site. The only obvious instance of pre-colonial storage is of plant foods in underground pits at Boomplaas (H. Deacon 1976, 1979; H. Deacon *et al.* 1978). The south-western Cape coastal fish traps that allow mass-harvesting were initially considered prehistoric (G. Avery 1975; Goodwin 1946), but are more likely colonial (Hine 2008; Hine *et al.* 2010) and can be excluded from this discussion. Whether the historically recorded trapping of fish in inland rivers by the Bushmen (Lichtenstein 1812; Mossop 1935; Stow 1905; Willcox 1965) could have produced sufficient fish for storage is unknown.

Mitchell *et al.* (2008; Mitchell 2009) argue against the notion of immediate slaughter by citing Likoaeng, a late first millennium AD site in highland Lesotho located 100 to 150 km from the nearest contemporary farming settlement and on the other side of a 3000 m escarpment. The domestic stock from this site could not possibly have been moved there quickly enough to still count as having been 'immediately' killed and eaten. Hobart (2004:9) found many domestic bones at Pitsaneng and argued similarly that perhaps hunter-gatherers should be credited "with the pro-active adoption and introduction of stock … not so much as farmers or even pastoralists, but as opportunists who saw benefits for themselves in owning stock". The sheep bones at nearby Sehonghong (Plug & Mitchell 2008) would support similar arguments. While hunter-gatherers in southern Africa are very unlikely to have ever stored enough food to bring about a sedentary lifestyle (see Testart 1982), delayed-return systems are more likely to develop in areas where food storage is easy and desirable (Woodburn 1980) and it is entirely possible that the ease and desirability of 'storing' live – and easily transportable – meat was recognised by local hunter-gatherers, as must have occurred among Smith's "hunters who lived in northern Botswana" (Boonzaier *et al.* 1996:25) when sheep were initially acquired. Ingold (1980) suggested that hunters would not see live animals as a form of property – only dead ones. He proposed "the distinction between hunting and pastoralism to be an ideological one: briefly, pastoralists recognise rights over live animals, hunters over dead ones" (Ingold 1975: 619). Thus, if hunter-gatherers acquired and adopted flocks, they could well have recognised them as a communal reserve food supply and continued to subsist almost wholly on hunted prey.

Smith's statement on flock size requires unpacking. Firstly, Dahl and Hjört (1976: 218) – Smiths original source – made it clear that "the large variations in the way flocks of small stock are utilized and in the yields from different breeds makes it impossible to generalize about a minimum viable flock." Also, they stated that their estimates of flock sizes were based on a family of six taking all their milk and meat from their stock, while we know from the faunal lists from Atlantic Beach, Kasteelberg and Boomplaas, for example, that hunting and scavenging occurred in conjunction with the eating of sheep (Klein 1978; Klein & Cruz-Uribe 1989; Sadr *et al.* 2003; Sealy *et al.* 2002; A. Smith 2006a), probably even comprising the bulk of the diet at these sites. Similarly diverse frequencies of wild and domestic stock were reported from East African sites (Marshall 1994). That all indigenous groups in western South Africa subsisted primarily on wild fauna could have allowed for smaller sustainable flocks than those expected of groups much more wholly dependent on the meat, blood and dairy products of their livestock.

Other factors regarding the size of herds and flocks argue both ways. Although small stock are more gregarious and easier to herd than large stock, smaller herds lack internal coherence such that individual animals are more likely to stray (Ingold 1980). Nomadic sheep herders in Pakistan pool their sheep to maintain a combined flock of approximately 250–500 animals, those being their upper and lower limits for a successful flock (Swidler 1972), while in Kenya Brown (1971) found the minimum and ideal mixed species herds to maintain a pastoralist family of eight to be 15–17 and 20–24 standard stock units[8] respectively. It is important to recognise that in southern Africa, however, we do not have – and did not in the seventeenth century, the time of our first detailed written accounts, have – true pastoralists. Due to the variety of wild food sources utilised, people in the Kalahari rarely own more than forty goats. These herds are also usually combined and tended together (Kent 1993). Whether such practices may have existed in the early pottery-period we will never know, but Sadr (2008b) considers it likely. Due to the difficulty in herding them, pastoralists in the Richtersveld leave their small herds of cattle (ranging from just a few individuals to more than thirty) to fend for themselves while they tend their goats. The cattle are quite content and make their own way between water holes in the south and the Orange River in the north following their fodder and water as required (O. Cloete, pers. comm. to S. Le Roux 2009). Today, of course, they have no predators. Modern goat herds in the area are very much larger, but the possibility is nevertheless raised that small herds of cattle are feasibly maintainable; Redlinghuis (1981 in Webley 1984) found average herds in Namaqualand to number just four. Also in the Richtersveld, Hendricks *et al.* (2005) concluded that, while small herds carried a higher risk, all herds would be eliminated during severe drought conditions.

Bearing in mind the inherent dangers of ethnographic analogy already discussed, a few more cases are pertinent. In the Kalahari hare-sized or smaller animals are not always subject to the same sharing rules as larger ones (e.g. Kent 1993; Marshall 1986). Sadr

[8] Brown (1971) describes a standard stock unit as 453.6 kg (1000 lb) of meat or 2 adult cattle or 10 sheep or goats.

and Plug (2001) found that sheep appeared to have replaced small animals in the faunal remains from two Botswanan rock shelters and suggested that if sheep were included among small animals this may have allowed hunter-gatherers to incorporate stock in their economy without having to share their produce. Social sharing obligations could still have been fulfilled through the sharing of larger game. Modern goat herding foragers continue their strictly egalitarian way of life, drawing milk from their herds but slaughtering them only in times of need. They procure some 95% of their meat through hunting with their small goat herds serving only as a backup meat source should hunting be unsuccessful (Kent 1992, 1993). This compliments the archaeological observations on diet quoted above. Yellen (1984) sees the adoption of herding as a logical means of broadening the subsistence base of hunter-gatherer groups with the impetus for its adoption being greatest in areas with a high degree of environmental uncertainty. However, he expected that social constraints and, among other things, the need to maintain a high degree of mobility, would have limited the reliance on domestic stock. In this way social structure and a basic hunting and gathering life style could have been maintained. Marshall and Hildebrand (2002) suggested that increasing reliance on wild ungulates helped overcome the reduced predictability of plant resources in low rainfall environments. Since ungulates process a larger variety of plant foods, this also helps, by proxy, to diversify the species available to people. In arid conditions it would have been difficult to locate wild herds and domestication would have offered a way of increasing their predictability. Extending this logic, it would only be a small step for southern African hunter-gatherers to adopt sheep and/or cattle in order to increase the predictability of their food supply, whether through milk or meat. Adoption of small flocks by hunter-gatherers as reserve supplies could account for the very low numbers of sheep found in sites across the western part of South Africa and the lack of sites similar to Kasteelberg.

Despite the opposing evidence, A. Smith (2006a:71, 2008b) still expounds the view that “the ancestors of the historical Khoekhoen arrived at the southern tip of Africa with their sheep, some 2000 years ago, having immigrated and travelled fast over the intervening area between the Limpopo Province and the Cape". He considers the speed of movement to have been due to the need to find and colonise riverine systems, possibly after environmental deterioration in northern Botswana (A. Smith 2006a), or perhaps due to the unfriendly relations with local hunter-gatherers from whom they had to hurriedly move away (A. Smith 1990). However, if Khoekhoe immigration was due to the expansion of their population as suggested by Ehret (1982) and Elphick (1985), then why move so far so fast?

Elphick (1985:14) noted that "it is not likely that the Khoikhoi set out on a rapid, long-distance trek ... their movement was probably stimulated mainly by the need to find and exploit new pastures, and is best described by the term 'migratory drift'" as used by Stenning (1964)[9]. Also, such rapid expansion would have left the Khoekhoen extremely thinly spread on the southern African landscape – probably far more so than they would have liked. Marshall and Hildebrand (2002:121) noted this in East Africa where they suggested herders moving into the area would have had "limited access to other herders, breeding stock, and social safety networks". Boonzaier *et al.* (1996:27) state somewhat simplistically that the herders "probably travelled southwards to the winter rainfall area of the western Cape" as if they knew where they were going and were not interested in any of the other areas known to have been later occupied by herders! This was clearly not the case and some fairly inhospitable terrain would have to have been traversed before arrival at the better-watered south-western Cape. In order to survive them, new environments would have needed learning during colonisation (Meltzer 2003; Rockman 2003). This includes, for example, locating lithic resources and understanding the flow regimes of local rivers. In environments with an existing resident population the rate of

[9] Stenning's (1964:22) term 'migratory drift' describes "the continuous adjustment of transhumance patterns to subtle changes of an ecological nature."

learning is increased through friendly interaction with the residents. A. Smith (1990) thinks that herders would have avoided the local people; surely this would thus have slowed the migration process? Elphick (1985) noted that Namaqualand could not have been crossed in the dry season, since the fodder would have been too poor to support stock. Of course, this view may only be relevant to today's climate, since D. Avery (1992) found the *c.* 2000 BP climate to have been more favourable. Rapid movement through inhospitable areas as discussed above (A. Smith 2006a) would be very bold given no guarantee of finding water and fodder 'on the other side'. Rapid diffusion amongst a knowledgeable pre-existing population may have been more feasible and, discussing the spread of food production in Europe, Mitchell (2004b: table 1) noted that the complex interaction networks of hunter-gatherers were "capable of transmitting knowledge of new technologies and resources swiftly and over long distances". While Ehret (1982) thought that diffusion would be slow due to the successive periods of accommodation that would be required, Sadr (1998) noted that the available date ranges at 95.4% probability allowed up to 200 years for the spread from south-western Zimbabwe to the Cape; only 10 km need be covered per year.

I turn now to pottery, which perhaps reflects a marginally clearer situation. Although technologically similar, early pottery styles in Namibia, Botswana and the south-western Cape are very different, suggesting production by culturally distinct groups (Reid *et al.* 1998; Sadr 1998). This argues against a single cultural group migrating across the subcontinent. Sadr and Sampson (2006) later thought this regional diversity could be an indication of indigenous southern African invention, since early, thin-walled pottery does not appear to be present north of the Zambezi River. In contrast, Gifford-Gonzalez (2000) noted that learning the skills of pottery-making would have been difficult and required intentional social interaction between groups in possession of the knowledge and technology and those without. She suspects that relationships between early pastoralists and indigenous foragers may have been friendlier than those recently observed, with exchange relationships being enhanced by the creation of familial ties. Such a situation might well have aided the early diffusion of pottery-making technology from northern Botswana southwards, whether it was independently invented there or not. While archaeological evidence to support either contention is sparse, more can be said of the later spread of pottery into South Africa.

Pottery evidence argues for a late Khoekhoen migration into South Africa and, by implication, an initial introduction of sheep and pottery through diffusion some 1000 years earlier. Two observations are significant. Firstly, Reid *at al.* (1998, fig. 4.8; Sadr 1998, fig. 3) noted the coincidence of pierced lugs and the proposed routes of movement of the Khoekhoen through southern Africa. None of these lugs are reliably dated to more than 1200 to 1100 years ago (Sadr 1998). Secondly, Sadr (2003) documented a significant change in pottery style at Kasteelberg around AD 900-1200, involving replacement of narrow-necked, spouted and decorated pots by larger, undecorated lugged vessels. Lugged pots are often associated with the Khoekhoen (Bollong *et al.* 1997; Reid *et al.* 1998; Rudner 1979; Sadr 1998, 2003) and are seen by Sadr (2003) as indicating their arrival in the Western Cape *c.* AD 900-1200. Interestingly, Jacobson (1987) had long since postulated the replacement in Namibia of thin-walled pottery by a thicker variant as being a possible signifier of the arrival of the historically documented Khoekhoen. It may well be that early, non-lugged pottery in southern Africa was used by *relatively* less mobile societies who returned frequently to their home bases. In contrast, lugged ware, which was easily suspended from cattle, might have been developed by herders in response to the need for greater mobility. Sadr (1998: 116) also details distinct changes in almost every other class of remains at Kasteelberg B between about AD 900 and AD 1200 as further support. At about the same time J. Kinahan (1994/1995) notes a similar change in pottery style from small globular vessels to large bag-shaped ones on !Kuiseb Delta sites in the Namib Desert.

On the other side of the subcontinent, Mazel (1992) suggests LSA pottery to have been present from the first century BC, but some of the dates and contexts he presents do not inspire confidence. His data do, however, make it clear that LSA pottery was present there by at least AD 100, well before the Iron Age incursion. That this early pottery is not Iron Age is well demonstrated by its far thinner walls. Significantly, Mazel (1992) reports no sheep remains, raising the possibility that pottery reached the area independently via diffusion. Similarly, from Cape St Francis in the Eastern Cape, Binneman (1995, 2001) reports the earliest recorded pottery to be about AD 350 (Pta-9311), with domesticates only occurring some two centuries later.

Limited sheep and pottery in the prehistoric landscape prior to AD 900 are likely to have had a far smaller impact on the economies of traditional hunter-gatherers than the presence of a new group of people practising a vastly different mode of existence. In the south-western Cape, though, Parkington *et al.* (1986, 1988) recorded a changing settlement pattern from the early centuries of the first millennium AD which they ascribed to an influx of pastoralists (i.e. a population replacement): deflation hollows and the large coastal 'megamiddens' were abandoned in favour of inland rock shelters. Whether this shift can still be proved is uncertain, with many new coastal sites being found to date within the last 2000, and particularly 1000, years (Jerardino *et al.* 2009a: table 2). It seems possible that hunter-gatherers showed renewed interest in coastal areas, but used them only for very short stays. With the relatively limited research undertaken to date in Namaqualand, and particularly its interior Sandveld, it has not yet been possible to consider settlement changes there. One can note, however, that at least some sites dating throughout the last 5500 years are present along the coastline (Dewar 2008).

In terms of lithics, Parkington's (1984) population replacement and A. Smith's migration (2006a) find little support; perhaps most convincing is the observation that late assemblages from the Western Cape mountains resemble pre-pottery assemblages, but with increased adze frequencies (e.g. Mazel 1978; Orton & Mackay 2008; Parkington 1980). However, a wide variety of sites across western southern Africa seem to indicate cultural continuity in their stone artefact assemblages both around 2000 years ago and at whatever point in their sequences sheep and pottery appeared (Table 2.4). Interestingly, the same situation pertains in East Africa (Bower 1991:74 and references therein). It should be noted that Smith and Jacobson (1995:11) explained the continuity at Geduld, in Namibia, as being due to occupation of the site not by pastoralists but by "hunter-gatherers on the periphery of a pastoralist society". Whether all sites could be viewed this way seems doubtful. One site where the researchers were confident of the appearance of herding is Spoeg River Cave. There, a lack of retouched scrapers during the pottery-period was taken to signify one of two things: either herders moved into the cave, or hunter-gatherers successfully made the transition to herding (Vogel *et al.* 1997). A third possibility, surely, would have people simply using the cave in different ways? Interestingly, in northern Namibia, Vogelsang *et al.* (2002) have identified contrasting and co-existing lithic industries, both associated with pottery[10]. One they describe as "a continuation of the LSA tradition with ... a few small microliths" and the other as "an indifferent unstandardised stone artefact industry with nearly no retouched tools" (Vogelsang *et al.* 2002:120). The latter, they speculate, may represent the 'donor pastoral society'.

Table 2.4: Comments relevant to the introduction of sheep and pottery to southern African sites.

Area (Site)	**Comments**	**References**
Namibia (many)	Less change co-incident with first sheep and pottery than 1000 years ago.	J. Kinahan 1984, 2001
Namibia (Geduld)	"A continuation of the cultural tradition across the ceramic threshold".	Smith & Jacobson 1995:11

[10] Although Vogelsang et al.'s (2002) preliminary assessment claimed that domesticates were present, Joris Peters (pers. comm. 2012) has confirmed that he has made no positive identifications in his subsequent detailed study.

Area (Site)	Comments	References
Namibia: Hungorob Ravine (many)	"A single, evolving technological tradition, rather than the replacement of one tradition by another".	J. Kinahan 2001:34
Namibia (Big Elephant Shelter)	"Lithic and non-lithic artefacts ... (suggest occupation) ... by a stable population group and that the introduction of pottery and possibly domestic animals … neither caused the displacement of the population nor radically affected their conservative implement-making traditions". Minor differences reflect "a shift rather than a change in the norms of artefact manufacture".	Wadley 1979:52
Namibia: Kaokoland	"A continuance of cultural traditions with the advent of domestic animals and pottery"	Vogelsang *et al.* 2002:121
Northern Cape interior (many)	No lithic change with the introduction of pottery.	Humphreys and Thackeray 1983
Northern Cape coast: Namaqualand (many)	"A continuous evolution of the Holocene microlithic cultural sequence … with no indication of abrupt changes".	Dewar 2008:160
Elands Bay (many),	Less change co-incident with first sheep and pottery than 1000 years ago.	Orton 2006
Elands Bay (Tortoise Cave)	Artefacts display gradual de-formalisation, more likely exacerbated by introduction of herding than caused by it.	Robey 1987
Vredenburg Peninsula (many)	Less change co-incident with first sheep and pottery than 1000 years ago.	Sadr *et al.* 2003
Vredenburg Peninsula (many)	* Non 'Kasteelberg-type' sites indicate "cultural continuity before and after the introduction of domestic stock and pottery".	A. Smith 1998a:154
Southern Cape (Boomplaas)	"No apparent change in the nature of the stone tool industry in ... (the herder) ... units as compared with the immediately pre-herder levels and this suggests a measure of continuity in the stone artefact tradition".	H. Deacon *et al.* 1978:57
Southern Cape (Noetzie Midden)	Continuity in stone material and artefacts through last 3000 years.	Halkett & Orton 2009
Eastern Cape (many)	Striking change in coastal middens from c. second century AD but reflects changes elsewhere more than 1000 years earlier.	Binneman 1995; H. Deacon 1976; Robertshaw 1984.

* This comment is included bearing in mind Sadr's (2004) view that the Kasteelberg sites are special purpose sites. Following Smith (1998a) 'Kasteelberg-type' sites have high frequencies of sheep.

In summarising the then available southern African evidence, J. Deacon (1984a:269) suggested that “the overall impression is that pottery and domestic stock were added to the pre-existing Stone Age tradition and that there is continuity in the stone tools made in each region”. It seems, then, that the South African lithic evidence clearly does not point to an abrupt early first millennium AD cultural change as would be associated with a population replacement. Rather, it points to gradual change which may have been accelerated by the introduction of sheep and pottery but not directly caused by it.

Turning now to ostrich eggshell beads, few bead size sequences from the western part of the subcontinent have been published and the lack of deep deposits compounds this problem. However, a few observations are available. At both Spoeg River Cave (Webley 2002: table 12) and Geduld (Yates 1995) there seems to be a relatively gradual increase in bead size with time, something that does not support a population replacement, while in Dewar’s (2008) open sites larger beads (>6 mm external diameter) only appear in conjunction with small beads around AD 1300 after an apparent occupational hiatus in the area. Yates *et al.* (1994) summarise the south-western Cape sequence: from *c.* 4800 BC to *c.* AD 50 there was relative stability in bead size with mean bead diameters being 4.5–4.7 mm. From *c.* AD 300–500 small beads continued to dominate the assemblages but larger beads were being added. About AD 650–1000 still larger beads were added. The effect was more pronounced at the coast with inland assemblages then averaging around 5 mm and coastal ones up to 7 mm. Significant numbers of larger beads only appeared inland after 1100 AD. There are clearly too few observations to enable further interpretation.

A completely different take on the nature of pastoralism has been offered by Yellen (1984) and Elphick (1985). They described a cyclical model in which one cultural group of people could present as hunter-gatherers or herders depending on where they were in the cycle. During times of plenty when they had stock they would be herders. However, if they lost their stock, perhaps through drought, theft or disease, they would simply revert to hunting and gathering until such time as they were able to acquire new stock and become herders again. Elphick (1985) also notes that the herder economy would still have been based on hunting and gathering (as described above). This model suggests a fluid relationship between the two economies and, while based on historical observations, there seems little reason why it could not have operated during prehistory as well. It offers no contribution to the debate on the nature of the introductions though.

As is evident from this brief review, there is still plenty of room for debate with the need for more dates, particularly directly dated domesticates, perhaps being the most debilitating factor in the refinement of these issues.

2.5 Sheep, goats, dogs and cattle: a pastoralist package?

Sheep and cattle have been discussed above but goats and dogs were also documented historically as being owned by the Khoekhoen. Recent direct dates on domestic bones (Henshilwood 1996; Orton *et al.* in press; Sealy & Yates 1996) suggest that cattle and sheep (assuming the identification to be correct) had both arrived by the mid-first millennium AD but no very early dates are yet associated with either goats or dogs.

Goats are little mentioned in studies of herders in the South African LSA. This is no doubt due to the great difficulty in distinguishing them from sheep, the only reliable means being through their horncores (Klein 1984), certain teeth (Zeder & Pilaar 2010) or by DNA analysis (Badenhorst 2006). Badenhorst (2006) considers that the emphasis placed on sheep and cattle may have obscured the role goats might have played in prehistoric herding societies. He suggests that since goats are more intelligent than sheep (Dahl & Hjört 1976), small numbers of them may have been used by the

Khoekhoen to assist in herding of sheep but that keeping goat numbers deliberately low will have resulted in their reduced archaeological visibility. Based on the lack of secure identifications though, Klein (1986) considers goats to have been rare or absent in prehistoric contexts in the south and south-western parts of South Africa but postulates that they might have been more common in the northwest. Modern subsistence pastoralists in central Namaqualand focus on goats but the ratios of stock types have changed considerably over time (Table 2.5, see also Webley 1982: table 1). Interestingly, this increase in small stock is perhaps implicit in Stow's (1905) observation that during the course of the eighteenth century the Namaqua had dwindled in number and lost their great herds of cattle. Badenhorst's (2002, 2006) reviews suggest that archaeological evidence for goats in the southern African LSA is scant but that they were present in Iron Age communities from about the fourth century AD. Mitchell (2004b) sees these communities as a source for goats in the LSA. Historical accounts are conflicting. Kimble (1937 in Seddon & Vinnicombe 1967) suggests that sheep, cattle and goats were present in the south-western and southern Cape before AD 1508, while others disagree. Schweitzer (1974) uses the lack of mention of goats in the late fifteenth century historical literature – where large, hairy, fat-tailed sheep were noted – to support their absence among his Die Kelders fauna, and Schapera and Farrington[11] (1933) note that the goat brought to Van Riebeeck by the Namaqua in 1661 was the first he had seen at the Cape, implying that they were not owned by the local Cape Khoekhoen at that time.

Table 2.5: Ratios of livestock over time. 2002 data calculated from Samuels *et al.* (2008: table 1), 1865 data calculated from Hoffman & Rohde (2007), 1661 data calculated from Penn (1995).

	2002	1865	1661
cattle	1	1	1
sheep	20.27	5.35	0.75
goats	49.87	3.53	?

[11] Described in the notes to Schapera's translation of Dapper.

The bones and chew marks of dogs, virtually identical to those of jackals, are also not reliably distinguished. Furthermore, it is unlikely that dead dogs would have found their way into archaeological deposits (Maggs and Sealy 2008; Plug 1996). However, Klein and Cruz-Uribe (1989) consider the high incidence of chewing at Kasteelberg A and B and corresponding very low incidence at other local sites to support their presence at Kasteelberg. From chew marks, several sites are thought to include dogs (Cruz-Uribe & Klein 1994; Klein & Cruz-Uribe 1989; Voigt 1983). Mitchell (2008) notes that all these occurrences are at least possibly related to herders but notes just one site, in Lesotho, where dogs are considered present in a clear hunter-gatherer context (Hobart 2003; Plug 2003). Historical accounts report their presence among the Khoekhoen (e.g. Dapper 1668 in Schapera & Farrington 1933), while Boonzaier *et al.* (1996) consider the dog-owning locals met by Vasco da Gama at St Helena Bay to have been Bushmen rather than Khoekhoen. On the available evidence there seems little reason for this.

Cattle bones have occasionally been physically identified in sites dating within the last 2000 years. They too, however, are not easily separated from their wild counterpart, the Cape buffalo (Klein 1984, 1986) and most relevant bones are usually listed as 'bovine'. Horn-cores (Klein 1984) and skulls are the only reliably distinguished elements, with teeth slightly less secure (R. Klein, pers. comm. 2012). Boonzaier *et al.* (1996) and A. Smith (1998a) suggest that, while sheep must have moved south with the Khoekhoen, cattle might have been obtained later, perhaps around 1000 years ago, from Iron Age Bantu farmers in the Eastern Cape. Mitchell (2004b) also suggested a farmer source. This view is no longer tenable in the light of early direct dates obtained by Robbins *et al.* (2005) and Orton *et al.* (in press), the latter identification having been confirmed by aDNA studies. The variety in root words for cattle among Central Khoesan languages may support an arrival independent of sheep (Vossen 1996 in Blench 2006). Blench (2006) takes this to mean that the Khoekhoen had sheep but not cattle at the time of their first expansion, although evidence from Toteng might argue otherwise. There, Robbins *et al.* (2005) suggest that similarly dated sheep and cattle remains about 2000 years ago indicate that both were present at initial expansion, but the slightly earlier sheep at Spoeg River Cave (Sealy & Yates 1996) and caprines from Leopard Cave (Pleurdeau *et al.* 2012) might undermine their claim, since the expansion must then have started earlier. In any event, these dates are far older than the earliest Iron Age settlement in eastern South Africa (M. Hall 1987; Sadr & Sampson 2006; Sadr 2008a: figs 2–4) precluding Bantu speakers as a direct source of domestic stock in that region.

While goats are controversial and have yet to receive detailed study, it seems that sheep and cattle at least were present in the south-western Cape some 2000 years ago. Dogs may have been a very much later addition. Sheep, cattle and pottery (which was also present very early) thus probably arrived within about a century or so of one another but, given the resolution of dating, and still very small sample of early dates, we are unlikely to be able to prove their contemporaneity beyond doubt.

2.6 Summary

This chapter has reviewed the current state of knowledge on the archaeology of hunter-gatherers and herders in the western half of southern Africa. The difficulty in distinguishing the archaeological remains of each group is demonstrated, with the only extant model, established by A. Smith *et al.* (1991), shown to be problematic. Specifically, some sites fit the model while others do not. They proposed that hunter-gatherer sites would be identified by the presence of retouched stone tools and *Donax* scrapers, small ostrich eggshell beads, wild fauna and minimal pottery. Herder assemblages should reflect the opposite pattern. Problems with the archaeological visibility of herder sites are highlighted, as is the possibility that researchers are not looking for herders in the right places or in the right ways (Arthur 2008).

It seems reasonably well established that the Khoekhoen, who are traditionally associated with pottery and livestock, had their origin in the vicinity of northern Botswana and then expanded in a southerly and south-westerly direction into South Africa. The routes by which this expansion took place, however, are still debateable. Two plausible options exist involving the west coast and central interior with early directly dated stock bones perhaps favouring the western route, at least for the stock. Although A. Smith (2006a, 2008b) and others consider the expansion to have occurred as a rapid migration 2000 years ago, Sadr (2003) sees the majority of evidence pointing towards a later migration perhaps around AD 900-1200. Linguistics may suggest something similar, but as part of a more complex overall sequence of events (Güldemann 2008). Sadr (2005b:216) also proposes a state of economic flux: "intensive pastoralists became hunters-with-sheep, hunters-with-sheep went back to full time hunting and gathering, and full time hunter-gatherers elsewhere decided to give intensive animal husbandry a go, at least for a while". If Sadr is correct, then the Khoekhoen can no longer be considered together with the livestock and pottery traditionally associated with them, since sheep, cattle and pottery were clearly present in southernmost Africa some 2000 years ago. This would imply their influx via cultural rather than demic diffusion. That dogs and goats were present historically is known, but their antiquity remains unresolved.

A common thread in the migration/diffusion debate is that most of the 'evidence' relates to disproving the opposing ideas. This surely points towards the great difficulty archaeologists have had in researching these issues, perhaps largely due to the scarcity of early evidence for domesticates, pottery and, particularly, the Khoekhoen themselves. It is hoped that what follows will make a small contribution in this regard.

Chapter 3. The research area in context.

3.1 Geographic profile

The geographic boundaries and ecological subdivisions of Namaqualand are variously drawn by different authors (e.g. Cowling & Pierce 1999; Desmet 2007; Le Roux & Schelpe 1988). Although the northern and southern limits are well accepted as being the Orange and Olifants Rivers respectively, Cowling and Pierce (1999) note that most of the boundaries are somewhat arbitrary, since patches of Namaqualand-type flora occur on granite hills in Bushmanland to the east and in dry areas of the Cape region to the south. Following these authors, Namaqualand can be divided into five zones based on landscape features and climate: the Richtersveld, Sandveld, Hardeveld, Kamiesberg and Knersvlakte (Figure 3.1). They all fall within the Succulent Karoo Biome, "a semidesert region with a strong maritime influence characterized by an even, mild climate" (Mucina *et al.* 2006b:223). For easier reference, I further subdivide the Sandveld into the northern, central and southern zones in which archaeological work has been carried out. These are conveniently separated by the 30° S and 31° S parallels (Figure 3.1).

I now describe the five geographic zones in turn, based primarily on Cowling and Pierce (1999), but supplemented by many of my own observations. Specific landscape features described are not necessarily ubiquitous but are present within areas I have visited.

The westernmost strip, within 20–30 km of the coast, is the <u>Sandveld</u>, a region with much variability. In the northern and central parts one finds extensive coastal dune fields (Figure 3.2), some still fully active and receiving their sand supply from the variably sized pocket beaches dotting the rocky coastline. Just north of the Buffels River, the palaeo-marine terrace is particularly prominent 3–8 km inland with several large pans on the plain to its west. In places, dune fields also occur further inland. These are generally less mobile and better vegetated than those at the coast but occasional deflation hollows are found.

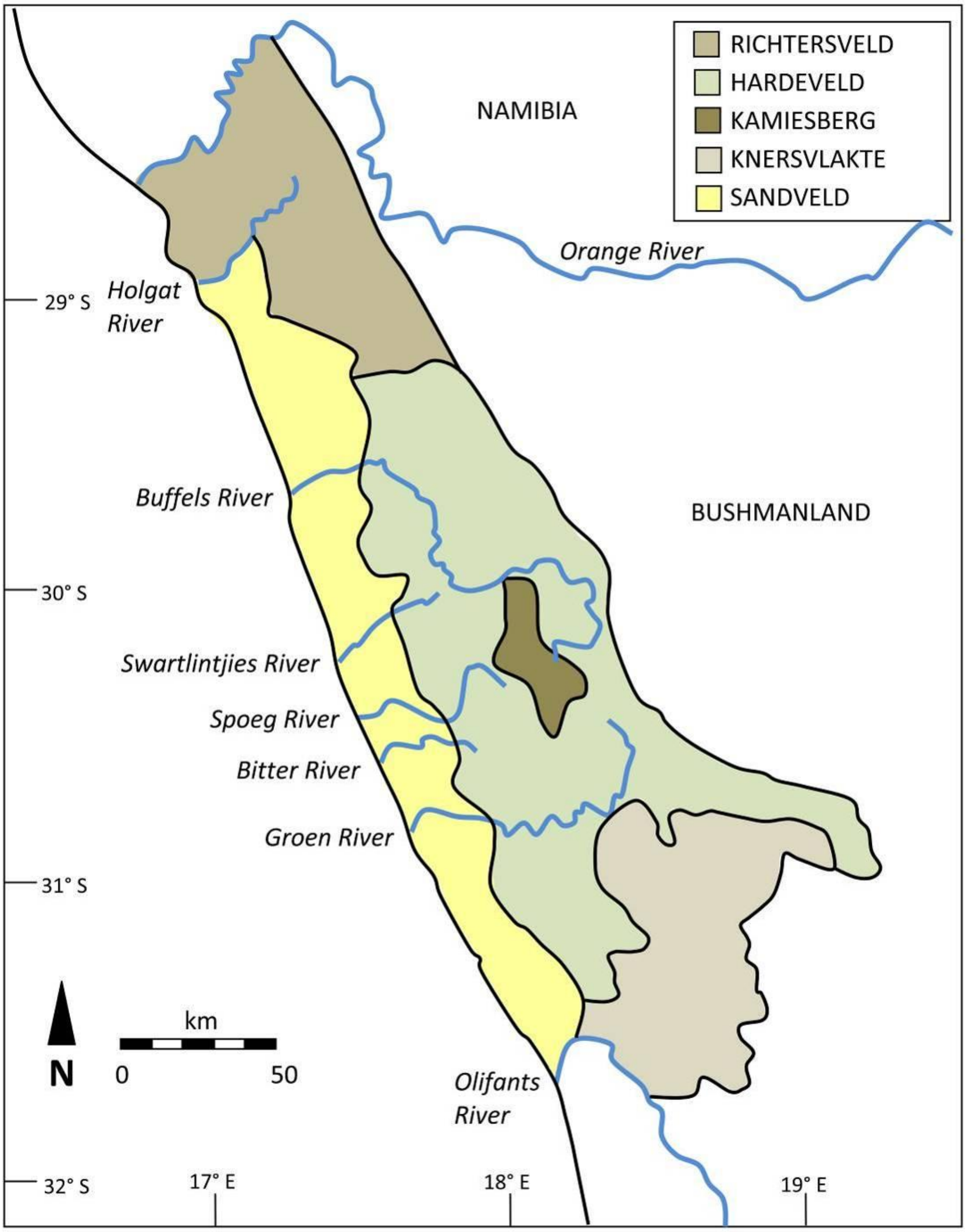


Figure 3.1: Map showing the subdivisions of the study area (after Cowling & Pierce 1999).

Figure 3.2: Coastal dune fields in the northern Sandveld.

Figure 3.3: Gently undulating red sands in the southern interior.

In southern Namaqualand the coastline is far steeper with rocky cliffs in places. A high coastal ridge separates the sea from the gently undulating plains to the east (Figure 3.3).Vegetation is denser than it is to the north, but occasional deflation hollows occur on dune tops and a few pans have eroded down to the surface of the hardpan layer that underlies the area. These pans currently hold water during the winter rainy season. All the Sandveld dune fields are likely to have been less vegetated and far more mobile during the warmer and drier mid-Holocene than they are today (Chase 2005).

Annual rainfall in the Sandveld varies from about 150 mm in the south to <100 mm in the north, but the frequent coastal fogs provide much moisture to the vegetation. In the Richtersveld, coastal rainfall is <50 mm (Cowling & Pierce 1999). Fog is a more reliable water source than rainfall (Desmet & Cowling 1999) but heavy dewfalls, especially in spring and autumn, provide additional moisture. Several rivers cross the Sandveld and, although some have permanent water in their estuaries, they usually only flow in response to heavy inland rains. The rivers, from north to south, are the Holgat, Buffels, Swartlijntjies, Spoeg, Bitter, Groen and Olifants – the first and last being the northern and southern boundaries of the Sandveld respectively. The Olifants, which has its catchment in the mountains to the south, is perennial and has a large open estuary. Two vegetation types occur in this zone: Strandveld on sands of marine origin and Sandveld Fynbos on sands of fluvial origin (Cowling & Pierce 1999). Along the coast the Strandveld is dominated by low grasses and bushes, stunted by the prevailing southerly winds that blow for much of the year. In the north, occasional clumps of higher vegetation do occur in places, mainly in the sheltered hollows among hummock dunes, while in the south, owing to increased moisture, the high coastal ridge has markedly higher and denser vegetation cover than further inland. Vegetation in the interior Sandveld is variable, depending primarily on the depth of the soil which frequently overlies hardpan layers, either silcrete, ferricrete or calcrete. Where fynbos extends into the Sandveld it is strongly dominated by restioids (reeds). It is in the coastal and near-coastal Sandveld that archaeological sites are most dense and where most excavation has occurred.

Inland of the Sandveld lies the Hardeveld, a zone of granite and gneiss hills and valleys from which the rivers of Namaqualand arise (Figures 3.4 & 3.5). It is in the definition of this zone that the main difference between the divisions of Cowling and Pierce (1999) and Desmet (2007) lies. The former include much of the mountainous terrain around the highest parts of the Kamiesberg, while Desmet includes only the lower hills to the south and west of the mountain massif. This very rugged mountainous landscape forms the western part of southern Africa's Great Escarpment and experiences rainfall of 100–300 mm per year. The vegetation along the base of the hills, and extending into the Sandveld in places, is known as Vygieveld and predominantly comprises very low succulents. The mountains are covered by Namaqualand Broken Veld which, due to the diverse topography, displays much variation in composition. Scattered trees are present throughout. In general, the bushes get steadily larger with altitude and in places, especially among large boulders, one finds dense thickets of trees. Surrounded by the Hardeveld and east of my study area is a small, very high-lying region, the Kamiesberg. This high mountain zone reaches more than 1700 m above sea level, attracts ≥400 mm of rain annually and gives rise to the rivers of the central Sandveld. Namaqualand Renosterveld and Kamiesberg Fynbos occur in this region.

Figure 3.4: A small rocky valley in the south-western Hardeveld. Sites KK002 (white arrow) and KK003 (black arrow) are indicated.

Figure 3.5: A typical winter scene in the central Hardeveld.

To the north and south of these regions lie two vastly different but similarly desert-like areas. The Richtersveld is a rocky mountain desert and sandy coastal plain between the Orange and Holgat Rivers; the former is the only perennial river in the northern part of the study area. Rainfall is variable, with the low-lying valleys and western parts receiving only *c.* 50 mm of rain annually and the high mountains in the east 300 mm or more. The inland mountains are vegetated by Namaqualand Broken Veld, but the majority of the Richtersveld is Vygieveld. A strip of relatively lush riparian woodland occurs along the banks of the Orange River, however, providing the only continuous shade in the region.

The Knersvlakte contains extensive quartz gravel plains studded with a unique succulent flora – part of the Vygieveld – with sandy spinescent grasslands in places (Figure 3.6). The region receives ≤150 mm of rain annually and is cut from east to west by the Sout and Varsche Rivers, which flow only in response to heavy rains (Figure 3.7). Pools of salty water do, however, stand throughout the year at a point where a spring feeds into the Sout River. Starting quite flat in the south, the area becomes progressively hillier towards the north, eventually giving way to the hills of the Hardeveld. In the central parts an area of limestone cliffs has been carved in two by the Varsche River and rock shelters have formed (Figure 3.8). This large plain was created by the proto-Orange River and forms “a very distinct physical boundary between the sandstone and shale sedimentary rocks of the Cape Fold Mountains (Cape Floristic Region) to the south, and the predominately igneous landscape of Namaqualand to the north” (Desmet 2007:573).

Figure 3.6: View across the open quartz gravel plains.

Figure 3.7: View towards the south across the Sout River showing the distinctive erosional landscape characterising the area.

Figure 3.8: View across the Varsche River showing the limestone cliffs and riparian *Acacia karoo* trees.

The density of coastal archaeological sites in the immediate coastal zone of Namaqualand relates directly to the exploitation of marine resources. The Benguela Current off southern Africa's west coast feeds one of the most productive marine areas in the world (Brown *et al.* 1991) and "supports an important global reservoir of biodiversity and biomass of zooplankton, fish, seabirds, and marine mammals" (O'Toole *et al.* 2001:230). The rocks are generally clothed in a multitude of shellfish which proved a ready food supply to the prehistoric population (Figure 3.9). This richness is a direct result of the cold water upwelling that occurs along the coast. The vast majority of the Namaqualand coastline is rocky (Figure 3.10), with sandy beaches generally limited to relatively small embayments formed either by current river mouths or the intersection of palaeoriver channels with the coast. It is these sandy beaches that act as the initiation points for the Holocene dune fields extending northwards into the coastal plain in several areas.

Figure 3.9: *S. granularis* and *C. granatina* limpets on the rocks at Kleinzee.

Figure 3.10: View southwards along the rocky shore at Koingnaas.

3.2 Geology

A good technical overview of the local geology is given by Cornell *et al.* (2006) and Roberts *et al.* (2006) and here I only summarise the relevant features.

The rocks of Namaqualand are part of the Namaqua-Natal Province of igneous and metamorphic rocks (Cornell *et al.* 2006). They form the belt of hills and mountains along the Great Escarpment some 30 to 90 km from the coast. Within this belt the high granite mountains of the Kamiesberg are formed by a massive igneous intrusion surrounded by variously metamorphosed and weathered granite gneisses, the latter visible at the surface today. These result in many exfoliating dome-shaped hills, large valleys and abundant spheroidal boulders (Norman & Whitfield 2006). Quartzites are also present in places (Martin 1965; Truswell 1970). The usually flat-bottomed valleys are filled with shallow, base-rich to calcareous soils with hardpans not far below the surface (Mucina *et al.* 2006b). The mountains of the Richtersveld region are mostly of metamorphic rocks but include quartzite, granite, gneiss, schist, dolomite, tillite, limestone and others (Martin 1965; Truswell 1970). Along the Orange River are several large palaeo-terraces composed of cobbles and pebbles of a wide variety of rock types brought from the interior. Quartz seams occur throughout the region.

Seaward of the mountains, where most of my research lies, much of the coastal plain is mantled by sandy and sometimes calcareous soils (Mucina *et al.* 2006b). These aeolian sediments include the middle to late Pleistocene aeolianite cliffs of southern Namaqualand, just north of the Olifants River mouth (Roberts 1999, cited in Roberts *et al.* 2006), as well as reddish mobile aeolian sand that probably derives from older dunes. Nearer the sea, white to grey unconsolidated dune plumes extend northwards from the many sandy bays that dot the coast (Roberts *et al.* 2006). The majority of the Sandveld is stable with less than 10% of the surface being mobile under the current wind regime, and that often due to modern disturbance (Harmse 1988). The sands of the Sandveld and Hardeveld are underlain by silica- and calcium-rich hardpans – silcrete and calcrete. The younger, whiter sand (less than 100,000 years old) tends to overlie only calcrete, while beneath the older red sand (*c.* 2 million years old) lies silcrete, which in turn overlies calcrete (Desmet 2007). The sand can be up to several metres thick, although in some areas the hardpans are exposed by the wind. In the coastal region calcrete is frequently visible in mine trenches one to two metres below the surface and is even exposed at the surface in places, while further inland Chase (2005) recorded hardpans at variable depths of up to several metres. Inland, coppice dunes up to 70 m long, 40 m wide and 8 m high occur but longitudinal dunes up to 2 km long, 50 m wide and 15 m high are also present. Near the coast are smaller parabolic and transverse dunes (Harmse 1988). Gneiss extends beneath the coastal plain to be exposed along the coastline and in the central Sandveld river valleys (Truswell 1970).

Just north of Kleinzee, the wide, wave-cut marine terrace is capped by silcrete (Roberts *et al.* 2006). This terrace forms one of the few major landscape features in the central and northern coastal region along with several shallow river valleys and low hills.

Similar to valleys further north, the Knersvlakte in the south is also mantled by base-rich to calcareous soils overlying hardpans (Mucina *et al.* 2006b). Unique to the Knersvlakte, though, are limestone beds that have been largely recrystallised to marble (Martin 1965; Norman & Whitfield 2006), one being that through which the Varsche River flows. Although largely covered by sand, the palaeo-terraces of the Varsche and Sout Rivers include cobbles of various rocks and both channels display occasional gravel patches, remnants of the palaeo-Orange River which once flowed through the area (De Wit 1999).

3.3 Sea levels

While much research has been conducted on sea levels globally, I focus here on the local southern African evidence, much of it from Elands Bay some 100 km south of southern Namaqualand (Figure 3.11). Last Glacial Maximum sea levels are widely accepted to have been some 120–130 m lower than the present level. Miller (1990) postulates a fairly rapid rise in sea level until the early Holocene, although it was probably slightly slower during the last few millennia of the Pleistocene. Baxter and Meadows (1999) suggest that a transgression may have occurred *c.* 8000 BP followed by a 3-4 m drop and a recovery about 6000 BP. Changing sea levels during the Holocene are widely documented but little parity exists between researchers. While most agree that the post-LGM rising sea level stabilised by about 6000 years ago, the magnitude and timing of smaller variations after this time are more contentious.

It is likely that sea levels were elevated by up to 2 to 3 m during the mid-Holocene (Baxter & Meadows 1999; Miller 1990; Miller *et al.* 1993), although the timing of the peaks differs among authors. Studies at Saldanha Bay support a first transgression of modern sea level about 7000 years ago (Compton 2001; Flemming 1977; Tankard 1976) and, in agreement, Compton (2006) found that sea levels in southern Namibia were some 3 m higher between 7300 and 6500 years ago but then dropped and remained low until about 4900 years ago. In contrast, at Dunefield Midden 1 near Elands Bay, Orton and Compton (2006) found evidence for human occupation *c.* 4800 BC in an area that was shown to have been a beach environment (if not consistently, then at least sporadically) during the last 3000 years (Miller *et al.* 1993; Orton & Compton 2006), while Baxter (1997) saw a rapid rise to just below modern levels about 8000 years ago followed by a regression of some 3 to 4 m before again rising to the well-documented mid-Holocene high. Meadows and Baxter (2001), on the other hand, proposed two periods of raised sea levels between about 5070 BC and 1750 BC from sediment cores along Verlorenvlei.

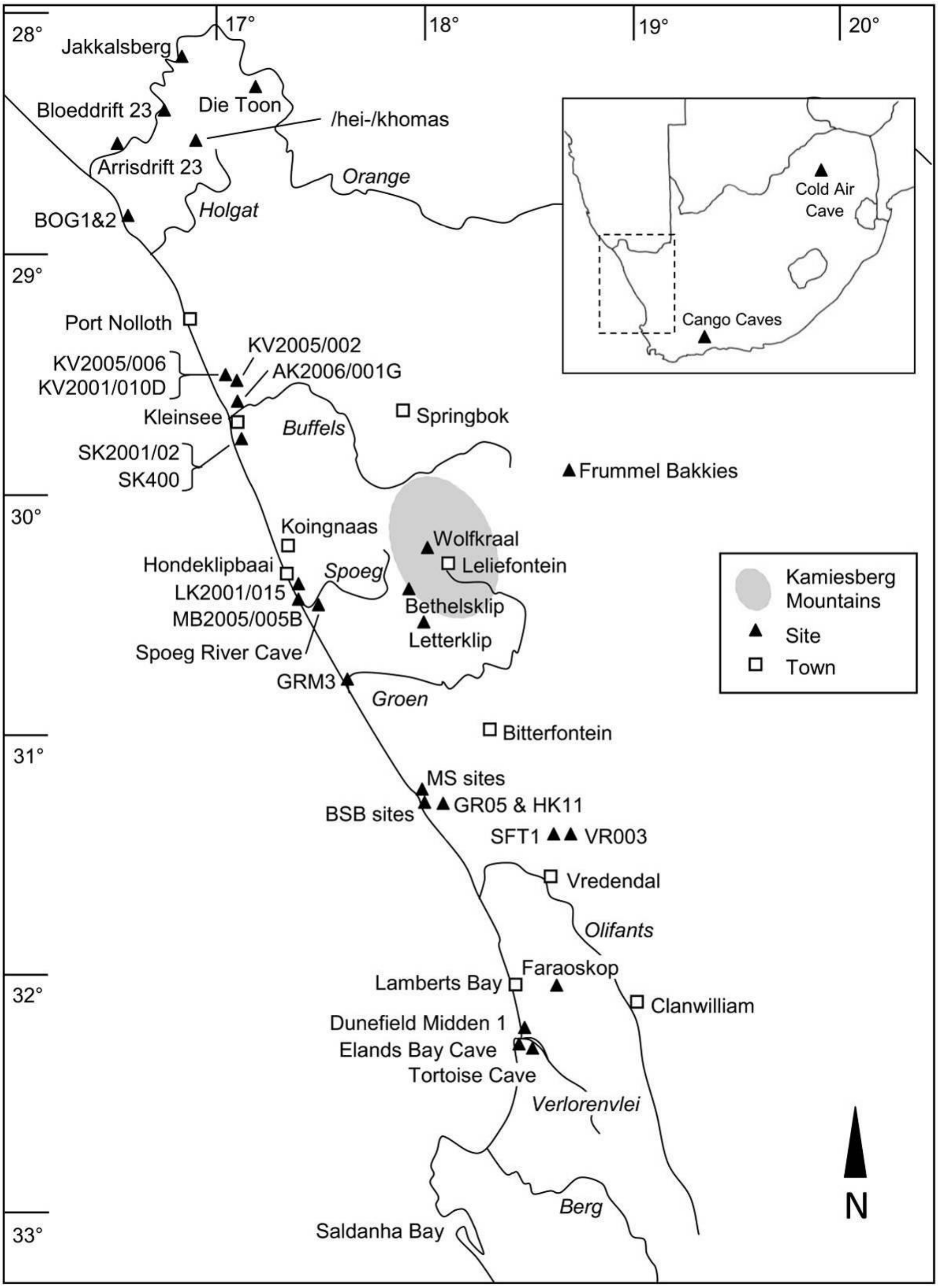


Figure 3.11: Map showing places and archaeological sites mentioned in Chapter 3.

Further evidence for a mid-Holocene high stand comes from sediment cores from the upper reaches of the Verlorenvlei; an estuarine environment is suggested there between about 3700 and 2900 BC (Meadows *et al.* 1996). This situation may also have prevailed in Namaqualand estuaries such as the Spoeg River, although an early date of around 3650 BC (Dewar 2008) from MB2005/005B on its barrier dune cordon suggests a more complicated/ambiguous picture. This observation compliments Compton's (2006) finding that sea levels were lowered at that time and then probably never more than about 1 m above modern levels within the last 4200 years. At Elands Bay, Tortoise Cave contains estuarine shellfish at *c.* 2900 BC (Jerardino 1993) indicating raised sea levels, and *c.* 2500 BC sea levels were probably about 2 m higher than present (Baxter 1997; Jerardino 1993, 1996; Yates *et al.* 1986). After this time the Western Cape is thought to have experienced several minor sea level adjustments but with none greater than about 1 m above or below the present mean (Compton 2001; Compton & Franceschini 2005; Jerardino 1996). Tortoise Cave shows minimal estuarine shell availability *c.* AD 250 but none after that (Jerardino 1993).

Unlike shores south of the Olifants River, the Namaqualand coastline is mostly rocky and quite steep. As such, changing Holocene sea levels are unlikely to have had much effect on the archaeology behind the rocky shores during this period, with higher seas probably just pushing back the line of coastal dunes and prompting settlement slightly further inland. Higher sea levels might have resulted in some of the river estuaries becoming open to the sea which would have changed the fish species available (see Poggenpoel 1987), but with no studies of archaeological fish assemblages yet conducted in Namaqualand this remains unknown.

3.4 Climate

3.4.1 General observations

Following the Köppen-Geiger climate classification that considers temperature and rainfall, Namaqualand is a cold desert (Peel *et al.* 2007) with mean maximum summer temperatures of less than 30°C (Desmet 2007). Ironically, the warmest days at the coast (>35°C) are recorded in winter during berg wind conditions when hot, dry air moves coastward from the interior plateau (Desmet 2007). These winds are most frequent in winter and early spring (Desmet & Cowling 1999). The Succulent Karoo biome as a whole has a mean annual temperature of 16.8°C (Mucina *et al.* 2006b). The berg winds temper the cold winters, while the cold ocean and fog help reduce summer temperatures, especially near the coast. The fog banks form out at sea and generally do not move very far inland where they thin and evaporate due to the heating of the arid land. Despite this, they occasionally penetrate as far as the escarpment (Desmet & Cowling 1999), but their frequency declines rapidly towards the east (Olivier 1995). Conditions for fog formation are best in summer, but, due to the elevated summer wind speeds, fog is most commonly experienced in autumn and spring (Desmet & Cowling 1999).

The rainfall patterns described in Section 3.1 above are largely determined by two rainfall gradients. These operate perpendicularly to one another with the first being an aridity gradient that results in decreasing rainfall as one moves northwards. The second is a longitudinal seasonality gradient with the coastal region experiencing 100% winter rainfall and the furthest interior 100% summer rainfall (Desmet & Cowling 1999). Based on the fact that at least 66% of its rainfall arrives between the months of April and September, the whole area presently under study can be considered winter rainfall as mapped by Chase (2005: fig. 2.5). The rainfall regime is relatively predictable (Hoffman & Cowling 1987), with the westerly fronts typically bringing widespread gentle orographic rain that falls more on the mountains than on the coastal plain. The tropical summer thunderstorms on the inland plateau bring short-lived, heavy rainstorms which fail to reach the coastal plain due to the stabilising influence exerted on the local climate by the cold Atlantic Ocean (Desmet 2007). Snow occasionally falls on the highest peaks and hailstorms and frost are very rare, but frost occurs occasionally on the Namaqualand escarpment (Mucina *et al.* 2006b). Part of the regularity in the rainfall regime is the regularity of droughts identified through an examination of nineteenth century documentary sources (Kelso & Vogel 2007). Droughts typically lasted three to five years. The study also showed that in some years when ‘normal’ annual rainfall was received, crop[12] failures occurred because the rain fell in the wrong season. Newspaper reports quoted by Kelso and Vogel (2007: 371-372) show that some droughts had devastating consequences on local domestic stock and similar consequences may well have been felt in prehistoric times, perhaps on a different scale and possibly leading to the abandonment of Spoeg River Cave (D. Avery 1995; see below). Prolonged droughts, however, are very rare (Desmet & Cowling 1999).

Southerly winds dominate, and this constant onshore cool air flow results in frequent fog banks and, particularly in winter, heavy dewfalls (Desmet 2007). The latter are formed by the interaction of high coastal humidity and cool nocturnal temperatures and can fall all year round (Cowling *et al.* 1999; Desmet & Cowling 1999). These provide a valuable source of moisture in an environment where rainfall is otherwise low (cf. Matimati *et al.* 2010; Schulze & McGee 1978). Under thick fog the summer coastal temperatures can remain quite cold until the early afternoon when the fog typically retreats out to sea.

[12] Wheat was introduced to the high-lying areas where sufficient rain falls in 1816 (Shaw 1840) and is still grown there today, although oats are now the most common crop (Samuels *et al.* 2008).

Aside from the fog and dew, water is scarce but the few rivers present generally contain standing water in their estuaries. Buried palaeoriver channels still carry water and Alexander (1838) reported that at Rooiwalbaai one could obtain water by digging on the beach[13]. The small coastal springs and seeps at the intersection of dunes and bedrock are currently (and probably always were) valuable water sources as testified by the many animal tracks one sees leading to them.

In general, Namaqualand is a transitional zone between the Mediterranean climate of the far south-western Cape and the true desert climate of the Namib to the north. With its steep north-south climate gradients, conditions range from quite moderate in the south to more extreme in the north. Even today, though, the unique climate of Namaqualand's winter rainfall zone allows modern crop farming and pastoral activities that would be impossible in a similar rainfall regime elsewhere (Desmet 2007). Although this is largely in the higher-lying inland areas, it does bode well for pre-colonial pastoralism in the greater Namaqualand area.

3.4.2 Early climates

Although palaeoclimatic records for the western parts of southern Africa are patchy, Chase and Meadows (2007) provide a review of currently available data. What follows is a summary of some of the more salient observations based on the most recent work.

The modern Namaqualand climate developed around five million years ago with the last 1.5 million years characterised by alternating cold glacials and warm interglacials (Cowling & Pierce 1999). The Last Glacial Maximum (LGM) probably ended about

[13] This prominent bay lies at the confluence of two palaeoriver channels, 1.5km north of the Spoeg River mouth.

17,500 years ago as climates ameliorated with the onset of the current interglacial period. Although drier to the north (Shi *et al*. 1998), Namaqualand would have experienced a strengthening of the winter rainfall regime and been wetter during the LGM (Midgley *et al.* 2005). The rapid warming during the late Pleistocene was interrupted only by the Older Dryas, two short cool, wet periods (Coetzee 1967), and the Younger Dryas, a short-lived cooling event at or just after 11,000 BP (Abell & Plug 2000; Coetzee 1967; Cohen *et al.* 1992; Tyson 1999; Tyson & Partridge 2000; Tyson & Preston-Whyte 2000, but see M. Kaplan *et al.* 2010). Supporting evidence occurs to the south where tree species at Elands Bay Cave (Cartwright & Parkington 1997; Parkington *et al.* 2000) and the presence of hedgehogs (*Erinaceus frontalis*) both there (Klein & Cruz-Uribe 1987) and at Faraoskop (Manhire 1993) argue for cooler, wetter late Pleistocene climates. We are currently nearing the end of an interglacial period and it is this period, the Holocene, with which this thesis is concerned.

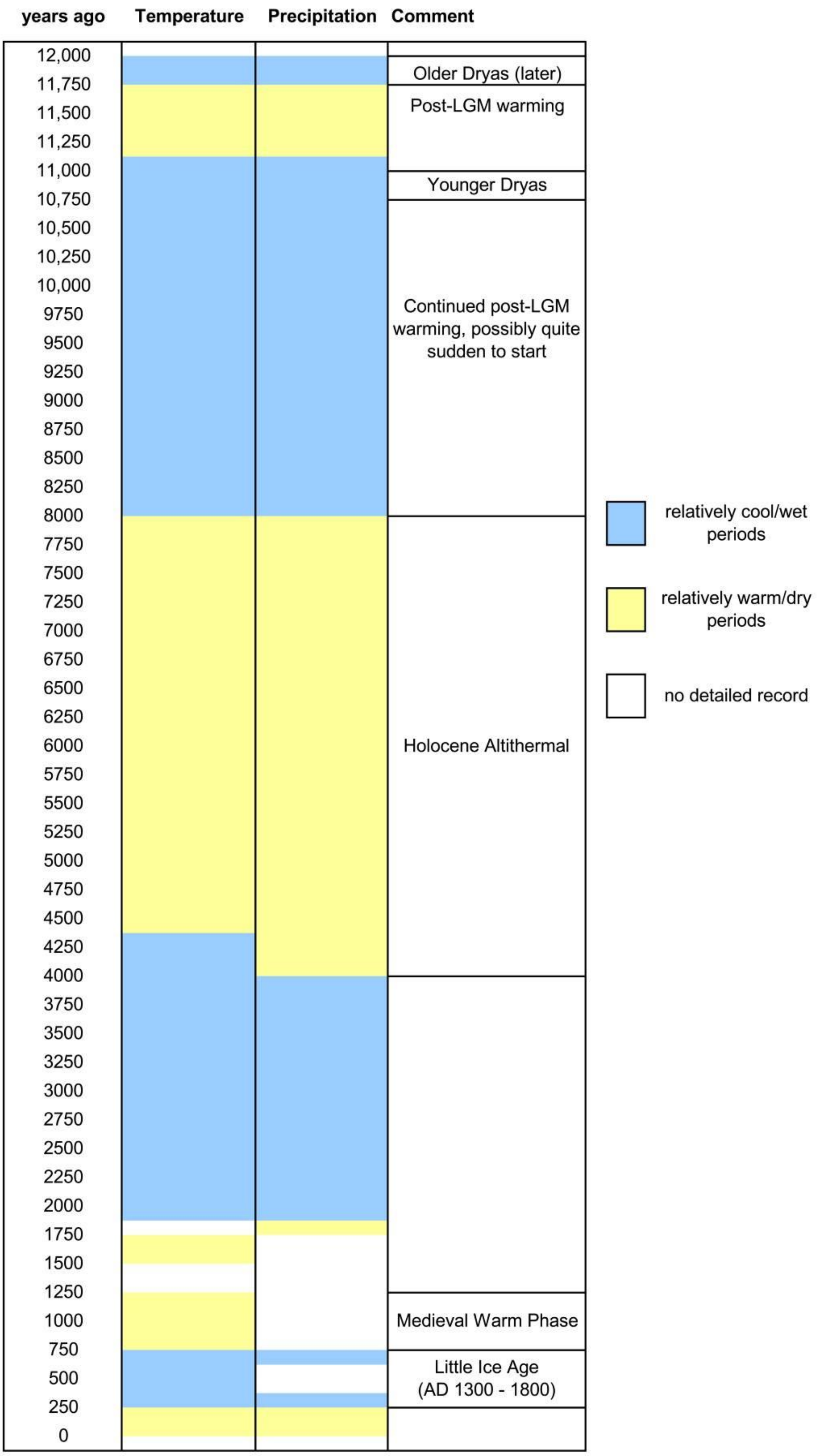
3.4.3 Holocene climates

As noted by Dewar (2008), few palaeoenvironmental studies have been conducted in Namaqualand. Those that do exist, however, provide a body of evidence that allows some characterisation of Holocene climates when examined alongside other west coast studies. Only limited data are available for the early Holocene, but the last 2000 years are better understood (Figure 3.12). I focus on evidence from southernmost Africa since opinions seem to vary with latitude.

Although temperature and aridity generally increased after the LGM, a particularly warm spell known as the Holocene Altithermal occurred during the early to mid-Holocene (Heaton *et al.* 1986; Meadows & Baxter 2001; Partridge *et al.* 1999; Shi *et al.* 1998; Tyson & Partridge 2000; Tyson & Preston-Whyte 2000; Vogel 1989). Although authors disagree on the precise timing and duration of this event, a review of the available southern African data brackets it between about 8000 and 4000 years ago (Chase 2005; Chase & Meadows 2007). Although the northern parts of the subcontinent may have received higher rainfall (Gingele 1996; Partridge 1997), evidence from further south and east of Namaqualand points towards a south-western Africa that was somewhat drier and a few degrees warmer than present day values (Cockcroft *et al.* 1987; H. Deacon *et al.* 1984; Heaton *et al.* 1986; Meadows & Baxter 1999, 2001). This increased aridity likely reduced vegetation cover and resulted in more aeolian activity in the west coast region, seemingly focused on the remobilisation of existing sand bodies rather than emplacement of new ones (Chase 2005; Chase & Thomas 2006).

Following the Holocene Altithermal, from about 4000 years ago, climates became cooler and wetter again (Baxter 1989; Jerardino 1995; Meadows & Baxter 1999, 2001), although Scott (1993) suggests that wetness would have begun earlier in the northerly parts of the subcontinent (north of 28° S), perhaps *c.* 7500–6500 BP. The Cango (Talma & Vogel 1992; Tyson 1999) and Cold Air Cave (Holmgren *et al.* 2003) stalagmites indicate cooler temperatures than today from the mid-Holocene until 2500 years ago, with the former showing warming again around 2000 years ago. Oxygen isotope studies of midden shells from the Elands Bay area support cooling between about 4000 and 2000 years ago (Cohen *et al.* 1992).

Based on the first excavations at Spoeg River Cave (Webley 1992b), D. Avery (1992) used the incidence of micromammal remains within the deposits to infer climatic conditions in this part of Namaqualand during the time of deposition of the analysed layers: *c.* AD 1–650. In general, she saw deterioration in climatic conditions through time with the initial two centuries of this period having higher rainfall. Tyson & Preston-Whyte (2000) see this as a warm, wet spell, while others consider it cool (Tyson & Lindesay 1992; Scott 1996).


years ago
Temperature
Precipitation
Comment
12,000
11,750
11,500
11,250
11,000
10,750
10,500
10,250
10,000
9750
9500
9250
9000
8750
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6000
5750
5500
5250
5000
4750
4500
4250
4000
3750
3500
3250
3000
2750
2500
2250
2000
1750
1500
1250
1000
750
500
250
0
Older Dryas (later)
Post-LGM warming
Younger Dryas
Continued post-LGM warming, possibly quite sudden to start
Holocene Altithermal
Medieval Warm Phase
Little Ice Age (AD 1300 - 1800)
relatively cool/wet periods
relatively warm/dry periods
no detailed record

Figure 3.12: Schematic and simplified summary of temperature and precipitation data for Namaqualand from available records.

The micromammals present in layers dating to AD 450–650, indicate reduced and less predictable rainfall with fewer grasses and more scrub vegetation, while the intermediate layers show transitional conditions (D. Avery 1992). Temperatures were warmer between about AD 250 and AD 600 (Tyson & Lindesay 1992), although the warming may have begun around AD 100 (Tyson 1999). An important aspect of this climatic reconstruction is that conditions some 2000 years ago were superior to those of today with a wider variety of grasses and other species that could quite likely have supported sheep (D. Avery 1992). Unfortunately, no supporting charcoal studies have been done in the region. Webley (2002) sees an abandonment of Spoeg River Cave post-AD 700 that she links partly to the deteriorating climate and increased aridity as the Medieval warm phase set in. Partial support, at least for the later part of the Medieval Warm Phase, is found in Namibia where a cool, wetter spell ended some 900 years ago (Vogel 1989). Of course what we do not know at Spoeg River Cave is whether later deposits were removed or eroded from its floor prior to Webley's (1992b) excavation. Given the plethora of later dates from the region and how poorly the cave is known to have been treated during the late twentieth century, this is likely.

The Medieval warm phase lasted for a few centuries either side of AD 1000 (Holmgren *et al.* 2001, 2003; Scott 1996; but see Vogel 1989) and, although warmer and wetter, it was highly variable (Tyson & Preston-Whyte 2000) with the warmest years seemingly around AD 1250 (Tyson *et al.* 2000). The final period of prehistory was dominated by a cold spell known as the "Little Ice Age" from about AD 1300 to 1800 (Cohen *et al.* 1992; Holmgren *et al.* 2001, 2003; Tyson 1999). Interestingly, in the mid-nineteenth century Andersson (1857:251) noted that "the Namaquas, as well as the Damaras, are loud in their complaints that less rain falls now than half a century back"; this corresponds well with the end of the Little Ice Age. Namibian Little Ice Age evidence is contrasting, with some supporting it (Vogel 2003) and others indicating a warm, dry spell around 700–600 years ago (Scott 1996; Vogel 1989). During the last few centuries Vogel (1989) documented increased run-off in Namibian rivers that might have made the area slightly more habitable. During September of 1685, during his journey northwards, Simon van der Stel noted several swamps and streams between the Olifants and Groen Rivers (Waterhouse 1932), but this could have been the result of unusually heavy winter rains.

3.5 Fauna

Skead (1980) provides a valuable record of the local fauna constructed from historical travel diaries. The south-western Cape in general was richly blessed with wild game, while Stow (1905:252) describes the country of the Namaquas as having "formerly abounded with elands, hartebeests, gemsboks, quaggas and zebras, together with the giraffe, rhinoceros and great numbers of beasts of prey". Since subsistence is not central to my research, I provide only a list of those species inhabiting the study area to indicate their availability to indigenous people (Table 3.1). Many were recorded only from the well watered Orange River valley – possibly due to its greater number of visitors. Skead (1980) found no micromammal records, but an indication of the species likely to be found can be gleaned from D. Avery's (1992) list of 21 species present at Spoeg River Cave.

Table 3.1: List of mammal species historically documented in Namaqualand. Only those whose presence could be reliably ascertained by Skead (1980) are listed.

Common name	Latin name	Comments
Chacma Baboon	*Papio ursinus*	Probably restricted to mountains.
Vervet monkey	*Cercopithecus pygerythrus*	Orange River only.
Cape fox	*Vulpes chama*	
Bat-eared fox	*Otocyon megalotis*	Probably most common on coastal plain.
Black-backed jackal	*Canis mesomelas*	
Wild dog	*Lycaon pictus*	Probably present.
Striped polecat	*Ictonyx striatus*	Reported from Orange River.
Honey badger	*Mellivora capensis*	
Large-spotted genet	*Genetta tigrina*	Assumed widespread by Skead, species not differentiated historically and no Namaqualand records.

Common name	Latin name	Comments
Small-spotted genet	*Genetta genetta*	Assumed widespread by Skead, species not differentiated historically and no Namaqualand records.
Water mongoose	*Atilax paludinosus*	
Yellow mongoose	*Cynictis penicillata*	Assumed country-wide range by Skead.
Suricate	*Suricata suricatta*	No Namaqualand records but common today.
Brown hyena	*Hyaena brunnea*	
Spotted hyena	*Crocuta crocuta*	
Aardwolf	*Proteles cristatus*	
Wild cat	*Felis lybica*	Assumed present but not identified historically.
Caracal	*Felis caracal*	
Leopard	*Panthera pardus*	Probably restricted to mountains.
Lion	*Panthera leo*	Probably restricted to mountains.
Cheetah	*Acinonyx jubatus*	Richtersveld only.
Aardvark	*Orycteropus afer*	
Elephant	*Loxodonta africana*	More common along Orange River.
Rock hyrax	*Procavia capensis*	Recorded in far south & inland rocky areas but currently also present in central coastal region.
Black rhinoceros	*Diceros bicornis*	Reported from Orange River.
Mountain zebra	*Equus zebra*	
Plains zebra (subspecies Quagga)	*Equus quagga*	Only hearsay, no direct observations. Now extinct.
Warthog	*Phacochoerus aethiopicus*	Possibly present.
Hippopotamus	*Hippopotamus amphibius*	Reported from Orange River.
Giraffe	*Giraffa camelopardalis*	
Grey duiker	*Sylvicapra grimmia*	
Steenbok	*Raphicerus campestris*	
Grysbok	*Raphicerus melanotis*	Possibly in mountains in extreme southwest of study area.
Klipspringer	*Oreotragus oreotragus*	Recorded in the Kamiesberg and Richtersveld.
Grey rhebuck	*Pelea capreolus*	Possibly in mountains only.
Springbok	*Antidorcas marsupialis*	
Gemsbok	*Oryx gazella*	
Red hartebeest	*Alcelaphus buselaphus*	
Kudu	*Tragelaphus strepsiceros*	Reported from the mountains.
Eland	*Taurotragus oryx*	Reported from far south and Orange River but was probably present in Kamiesberg.
Buffalo	*Syncerus caffer*	Reported only from Orange River but Buffels River apparently named after buffalo.
Cape hare & Spring hare	*Lepus capensis* *Pedetes capensis*	Hares reported from Orange River and Kamiesberg but no species differentiation.
Namaqua dune molerat	*Bathyergus janetta*	
Porcupine	*Hystrix africaeaustralis*	
Cape fur seal	*Arctocephalus pusillus*	
Whales and dolphins	Order: Cetacea	Various species present but not identified historically.

Aside from these mammals, other creatures inhabiting this region include the angulate tortoise (*Chersina angulata*), the speckled padloper (*Homopus signatus*), the tented tortoise (*Psammobates tentorius*), several snakes, the African penguin (*Spheniscus demersus*) and various other sea birds. In the ocean and estuaries fish were caught (the fish bone assemblages have yet to be analysed), while on the rocky shore crayfish (*Jasus lalandii*), black mussels (*Choromytilus meridionalis*) and the four most common limpets (*Cymbula granatina*, *Scutellastra granularis*, *Scutellastra argenvillei*, *Scutellastra barbara*) are all archaeologically important (Dewar 2008; Orton & Halkett 2005, 2006).

3.6 Vegetation

The entire study area is encompassed by the Succulent Karoo Biome, which includes a vast multitude of species with many endemics. Most are succulents and small shrubs, although small trees, geophytes, herbs and lichens also occur (Mucina *et al.* 2006b). Namaqualand's biological uniqueness is due largely to its distinctive and somewhat moderate climate with surprisingly regular winter rainfall (Cowling & Pierce 1999).

Near-coastal parts of the study area are within the Namaqualand Coastal Duneveld, a dwarf shrubland including both succulent and non-succulent shrubs. Spiny grasses (*Cladoraphis* sp.) are abundant on the semi-stable aeolian coastal dunes in which most archaeological sites are found, while taller shrubs (1–2 m high) occur in the sheltered areas between dunes (Mucina *et al.* 2006b). The Namaqualand Strandveld generally occurs inland of the Coastal Duneveld but does stretch to near shore areas within the central river valleys (Buffels, Swartlintjies, Spoeg, Bitter and Groen) cutting the coastal plain. This vegetation type is strongly dominated by erect and creeping succulent shrubs (Mucina *et al.* 2006b). Pockets of Namaqualand Sand Fynbos occur in places and are dominated by restios (reeds) with scattered shrubs including species of *Protea* (Rebelo *et al.* 2006). Much of the Knersvlakte is covered by Knersvlakte Quartz Vygieveld which consists of dwarf succulent shrubs growing on extensive quartz-dominated gravel plains. In the south, a large tract of Namaqualand Spinescent Grassland includes succulent and non-succulent shrubs but is dominated by the spiny grass *Cladoraphis spinosa* (Mucina *et al.* 2006b). Along the immediate coastline just above the high water mark one finds Namaqualand Seashore Vegetation consisting of small, low density succulents, while the lower reaches of the rivers have Arid Estuarine Salt Marshes comprising dwarf succulents, creeping grasses and scattered reed beds (Mucina *et al.* 2006a).

An archaeologically important feature of Namaqualand is that it is too arid to allow wild fires. This results in much dead brush occurring that would have formed valuable fuel for camp fires. Near the coast, where long-lived trees are absent, this means that evidence of burning in sites must be anthropogenic; charcoal is thus good for dating. This may not be the case further inland where potentially long-lived Acacia trees grow along rivers.

3.7 Archaeological background

As described in Chapter 1, little academic research has been conducted in the study area, with much of what we know being a result of the extensive CRM surveys and mitigation programs conducted in central Namaqualand's coastal zone. Two doctoral theses (Dewar 2007; Webley 1992b) have contributed knowledge on the latter half of the Holocene from central and northern Namaqualand, but the south is far less known. This review addresses each zone in turn, focusing on Stone Age material and concludes with a brief historical overview of the region as a whole. The review is fairly extensive, since no comprehensive review of the Stone Age in Namaqualand has previously been produced. While Webley (2007) and Dewar (2008) do cover certain aspects, I have attempted to highlight all the important observations from the region. Namaqualand is unique in that most data emanate from CRM work conducted on the diamond mines; this review is thus important in disseminating information from the vast store of grey literature. Note that all radiocarbon dates are detailed in Appendix 2.

3.7.1 Sandveld

Archaeological work in the Sandveld has been focused in the northern and central parts around Kleinzee, Koingnaas and Hondeklipbaai. Fewer observations have been made in the southern and extreme northern parts.

Early and Middle Stone Age

Early (ESA) and Middle Stone Age (MSA) material has been documented in the coastal zone of the Sandveld but *in situ* occurrences are extremely rare. Silcrete and quartzite/sandstone were the usual materials used, but silcrete predominates in Namaqualand. ESA artefact scatters are uncommon but one significant scatter, found just east of Kleinzee, had Acheulian handaxes and cleavers associated with quarried silcrete outcrops (Halkett 2002). On the high ground near Kleinzee a very significant site mixing ESA and MSA artefacts includes mineralised bone (Orton & Webley 2012c), while other scatters likely combine MSA and LSA artefacts (Orton & Halkett 2007a). ESA artefacts occur in gravel exposures in places (Orton & Webley 2012c) and isolated handaxes, often on the surface of aeolian sand (Orton & Halkett 2005, 2007a), were likely transported by later people. In the southern Sandveld ESA and MSA artefacts occur in various areas with exposed hardpan (Hart 1999, 2003, 2007) and around silcrete outcrops (Hart & Halkett 1994; Hart & Orton 2005). One such outcrop (MS4) was extensively quarried and excavations revealed a dense, 0.75 m thick layer of artefacts with occasional bifaces and Levallois cores (Hart & Halkett 1994). Parkington (1993) found both ESA and MSA artefacts associated with fossilised faunal remains on southern coastal sites.

A significant but mixed ESA and MSA assemblage occurred at KV2005/002. It was a quarry and artefact manufacturing locality extending several hundred metres along the silcrete outcrops capping the 90 m marine terrace just north of Kleinzee (Orton & Halkett 2006). Most flakes were likely struck directly from the outcrops or loose blocks, but Levallois and other cores occurred. Handaxes and other uni- or bifacial artefacts were rare but ubiquitous. Flakes with lightly retouched edges, occasionally tending towards denticulation, may be MSA. Quartz and quartzite are also present and, although some of the quartz originated as clasts from within the silcrete, the quartzite indicates that other materials were carried to the site. The marked variation in patination, and perhaps also in artefact form, suggests that the site was used for a very long period. Similar finds have been reported from the Namibian coastline (Rudner & Grattan-Bellew 1964).

Halkett and Hart (1997) reported a site with MSA backed artefacts but no shell along the coast north of Kleinzee but offered no further description. Another site exposed in a Holocene dune field deflation 17 km north of Koingnaas contained bifacial points associated with marine shell (Halkett & Orton 2005), although the relationship may be spurious. MSA occurrences were also documented near the mouth of the Groen River in central Namaqualand (Jerardino *et al.* 1992); further investigation of one revealed artefacts and bone deflated on to the surface of a more resistant orange sand layer below the white Holocene dunes (Halkett 2001a). MSA artefacts also occur above the coastal cliffs in southern Namaqualand where they can be associated with mineralised bone (personal observation) and marine shell (Halkett 2000).

Two more Sandveld sites are worth mentioning. KV2005/006 is an extensive scatter of mostly quartz stone artefacts, highly fragmented bone (including much tortoise), ostrich eggshell and occasional marine shells in a deflation bay (Orton & Halkett 2006). All the organic material is mineralised suggesting great antiquity, although preliminary examination of the stone yielded no diagnostic MSA pieces. Many cobbles showed evidence of use as hammer stones, grindstones or anvils, artefacts seldom found on MSA sites and the intriguing possibility remains that this site could represent a terminal Pleistocene or early Holocene LSA occurrence. The second site, KV2001/010D, is also of indeterminate age and, although not fully nexcavated, two test pits have established its stratigraphy (Halkett 2003). A 10 cm thick lower layer was comprised almost entirely of mineralised tortoise bone, but other species and occasional stone artefacts supported an anthropogenic origin for the accumulation. Above a layer of sterile sand there is a shell midden that seems to be at least partly mineralised but is probably LSA. A nearby deflated portion revealed ostrich eggshell beads and LSA stone artefacts among marine shells and extensive quantities of highly fragmented and mineralised bone fragments. The stone artefacts and beads indicate an LSA component, presumably the shell midden, but the mineralised bone could relate to an MSA or earlier LSA occupation.

Later Stone Age

Although the ESA and MSA are little studied, the CRM work and subsequent research by Dewar (2008) allow a good understanding of the coastal LSA, at least in the northern Sandveld. Prior to the 1990s, west coast archaeology was relatively unknown with just a few isolated reports having been made (Colson 1905; Heydorn & Grindley 1981; Laidler 1929b, 1935; Rudner 1968). Since a number of northern and central Sandveld sites are already thoroughly described (Dewar 2008; Dewar *et al.* 2006; Orton *et al.* 2005; Orton 2008a), I provide only a brief summary of that area with more detail being furnished for other sites as necessary.

LSA sites are extremely common within a few kilometres of the coast (Dewar 2008; Halkett & Hart 1997; Parkington 1993), undoubtedly due to the presence of secure marine food resources along an almost exclusively rocky coastline. Certain areas may have been more heavily used – Port Nolloth, for example, was repeatedly noted for its impressive shell mounds (Laidler 1935; Rudner 1968), many of which are being destroyed through unchecked property development. Stratified deposits are rare and most sites reflect single occupations. In the northern and central Sandveld, sites are well distributed along the coast and are not obviously clustered in particularly resource-rich areas or near rivers (Dewar 2008). Dewar concludes that Namaqualand's Holocene inhabitants were well adapted to life in an arid environment, although most occupation seems to have taken place during wetter phases when water would have been more easily available. Sites become very much smaller and more sparsely distributed beyond the immediate coastal strip (Orton & Webley 2012a, 2012c).

Coastal sites vary in size, with very large shell middens presumably reflecting longer occupations or possibly aggregation sites. Most middens are about 8–15 m in diameter but some sites, like LK2001/015 and SK2001/024, manifest as loosely arranged clusters of smaller middens (Halkett 2003), that may reflect the camps of larger groups of people.

The earliest unequivocal LSA site yet found in Namaqualand is AK2006/001G, just north of Kleinzee, where a late Pleistocene microlithic assemblage was recovered from a secondary, erosional context (Orton 2008a). Material of this age occurs between *c.* 19,000 and 12,000 BP and possibly as late as 9500 BP in southern Africa (J. Deacon 1984a, 1984b; Mitchell 1995, 2000, 2002b; Wadley 1993) and, without any locally dated assemblages, it is not possible to constrain the age of this one any further. Only stone artefacts were found, but the high frequency of bladelets and bladelet cores clearly supports the age assignation. The assemblage is almost entirely of silcrete.

The most significant LSA site in the Sandveld area is Spoeg River Cave, a large rock shelter located in an igneous outcrop 2 km east of the Spoeg River mouth (Webley

1992b, 2002). Its basal layers yielded an undated assemblage with large scrapers made on quartz which led Webley (2002; Vogel *et al.* 1997) to suggest an early Holocene age. This observation is supported by the stone artefacts from Elands Bay Cave in the Western Cape where large quartz scrapers dominate the retouched tools between about 8100 and 6800 BC (Orton 2004, 2006). Although similarly aged material is as yet unknown from the Sandveld, it likely exists given the late Pleistocene and early Holocene dates obtained from open sites in the Namib (Shackley 1985). The oldest radiocarbon date from Spoeg River Cave is 3580 ± 60 (Pta-6987; Webley 2002), although slightly older dates have been obtained from open sites. Importantly, Spoeg River Cave has yielded the oldest directly dated sheep bone from South Africa (2105 ± 65 BP; OxA-3862; Sealy & Yates 1994) as discussed in Chapter 2.

Many open sites yielding good observations have been excavated along the central and northern Namaqualand coast. Shell middens dating throughout the last 5600 years have been recorded (Dewar 2008), with the most varied retouched artefact assemblages generally being from the older sites. Backed artefacts were more common until about 3000 years ago, while scrapers dominated during the next 1000 years. The last two millennia, after the introduction of pottery, saw assemblages becoming increasingly informal with cryptocrystalline silicates dropping out and quartz being used almost exclusively (Dewar 2008). The exceptions to the deformalisation are those sites containing backed microliths made on clear quartz (Orton *et al.* 2005). The earlier middens yield very small ostrich eggshell beads, sometimes as small as 3 mm maximum diameter, but the majority appear to be between 4 and 6 mm. Recent sites, such as SK400, show larger beads up to 10.5 mm in diameter but include much variety (Dewar 2008). Pottery occurs on sites dating within the last 2000 years, with most complete or near complete pots being small and conical in shape (Colson 1905; Dewar 2008; Rudner 1968). Colson (1905:67) reports a pot “half full of magnetic iron sand” from a midden near Port Nolloth, showing that they were not only used for food but also for storing other materials. Worked bone is rare, but examples from coastal middens have been reported from the northern and central parts of Namaqualand (Colson 1905; Dewar 2008; Orton *et al.* 2005). Ostrich eggshell flasks have been found, but are usually only represented by mouth fragments. They are known to have been used for storing water (Schapera 1930). Rare whole flasks exist, including two decorated flasks from Port Nolloth (Jacobson & Noli 2008). Caches of flasks are well documented, particularly in the Northern Cape (Henderson 2002; Jerardino *et al.* 2009; D. Morris 1994; D. Morris & Von Bezing 1996). The shell middens are strongly dominated by limpets, and the bones of various marine and terrestrial animals are present. Angulate tortoises (*Chersina angulata*), steenbok (*Raphicerus campestris*) and seals (*Arctocephalus pusillus*) are the primary species found (Dewar 2008).

LSA observations in the southern Sandveld are more limited. Coastal surveys have found many sites, including open artefact scatters and shell middens (Halkett 2000; Hart 2003, 1999; Parkington & Poggenpoel 1990). Stone artefacts in a variety of raw materials were reported and the presence of retouched artefacts, potsherds and ostrich eggshell beads on some sites indicates occupation during the last few thousand years. Six open sites have been excavated in the coastal zone around Brand-se-Baai, while another five were sampled about 3 km inland.

The Brand-se-Baai (BSB) sites offer the only window into the coastal occupation of this area. Notably, some are stratified middens. BSB2 in particular spans several thousand years, but others are more limited (Halkett *et al.* 1993). In all, BSB2 revealed six layers with the fifth dated to 2866–2281 BC (Pta- 6053) and the second to AD 1411–1854 (Pta-6050). While the lower layers contained both backed tools and scrapers, the upper layers revealed only informal quartz artefacts. In general the BSB sites preserved the same species of shell as elsewhere in Namaqualand, while the stone artefact assemblages were quartz-dominated with relatively few retouched artefacts. The fauna include primarily tortoise, but small and small-medium bovids, birds and other small mammals are also present (Halkett *et al.* 1993).

Further inland, MS1 contained a quartz and silcrete dominated assemblage including backed artefacts but not scrapers; segments dominate. The retouched pieces were mostly in quartz (Hart & Halkett 1994). The site dates to 2017–1419 BC (GX-32063; ACO, unpublished). Site MS2 had far fewer artefacts and was quartz-dominated. The assemblage included scrapers, one of which was a backed scraper in quartz. An age of greater than 3000 years was anticipated (Hart & Halkett 1994; Hart & Lanham 1997). Site MS3 is also strongly quartz dominated and backed tools are more numerous than scrapers (Hart & Halkett 1994). It dates to 1184–524 BC (GX-32062; ACO unpublished). All three sites contained very small quantities of shell and minimal bone (due to poor preservation) with no other organics. One other site here, MS5, has a small informal lithic assemblage and no pottery and likely post-dates AD 1 (Hart & Lanham 1997).

Sites in the immediate hinterland are varied (Hart & Orton 2005; Hart 2007; Parkington & Poggenpoel 1990). Small scatters of artefacts occur along rivers and on dune tops near seasonal pans, while shell and artefact scatters of varying size also neighbour pans. The former may relate to very short-term camps, but the latter seem less transient. Quarried silcrete outcrops occur and some artefact scatters in the hilly areas have pottery on them indicating relatively recent occupation. One site in particular (GR05; Hart & Orton 2005) had a few sherds of extraordinarily well-made pottery with a clean, beautifully made overturned and flattened lip (Figure 3.13). Also in this area Hart and Orton (2005) located a rock shelter (HK11) with what appeared to be a good deposit and a very extensive talus on a granite outcrop some 12.8 km inland.

Bored stones (presumed to be digging stick weights) are rare in the Sandveld; perhaps the sandy soil precluded their necessity? Hausman (1980 in A. Morris 1992) reports a ‘perforated stone’ associated with an approximately 1000 year old (Pta-4405) seated burial from the coast near Lutzville in the southern Sandveld. Whether this is a bored stone is unclear, but it seems likely. Half a bored stone was located at AK2006/006 (pottery-period) in the northern Sandveld. This site also contained a seated burial (Orton 2007c) that might, through burial style, be ascribable to the Khoekhoen (Dapper 1668 in Schapera & Farrington 1933; Sealy 2010).

Figure 3.13: An unusually well-made rim fragment from site GR05 in the southern Sandveld.

3.7.2 Hardeveld

Webley’s (1984, 1986, 1992b, 2007) archaeological research in the Hardeveld has focused on the LSA, but isolated ESA and MSA occurrences are known (D. Morris & Webley 2004; Webley 1984). Most work has been done in the central parts with a few sites near Kamieskroon providing most of the observations (Webley 1984, 1986, 1992b). The south remains relatively unexplored. The vast majority of sites are small with minimal deposit depth (D. Morris & Webley 2004; Webley 1992b).

Keurbos revealed a mixed MSA, LSA and historical surface layer, but beneath this a small hollow contained a seemingly late Holocene assemblage with formal tools and adiagnostic pottery. These units overlay only MSA deposits (Webley 1992b). Bethelsklip, near the western fringe of the Hardeveld, was suggested to have been sporadically occupied by herders throughout the last 1000 years. An age of AD 1182–1381 (Pta-3512) was obtained two-thirds of the way down the 1 m deep deposit (Webley 1984), while a date of AD 1464–1643 (Pta-4741) was acquired higher up (Webley 1992b). The large flaked artefact collection included numerous retouched pieces; backed items, notably including segments, were common. Webley (1984) was unable to date the lower layers due to insufficient charcoal and I would suggest, based on typology and materials, that the finds indicate mixing of significant quantities of older material, perhaps from the mid-Holocene, with the pottery period deposits. The assemblage recalls aspects of those from Jakkalsberg N and L (Orton & Halkett 2010). Many ostrich eggshell beads were found, but no measurements are provided. Pottery features include oval and vertical impressions, horizontal incised lines, a spout, a horizontally-pierced lug and a slightly nippled base. One mouth diameter was estimated at ~100 mm and sherd thickness varies between 3.4 and 9.0 mm (means on two separate samples were 5.6 and 5.9 mm). The pottery had variable but generally fine-grained mineral temper (Webley 1984). As well as informal, stone-lined hearths and a large ash concentration, two post-holes and numerous pits and/or burrows were found. Webley (1984, 1986) surmises that stock may have been penned there, but found little good pre-colonial evidence for this. The fauna includes primarily rock hyrax (*Procavia capensis*) and tortoise (*Chersina angulata*), but also present were sheep/goat and possible cow. Mandibles and floral remains suggested the most likely season of occupation to be late winter to early summer (Webley 1984). Despite the large archaeological sample obtained from Bethelsklip, the extensive disturbances and seemingly mixed stone artefact assemblage suggest that we cannot rely on the archaeological signatures present.

Further inland, Wolfkraal appears to include mixed Holocene deposits of varying age overlying an MSA occupation. The upper deposits contain many fine-tempered, thin-walled and undecorated potsherds as well as some retouched tools. The site seems unlikely to have been occupied by herders for any period of time and probably functioned as a stopping point between summer and winter camps. Preservation was poor with the few faunal remains again dominated by tortoise and rock hyrax (Webley 1984, 1992b).

Frummelbakkies is actually in western Bushmanland but worth discussing here given its proximity to the Kamiesberg. It has bedrock basins that fill with water after rain and was thought by Webley (1992b) to be a summer camp for Nama herders. Although it only has one very recent date post-dating the mid-seventeenth century (Pta-4763), its associated stone tools, pottery (including some grass temper), ostrich eggshell beads and bedrock grinding grooves (Webley 1992b) likely suggest more extensive use.

An unusual record from the Kamiesberg area is that of stone cairn burials. Laidler (1929a) noted the presence of groups of graves containing ‘Hottentots’, some of whom were interpreted to have been murdered and buried by Bushmen. He considered the majority of graves to predate 1750. To my knowledge, these records have not been corroborated. Similar burials are extensively documented further east near Augrabies Falls (Dreyer & Meiring 1937; A. Morris 1995) and they also occur in Namibia throughout the last two millennia (Sandelowsky 1983).

Rock art is rare in Namaqualand, but paintings occur in the Hardeveld and engravings along the Orange River. The paintings have variable content but are not described further here, since they are reviewed in detail in Section 7.6 below.

3.7.3 Richtersveld

Our limited knowledge of this region’s prehistory comes from a small number of academic research and CRM projects. In the coastal part of the Richtersveld two rock shelters are located in the rocky hill Boegoeberg. BOG1 was a brown hyena den dating around 35,000 BP, while BOG2 contained a stratified MSA shell midden (Klein *et al.*

1999). A ^{14}C date places BOG2 at about 44,200 ± 1200 BP (Pta-6956), but the fauna imply a far greater antiquity (Klein *et al.* 1999). Further inland, recent work at Spitzkloof has revealed *in situ* LSA and MSA deposits, the latter extending back to pre-Still Bay times (>70 000 BP), but this research is still in its infancy (Dewar & Stewart 2012).

Similar sorts of sites occur on both the Namibian and South African sides of the Orange River (Hart & Halkett 1999), but the latter is better documented. Many sites of various types occur along the silty floodplain of the southern bank, but ESA and MSA artefacts are generally rare (Halkett 1999a). One ESA/MSA scatter was found on a mountain slope above the river (Halkett 1999b), while such artefacts were found to be common in riverside gravel terraces (Hart and Halkett 1999; Orton & Webley 2009). On the floodplain most sites are artefact scatters (Halkett 1999a) but burials, including both LSA and more formal historical graves, have been noted. A number of dolomite slabs and outcrops on the river banks contain engravings that include colonial period subject matter, animals and many geometric images (Hart & Halkett 1999; D. Morris 1988). Some geometric images are heavily patinated, presumably indicating a greater antiquity (Hart & Halkett 1999).

The first Richtersveld excavation was conducted by Webley in 1990 at /hei-/khomas (a.k.a. /Ai tomas or Vaalhoek) in the central Richtersveld (Webley 1992b, 2001). The site lies at the foot of some large boulders and a permanent spring occurs nearby. Two occupations are dated – the first just after 2000 years ago and the second during the mid-second millennium AD (Webley 2001). Like Bethelsklip, the many and varied formal tools recovered seem indicative of mixing, perhaps supported by the date of AD 1952 (Pta-5444) obtained for an archaeological layer 7 cm below surface, the inverted dates in Areas 1 and 2, and the many pits occurring in the deposit. Webley (2001) describes abundant pottery with decoration usually including oval or round impressions but occasionally horizontal lines below the lip. A hole of the type described by Laidler

(1929b) and Rudner (1968) for mending pots was noted on one sherd and lugs were present. Ostrich eggshell beads are common, and manufacturing took place on site. Sizes vary, but generally seem to increase with time as expected (cf. Jacobson 1987; A. Smith *et al.* 1991). Sheep/goat bones are present in small numbers throughout and rare cattle bones were restricted to near the surface. Deliberate burial of animal bones occurred in small pits, one of which contained the complete skeletons of an adult and juvenile klipspringer (*Oreotragus oreotragus*) buried together (Webley 2001).

Excavations at Die Toon, some 15 km from the Orange River in the eastern Richtersveld, revealed a shallow deposit with dates of 2457–2034 BC (Pta-5960) and 1451–1121 BC (Pta-5963; Webley *et al.* 1993). Two potsherds on the surface indicated at least sporadic visits during the pottery period but most of the deposit is more than 3000 years old. As expected in assemblages of that age, the retouched artefacts are dominated by backed items and the ostrich eggshell beads average between 3.8 and 4.2 mm in diameter.

All other recorded and excavated sites in the Richtersveld lie on the Orange River floodplain. Bloeddrift 23 is an open site some 300 m from the Orange in the north-western Richtersveld (A. Smith *et al.* 2001) and is one of many recorded in that area by Halkett (1999). Some were rich in retouched artefacts and mineralised bones, while others had many potsherds and small-medium bovids (A. Smith *et al.* 2001). The sites are preserved within silts deposited during flood events and Smith *et al.* (2001) suggest that modern dam construction upstream has retarded the silt supply such that archaeological sites are now becoming exposed and degraded through erosion. This was evidenced by the good preservation of ashy hearths at Bloeddrift 23, despite their exposure; one was dated to AD 1501–1636 (Pta-7942; A. Smith *et al.* 2001). The lithics are informal, although one quartz backed bladelet was noted. Decorated pottery had a single row of round or oblong incisions just beneath the lip. The 153 ostrich eggshell beads were variable in diameter with a range of 3.4–11.8 mm. The mean was 7.6 mm and only five were smaller than 5 mm. A single copper tool with a shaft and flat blade was also found. The authors assume these finds to indicate occupation by herders.

Most work in the Richtersveld has been carried out in the vicinity of Jakkalsberg where six sites have been excavated (Halkett 2001b; Orton 2007b; Orton & Halkett 2001, 2010; Webley 1997a) and many more recorded (Halkett 1999a). The first two, Jakkalsberg (JKB) A and B, were excavated by Webley (1997a; see also Gray 2009) and found to date between AD 610 and 970 (Pta-5958, Pta-6100, Pta-6101, Pta-6122, Pta-8494) with JKB B possibly the older of the two. In general, the lithics are very informal, but the presence of segments and other backed tools at JKB A indicates an older background scatter in the area. The large pottery assemblage included sherds with horizontal lines, impressions or combinations thereof on the neck, and also some sherds with cross-hatching on the lip. Ostrich eggshell beads were common with the large collection from JKB A having a mean diameter of 6.0 mm and a wide distribution of sizes. The JKB B beads average 5.7 mm. A range of worked bone artefacts was found, including points, awls and link shafts (Webley 1997a). Significantly, these sites contained many sheep bones (Brink & Webley 1996). On the basis of pottery and link shaft decorations (lines and zigzags at JKB A and circular motifs at JKB B) and the presence of bead manufacturing debris and ochre (suggesting women's rituals), A. Smith and Webley (2000) have interpreted the remains from JKB B to indicate specialised women's activities. They also found an iron bead at JKB B of the kind known to have been worn by nineteenth century Nama women.

The other four sites lie to the southwest across a small tributary stream and were excavated commercially (Halkett 2001b). JKB M dates to the first millennium AD (GX-32760; Orton 2008d) and contains many stone artefacts, beads and pot sherds. Retouched artefacts are absent, beads average 4.9 mm in diameter and the pottery includes lugs, bosses and rims decorated with horizontal lines. The fauna includes sheep

(Orton 2007b). JKB K dates to AD 1212–1459 (Orton & Halkett 2010). Retouch is again absent, the ostrich eggshell beads average 6.15 mm in diameter and the pottery is plain, but includes a drilled hole (Orton 2007b). Both sites are studied further below.

The last two excavated sites at Jakkalsberg are older. JKB N represents the oldest dated LSA site thus far excavated in the Richtersveld. It is a large, deflated and water-washed scatter composed primarily of stone artefacts and ostrich eggshell beads but including some decorated ostrich eggshell. Although limited younger material including pottery is overprinted, the majority is clearly mid-Holocene – a contention supported by three dates covering the period between 6000 and 4500 years ago (Pta-8496, GX-32754, GX-32755). The retouched assemblage is strongly dominated by sidescrapers and backed scrapers, but backed flakes, backed bladelets, segments and denticulates also play significant roles. The beads are small with a mean diameter of 4.1 mm (Orton 2007b, 2008d; Orton & Halkett 2001, 2010). JKB L is a slightly younger site with *in situ* deposits indicative of a small campsite and dating to 1737–1415 BC (GX-32065). Again, stone artefacts and beads were common with decorated ostrich eggshell also present. The retouched artefacts are diverse but include seven tiny quartz triangles, a type strongly characteristic of central African assemblages (Sampson 1974). The beads are small, averaging 4.5 mm in diameter (Orton 2007b, 2008d; Orton & Halkett 2010). These two sites well characterise mid-Holocene lithic assemblages from the region.

Along the lower reaches of the Fish River, in southern Namibia, Robertshaw (1979) excavated a site dating within the last 200 years. It contained abundant pottery (>700 sherds), a few of which were decorated with single or double rows of vertical incisions. He also found a spout, a few lugs and some pieces with ground edges. Vessel shape was described as 'necked' or 'bag-shaped' with a pointed base. Glass trade beads were present, primarily associated with a burial. He lists 'red on black', 'white', 'creamy white – light brown', 'black', 'opaque, light blue', 'translucent, clear' and 'opaque light green'.

Stone artefacts, interestingly, were extremely rare. Two fragments of decorated ostrich eggshell and three unfinished beads were also recovered.

3.7.4 Knersvlakte

Prior to initiation of the present research, the Knersvlakte was archaeologically unknown with just one commercial survey on record. This survey found MSA surface scatters and a small rock shelter with LSA material including pottery in the north-western Knersvlakte (Goosen & Burger 1995). Research related to the present study has revealed two important MSA sites: near the confluence of the Sout and Varsche Rivers is SFT001, a bifacial point production site (Mackay *et al.* 2010), while further east lies VR003, a collapsed rock shelter containing both backed and bifacial MSA artefacts likely ascribable to the Howieson's Poort and Still Bay periods respectively (Steele *et al.* 2010, 2012). The extent of VR003's earlier unexcavated MSA deposits remains unknown. Preliminary results of excavations carried out in two rock shelters for this thesis reveal mid- to late Holocene occupation with cultural materials broadly similar to those encountered elsewhere but with the addition of well-preserved organic artefacts and plant matter in the deposits (Orton *et al.* 2011). Although little work has been done in this region, recent commercial projects have documented artefact scatters of varying age across the landscape, very often associated with heuweltjies. The LSA seems least well represented (Orton 2010, 2011a, 2011b).

3.7.5 Historical archaeology

Nineteenth and twentieth century historical sites and ruins occur throughout Namaqualand and relate mainly to early farmers and European mission stations, the first of the latter being Leliefontein, established in 1816 (Shaw 1840). Loan farms were registered to European settlers in Namaqualand from 1750, but European pastoralists were certainly already living in the area (Penn 1995). Nineteenth century Contact period[14] sites are known from the central coastline (Orton 2009a) and interior (Webley 1984, 1986) as well as the Knersvlakte (Orton *et al.* 2011). Also represented are the remains of Second Anglo-Boer War (1899–1902) fortifications. Letterklip, near Garies, is particularly well-known, but Burke (1995) notes numerous blockhouses throughout the area, many positioned to protect the British mining interests around Okiep.

3.7.6 Summary

No research has been aimed at the ESA and very little at the MSA in Namaqualand; consequently, little is known of these periods. However, sporadic scatters of material pertaining to both Ages are known from various areas. Only three *in situ* MSA occurrences are excavated: Boegoeberg 1 (Klein *et al.* 1999) and Spitzkloof (Dewar & Stewart 2012) in the far north and VR003 (Steele *et al.* 2010; Steele *et al.* 2012) in the far south.

The earliest documented LSA material comes from just north of Kleinzee where terminal Pleistocene stone artefacts were located (Orton 2008a). Spoeg River Cave and possibly Wolfkraal contain large scrapers indicative of early Holocene occupation (Webley 1984, 2002; Vogel *et al.* 1997), but the earliest radiocarbon date, in the mid-fourth millennium BC, comes from Seal Midden (MB2005/005B; GX-32526; Dewar 2008). The limited research in the northern and central regions allows general conclusions on the local later Holocene sequence to be drawn, but the southern area remains virtually unstudied. The limpet-dominated pre-pottery shell middens of the Namaqualand coast contain higher frequencies of retouched artefacts and cryptocrystalline silicas, while younger sites have informal, quartz-dominated assemblages. Within the former grouping, backed artefacts

[14] Contact here refers to LSA and Historical period contact.

are more common earlier on, perhaps before about 3000 BC. Similarly the trajectory of changing ostrich eggshell bead size cannot be tracked in detail but it is known that mid-Holocene beads are smaller than those occurring later and that larger beads (>6 mm) only appear with pottery (Dewar 2008). A peculiar set of sites with stone artefact assemblages based on clear quartz has been documented occurring within approximately the last 2000 years (Dewar 2008; Orton *et al.* 2005).

Inland, many sites seem disturbed but occupation during the late and terminal Holocene, including evidence of herding, is most frequently encountered (Webley 1984, 1992, 2007). Just two intact deep sequences have been documented, both in the far south (Orton *et al.* 2011). These contain material broadly similar to open sites in Namaqualand but with improved organic preservation. They are detailed below.

In the extreme north, the excavated sites in the Richtersveld date throughout the latter half of the Holocene and support the sequence obtained from coastal sites (Orton 2007b; Orton & Halkett 2010; A. Smith *et al.* 2001; Webley 1997a; Webley *et al.* 1993).

The overall picture of LSA archaeology in Namaqualand is still one of too little data with some areas, like the Kamiesberg, simply not yielding good stratigraphies despite the amount of research conducted. Only tentative conclusions can be drawn from a few sources spread over a vast landscape. Broad patterns of change are evident, but the lack of radiocarbon dates and sufficient analyses means that one cannot isolate particular periods of change that could indicate greater processes at work, particularly any associated with the influx of herders or commodities typically associated with them. It is clear, however, that LSA people were able to successfully inhabit even the driest reaches of the region.

Chapter 4. Methods.

With the context set, I now turn to my own research, first examining the field methodology and then exploring issues of artefact identification and classification.

4.1 Field survey

With extensive commercial survey and excavation in the northern and central Sandveld already conducted, further work was not undertaken there. Similarly, as discussed in Section 3.7, the Hardeveld and Richtersveld have been well explored by Lita Webley and colleagues. By contrast, southern Namaqualand, and particularly the Knersvlakte, were poorly understood and conducive to new exploration. In the latter, certain areas were targeted for survey through the identification of archaeologically attractive landscape features on aerial photographs or from nearby roads. These features included river valleys, deflation hollows and rocky outcrops.

Owing to the variety and often ephemeral nature of the archaeology, the surveys were relatively informal: sites were recorded photographically, the presence of stone materials and diagnostic finds was noted, and GPS co-ordinates were obtained via a hand-held GPS receiver on the WGS84 datum. Of the sites recorded, four rock shelters had *in situ* deposits, three more had rock art and the remainder were open artefact scatters. Many of the latter are part of the background scatter covering much of the region and are best regarded as artefact exposures. My concern during survey was two fold:

1. To record the variability in type, age and distribution of sites so as to develop an understanding of the archaeological landscape; and
2. To locate sites suitable for excavation in an area about which nothing was known.

The earlier commercial surveys targeted areas to be mined regardless of surface features. Comprehensive ground surveys were conducted, and sites were recorded through photography, GPS co-ordinates and site record forms. The spatial distribution of sites is thus dependent on mining and does not reflect prehistoric occupation patterns.

4.2 Selection of sites for further study

For various reasons, new excavations were conducted in southern Namaqualand only: (1) this area was least well known archaeologically; (2) it lies between the well documented Western Cape and the rest of Namaqualand – regions with seemingly contrasting archaeological signatures; (3) southern Namaqualand contains several rock shelters and small caves which, it was anticipated, would provide a good complementary sequence to that revealed by the single occupation open sites in the north; (4) good preservation was expected in the Varsche River limestone shelters; and (5) pottery at one shelter suggested a pottery-period occupation and the opportunity to explore hunter-gatherer and herder signatures.

Previously excavated sites selected for further analysis were those containing sufficient cultural material, specifically stone artefacts, ostrich eggshell beads and/or pottery, to allow a good understanding of their cultural signatures. Larger excavations usually contained the most material, but smaller sites with distinctive remains were included as appropriate. Low-density or artefact-poor sites do contain information, perhaps even relating to an aspect of landscape use not readily identifiable from large excavations in rich sites (Orton 2007d), but, due to limits on the number of radiocarbon dates available, such sites were not specifically included in this study. It is acknowledged that culturally rich sites might represent aggregation sites and poor ones dispersal sites (*sensu* Wadley 1987), or the pattern might be time-dependent. Either way, relegation of the latter to the status of ‘unworthy of further research’ would be to ignore half the Namaqualand archaeological record. Others have also lamented the loss of archaeological data from areas of low-density occupation (e.g. Wandsnider & Camilli 1992) and this aspect should be pulled into every large-scale research project. Where possible this is done, but the limited use of such sites to the present project is inescapable.

4.3 Excavation

Reception Shelter and Buzz Shelter in the Knersvlakte and the KK002 rock shelter in the southernmost Hardeveld, were excavated stratigraphically, following visible depositional breaks, but with arbitrary spits used to break larger layers. Spatial units of 0.25 m^2 were employed and material was collected by layer and square. Detailed piece plotting was employed at first, but was found to offer no advantages over collection by square and to significantly slow the pace of excavation. Unless specifically specified, all deposit was screened on a 3 mm mesh owing to the unmanageable quantities of very fine vegetal matter and/or fine gravel that accumulated in the 1.5 mm sieve initially employed. Bulk samples were taken from Reception Shelter for micromammals and were later screened on a 1 mm mesh. The open site, VR048, was deflated to a single surface and, owing to its low density and great extent, 1 m^2 spatial units were used.

The commercial excavated sites in the coastal diamond mines tended to have single occupation horizons and were sometimes deflated. These were invariably dug in 1 m^2 units, but with 0.25 m^2 units used occasionally when good spatial patterning was present. Sieving generally proceeded on a 3 mm mesh, but, when appropriate, a 1.5 mm was used to recover small finds. In practice the latter was often tested and abandoned either due to lack of finds or excessive moisture. These techniques were born of a need to move quickly due to the large number of sites investigated during a typical field season.

4.4 Analysis and classification

4.4.1 Lithic typology

Typological classification of flaked artefacts is generally complicated. I have been refining a system for use in southern Africa since 2001 with the long period of time being necessary to capture suitably all the subtleties of LSA assemblages from across the region. The scheme is strongly influenced by and based on that devised by Janette Deacon (1984b) for use in the southern Cape, but, by drawing on other studies from the subcontinent, it updates many definitions and applies more widely. Where possible, previously analysed Namaqualand assemblages were reanalysed following this typology to ensure consistency.

In recent years the '*chaîne opératoire'* approach to lithic analysis has gained popularity, particularly among MSA and Middle Palaeolithic researchers. This method advocates an examination of all stages of the production sequence including stone procurement, technology, site and artefact function and final discard of the finished or used products (Grace 1997). However, in the present context it is not followed, since certain aspects would either extend beyond the intended scope of the research or not add meaningfully to it. The following reasons are advanced:

- Most stone in Namaqualand sites was locally sourced (within a day's walk), but some materials may have originated very far from the sites – the immensity of the study area rendered a physical search for them unfeasible;
- Technology is guided by the nature and size of the stone nodules obtained. In Namaqualand this dictates little variation in flaking techniques with the same three core types perennially present. While refitting contributes meaningfully to some studies, it is virtually impossible with microlithic quartz debitage;

- Site function is judged through the presence or absence of various categories of finds that inform on the primary activities carried out on site, while stone artefact function is best determined through use-wear and residue analyses. The former is typically within the remit of site reports, but the latter requires far more detailed study (e.g. Binneman 1982, 1984; Williamson 1997); and
- Spatial analysis of artefact discard patterns allows a deeper understanding of specific sites but is again better suited to site reports.

Given the relatively short period covered by this research (6000 years) and the rapid change evident through time, typological analysis is considered most informative. Table 4.1 presents the flaked artefact typology, including only those classes found in the Namaqualand assemblages reported here.

Table 4.1: Stone artefact typology.

Class	**Definition**
	Cores
Bipolar core	A core with removals from thin opposing platforms. Scars originate from one or both ends and occur on one or more faces. Worked on an anvil, their upper platform invariably forms parallel to the anvil surface and is concave in shape with the lower being straight and oblique to the anvil. They are often broken, preserving only one platform.
Bipolar bladelet core	A variably sized bipolar core characterised by long thin removals, some of which may extend the entire length of the core.
Single platform core	A core from which at least three flakes have been removed from a single platform. The platform may have been created by a split or an earlier set of scars whose initiation points are not preserved. Rare examples have two opposing and independently functioning platforms; the resulting flake scars do not intersect.
Single platform bladelet core	As above but often cone-shaped due to the removal of bladelets from around the perimeter of the platform and displaying at least one scar of bladelet proportions.
Irregular core	An irregular shaped and frequently blocky core exhibiting at least three flake removals from two or more platforms.
Radial core	A roughly disc-shaped core with flakes removed from a thin perimeter platform towards its centre. They may be uni- or bifacially flaked.

Class	Definition
	Retouched: Scrapers
Backed scraper	A scraper invariably made on a flake with a high dorsal ridge and with backing opposing the scraper retouch. The retouched edges intersect to form points at each end. Although usually strongly patterned, variation in form (e.g. partial natural backing or non-pointed ends) does occur.
Sidescraper	A scraper of ≤30 mm and retouched on one side of the long axis of a flake. The retouch can be restricted to the side or can slightly wrap around onto the ends.
Large sidescraper	As above but with a maximum length >30 mm.
Double sidescraper	A scraper of ≤30 mm and retouched along both sides of the long axis of a flake.
Endscraper	A scraper of ≤30 mm and made by retouching one end of the long axis of a flake. This is usually the distal end of a long, often parallel-sided flake. The retouch may be restricted to the one end or may slightly wrap around onto the sides.
Double endscraper	A scraper of ≤30 mm and retouched on both ends of its long axis.
Side-endscraper	A scraper of ≤30 mm and retouched on two or more adjacent sides or ends.
Thumbnail scraper	A shape-dependant variation of an *endscraper* ≤30 mm and where width and length are similar (width is usually slightly greater) and the retouch opposes the bulb. They grade into *endscrapers* and *sidescrapers* but intermediate sized examples are rare.
Large thumbnail scraper	As above but with a maximum dimension >30 mm.
Circular scraper	A variably but ≤30 mm long scraper where the retouch extends around the perimeter of the flake creating an approximately circular shape in plan view. The tool can be shaped by the retouch or have the retouch added to an already circular (and frequently cortical) flake. (Large circular scrapers – not present in this study – exceed 30 mm in maximum dimension.)
Miscellaneous backed scraper	Any scraper with backing on it that does not conform to 'backed scraper'.
Miscellaneous scraper	A scraper of ≤30 mm and with enough of the shape preserved to demonstrate that it does not conform to any other scraper class.
Large miscellaneous scraper	As above but with maximum dimension >30 mm.
Scraper fragment	A broken scraper or a scraper edge accidentally broken or deliberately struck off a scraper and for which the original shape (and type) can no longer be determined.

Class	Definition
	Retouched: Backed tools
Backed flake	A flake with backing on one long margin, usually opposing a sharp edge.
Backed blade	An artefact of blade proportions with a straight backed margin opposing and parallel to a straight, sharp edge. Neither end terminates in a point.
Backed bladelet	As for backed blade but with maximum dimension <25 mm. Broken pieces retaining bladelet proportions are included, although whether they originated from backed blades or bladelets will be unknown.
Backed point	A backed bladelet with the straight backed and opposing margins intersecting to form a sharp point. Broken pieces retaining bladelet proportions are included here if their edges taper towards one another
Curve-backed flake	A backed flake on which the distal (or occasionally proximal) portion of the backed edge is slightly convex, meeting the opposing edge at between approximately 30-60°. The backing often does not extend down the entire length of the piece but is focussed on the distal, pointed end.
Curve-backed bladelet	As above but the artefact retains bladelet proportions.
Double-backed bladelet	As for backed bladelet but with both margins backed.
Double-backed point	A backed bladelet with both laterals backed and meeting to form a sharp point.
Backed bladelet fragment	Any backed fragment not retaining bladelet proportions but which is likely to have originated from a piece of such proportions. To be a fragment and not one of the discard classes described by Movius *et al.* (1968) and H. Deacon (1976), the piece should be backed along its entire length and have the proximal or distal fraction and one or two breaks at its ends.
Backed point fragment	Essentially a subclass of 'backed bladelet fragment', this class necessarily refers to distal fragments of backed points only.
Truncated flake	A flake that has been truncated by the application of backing in opposition to the distal end. The retouch is often at an angle to the length of the flake.
Truncated bladelet	As above but the piece has bladelet proportions.
Borer	A bilaterally backed bladelet tool with parallel to gently tapering sides and a blunt tip. The backing usually does not extend along the entire length of the artefact. Despite much variety in shape, the cross-section is generally square to triangular and the tip frequently rounded and polished from use.
Segment	An artefact of ≤30 mm and with a backed arc intersecting a sharp, straight or very slightly curved chord at both ends. A dorsal ridge may be present. The ends are pointed with the angle between the backed margin and the chord (and hence the width of the piece) being variable.

Class	Definition
Large segment	As above but with a maximum length of about 30–45 mm. The lower size limit is slightly flexible according to the size of other segments present.
Triangle	A triangular piece with two straight, intersecting backed edges of similar length opposing a straight, sharp edge. Equilateral forms predominate.
Trapezium	A parallel-sided artefact with opposing truncations on its ends that form acute angles with one unretouched margin and obtuse angles with the other. The length exceeds the width. (Differentiated from tranchets – not present in this study – in which width exceeds length.)
Miscellaneous backed piece	A deliberately backed artefact with enough of the piece preserved to demonstrate that it does not conform to any of the other backed classes.
Backed piece fragment	Any broken piece with backing retouch, but excluding backed bladelet and point fragments, where the form (and type) of the original artefact is uncertain.
	Retouched: Other tools
Adze	A variable but often roughly rectangular piece with a step-flaked working edge on one or both sides. These edges are typically slightly concave but can be straight or very slightly convex. The scars are usually larger than those on scrapers and are the cumulative result of both retouch to shape the piece and use damage.
Notched piece	Any artefact on which the only retouch present is in the form of one or (rarely) two notches of variable size deliberately flaked into an edge. The notch is substantially smaller than that on an adze.
Denticulate	A piece with three or more fine, uniformly spaced notches (approximately 1–2 mm diameter) retouched into an edge to give a comb-like appearance. Notched edges can be convex or straight in plan view and can vary from less than 30° to about 70° in cross-section
Large chopper	An artefact usually roughly flaked in a bifacial manner to produce a semi-sharp chopping edge. This edge should display some battering from use. The artefact is >100 mm in maximum dimension. (Differentiated from small choppers – not present in this study – in which length is ≤100 mm.)
Miscellaneous retouched piece	A piece where the retouch does not conform to any recognisable pattern and the artefact can thus not be placed in any of the above classes.
	Debitage
Flake	Any piece lacking visible edge damage, with a maximum dimension ≥10 mm and showing a bulb of percussion and/or discernible striking platform and/or recognisable dorsal and ventral surfaces. Fragments are included where they fit the size criterion.

Class	Definition
Blade	A flake (as above) of ≥25 mm length with a length:breadth ratio ≥ 2 and with roughly parallel sides. Fragments are only included where, beyond reasonable doubt, they would fit the size and length:breadth criteria.
Bladelet	A blade (as above) but with maximum length <25 mm and ≥10 mm. Fragments are included where, beyond reasonable doubt, they would fit the size and length:breadth criteria.
Chunk	Any piece lacking visible edge damage, with a maximum dimension ≥10 mm, and that does not conform to the above three classes. Chunks sometimes show one or two flakes scars and are often broken artefacts whose original form cannot be deduced from the remaining evidence.
Chip	A piece conforming to any of the above debitage classes but with a maximum dimension <10 mm.
Edge-damaged	
Any piece displaying tiny, sporadic flake scars along a working edge that may be sharp or scraper-like in shape. Types are based on the debitage and core descriptions: edge-damaged bipolar core, edge-damaged single platform core, edge-damaged blade, edge-damaged bladelet, edge-damaged flake, edge-damaged chunk and edge-damaged chip being present in this study.	

It should be noted that the presence of cortext is excluded from the typology as this is usually impossible to identify on quartz quarried from veins and the CCS only very rarely exhibits cortex.Grindstones are identified by their smoothed and sometimes faceted surfaces, anvils by occasional pitting, usually in the centre of a large surface, and hammer stones by the characteristic pitting and crushing along a convex edge. Combinations and fragments are recognised as required.

4.4.2 Stone materials

Namaqualand is a complex and primarily metamorphic landscape, but the rocks flaked by its prehistoric inhabitants are generally sedimentary. The most commonly flaked materials are homogenous and isotropic – i.e. their mechanical properties are similar in all directions – making them ideal for flaking. Most, however, are only available in small nodules. In the Richtersveld and the southern parts of Namaqualand many materials were obtained in pebble form. Pebbles are always strong and durable, having already survived a river journey, and are thus particularly suited to flaking.

Archaeological classification of stone materials is very subjective. I consider three "classifications" of raw materials to exist:

1. The makers of the artefacts would have considered merely which rocks were suitable for which purposes and how they behaved during flaking. This would have mixed different rock types according to their utility;
2. Archaeologists tend to separate rocks on their physical appearance, based on a visual examination of small fragments. This is not always geologically sound; and
3. Geologists, via thin petrographic sections and/or examination of the source outcrops, will accurately classify rock types based on their formation processes.

The problems faced by archaeologists are compounded by the frequency with which different rock types grade into one another, whether geologically or visually. Because it is destructive, archaeologists seldom employ thin sections. We are thus forced to make a best estimate and, when all else fails, the 'other' category is used. What follows is a brief description of each rock type (or group of rocks) as identified archaeologically; visual and basic geological characteristics are included.

Quartz

This is the most widely flaked material in the southern African LSA. Quartz is a coarse, crystalline mineral commonly encountered in other rocks, invariably as the primary constituent. Although quartz occurs in various colours, only clear and milky quartz are common archaeologically. Clear quartz[15] is pure, while the white colour of milky quartz is

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[15] The terms 'rock crystal' and 'crystal quartz' are sometimes used but should refer only to actual crystals. Most of the clear quartz in Namaqualand likely came from bedrock veins.

caused by many tiny fluid inclusions (Nesse 2000). Two primary sources occur: bedrock veins and river pebbles. Crystals are unlikely to occur in the Sandveld (G. Moseley, pers. comm. 2012) but veins are ubiquitous across the study area with quarried quartz outcrops common within a few kilometres of the shore. These outcrops vary from white to translucent with thin flakes being clear. Despite its conchoidal fracture, the presence of crystal facets and cleavage planes causes a degree of unpredictability during flaking. Clear and milky quartz were not separated during analysis as they grade into one another, but the presence of retouched artefacts on clear quartz and the dominance of either variety were noted. The presence of frequent crystal facets on the clear quartz flakes at Jakkalsberg L (Orton & Hallkett 2010) shows that crystals were obtained in the far north. They are common in the Orange River Pegmatite Belt to the west of the Richtersveld (G. Moseley, pers. comm. 2012).

Sandstone

This rock type is relatively uncommon in Namaqualand. It is composed of cemented sand-sized (0.06–2.00 mm) grains with pore spaces. In older sandstones the pores may be partially or completely filled (Pettijohn 1975). Precipitated cements improve the quality of the rock for flaking, but the sand grains are usually still the strongest part of the rock resulting in fracture around rather than through the grains. Due to its relatively poor flaking properties it was seldom flaked during the LSA but was used for grindstones.

Quartzite

Quartzite is patchily distributed throughout Namaqualand but, despite its reasonable flaking properties, was seldom flaked in any quantity. Near Kleinzee, fragments of pale, strongly bedded quartzite from a coastal outcrop just south of the town are common in archaeological sites. This particular rock was often used for lower grindstones. Most quartzites are fairly coarse-grained, but some occur as fine-grained rocks well suited to flaking. These latter are particularly evident in southern Namaqualand where the many varieties originate from river cobbles. Quartzite is metamorphosed sandstone. The degree of metamorphism increases with depth causing some intergrading between the two forms. During metamorphosis, sandstone is melted and recrystallised such that the resulting quartzite is composed of a mosaic of interlocking crystals with any earlier cements usually no longer visible (Whitten & Brooks 1972). Quartzites appearing visually similar to quartz are identified on the basis of visible crystalline structure rather than by their opacity or translucence; quartz has a smoother, glassy texture.

Silcrete

Although highly variable, good quality, fine-grained silcrete is one of the best rocks for flaking. Silcrete is identified by the variably-sized granular inclusions in an otherwise homogenous background. Surface outcrops are common in the south (Du Toit 1954) and on the Knersvlakte one finds small boulders and cobbles of silcrete within the raised terraces. Roberts (2003: fig. 4.1) has mapped the known occurrences, noting the dearth in northern Namaqualand as probably being due to insufficient information. Paraphrasing Summerfield (1983), Botha (2000:137) describes silcrete as “the product of cementation, induration or replacement of bedrock or regolith with siliceous compounds by surficial or penesurficial processes”. Such processes entail the mobilisation and redeposition of silica relatively close to the earth’s surface and are usually associated with deep weathering profiles (Wasson *et al*. 1979). The great variety in appearance and quality of silcrete is due to both the wide range of host materials in which they form and the differences in geochemical conditions under which silicification takes place (Summerfield 1982). Furthermore, the degree of silicification decreases with depth so that the silcrete becomes softer and more porous as it grades into less consolidated material below (Theron 1984). Isolated clay lenses and irregular cavities can be present and differential silicification results in hard, rocky lumps of silcrete alternating with softer, poorly consolidated, sandy material. Silcrete varies in colour with red, white, grey, yellow and brown all occurring. The rock usually has a vitreous sheen and a slightly greasy feel

(Hutton *et al.* 1978). The most common silcretes have more than 5% grain content and the grains are not self-supporting (Summerfield 1982, 1983). These are also most common archaeologically. The matrix of silcrete is very fine-grained quartz, essentially similar to the CCS described below. Wagner and Merensky (1928:11) note that some of the silcretes in the northern parts of near-coastal Namaqualand are fine-grained but that "for the most part they are of the nature of breccias composed of angular fragments of quartz, quartzite and other rocks in a matrix of grey or yellowish-brown ferruginous chalcedonic silica."

<u>CCS</u>

Cryptocrystalline silica is a generic term applied by southern African archaeologists to cover a variety of fine-grained silicious rocks including chert and chalcedony. Both types are microcrystalline quartz aggregates that can be very similar in hand specimen but are distinguishable in thin section (Nesse 2000). CCS has good conchoidal fracture and is excellent for flaking but often occurs only as small nodules. In Namaqualand CCS is usually pale in colour and slightly translucent, but darker (often brown) opaque varieties are also found. In the current and palaeo-Orange River channels they occur as river pebbles presumably derived ultimately from the basalt of the Maloti-Drakensberg Mountains (Visser & Van Riet Lowe 1955). In the Sandveld clues to its local origin come from the calcrete-like cortex on some artefacts; possible source areas in calcrete have been identified southeast of Kleinzee (Orton & Webley 2012a). Andrefsky (2005) notes the common occurrence of chert nodules in rocks such as limestone and it is most likely that calcrete beds are the source of the Sandveld CCS. North of the Orange River they can be collected from the beach (Cornell 1920), but such cobbles are likely to be buried along South African shores (G. Moseley, pers. comm. 2012).

Fine-Grained Black Rocks (FGBR)

This term represents all those visually similar, very dark, fine-grained rocks which are impossible to identify without a petrographic section (Orton 2004, 2006). They likely include very fine-grained quartzites, dark shales in varying states of metamorphism (including the final stage – hornfels) and possibly some very dark CCS. Such unidentifiable rocks would usually be incorporated within ‘other’, but it seemed sensible to separate them out due to their better quality than many other unidentifiable rocks. Encountering the same problem, Wadley (1987) used the less descriptive term ‘black rock’ to refer to similar materials. Generally these rocks will behave in a similar manner to CCS and all display conchoidal fracture. They are invariably obtained as pebbles and, accordingly, are often encountered close to the Orange River and its palaeo-channels.

Other

This term catches all remaining rocks that for various reasons are not readily identifiable in hand specimen, or are simply too rarely encountered to merit inclusion as a separate category. Heavily patinated rocks are sometimes necessarily included here, while many others quite likely have an igneous origin.

4.4.3 Pottery

Information from a course[16] on prehistoric pottery and from published work (Sadr & Sampson 1999; Sampson 1988; Sampson & Sadr 1999) was used in the classification and description of the pottery (Figure 4.1; Table 4.2). Although Rudner’s (1968; table 1) work was also helpful, the kind of detail captured by him was not possible due to the general lack of reconstructed pots in my samples. Although not all proved useful for analysis, data on thickness, weight, temper (Table 4.3), colour, decoration and lip forms

[16] University of the Witwatersrand, South Africa, 15th – 18th December 2008.

were captured for each sherd as appropriate. Refitting was attempted where feasible. For each sherd a mean thickness was calculated from its maximum and minimum values (rims with their artificially thinned edges were avoided when possible). Temper was examined with a hand lens and was invariably mineral (quartz, mica and/or other rock types) with many of the smallest grains likely natural inclusions in the original clay. Grog (fragmented old potsherds used as temper; four known occurrences; Rudner 1968; Stewart 2005) and fibre-temper (one known occurrence; unpublished data) are extremely rare in far-western South Africa. Due to the strong colour variation resulting directly from weathering, only generalised colours were assigned.

Table 4.2: Terminology used in the classification of Cape coastal pottery types from oldest to youngest as proposed by Sadr and Smith (1991) and refined by Sadr and Sampson (1999).

Acronym	Name and description	Approximate temporal occurrence
SPINC	Spouted incised: spouted pot with incised decoration.	Pre-AD 400–AD 650
SPIMP	Spouted impressed: spouted pot with impressed decoration.	AD 650–AD 850
LUND	Lugged undecorated: lugged, undecorated pot.	AD 850–AD 1250
LINC	Lugged incised: lugged pot with incised decoration.	Post-AD 1250

Decoration is either incised or impressed with various combinations of dots and long or short lines being employed. Incised is either fine or broad depending on the means of application (e.g. tip or side of a porcupine quill respectively). Rudner (1968) and Sampson (1988) refer to broad incisions as ‘grooved’ and ‘channel’ decoration respectively. Although there is certainly a continuum of groove widths, the separation between fine and broad-incised is made at about 1 mm width. Vessel mouth diameter, was estimated when possible from a best-fit on concentric circles of known diameter (to the nearest 20 mm). Rim orientation and form are also listed. Four orientations and eight rim forms have been described (Figure 4.1), but Sampson and Sadr (1999) note two classification problems. Firstly, some vessels are asymmetrical, falling into two categories. Open (flared), vertical and convergent rims are likely arbitrary divisions of a single shape continuum, but wide-open vessels (platters) are still considered a discrete class. Secondly, some sherds/pots display two lip forms, indicating a degree of intra-vessel lip variation. Summaries of the Namaqualand pottery data are recorded in Appendix 1.

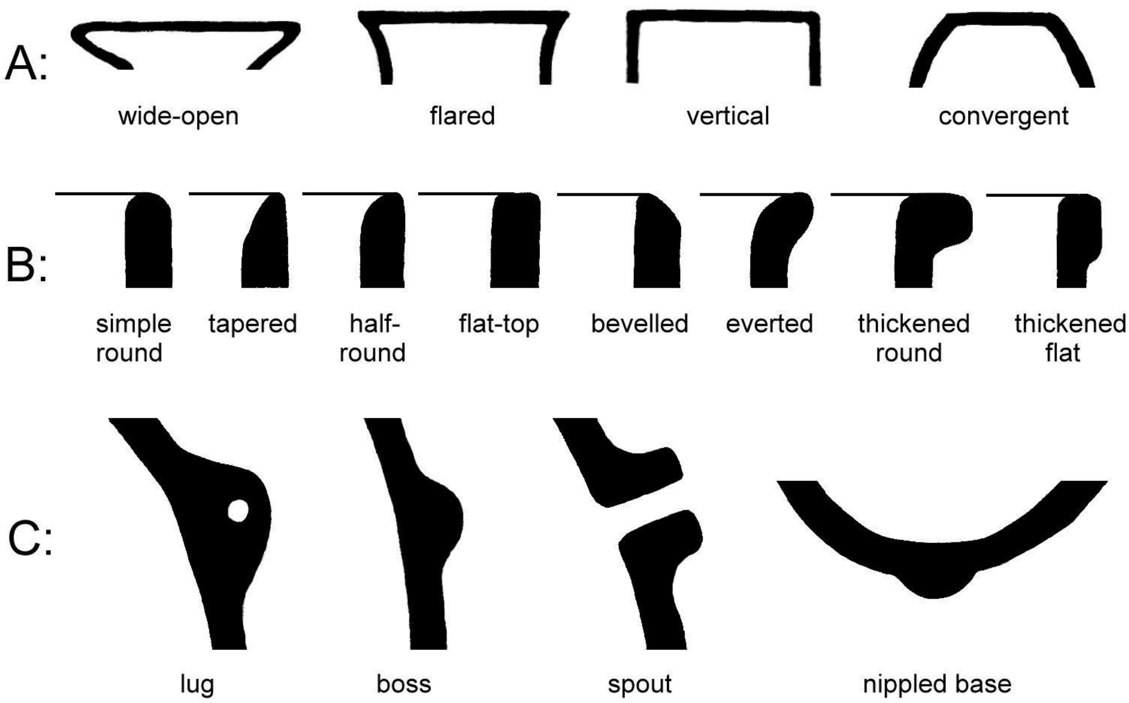

Figure 4.1: Terminology used in the classification of pottery. A: rim orientations, B: lip forms and C: external features (redrawn from Sadr & Sampson 1999: fig. 3; Sampson & Sadr 1999: fig 2 & fig. 3; Rudner 1968, table 1 & fig. V). While A and B are comprehensive, C includes only features relevant to the present samples.

Table 4.3: Grain sizes of pottery temper.

Temper size	Visual description
Very small	Texture not obviously visible
Small	Texture visible but grains too small to practically estimate average size
0.5 mm	Most visible grains are approximately 0.5 mm in diameter
1.0 mm	Most visible grains are approximately 1.0 mm in diameter; etc.

4.4.4 Ostrich eggshell beads

Following Yates (1995), the maximum external and minimum internal diameters of ostrich eggshell beads were measured. Thickness measurements were also taken and manufacturing stages follow Orton (2008d; Table 4.4). The terms small, medium, large and very large are used formally to denote bead size as follows:

- Small: ≤5 mm;
- Medium: 5.01–6 mm;
- Large: 6.01–7.5 mm; and
- Very large: >7.5 mm.

The lower size limit for very large beads is based on Jacobson's (1987) link between the Khoekhoen and beads of this size.

Table 4.4: Classification stages of unfinished ostrich eggshell beads as described by Orton (2008d: table 1).

Stage	Description
-	Irregular ostrich eggshell fragment
I	Modified ostrich eggshell fragment
IIa, IIb	Partly drilled hole but not yet pierced
IIIa, IIIb	Completely drilled hole
IVa, IVb	Partly trimmed edge
Va, Vb	Completely trimmed edge
VIa, VIb	Partly ground
VIIa, VIIb	Completely ground

4.4.5 Glass beads

Sizes are measured in the same manner as ostrich eggshell beads, but photographs of the glass beads were sent to Marilee Wood[17] for technical identification of types.

4.4.6 Shellfish and fauna

I conducted shellfish species analysis for those sites not already reported by Dewar (2008), and also basic analyses on faunal remains where these were particularly sparse. Larger samples with more identifiable material were examined by faunal specialists. Most assemblages from the northern Sandveld were analysed by Dr Genevieve Dewar, while the remainder, as well as those from the Knersvlakte and Richtersveld areas were analysed by Prof. Richard Klein and Dr Teresa Steele. Drs Dewar and Steele are currently engaged in other research in Namaqualand.

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[17] Dr Wood (2011a, 2011b; Robertshaw *et al.* 2010) has recently conducted extensive research on southern African archaeological glass beads and is presently best placed to identify them.

Chapter 5. Namaqualand assemblages

This chapter describes the appearance, location and cultural materials of the analysed sites. Pottery data are summarised in Appendix 1, subsistence data are tabulated in Appendix 2 and all dates apear in full in Appendix 3. Figure 5.1 maps the sites[18].

Since 2002, I have analysed several hundred northern Sandveld assemblages of varying size, It has become apparent, based on visual impressions of the flaked stone artefacts, that the vast majority were easily and reliably separable into four groups. Although this separation is intuitive, graphical analyses of their defining characteristics at the start of Chapter 6 demonstrate that they hold true. It should be noted that different Groups can co-occur if certain defining characteristics of each are strongly present within a single assemblage. These groups are used as the basis for the analyses that follow in Chapter 6 and are described as follows:

- Group 1: Assemblages containing a significant proportion (~20–40%) of CCS or fine-grained silcrete and many retouched tools in these materials (it is assumed that silcrete was employed based on availability as an alternative to CCS);
- Group 2: Assemblages appearing very informal and based almost exclusively on milky quartz and quartzite;
- Group 3: Assemblages rich in backed artefacts and manufactured almost exclusively (~95–99%) on clear quartz; and
- Group 4: Assemblages with no or extremely few flaked artefacts.

[18] Note that ,due to the biased distribution of excavations (dependent on mining areas and hence CRM work) and the very small number of sites considered in this research relative to all recorded sites in the region (probably close to 2000 in total distributed widely throughout the coastal landscape), the individual Groups have not been mapped.

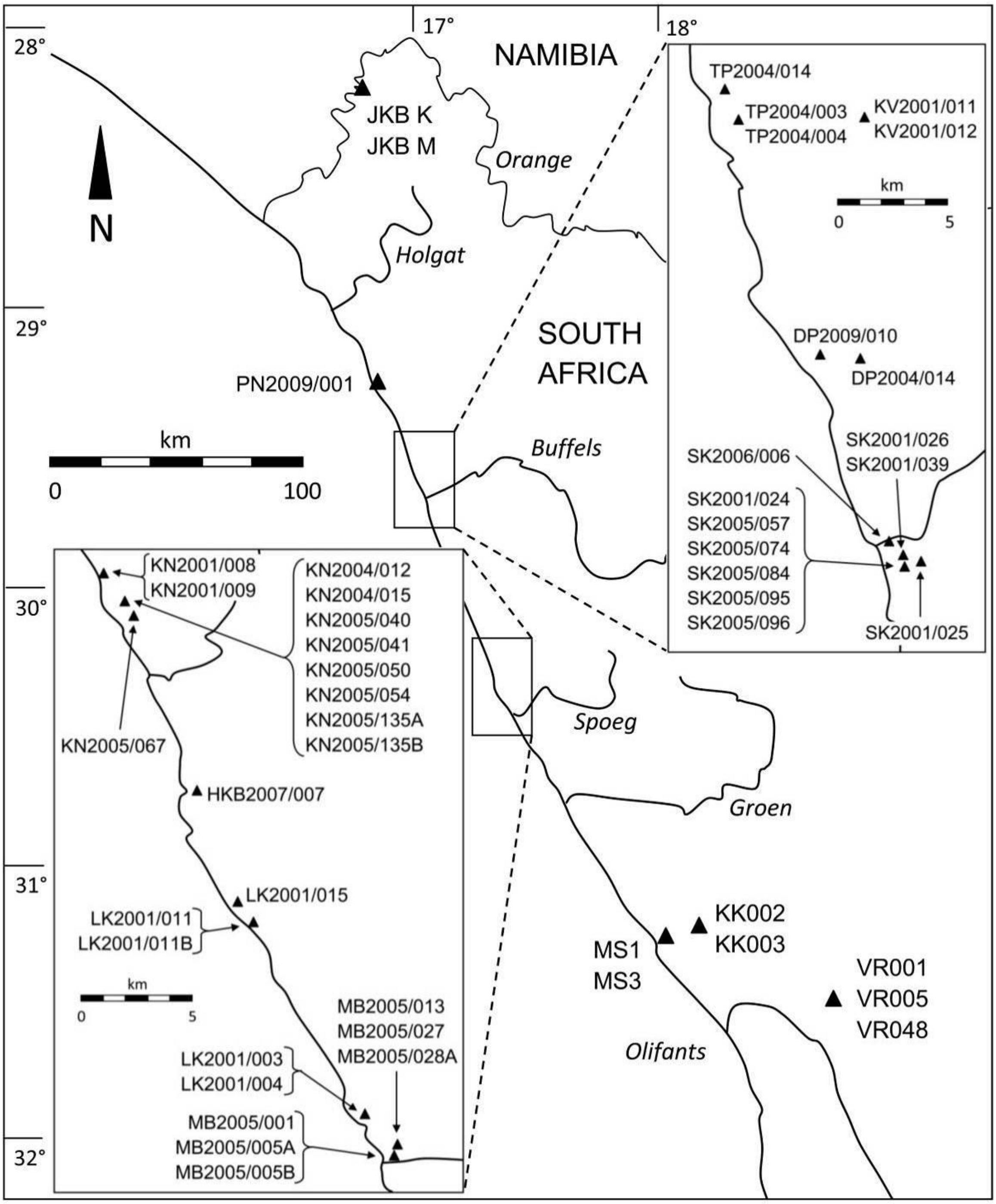


Figure 5.1: Map showing the locations of the sites discussed in Chapter 5.

Group 4 assemblages may represent a real component of the Namaqualand cultural sequence; they may have been left by particular groups of people or been the product of particular activities for which flaked stone artefacts were not required in any number. It is also possible, however, that they are the result of small excavations with biased samples, or that the people simply moved on before making any artefacts. Given this uncertainty and the limited cultural data they contain it was thought best to exclude most such assemblages from the project.

5.1 Northern Sandveld

This is the region for which we have the most archaeological data. A large number of sites have received excavations ranging in size from 1 m^2 (simply for a shell sample) to 180 m^2, but with the majority being in the order of 5–10 m^2. Many sites in this region present as open, deflated occurrences among low sand dunes, but some are buried and *in situ*, betrayed only by the presence of occasional shells on the surface. The latter frequently retain vertical integrity but many sites with lower shellfish density appear to have been bioturbated. It is likely that many deeply buried sites are not located during archaeological surveys – one that was found where a mine trench had intersected a dune was some 7 m below the dune crest. Organic preservation is very poor on exposed sites, but buried middens often contain rich faunal assemblages. Cultural material is usually abundant, but is frequently limited to lithics, particularly in the older sites.

The sites researched for the first time here are presented in alphanumeric order, after which those sites already published elsewhere are briefly discussed. Site names from the northern and central areas follow a convention: farm name or town acronym and year of discovery/site number for that year and farm/town (e.g. KN2005/040). The farms/towns involved, from north to south, are Port Nolloth (PN), Tweepad (TP), Dreyer's Pan (DP), Mannel's Vlei (MV), Sandkop (SK), Koingnaas (KN), Hondeklipbaai (HKB), Langklip (LK) and Mitchell's Bay (MB), Sites in the south simply have an acronym followed by a site number (e.g. VR005). Sites lie on Komkans (KK), Mineral Sands Mine (MS) and Varsche Rivier Farm (VR). The Jakkalsberg (JKB) sites in the Richtersveld are named after the nearby mountain of that name. Alternative names are provided where these exist. Since this thesis concerns itself only with the type of cultural material present rather than its density, I do not provide full excavation details. These can usually be found in the relevant CRM reports and/or field note books, copies of which are on file with the author. Since the majority of sites are open and often deflated occurrences, density is meaningless, varying only according to the quantity of wind-blown sand incorporated in the deposit.

5.1.1 DP2004/010

The site

This small shell midden lay among hummock dunes at the eastern (inland) edge of a dune field, 1 km from the coast and some 200 m southwest of Karas Pan (29°35'54.7" S 17°01'49.8" E). The midden formed a small mound surrounded by lower density shell scatter, with a second scatter some 15 m to the south. The excavation covered 14 m^2 at the main midden, Patch A, and 5 m^2 at the smaller scatter, Patch B (Orton & Halkett 2005). Suitable dating material was absent from Patch B, but Patch A has the following date:

Lab. No.	Provenience	Material	^{14}C date BP	Calibrated age (95.4%)
OxA-24078	H16	Charcoal (sp. unknown)	712 ± 24	AD 1282–1388

It is not known whether the two patches relate to a single occupation, but activity differences could easily account for the varying signatures present. In the absence of a compelling reason to separate them, the patches are assumed to be contemporary.

Cultural material

The excavation recovered a small, informal stone artefact assemblage of quartz and quartzite that can be assigned to Group 2. Table 5.1 shows the finds from Patch A, while in Patch B there were only four flakes, one chunk and one chip in quartz and one quartzite flake. No retouched artefacts are present. A most unusual inclusion is the milled-edge pebble in Patch A. Although not thinned by grinding on either of its surfaces, the entire perimeter is 'milled' through hammer damage (Figure 5.2). Such artefacts are typical of the south coast of South Africa with only two other examples known from the west coast (Orton 2009b, 2009c). Its 65.8 mm diameter and 30.4 mm thickness are consistent with the south coast pattern as established at Noetzie Midden (Orton 2009b: fig. 12).

Table 5.1: Stone artefacts from Patch A at DP2004/010 (Group 2).

	Quartz	Silcrete	Quartzite	Sandstone	Other
Bipolar core	1	-	2	-	-
Irregular core	3	-	-	-	-
Bladelet	1	-	-	-	-
Flake	31	1	44	3	3
Chunk	15	-	15	-	-
Chip	18	1	2	-	--
Total	**69**	**2**	**63**	**3**	**3**
Stone material % total	**49.3**	**1.4**	**45.0**	**2.1**	**2.1**
Hammer stone	-	-	1	-	-
Upper grindstone fragment	-	-	-	1	-
Lower grindstone fragment	-	-	1	-	-
Milled-edged pebble	-	-	-	1	-

Figure 5.2: Lateral and plan views of the sandstone milled-edge pebble from Patch A at DP2004/010. Scale in 10 mm intervals.

Twenty ostrich eggshell beads came from Patch A (Table 5.2). The majority are large but some medium beads are also present. Although only three beads derive from Patch B, there is no reason to believe they originated from different populations (the sample is too small to meaningfully test this), though they may have come from different strings (Figure 5.3). Five flask fragments were found in the primary midden; two pairs refit.

Table 5.2: Summary statistics for finished ostrich eggshell beads from DP2004/010.

Patch		Outside diameter (mm)	Aperture diameter (mm)	Thickness (mm)
A (n=20)*	Mean	6.38	1.99	1.84
	Std Deviation	0.70	0.40	0.12
	Minimum	5.36	1.48	1.65
	Maximum	7.26	2.61	2.14
B (n=3)	Mean	6.21	2.63	1.71
	Std Deviation	0.05	0.28	0.08
	Minimum	6.16	2.41	1.65
	Maximum	6.26	2.95	1.80

* Two beads were burnt and exfoliated such that for thickness n=18.

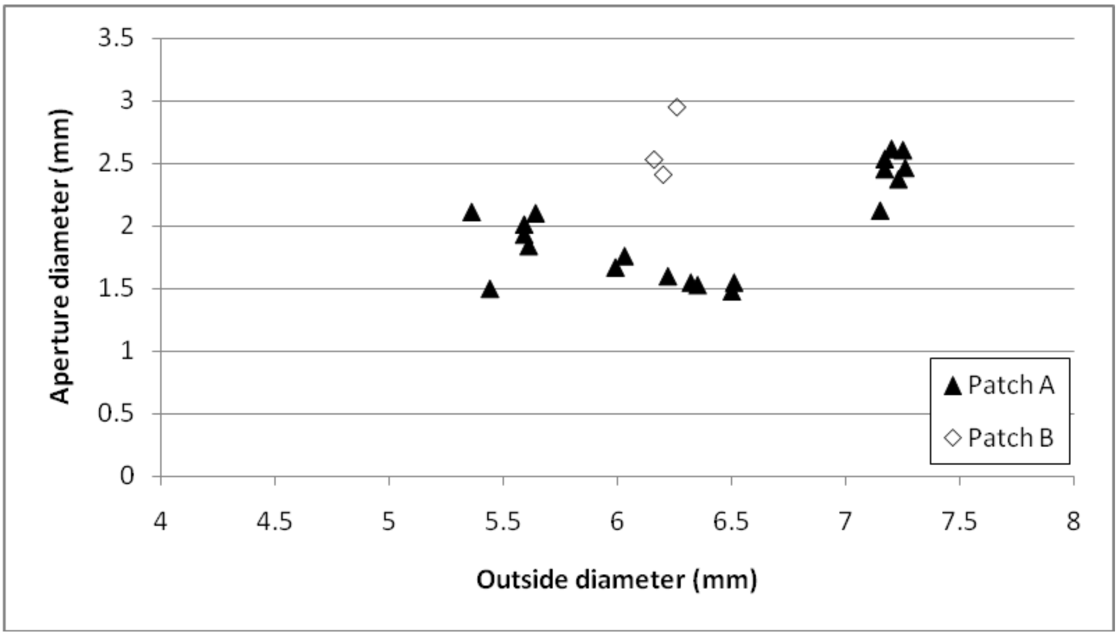


Figure 5.3: Scatter plot of ostrich eggshell bead dimensions from DP2004/010.

Four potsherds, together weighing 25.1 g and having a mean wall thickness of 5.51 ± 0.34 mm, were found in Patch A, while a further 11 weighing 36.8 g and with a mean thickness of 5.09 ± 0.18 mm came from Patch B. Two in Patch A refit and a third certainly comes from the same pot. All three exterior surfaces have a red slip painted on them and one is very tightly curved, perhaps originating from a spout. Another shows evidence of coil manufacture. The sherds from Patch B were heavily weathered and retained no diagnostic features.

5.1.2 HKB2007/007

The site

This site was a small *in situ* shell midden located some 170 m from the shore of Hondeklipbaai (30°18'51.4" S 17°16'36.8" E; Orton 2007a). Twenty-six square metres were excavated (Orton 2009a). Among the fauna are many domestic bones; they are mostly sheep/goat but include one goat and one cow. The following date was obtained:

Lab. No.	Provenience	Material	^{14}C date BP	Calibrated age (95.4%)
UGAMS-5252	Q7 & Q8	Charcoal (sp. unknown)	340 ± 30	AD 1497–1648

Based on the abundant historical material within the midden (A. Malan, pers. comm. 2009), including a metal plate lying on the base, it is expected that this date is too old and that the site should date to the latter half of the nineteenth century. The charcoal date was obtained in a CRM context and there seemed no merit in redating the site.

Cultural material

A small collection of stone artefacts (Table 5.3) comprised the only indigenous cultural finds. The assemblage does not conform well to any one group; the quartz backed flake is in clear quartz, suggesting affinity with Group 3, while the CCS component supports Group 1. The assemblage is, however, perhaps too small to judge. The associated historical material includes glass, ceramics, leather, clay pipe stems, a soapstone pipe bowl and metal items, including buttons (Orton 2009a).

Table 5.3: Stone artefacts from HKB2007/007 (Group 1/3).

	Quartz	CCS	Quartzite	Other
Bipolar core	2	-	-	-
Sidescraper	-	1	-	-
Scraper fragment	1	-	-	-
Backed flake	1	-	-	-
Bladelet	1	-	-	-
Flake	15	4	2	1
Edge-damaged flake	2	-	-	-
Chunk	5	-	-	-
Chip	8	3	-	-
Total	**35**	**8**	**2**	**1**
Stone material % total	**76.1**	**17.4**	**4.3**	**2.2**
Stone material % formal	**66.7**	**33.3**	**-**	**-**
Grindstone fragment	--	-	-	1

5.1.3 KN2001/009

The site

This site was a small shell midden located some 300 m from the coast and 4.9 km north of the Swartlintjies River (30°13'22.1" S 17°14'23.7" E). A total area of 35 m^2 was excavated with the deposit sieved through a 1.5 mm mesh (Halkett 2003). The site consisted of two overlapping shell mounds forming a single midden. The following date was obtained:

Lab. No.	Provenience	Material	^{14}C date BP	Calibrated age (95.4%)
OxA-24516	E11	Bone (*Raphicerus campestris*)	607 ± 24	AD 1320–1423

Cultural material

The stone artefact assemblage is almost entirely of clear quartz with 10 of the 12 retouched items being backed (Table 5.4). This indicates an ascription to Group 3.

Table 5.4: Stone artefacts from KN2001/009 (Group 3).

	Quartz	Silcrete	Quartzite	Other
Bipolar core	2	-	-	-
Irregular core	4	-	-	-
Sidescraper	1	-	-	-
Scraper fragment	1	-	-	-
Backed flake	1	-	-	-
Backed bladelet	1	-	-	-
Backed point	3	-	-	-
Backed bladelet fragment	2	-	-	-
Backed piece fragment	1	-	-	-
Blade	4	-	-	-
Bladelet	10	-	-	-
Flake	126	3	5	-
Edge-damaged flake	3	-	-	-
Chunk	34	-	2	-
Chip	375	-	-	-
Edge-damaged chip	1	-	-	-
Total	**569**	**3**	**7**	**0**
Stone material % total	**98.3**	**0.5**	**1.2**	**-**
Stone material % formal	**100**	**-**	**-**	**-**
Hammer stone	-	-	-	1

One small ostrich eggshell bead was found; its diameter, aperture and thickness are 4.90, 1.65 and 1.92 mm respectively. Two refitting fragments of an ostrich eggshell flask mouth indicate an opening of approximately 9 mm (Figure 5.4). One fresh and five water-worn *Conus* shells were also found, but none showed signs of use. Pottery was absent.

Figure 5.4: The refitting flask mouth fragments from KN2001/009. Scale in 5 mm intervals.

5.1.4 KN2004/012

The site

This small, semi-deflated shell midden lay among hummock dunes 3.2 km north of the Swartlintjies River and 550 m from the sea (30°14'09.5"S 17°15'00.6"E). A collection was made from the surrounding surface, while 11.75 m^2 were excavated. The 5–10 cm thick deposit overlay calcrete and, although partly deflated, several dark stains likely indicated the positions of hearths (Orton & Halkett 2005). A background scatter of older, heavily wind-blasted items was present but easily separable from the younger, *in situ* material associated with the radiocarbon date. The following date was obtained:

Lab. No.	Provenience	Material	^{14}C date BP	Calibrated age (95.4%)
OxA-22977	H16 Midden	Charcoal (sp. unknown)	1579 ± 24 BP	AD 432–606

Cultural material

The small stone assemblage is informal in character, predominantly of quartz and conforms to Group 2 (Table 5.5). Three small to medium ostrich eggshell beads were present (Table 5.6). Also found were two decorated potsherds, one body and one rim. Together they weigh 2.2 g and have a mean wall thickness of 4.79 ± 0.82 mm. The rim has short diagonal lines, probably impressed, around the lip with a horizontal incised line below. The body sherd has two rows of vertical impressions one above the other (Figure 5.5). A bone tube was found and presumed to be a bead; the extensive polishing of both ends supports its long term curation (Figure 5.6).

Table 5.5: Stone artefacts from KN2004/012 (Group 2).

	Quartz	CCS	Silcrete	Quartzite	Other
Bipolar core	2	1	-	-	-
Irregular core	1	-	-	-	-
Flake	65	5	3	-	2
Chunk	26	1	-	-	-
Edge-damaged chunk		1	-	-	-

Chip	40	1	-	-	-
Total	**134**	**9**	**3**	**0**	**2**
Stone material % total	**90.5**	**6.1**	**2.0**	**-**	**1.4**
Hammer stone fragment	-	-	-	1	-
Upper grindstone / hammer stone fragment	-	-	-	-	1
Lower grindstone	-	-	-	-	1
Lower grindstone fragment	-	-	-	-	1

Table 5.6: Summary statistics for finished ostrich eggshell beads from KN2004/012.

		Outside diameter (mm)	Aperture diameter (mm)	Thickness (mm)
n=3	Mean	4.95	1.73	1.53
	Std Deviation	0.21	0.06	0.01
	Minimum	4.72	1.67	1.52
	Maximum	5.12	1.79	1.54

In addition, several heavily wind-blasted items undoubtedly formed part of a background scatter in the general area. These included seven flakes, eight chunks and six chips in quartz, one silcrete flake and three refitting fragments of an ostrich eggshell pendant plus a fourth fragment, most likely belonging to a second pendant (see Section 5.6.3 below).

Figure 5.5: The two decorated pot sherds from KN2004/012. Scale in 5 mm intervals.

Figure 5.6: The well worn bone tube from KN2004/012. Scale in 5 mm intervals.

5.1.5 KN2004/015E

The site

This was a well deflated scatter in an area with a high density of sites (30°14’09.4” S 17°14’57.5” E). A small surface collection was made around the site, while 9.5 m^2 were excavated (Orton & Halkett 2005). Many of the ostrich eggshell fragments found on the site, as well as most of the ostrich eggshell beads, appeared quite wind-abraded, raising the possibility that the site is a palimpsest. The shell appears typical for such sites: partially sun-bleached with only large shells remaining intact. The bone is variably preserved with some being very fragmented, although much of the tortoise bone is intact with a well preserved and unbleached cluster in one area. Whether this cluster represents a tortoise burial is unknown, but this seems unlikely given the dispersion of bone over some 3 m^2. Stone artefacts, bone, pottery, flask openings and beads appear to cluster in the southern part of the excavation, while lobster mandibles are more evenly dispersed and ostrich eggshell fragments are focused to the north. Ostrich eggshell beads, which are already rounded during their manufacture, might be expected to take on a polished look through even limited exposure to wind. A few fresh ostrich eggshell fragments were also present. It seems likely that the site has been subjected to extensive wind-blasting in the deflation hollow with the result that any exposed material has become rounded and polished. Overprinting is discounted, but the presence of occasional finds related to background scatter is possible. The following date was obtained:

Lab. No.	Provenience	Material	^{14}C date BP	Calibrated age (95.4%)
OxA-22930	WW73 Surface	Bone (*Chersina angulata*)	973 ± 24 BP	AD 1035–1174

Cultural material

A small collection of flaked stone artefacts was obtained, the vast majority in quartz (Table 5.7). It was frequently difficult to tell quartz from quartzite and some could be classified incorrectly. Much of this seemed to have originated from cobbles, while other pieces were more obviously clear, including the two quartz retouched items. The CCS MRP resembles an unfinished unifacial point (Figure 5.7). A quartz boulder of 320 x 300 x 200 mm was present (but not collected). It was presumably brought to the site as a source of stone material for flaking but was unworked. Occasional reused flakes were noted through the presence of weathered surfaces. Various fragments of probable pigment were present, including one piece of specularite. An adze and a sidescraper, both made in CCS, were noted on the surface of unexcavated squares. The stone assemblage conforms partly to Groups 1 and 3, but the overall proportions of materials are incongruent with either ascription, particularly given the CCS retouched items.

Table 5.7: Stone artefacts from KN2004/015E (Group 1/3).

	Quartz	CCS	Quartzite
Irregular core	2	-	-
Sidescraper	1	-	-
Scraper fragment	-	1	-
Segment	1	-	-
Miscellaneous retouched piece	-	1	-
Bladelet	2	-	-
Flake	96	4	2
Chunk	48	-	-
Chip	70	1	-
Total	**220**	**7**	**2**
Stone material % total	**96.0**	**3.1**	**0.9**
Stone material % formal	**50.0**	**50.0**	**-**

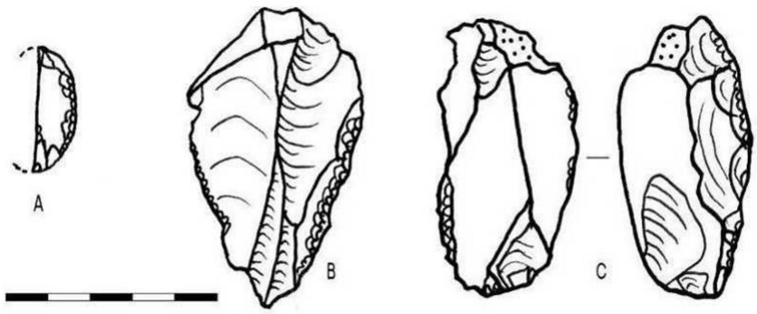


Figure 5.7: Stone artefacts from KN2004/015E. A: scraper fragment; B: miscellaneous retouched piece; C: adze. All in CCS. Scale in 5 mm intervals.

Seven ostrich eggshell beads of small to medium size were found (Table 5.8). Most were at least slightly wind-blasted, but, as explained above, this is not completely unexpected on a deflated scatter. Three ostrich eggshell fragments were retouched along one edge to make what appear to be wide openings. There were also nine potsherds weighing

29.4 g, three of which were undecorated rims. Their mean thickness is 5.76 ± 0.46 mm. All have vertical necks with one rim being simple rounded and the other two tapered. Two refitting sherds have wind-blasted surfaces supporting long-term exposure to the wind. At least two pots are represented.

Table 5.8: Summary statistics for finished ostrich eggshell beads from KN2004/015E.

		Outside diameter (mm)	Aperture diameter (mm)	Thickness (mm)
n=7	Mean	4.93	1.73	1.50
	Std Deviation	0.61	0.27	0.16
	Minimum	4.36	1.22	1.28
	Maximum	6.08	1.97	1.70

5.1.6 KN2005/040

The site

This was a fairly dense but deflated shell and artefact scatter 540 m from the coast and 3.3 km from the Swartlintjies River (30°14’05.8” S 17°14’59.4” E). It lies in a flat area free of dunes, but this may be partly due to its proximity to a mine road. A single layer was excavated from 13 m^2 (Orton & Halkett 2006). The following date was obtained:

Lab. No.	Provenience	Material	^{14}C date BP	Calibrated age (95.4%)
OxA-22971	K12 Surface	Bone (*Chersina angulata*)	2695 ± 26 BP	895–772 BC

Cultural material

This site contained a good stone artefact assemblage of quartz and CCS with retouched formal tools characteristic of Group 1; most tools are scrapers (Table 5.9). Significantly, backed scrapers are absent, but one miscellaneous backed scraper looks very much like an incomplete backed scraper that broke during manufacture (Figure 5.8). Although both the backed piece fragments were in clear quartz, the vast majority of quartz in the assemblage was less clear. A variety of colours of CCS is evident and several pieces display evidence of heat-treatment, either crazing or pot-lidding (Figure 5.9). This practice is rare in Namaqualand and in the LSA in general. Five small to medium ostrich eggshell beads were found (Table 5.10).

Table 5.9: Stone artefacts from KN2005/040 (Group 1).

	Quartz	CCS	Silcrete	Other
Bipolar core	3	1	-	-
Single platform core	1	1	-	-
Irregular core	3	1	-	-
Sidescraper	-	2	-	-
Miscellaneous backed scraper	-	2	-	-
Miscellaneous scraper	-	1	-	-
Scraper fragment	1	3	-	-
Segment	1	-	-	-
Backed piece fragment	2	-	-	-
Miscellaneous retouched piece	1	1	-	-
Bladelet	2	-	-	-
Flake	150	24	1	-
Edge-damaged flake	2	2	-	-
Chunk	116	8	-	-
Edge-damaged chunk	1	1	-	-
Chip	172	7	-	-
Total	**455**	**54**	**1**	**0**
Stone material % total	**89.4**	**10.4**	**0.2**	**-**
Stone material % formal	**35.7**	**64.3**	**-**	**-**
Upper grindstone	-	-	-	1

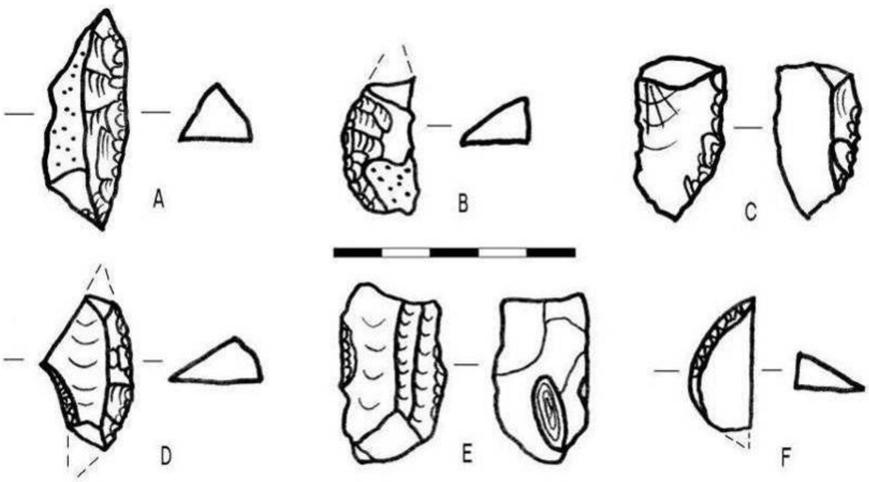


Figure 5.8: Stone artefacts from KN2005/040. A, B: sidescrapers; C: miscellaneous scraper; D, E: miscellaneous backed scrapers; F: segment. All in CCS. E has heat-induced crazing and a pot-lid fracture on its ventral surface. Scale in 5 mm intervals.

Figure 5.9: CCS artefacts from KN2005/040 showing the variety in colour from beige through yellow, mustard, brown and red. The lower right artefact has surface crazing due to heat-treatment. Scale in 5 mm intervals.

Table 5.10: Summary statistics for finished ostrich eggshell beads from KN2005/040.

		Outside diameter (mm)	Aperture diameter (mm)	Thickness (mm)
n=5	Mean	4.81	1.66	1.64
	Std Deviation	0.56	0.20	0.11
	Minimum	3.95	1.32	1.48
	Maximum	5.49	1.85	1.77

5.1.7 KN2005/041

The site

KN2005/041 was an *in situ*, single layer shell midden in a fairly open area with large dunes to its southeast. It was 570 m from the sea and 3.3 km from the Swartlintjies River (30°14'06.4" S 17°15'00.0" E). The midden had 10.5 m^2 excavated (Orton & Halkett 2006). A cattle horn core from this site is the oldest directly dated cow bone from South Africa (Orton *et al.* in press). In general, the bones were highly fragmented and impacted by carnivore chewing (G. Dewar, pers. comm. 2009). The following dates were obtained:

Lab. No.	Provenience	Material	^{14}C date BP	Calibrated age (95.4%)
OxA-22933	E6 Midden	Bone (*Bos taurus*)	1625 ± 25 BP	AD 421–559
OxA-22979	H6 Midden	Charcoal (sp. Unknown)	1631 ± 23 BP	AD 418–552

Notes:

- OxA-22933 is on a Bos *taurus* horn core (domestic cow).

Cultural material

A moderately sized assemblage of flaked artefacts was obtained, but with little retouch (Table 5.11). Besides the clear quartz backed point, the only other retouched piece was a silcrete large miscellaneous scraper with a retouched edge 75 mm wide; it could even be a single platform core (Figure 5.10). Such large scrapers are rare. The quartz is both clear and greyish milky quartz (possibly quartzite) with the latter including many flakes larger than the customary 15–25 mm. While the larger milky quartz flakes suggest a Group 2 component, the presence of clear quartz including a backed point shows a Group 3 contribution. Three small ostrich eggshell beads are present (Table 5.12) and limited manufacturing debris occurs in the form of four fragments in stage IIIb and one in stage IVb. There are also two *S. argenvillei* rims that must have been collected (Figure 11). One is water-worn and would have come from the beach, while the other is sand-blasted and might have come from a deflated midden. No pottery was found.

Table 5.11: Stone artefacts from KN2005/041 (Group 2/3).

	Quartz	CCS	Silcrete	Sandstone	Other
Bipolar core	9	1	-	-	-
Single platform core	1	-	-	-	-
Irregular core	1	-	1	-	-
Large miscellaneous scraper	-	-	1	-	-
Backed point	1	-	-	-	-
Bladelet	5	-	-	-	-
Flake	121	10	5	-	1
Edge-damaged flake	-	1	-	-	-
Chunk	77	1	2	1	-
Chip	108	6	1	-	-
Total	**323**	**19**	**10**	**1**	**1**
Stone material % total	**91.2**	**5.4**	**2.8**	**0.3**	**0.3**

Stone material % formal	**50.0**	**-**	**50.0**	**-**	**-**
Hammer stone	-	-	-	1	-
Upper grindstone	-	-	-	-	1
Grindstone fragment	-	-	-	-	7

Table 5.12: Summary statistics for finished ostrich eggshell beads from KN2005/041.

		Outside diameter (mm)	Aperture diameter (mm)	Thickness (mm)
n=3	Mean	4.74	1.28	1.69
	Std Deviation	0.15	0.22	0.08
	Minimum	4.58	1.08	1.62
	Maximum	4.87	1.51	1.77

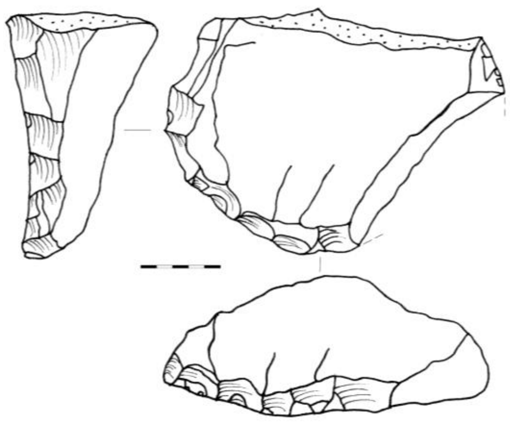


Figure 5.10: The silcrete large miscellaneous scraper from KN2005/041. Scale in 5 mm intervals.

Figure 5.11: The two *S. argenvillei* rims from KN2005/041. The left one is water-worn and the right sand-blasted. Scale in 10 mm intervals.

5.1.8 KN2005/050

The site

This is a small, largely deflated site that includes about 6 m^2 of *in situ* shell midden within a tiny dune that remained intact (Figure 5.12). It is 530 m from the coast and 3.3 km north of the Swartlintjies River (30°14’05.0” S 17°14’58.6” E). Although KN2005/051 lies immediately to the north, KN2005/050 is clearly a discrete occurrence. It had 21 m^2 excavated (Orton & Halkett 2006). The following date was obtained:

Lab. No.	Provenience	Material	^{14}C date BP	Calibrated age (95.4%)
OxA-22972	L26	Bone (*Chersina angulata*)	2993 ± 27 BP	1263–1065 BC

Cultural material

The assemblage includes many stone artefacts and just three ostrich eggshell beads. All quartz is clear. The CCS retouched tools are generally typical of older Group 1 assemblages and include two segments and two backed points (Table 5.13; Figure 5.13). The miscellaneous backed scraper is essentially a thumbnail scraper with backing applied opposite the scraper retouch. The three beads are small (Table 5.14).

Figure 5.12: View towards the east showing the *in situ* midden between the figures and the deflated area in front of the toolbox.

Table 5.13: Stone artefacts from KN2005/050 (Group 1).

	Quartz	CCS	Quartzite	Other
Bipolar core	2	-	-	-
Single platform core	-	1	-	-
Single platform bladelet core	-	1	-	-
Irregular core	3	2	-	-
Backed scraper	-	1	-	-
Sidescraper	-	1	-	-
Miscellaneous backed scraper	-	1	-	-
Scraper fragment	-	2	-	-

	Quartz	CCS	Quartzite	Other
Backed flake	-	1	-	-
Backed bladelet	-	1	-	-
Backed point	-	2	-	-
Segment	-	2	-	-
Backed piece fragment	-	1	-	-
Notched piece	1	-	-	-
Bladelet	9	14	-	-
Edge-damaged bladelet	1	-	-	-
Flake	102	83	16	-
Edge-damaged flake	1	3	-	-
Chunk	42	11	10	-
Chip	107	48	1	-
Edge-damaged chip	-	1	-	-
Total	**268**	**176**	**27**	**0**
Stone material % total	**57.0**	**37.2**	**5.7**	**-**
Stone material % formal	**8.3**	**91.7**	**-**	**-**
Grindstone fragments	-	-	-	1

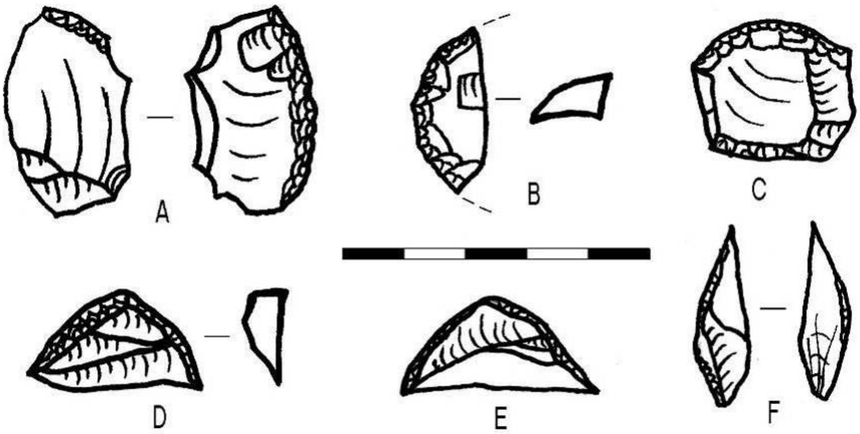


Figure 5.13: Stone artefacts from KN2005/050. A: backed scraper; B: scraper fragment; C: miscellaneous backed scraper; D, E: segments; F: backed point. All in CCS. Scale bar in 5 mm intervals.

Table 5.14: Summary statistics for finished ostrich eggshell beads from KN2005/050.

		Outside diameter (mm)	Aperture diameter (mm)	Thickness (mm)
n=3	Mean	4.66	1.75	1.61
	Std Deviation	0.07	0.32	0.12
	Minimum	4.59	1.38	1.47
	Maximum	4.72	1.96	1.70

5.1.9 KN2005/054

The site

This small, dense shell midden (Figure 5.14) was located among low, partially vegetated dunes 500 m from the shore and 3.1 km north of the Swartlintjies River (S 30°14'12.9" E 17°14'59.1"). Only 3 m^2 were excavated (Orton & Halkett 2006). The following date was obtained:

Lab. No.	Provenience	Material	^{14}C date BP	Calibrated age (95.4%)
OxA-22932	D13 MS1	Bone (*Chersina angulata*)	1598 ± 25 BP	AD 429–584

Figure 5.14: Surface appearance of the KN2005/054 shell midden.

Cultural material

The site had a very high quartz frequency and yielded many clear quartz artefacts including backed tools (Table 5.15). It thus belongs to Group 3. Other cultural material included four medium-sized ostrich eggshell beads (Table 5.16) and two refitting sherds of comb-incised pottery weighing 17.1 g (Figure 5.15). These sherds are from the neck of a pot with one preserving part of the rim. Although damaged, it seems that the rim was vertically oriented and was simple rounded in form. The mean thickness of the two sherds was 7.08 ± 0.45 mm.

Table 5.15: Stone artefacts from KN2005/054 (Group 3).

	Quartz	CCS	Quartzite
Bipolar core	8	-	-
Single platform core	1	-	1
Irregular core	2	-	-
Backed flake	1	-	-
Backed bladelet	2	-	-
Bladelet	2	-	-
Flake	57	-	4
Chunk	9	-	4
Chip	60	4	1
Total	**142**	**4**	**10**
Stone material % total	**91.0**	**2.6**	**6.4**
Stone material % formal	**100.0**	**-**	**-**

Table 5.16: Summary statistics for finished ostrich eggshell beads from KN2005/054.

		Outside diameter (mm)	Aperture diameter (mm)	Thickness (mm)
n=4	Mean	5.34	1.88	1.80
	Std Deviation	0.27	0.24	1.11
	Minimum	5.03	1.71	1.67
	Maximum	5.68	2.23	1.92

Figure 5.15: The comb-incised pot sherds from KN2005/054. Scale in 5 mm intervals.

5.1.10 KN2005/067

The site

This is more of a site complex: it comprises several *in situ* shell middens with numerous ashy features, hollows and deliberately buried tortoises (Orton 2012) all occurring in a large, flat area enclosed by low dunes. It lies 700 m from the coast and 2.9 km north of the Swartlintjies River (30°14'22.6" S 17°15'03.3" E). Variable areas totalling 98 m^2 were excavated from several patches of deposit but with most (81 m^2) coming from the central patches (Orton & Halkett 2006). Figure 5.16 shows the spatial layout of the main excavation area and Figure 5.17 an example of the *in situ* midden deposits – this midden is typical of the vast majority of *in situ* middens in Namaqualand. Patch 3 lies 6 m north of 1C while Patch 2 is a further 7 m northwest. Patch 5 is 4 m south of 1B and Patch 4 is 8 m southeast of 1A. Note that Patch 2 was originally recorded as KN2005/082 and Patch 5 as KN2005/083. The following dates were obtained:

Lab. No.	Provenience	Material	^{14}C date BP	Calibrated age (95.4%)
OxA-24521	Patch 1A O5 Midden	Bone (*Chersina angulata*)	354 ± 23	AD 1497–1640
OxA-24520	Patch 1A O5 Tortoise Burial	Bone (*Chersina angulata*)	339 ± 24	AD 1501–1646
OxA-24519	Patch 1A L1 Tortoise Burial 3	Bone (*Chersina angulata*)	891 ± 23	AD 1155–1261
OxA-24518	Patch 1B H-5 Midden	Bone (*Chersina angulata*)	321 ± 23	AD 1505–1652
OxA-24522	Patch 1C R-10 Midden	Bone (*Chersina angulata*)	355 ± 24	AD 1496–1640
OxA-24517	Patch 3 X-11 Midden	Bone (*Chersina angulata*)	262 ± 23	AD 1637–1799

The radiocarbon dates suggest that two occupations, *c.* AD 1200 and *c.* AD 1600, might have occurred. However, with the older date coming from an area not overlain by shell midden, it is likely that the vast majority of finds belong with the suite of younger dates.

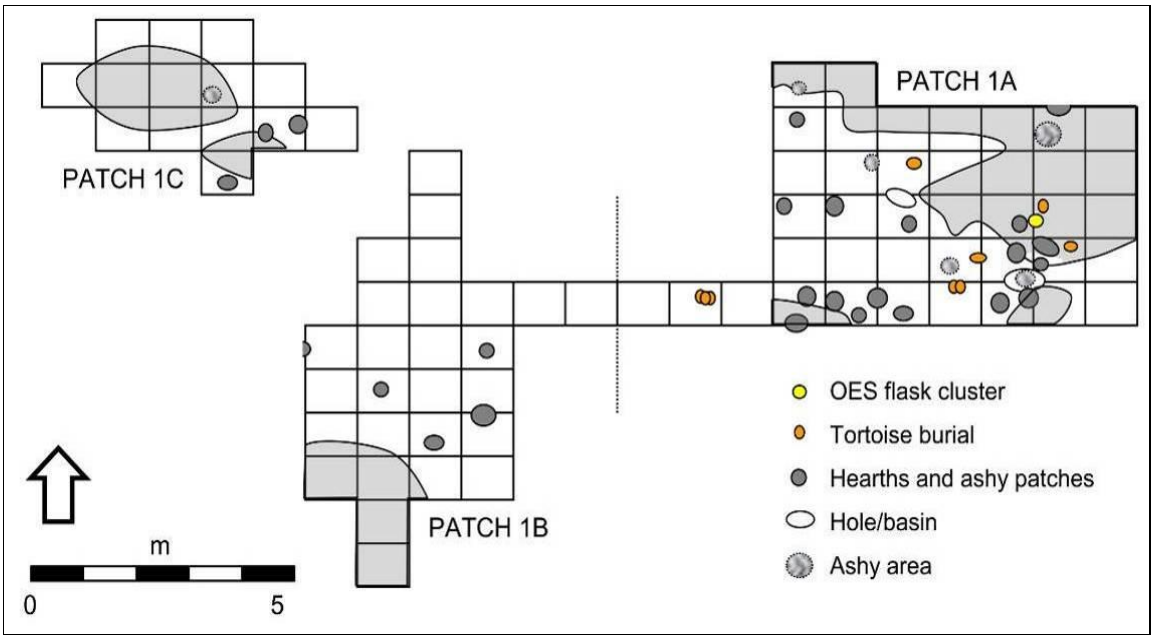


Figure 5.16: Layout of the main excavation area at KN2005/067. The separation of Patches 1A and 1B is arbitrary.

Figure 5.17: Section through the *in situ* midden deposits of Patch 1A. Scale in 10 mm intervals.

<u>Cultural material</u>

Artefacts abraded by wind-blown sand were present throughout the site, both spatially and at all depths within the *in situ* midden. Due to their varying degrees of abrasion, they were at times difficult to separate from non-abraded artefacts, but most likely relate to earlier occupation of the area. Abraded retouched artefacts include a backed point

(CCS), a backed scraper (silcrete) and a denticulate (CCS), all consistent with a pre-pottery age. The abraded artefacts are not considered further.

The non-abraded flaked stone artefacts in most patches are predominantly of quartz and display characteristics of the informal Group 2 assemblages (Tables 5.17–5.22). However, in Patch 1B a typical Group 3 assemblage was found and there was some evidence for the re-use of older artefacts. The sandstone upper grindstone in Patch 1A retained a greasy stain on its grinding surface. Patch 1B contained a beautiful cream-coloured siliceous pebble that must have been collected as a curio and was the only patch to contain a few fragments of specularite (four) and ochre (one).

Table 5.17: Stone artefacts from KN2005/067, Patch 1A (Group 2).

	Quartz	CCS	Quartzite	Sandstone	Other
Irregular core	2	-	-	-	-
Edge-damaged bladelet	-	1	-	-	-
Flake	53	8	1	-	5
Chunk	4	1	-	-	-
Chip	24	4	1	-	-
Total	**83**	**14**	**2**	**0**	**5**
Stone material % total	**79.8**	**13.5**	**1.9**	**-**	**4.8**
Stone material % formal	**-**	**-**	**-**	**-**	**-**
Hammer stone fragment	-	-	-	-	1
Upper grindstone	-	-	-	1	-
Grindstone fragment	-	-	1	-	-

Table 5.18: Stone artefacts from KN2005/067, Patch 1B (Group 3).

	Quartz	CCS	Quartzite	Sandstone	Other
Bipolar core	2	-	-	-	-
Irregular core	2	-	-	-	-
Backed flake	1	-	-	-	-
Backed bladelet	-	1	-	-	-
Curve-backed bladelet	2	-	-	-	-
Backed bladelet fragment	4	-	-	-	-
Backed piece fragment	1	-	-	-	-
Bladelet	4	1	-	-	-

	Quartz	CCS	Quartzite	Sandstone	Other
Flake	97	6	3	-	1
Edge-damaged flake	-	1	-	-	-
Chunk	24	-	-	-	-
Chip	78	3	-	-	-
Total	**215**	**12**	**3**	**0**	**1**
Stone material % total	**93.1**	**5.2**	**1.3**	**-**	**0.4**
Stone material % formal	**88.89**	**11.11**	**-**	**-**	**-**
Upper grindstone/hammer stone	-	-	-	1	-
Lower grindstone fragment	-	-	-	-	1

Table 5.19: Stone artefacts from KN2005/067, Patch 1C (Group 2).

	Quartz	CCS
Irregular core	1	-
Flake	1	2
Chunk	-	-
Chip	4	1
Total	**6**	**3**
Stone material % total	**66.67**	**33.33**
Stone material % formal	**-**	**-**

Table 5.20: Stone artefacts from KN2005/067, Patch 2 (Group 2).

	Quartz	CCS
Flake	-	2
Chunk	-	-
Chip	1	1
Total	**1**	**3**
Stone material % total	**25.0**	**75.0**
Stone material % formal	**-**	**-**

Table 5.21: Stone artefacts from KN2005/067, Patch 3 (Group 2).

	Quartz
Flake	2
Chunk	1
Chip	4
Total	**7**
Stone material % total	**100.0**
Stone material % formal	**-**

Table 5.22: Stone artefacts from KN2005/067, Patch 5 (Group 2).

	Quartz	CCS
Flake	4	1
Edge-damaged flake	-	
Chunk	1	-
Chip	4	-
Total	**9**	**1**
Stone material % total	**90.0**	**10.0**
Stone material % formal	**-**	**-**

As with the stone, there were also variably abraded ostrich eggshell fragments throughout. Some of the ostrich eggshell beads, particularly those from Patch 1A (all from one square), were also lightly abraded showing that some degree of wind-blasting also occurred in more recent times. The Patch 1A beads were all very large and similar in size, likely belonging to a single jewellery item (Table 5.23). Those from Patch 1B were more variable, but with the majority being medium; two beads were between 6 and 8 mm and two were between 10 and 11 mm. Patches 1A, 1B and 5 contained bead manufacturing debris. Most followed Pathway 1 (Table 5.24) but in Patch 1A there was one bead from each of Stages IIIa, IIIb and IVb, while in Patch 1B there was one IVa and one IVb. Interestingly, many of the Stage IIa beads had only a very shallow 'pilot dimple', almost as if these pieces had been prepared for easier drilling later on. Flask mouth fragments were found in Patches 1A (14) and 1B (8) and, where determinable, showed mouth diameters of about 8–15 mm. Two refitting fragments of bead debris in Patch 1B were also engraved (Figure 5.18); no other engraved ostrich eggshell was present.

Table 5.23: Summary statistics for finished ostrich eggshell beads from KN2001/067.

Patch		Outside diameter (mm)	Aperture diameter (mm)	Thickness (mm)
	Mean	8.00	2.88	1.94
1A	Std Deviation	0.13	0.36	0.09
(n=5)	Minimum	7.80	2.53	1.84
	Maximum	8.13	3.31	2.08
1B	Mean	6.29	2.80	1.43
(n=15)	Std Deviation	1.80	0.17	0.28

Minimum	5.24	2.52	1.07
Maximum	10.77	3.21	1.94
3 (n=1)	4.81	2.74	1.27
5 (n=1)	8.88	3.09	1.69

Table 5.24: Pathway 1 ostrich eggshell bead manufacturing debris from KN2005/067, Patch 1A.

Stage	IIa	IIb	IIIa	IIIb	IVa	IVb	Va	Vb	VIa	VIb	VIIa	VIIb
Patch 1A	43	48	21	222		52	8	34		6	5	2
Patch 1B	6	17		41		10	3	61		3	15	
Patch 5		1	2	4	1	4		2			1	

Figure 5.18: Two refitted flask mouths from Patch 1A (left) and opposite sides of the engraved and refitting bead debris from Patch 1B. Scale in 5 mm intervals.

Pottery was abundant on Patches 1A and 1B, but also occurred on Patches 1C and 3. Patch 1A had 37 sherds weighing 273.9 g and with a mean wall thickness of 6.72 ± 0.96 mm; many had thickly caked residue on their inner surfaces. There were no rims or decorated sherds. On patch 1B there were 35 sherds weighing 154.0 g and including six vertical, flat-lipped rims. Their mean thickness was 5.58 ± 1.04 mm. Where mouth diameters could be estimated these were 100 (x1), 120 (x3) and 140 mm (x1). Five refitting sherds, none of them rims, were decorated with small vertical impressions – the upper row smaller and less regular than the lower (Figure 5.19). Both patches incorporated sherds with rounded breaks showing reuse of the pots post-breakage. Patches 1C and 3 had 2 plain potsherds each with weights of 3.1 g and 15.9 g and mean thicknesses of 4.43 ± 0.39 mm and 7.35 ± 0.09 mm respectively.

Figure 5.19: Refitting pottery from Patch 1B. The two sherds at upper right appear to have broken post-excavation. Scale in 5 mm intervals.

Rims of water-worn *S. argenvillei* shells were also present, three each on Patches 1B and 1C. Some were not complete with two of these being fully rounded fragments (Figure 5.20). The other three were the usual rings, but two were higher than normal. A water-worn *Bullia* sp. shell came from Patch 1A and a *Conus* sp. shell from Patch 1C. Two bone artefacts were found. One was a broken 'melon knife' from Patch 1A (c.f. Budack 1977; J.H.A. Kinahan 2000: fig. 3.2) and the other a shaft bone from Patch 1C with one end worked obliquely (Figure 5.21).

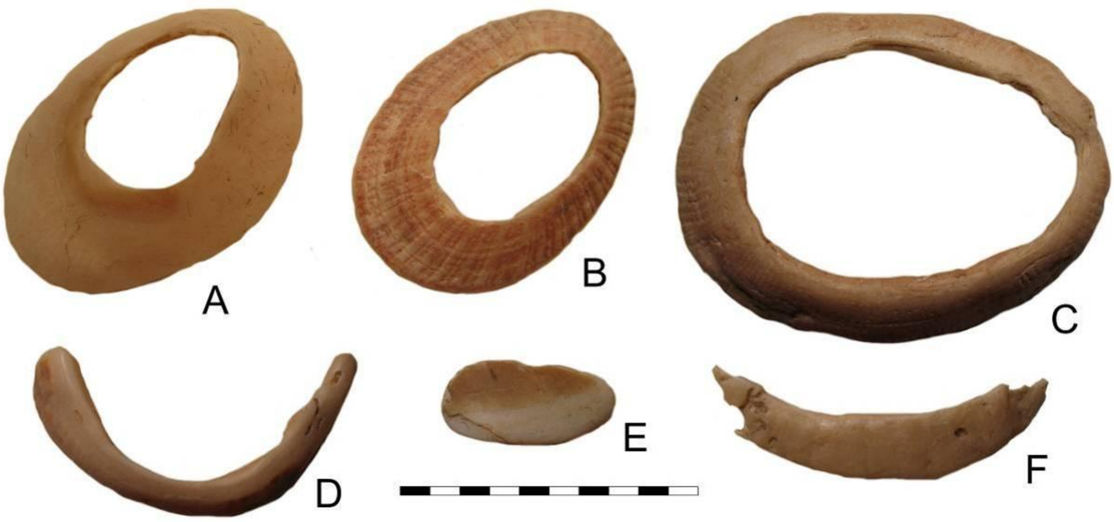


Figure 5.20: Water-worn *S. argenvillei* shells from KN2005/067 (A–C: Patch 1C; D–F: Patch 1B). Only F has non-abraded breaks. Scale in 5 mm intervals.

Figure 5.21: Bone artefacts from KN2005/067. Top: melon knife from Patch 1A, bottom: worked bone from Patch 1C. Scale bars in 5 mm intervals.

Also included as 'material culture' are the six tortoise burials from Patch 1A, one of which contained two individuals and another three (Figure 5.16). These are identified through various features as follows:

- their carapace and plastron are invariably intact but separated from one another;
- parts of the animals are sometimes slightly burnt;
- some burials contain more than one individual;
- they are routinely found within sterile sand beneath intact shell middens indicating burial early on during occupation; and
- although a hole is seldom visible in the ground, occasional shells found alongside the tortoises occur on end and serve to help define the holes.

These and other tortoise burials from the region are further discussed and illustrated in Orton (2012).

5.1.11 KN2005/135A

The site

This site was a small *in situ* shell midden extending to about 30 cm maximum depth. It lay in an area of small but tall hummock dunes and extended beneath one. It was 370 m from the sea and 3.3 km north of the Swartlintjies River (30°14’05.5” S 17°14’52.8” E). An area of 8 m^2 was excavated (Orton & Halkett 2006). The following date was obtained:

Lab. No.	Provenience	Material	^{14}C date BP	Calibrated age (95.4%)
OxA-22973	K23 Top	Bone (*Chersina angulata*)	2523 ± 27 BP	761–414 BC

Cultural material

A small, distinctive Group 1 flaked assemblage was recovered (Table 5.25). There were two somewhat unconventional backed bladelets, both with a concave ventral surface; one was made on a very thick bladelet. Two rounded artefacts, a quartz flake and chunk, are not included in Table 5.25. The lower grindstone is large and has a light groove. A second similar one was noted on the surface of an unexcavated square and both were upside down (Figure 5.22). Four small to medium ostrich eggshell beads were found (Table 5.26).

Table 5.25: Stone artefacts from KN2005/135A (Group 1).

	Quartz	CCS	Silcrete	Other
Sidescraper	-	1	-	-
Scraper fragment	-	1	-	-
Backed bladelet	-	2	-	-
Blade	1	-	-	-
Flake	12	9	-	-
Chunk	7	3	-	-
Chip	13	4	1	-
Total	**33**	**20**	**1**	**0**
Stone material % total	**61.1**	**37.0**	**1.9**	**-**
Stone material % formal	**-**	**100.0**	**-**	**-**

	Quartz	CCS	Silcrete	Other
Hammer stone	-	-	-	2
Hammer stone / Upper grindstone	-	-	-	1
Upper grindstone	-	-	-	1
Lower grindstone	-	-	-	1
Grindstone fragment	-	-	-	1

Figure 5.22: The two lower grindstones from KN2005/135A. Scale in 10 and 50 mm intervals.

Table 5.26: Summary statistics for finished ostrich eggshell beads from KN2005/135A.

		Outside diameter (mm)	Aperture diameter (mm)	Thickness (mm)
n=4	Mean	4.88	1.75	1.64
	Std Deviation	0.39	0.30	0.15
	Minimum	4.61	1.32	1.46
	Maximum	5.45	2.00	1.81

5.1.12 KN2005/135B

The site

This small deflated scatter lay in a bay between tall hummock dunes, 370 m from the coast and 3.3 km north of the Swartlintjies River (30°05.5” S 1714’52.8” E). The site was within 10 m of KN2005/135A but the two were quite discrete. At KN2005/135B, 16 m^2 were excavated (Orton & Halkett 2006). The following date was obtained:

Lab. No.	Provenience	Material	^{14}C date BP	Calibrated age (95.4%)
OxA-22931	D30 Surface	Bone (*Chersina angulata*)	368 ± 23 BP	AD 1482–1634

Cultural material

A collection of 234 stone artefacts was excavated along with 18 ostrich eggshell beads. The stone includes a CCS thumbnail scraper (Table 5.27). Given the scraper, one is tempted to argue for overlap with KN2005/135A. However, that site contains a sidescraper and two backed tools, items typical for its age and absent from 135B. The CCS frequency at KN2005/135B is expected for a site where this material was used and, given the lack of backed elements and side- or backed scrapers, it seems uncontaminated and likely part of Group 1. An extremely well-worn upper grindstone may have been a treasured possession (Figure 5.23). The beads are almost all very large – 16 are tightly clustered in the 8–10 mm range (Table 5.28; Figures 5.24 & 5.25). The two small ones may have originated from KN2005/135A. There are also two fragments of ostrich eggshell flask mouth. No pottery was found.

Table 5.27: Stone artefacts from KN2005/135B (Group 1).

	Quartz	CCS	Quartzite	Sandstone	Other
Bipolar core	2	-	-	-	-
Single platform core	1	-	-	-	-
Irregular core	3	-	1	-	-
Thumbnail scraper	-	1	-	-	-
Miscellaneous retouched piece	-	1	-	-	-
Blade	1	-	-	-	-
Bladelet	1	3	-	-	-
Flake	62	17	4	-	-
Edge-damaged flake	-	1	-	-	-
Chunk	35	11	8	-	-
Chip	65	16	1	-	-
Total	**170**	**50**	**14**	**0**	**0**
Stone material % total	**72.6**	**21.4**	**6.0**	**-**	**-**
Stone material % formal	**-**	**100.0**	**-**	**-**	**-**
Hammer stone / Upper grindstone	-	-	1	-	-
Upper grindstone	-	-	1	-	-
Lower grindstone	-	-	-	1	-
Grindstone fragment	-	-	-	-	1

Figure 5.23: A heavily ground upper grindstone/hammer stone from KN2005/135B. Scale in 10 mm intervals.

Table 5.28: Summary statistics for finished ostrich eggshell beads from KN2005/135B.

		Outside diameter (mm)	Aperture diameter (mm)	Thickness (mm)
n=18	Mean	8.50	2.53	1.73
	Std Deviation	1.50	0.58	0.19
	Minimum	4.47	1.62	1.27
	Maximum	9.64	3.00	1.97

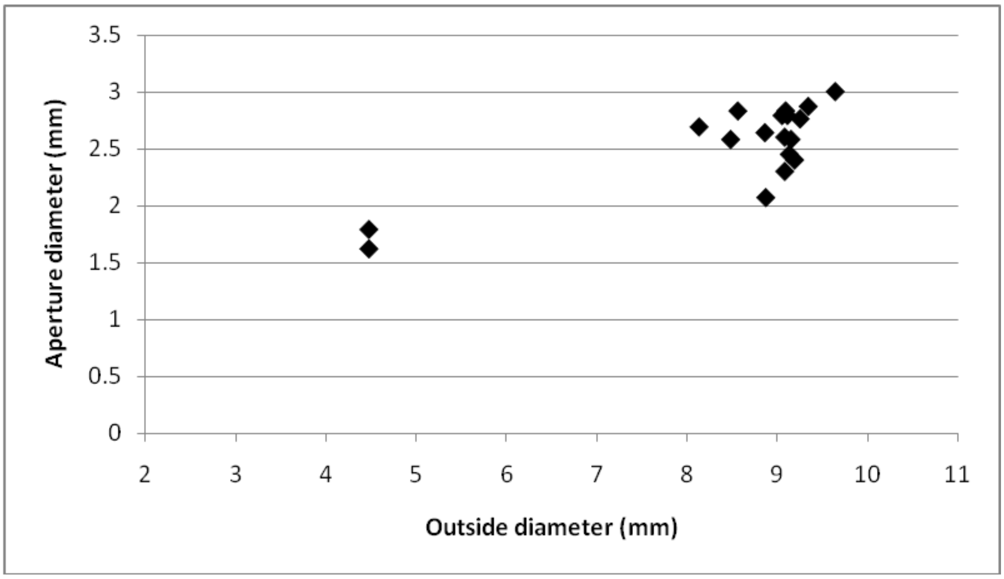


Figure 5.24: Scatter plot of ostrich eggshell bead dimensions from KN2005/135B.

Figure 5.25: Ostrich eggshell beads from KN2005/135B. Scale in 1 and 5 mm intervals.

5.1.13 KV2001/012

The site

This site was truncated, exposed and deflated at the edge of a mine trench. As such, the material was found on a sloping surface but with three patches clearly discernible. It was once deposited within a small red sand dune field overlooking the Kareedoringvlei Pan 600 m to the southwest and 6.3 km from the coast (29° 30' 04.7" S 17° 03' 19.2" E). From Areas A, B and C respectively 44 m^2, 55 m^2 and 17 m^2 were excavated (Figure 5.26; Halkett 2003). A remnant shell lens was visible in the section above the scatter indicating the original position of the material but too little remained to merit excavation of these *in situ* deposits. The distribution of finds suggests that deflation had concentrated material on the lower part of the slope. Marked variation in shellfish frequencies supports the presence of three separate occupations. The following dates were obtained:

Lab. No.	Provenience	Material	^{14}C date BP	Calibrated age (95.4%)
UGAMS-8870	Area A, F14	Marine shell	3760 ± 25	1857–1360 BC
OxA-22984	Area B, G24	OES (*Struthio camelus*)	1219 ± 23 BP	AD 717–1282
UGAMS-9707	Area B, N26 & M27	Marine shell	1380 ± 20 BP	AD 960–1331

Notes:

- OxA-22984: Stage VIIb OES bead with external diameter 9.11, aperture 3.71 and thickness 2.03 mm.

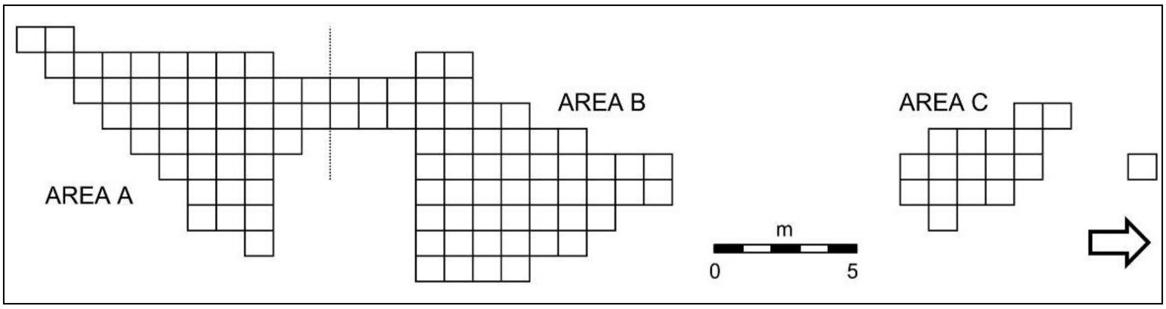


Figure 5.26: Schematic diagram of the excavation at KV2001/012. The division between Areas A and B is arbitrary. The mine trench lay to the east.

Cultural material

Moderate-sized flaked artefact assemblages were present in Areas A and B, while C had only a small collection (Tables 5.29-5.31). Although some partially transparent quartz occurs on both Areas A and B, it is undoubtedly all of vein origin. Area C has exclusively milky quartz. In Area A (Group 1) one of the three notched pieces and the MRP seem rather adze-like but they are small (Figure 5.27). The MRP might even have a single, very wide and ill-defined notch. In Area B (probable Group 1) the miscellaneous backed piece looks like an unfinished backed bladelet and has backing running diagonally across the tool. In Area C (Group 1) the thumbnail scraper could be a sidescraper, but its overall morphology slightly favours the former.

Table 5.29: Stone artefacts from KV2001/012, Area A (Group 1).

	Quartz	CCS	Silcrete	Quartzite	Other
Bipolar core	-	2	-	-	-
Single platform core	-	1	-	-	-
Irregular core	2	1	-	-	-
Notched piece	-	3	-	-	-
Miscellaneous retouched piece	-	1	-	-	-
Blade	1	3	-	-	-
Bladelet	3	3	-	-	-
Flake	110	80	25	13	1
Edge-damaged flake	-	1	-	-	-
Chunk	66	11	3	12	-
Edge-damaged chunk	-	1	-	-	-
Chip	30	4	-	1	-
Total	**212**	**111**	**28**	**26**	**1**
Stone material % total	**56.1**	**29.4**	**7.4**	**6.9**	**0.3**
Stone material % formal	**-**	**100.0**	**-**	**-**	**-**
Lower grindstone / anvil fragment	-	-	-	-	1

Table 5.30: Stone artefacts from KV2001/012, Area B (Group 1).

	Quartz	CCS	Silcrete	Quartzite	Sandstone	Other
Bipolar core	1	1	-	-	-	-
Single platform core	-	-	1	-	-	-
Side-endscraper	-	1	-	-	-	-

	Quartz	CCS	Silcrete	Quartzite	Sandstone	Other
Miscellaneous backed piece	1	-	-	-	-	-
Miscellaneous retouched piece	-	-	1	-	-	-
Blade	-	1	2	-	-	-
Bladelet	-	-	1	-	-	-
Flake	86	8	94	6	1	-
Edge-damaged flake	1	-	2	-	-	-
Chunk	69	3	27	2	-	-
Chip	33	-	4	-	-	-
Total	**191**	**14**	**132**	**8**	**1**	**0**
Stone material % total	**55.2**	**4.0**	**38.2**	**2.3**	**0.3**	**-**
Stone material % formal	**33.3**	**33.3**	**33.3**	**-**	**-**	**-**

Table 5.31: Stone artefacts from KV2001/012, Area C (Group 1).

	Quartz	CCS	Silcrete	Quartzite	Sandstone	Other
Sidescraper	-	-	1	-	-	-
Thumbnail scraper	-	-	1	-	-	-
Blade	1	-	-	-	-	-
Edge-damaged blade	-	-	1	-	-	-
Bladelet	-	-	1	-	-	-
Flake	28	4	10	1	-	-
Chunk	31	2	8	1	-	-
Chip	5	-	-	-	-	-
Total	**65**	**6**	**22**	**2**	**0**	**0**
Stone material % total	**68.4**	**8.4**	**21.1**	**2.1**	**-**	**-**
Stone material % formal	**-**	**-**	**100.0**	**-**	**-**	**-**
Upper grindstone fragment	-	-	-	-	1	-

Silcrete is generally rare in Holocene sites along this coastline and the prominence of silcrete across all three scatters may suggest proximity to a source of good material. In all three areas the silcrete appears to be the same beige-colour as present on the ridge inland of the site, but the artefacts are slightly finer-grained. Both Area C scrapers are made from an extremely fine-grained silcrete and are the only two examples of this material from the site. Some reuse of older silcrete flakes is evident and, with some larger flakes also present, it may be the case that people simply collected old flakes from the vicinity of the outcrop – KV2005/002 is at this outcrop (see Section 3.7.1). The lower grindstone fragment in Area A has a fairly deep groove on both sides, each of which is accompanied by pecking marks characteristic of use as an anvil.

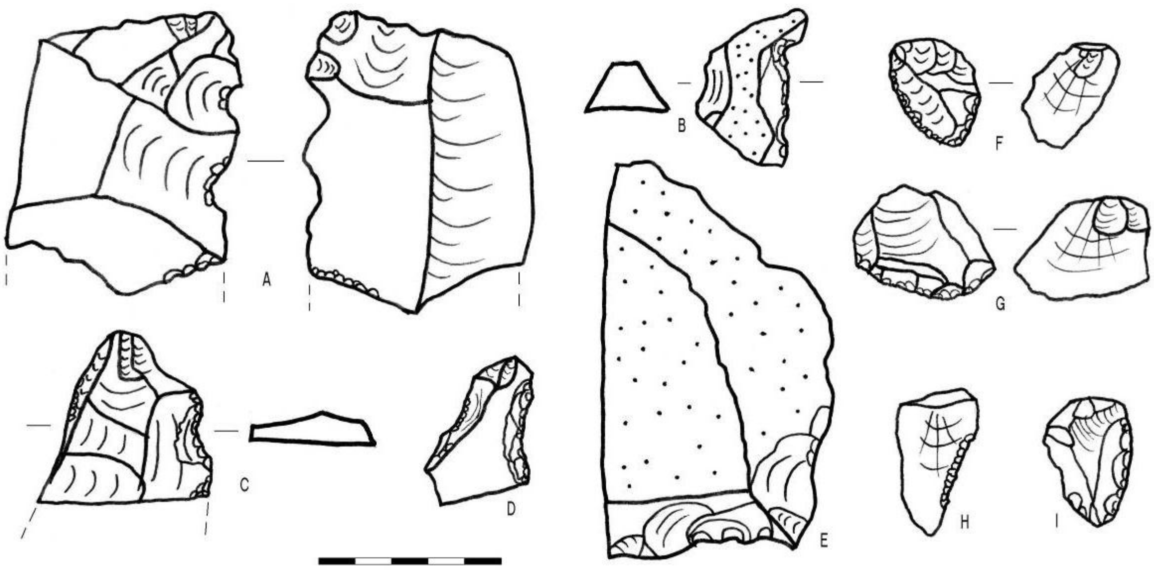


Figure 5.27: Stone artefacts from KV2001/012 Area A (A-D), Area B (E-G) and Area C (H-I). A–C: notched pieces; D, E: miscellaneous retouched pieces; F: side-endscraper; G: thumbnail scraper; H: miscellaneous backed piece; I: sidescraper. All in CCS except E: silcrete; F: quartz. Scale in 5 mm intervals.

One ostrich eggshell bead was found in Area A and 44 in Area B. The latter comprise one small, two medium, one large and 40 very large beads (Table 5.32; Figure 5.28). Furthermore, Area A has a broken bead of approximately 4.5 mm diameter and a partly made bead in stage Va, while Area B has two broken beads of about 10 mm and two of about 9 mm diameter. There were nine flask mouth fragments in Area A and two in Area B (Figure 5.29). From Area A two sets of two mouths were refitted and with the massive quantities of ostrich eggshell found in this area (1749 fragments weighing *c.* 1.2 kg = 5 whole eggs) a cache of flasks was almost certainly present.

Table 5.32: Summary statistics for finished ostrich eggshell beads from KV2001/012.

Area		Outside diameter (mm)	Aperture diameter (mm)	Thickness (mm)
A (n=1)		4.45	1.58	1.51
	Mean	9.37	3.79	1.76
B	Std Deviation	1.36	0.48	0.19
(n=44)	Minimum	3.65	1.55	1.35
	Maximum	10.38	4.35	2.13

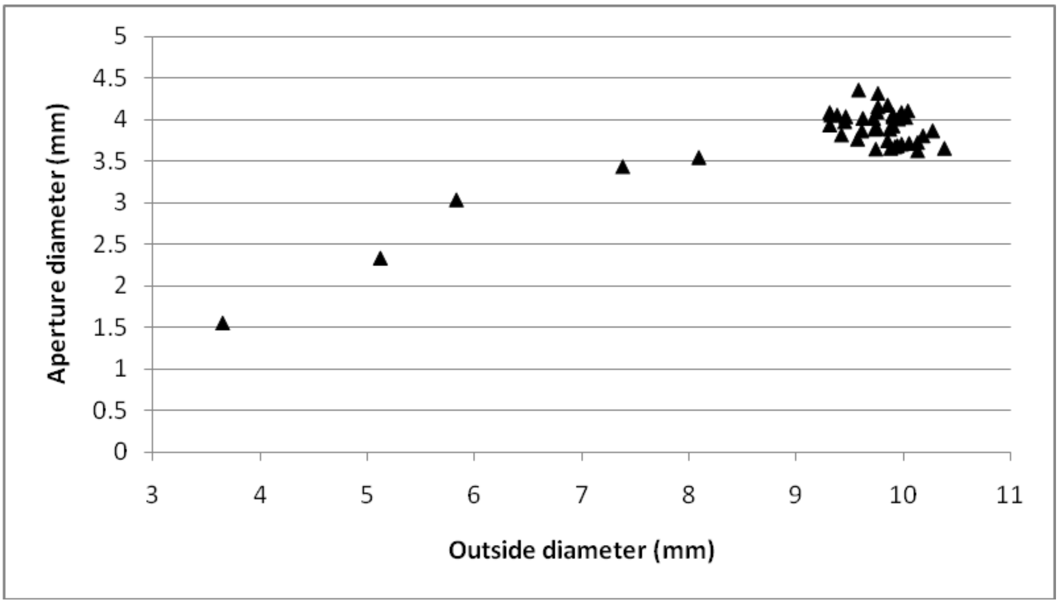


Figure 5.28: Scatter plot of ostrich eggshell bead dimensions from Area B of KV2001/012.

Figure 5.29: Ostrich eggshell flask mouth fragments from KV2001/012, Area A. Scale in 5 mm intervals.

Also on the site were five fragments of green bottle glass, one in Area A and four in Area B. These are unworked and clearly a modern intrusion

5.1.14 LK2001/015

The site

LK2001/015 lay between a large dune cordon and the coast, some 300 m from the latter (30°21'38.0" S 17°17'36.0" E) and 10.8 km from the Swartlintjies River mouth. On the surface, many patches of shell occurred in a limited area. The strong spatial relationship between them suggested they were likely all part of the same site. Between 1 m^2 and 12 m^2 were excavated from each for a total of 44 m^2 (Figure 5.30). The deposit was passed through a 1.5 mm sieve (Halkett 2003). The following dates were obtained:

Lab. No.	Provenience	Material	^{14}C date BP	Calibrated age (95.4%)
OxA-24557	Patch Chi: J29 Lower	Bone (*Raphicerus campestris*)	394 ± 24	AD 1457–1626
OxA-24558	Patch Cii: N32 Hearth/Ash	Bone (*Chersina angulata*)	420 ± 24	AD 1448–1622
OxA-24560	Patch D: ZA35	Bone (*Chersina angulata*)	401 ± 22	AD 1455–1625
OxA-24561	Patch D: ZA35	Bone (*Chersina angulata*)	442 ± 24	AD 1442–1615
OxA-24562	Patch F: ZE32	Bone (? *Raphicerus campestris*)	398 ± 25	AD 1456–1626
OxA-24559	Patch I: J6 Lower	Bone (*Raphicerus campestris*)	403 ± 24	AD 1454–1625

Notes:

- OxA-24560 & OxA-24561 were run on the same sample.

The dates suggest the scatters to be contemporary and support the idea that the site is a large camp with each patch representing domestic dumps from different huts.

Cultural material

Just 29 flaked stone artefacts were found across the entire excavation but with 59% coming from Patch D alone (Tables 5.33 to 5.35). Patches, A, B, Ci, G and H have no flaked artefacts. Patch F has just one artefact, a CCS bipolar core. Individual assemblages are tiny, but Patch D may belong to Group 1, Patch Cii to Group 2 and Patch I to Group 3, with the rest belonging in Group 4. Given the similar age of all patches, these finds likely represent occasional use of stone artefacts over a very short period of time.

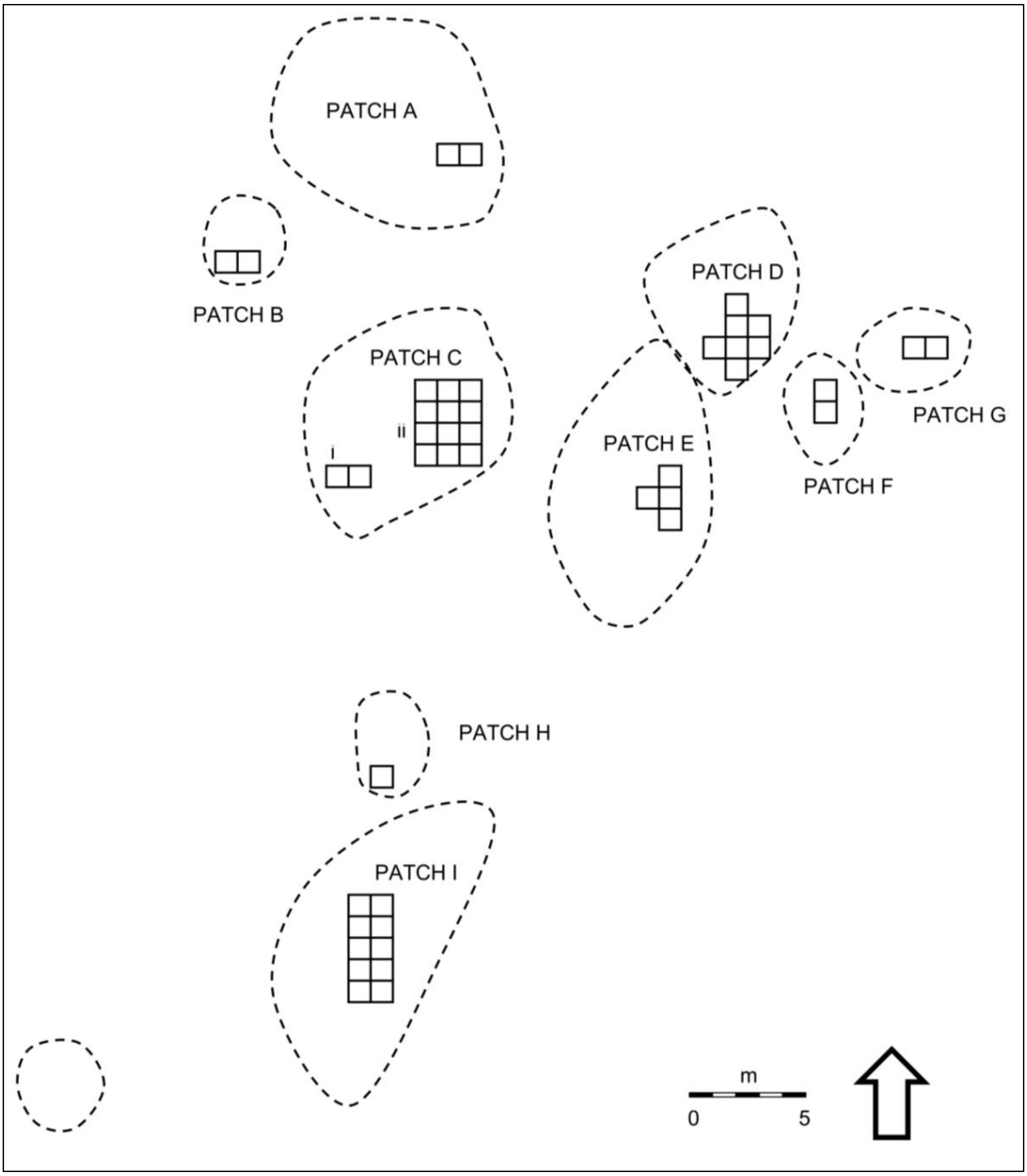


Figure 5.30: Schematic map of the excavation at LK2001/015. The dashed circles indicate approximate limits of visible surface shell scatter at each patch.

Table 5.33: Stone artefacts from LK2001/015, Patch Cii Group 2).

	Quartz	Quartzite
Bipolar core	1	-
Flake	2	1
Chunk	1	-
Total	**4**	**1**
Stone material % total	**80**	**20**

Table 5.34: Stone artefacts from LK2001/015, Patch D (Group 1).

	Quartz	CCS	Quartzite	Other
Sidescraper	-	1	-	-
Bladelet	1	-	-	-
Flake	6	-	3	-
Chunk	-	-	1	-
Chip	3	-	2	-
Total	**10**	**1**	**6**	**0**
Stone material % total	**58.8**	**5.9**	**35.3**	**-**
Stone material % formal	**-**	**100.0**	**-**	**-**
Grindstone fragment	-	-	-	2

Table 5.35: Stone artefacts from LK2001/015, Patch I (Group 3).

	Quartz	Quartzite
Backed flake	1	-
Backed bladelet fragment	1	-
Flake	1	1
Chunk	-	1
Chip	1	-
Total	**4**	**2**
Stone material % total	**66.7**	**33.3**
Stone material % formal	**100.0**	**-**

Ostrich eggshell beads were found only in Patches Ci, Cii and I. In Cii the two whole beads were of two completely different sizes (small and large) so no mean values are given (Table 5.36). In Patch I the six whole beads all came from a single square and were of similar size (Table 5.37). Several unfinished beads were found in Patches Ci and Cii only (Table 5.38). Two fragments of pottery weighing 8.1 g were found in Patch F. One has a rounded break indicating reuse of the sherd after initial breakage. Their mean wall thickness was 4.07 ± 0.25 mm. A single *Marginella* sp. shell was found on Patch I. Being water-worn, it was obviously collected from the beach.

Table 5.36: Measurements of the two finished ostrich eggshell beads from LK2001/015, Patch Cii.

Outside diameter (mm)	Aperture diameter (mm)	Thickness (mm)
3.28	1.71	1.06
7.02	2.54	1.56

Table 5.37: Summary statistics for finished ostrich eggshell beads from LK2001/015, Patch I.

		Outside diameter (mm)	Aperture diameter (mm)	Thickness (mm)
n=6*	Mean	8.33	2.10	1.79
	Std Deviation	0.13	0.19	0.13
	Minimum	8.21	1.90	1.61
	Maximum	8.58	2.38	1.91

* One bead had exfoliated such that thickness could not be measured.

Table 5.38: Unfinished ostrich eggshell beads from LK2001/015.

Stage	IIa	IIIb	IVb
Patch Ci	-	1	-
Patch Cii	1	2	1

The most interesting cultural find from this site, and unique in Namaqualand, is part of a decorated seal scapula from Patch Ci (Figure 5.31). It has one edge rounded and smoothed and the decoration is in the form of small impressions seemingly created by drilling into the bone surface. The back has also been smoothed. No other seal bone occurs in Patches Ci and Cii. The only other known instance of this type of decoration is on an ivory knife from De Hangen (Parkington & Poggenpoel 1971).

Figure 5.31: The decorated seal scapula from LK2001/015, Patch Ci. Scale in 5 mm intervals.

5.1.15 LK2004/011B

The site

LK2004/011B was found eroding out of the side of a mine trench some 90 m from the shore and midway between the Spoeg and Swartlintjies Rivers, 12.5 km from each (30°22'10.9" S 17°18'01.4" E). Much of its immediate context was lost, but the site was probably deposited within a hollow between the large aeolian dunes of the area. While only 2.75 m^2 of *in situ* midden could be excavated from the side of the trench (Figure 5.32), a large collection was taken from the slope below. The slumped material was collected via a 1.5 mm sieve, while the wetter *in situ* material was from a 3 mm sieve. Three human leg bones (MNI = 1) were collected from the slope 10 m west of the excavated squares but cannot reliably be associated with the midden (Orton & Halkett 2005). One was radiocarbon dated to 800 ± 70 BP (GX-32523; Dewar 2008). The adjacent site of Penguin Midden (LK2004/011) was reported by Dewar (2008) and lies some 10 m to the east. The following dates have been obtained for the 011B site:

Lab. No.	Provenience	Material	^{14}C date BP	Calibrated age (95.4%)
GX-32064	Q28d	Marine shell	1250 ± 60 BP	AD 1055–1447
OxA-22980	R27b	Charcoal (sp. unknown)	924 ± 22 BP	AD 1050–1218

Notes:

- Given these results and the uncertainties associated with marine calibration, the charcoal date is taken as more reliable and is used as the age for the site.

Cultural material

Most stone artefacts (91.9%) come from the slope of the trench but those obtained from the *in situ* deposits appear to be representative of the slumped portion. All are thus taken together as one assemblage. A large collection of clear quartz artefacts with many tiny backed artefacts was recovered (Group 3). Other materials were rare (Table 5.39). The assemblage is typical of similar ones from other sites (e.g. Orton *et al.* 2005), but the inclusion of two segments in such a recent site is interesting. One is whole, somewhat irregular in shape (Figure 5.33), and measures 8.88 mm long, 5.62 mm wide and 2.15 mm thick, while the other would have been about 12 mm long before breaking.

Figure 5.32: View westwards showing the position of the in situ shell midden (at the base of the spade) in the side of a mine trench.

Table 5.39: Stone artefacts from LK2004/011B (Group 3).

	Quartz	CCS	Silcrete	Quartzite	Other
Bipolar core	18	-	-	-	-
Single platform core	2	-	-	-	-
Irregular core	3	-	-	-	-
Sidescraper	1	-	-	-	-
Backed flake	17	-	-	-	-
Backed bladelet	39	-	-	-	-
Curve-backed flake	1	-	-	-	-
Backed bladelet fragment	6	-	-	-	-
Backed point fragment	1	-	-	-	-
Segment	2	-	-	-	-
Backed piece fragment	5	-	-	-	-
Miscellaneous retouched piece	6	-	-	-	-
Blade	-	-	-	1	-
Bladelet	33	-	-	-	-
Edge-damaged bladelet	5	-	-	-	-
Flake	240	-	-	33	-
Edge-damaged flake	7	-	1	-	-
Chunk	101	-	-	11	-
Edge-damaged chunk	1	-	-	-	-
Chip	672	1	-	3	-
Edge-damaged chip	2	-	-	-	-
Total	**1162**	**1**	**1**	**48**	**0**
Stone material % total	**95.9**	**0.1**	**0.1**	**4.0**	**-**
Stone material % formal	**100**	**-**	**-**	**-**	**-**
Hammer stone / Upper grindstone	-	-	-	-	1
Hammer stone / Upper grindstone fragment	-	-	-	-	2

This is the largest Group 3 assemblage from Namaqualand so it is useful to present size data for the common backed elements (Table 40). Figure 5.34 shows that backed flakes and bladelets do separate into two groups but that backed flakes tend to be quite elongate, probably suggesting that they were all one type as far as their makers were concerned. The hammer stone/upper grindstone is well worn with two adjoining facets.

Table 5.40: Size data of unbroken backed artefacts from LK2004/011B.

		Length	Breadth	Thickness
Backed bladelets n=16	Mean	13.83	5.63	2.66
	Standard deviation	2.84	1.41	0.67
	Maximum	23.36	10.28	4.24
	Minimum	10.59	4.02	1.92
Backed flakes n=10	Mean	9.51	5.61	2.17
	Standard deviation	1.86	0.98	0.35
	Maximum	14.35	8.13	2.77
	Minimum	7.91	4.66	1.58

Figure 5.33: A segment (upper left) and eight backed bladelets from LK2004/011B. All have their backed edges towards the top of the page. Scale in 1 and 5 mm intervals.

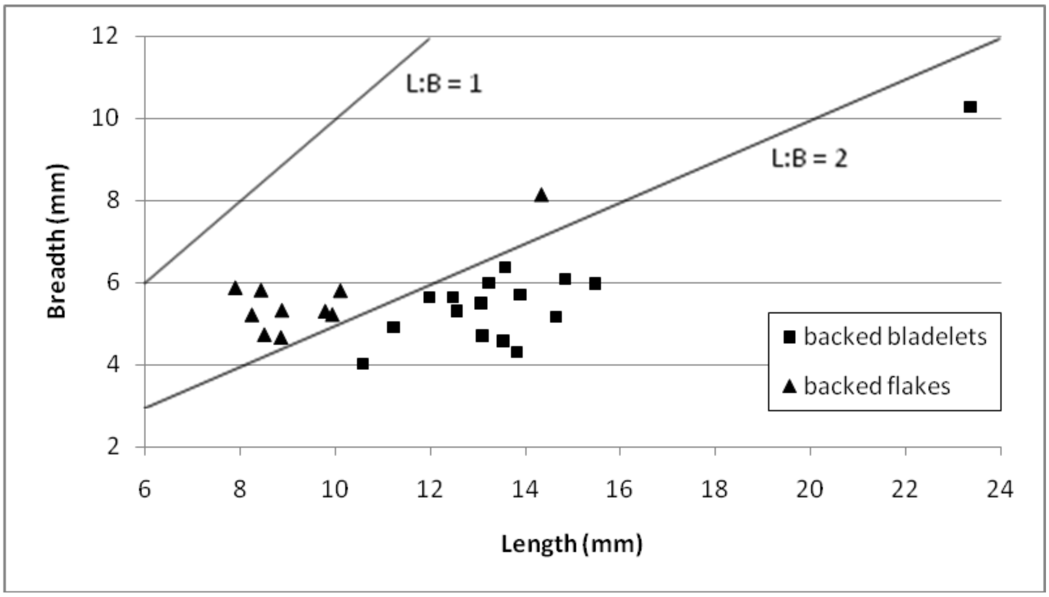


Figure 5.34: Plot of length to breadth for whole backed flakes and bladelets from LK2004/011B.

The site also produced a collection of sixteen whole and two broken ostrich eggshell beads. The five *in situ* beads were medium and large, while all sizes were found in the slump; two populations are not readily isolated (Figure 5.35; Table 5.41). The broken beads are *c.* 6.6 and 5.0 mm in diameter respectively. Two refitting ostrich eggshell flask mouth fragments were also found in the slumped material along with one plain body potsherd (3.3 g).

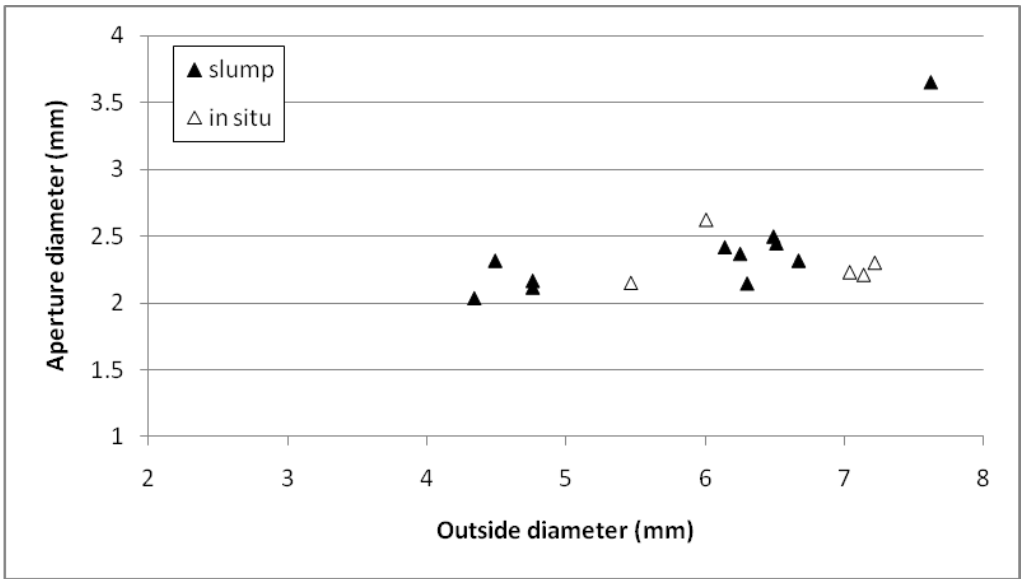


Figure 5.35: Scatter plot of ostrich eggshell bead dimensions from LK2004/011B.

Table 5.41: Summary statistics for finished ostrich eggshell beads from LK2004/011B.

		Outside diameter (mm)	Aperture diameter (mm)	Thickness (mm)
n=16	Mean	6.08	2.38	1.49
	Std Deviation	1.03	0.37	0.26
	Minimum	4.34	2.04	1.04
	Maximum	7.62	3.65	1.90

5.1.16 MB2005/001E

The site

This site lay near the northern end of the barrier sand dunes at the mouth of the Spoeg River (30°28'07.4" S 17°21'38.6" E). Despite their close proximity, the two excavated areas revealed very different occupation events (Figure 5.36). The modern dune surface slopes downhill towards the north, while the archaeological layers were found to be fairly horizontal. Square H43 was 27 cm deep at its northern edge and 32 cm at the south, while F43 was approximately 55 cm deep. Square A40 revealed 82 cm of archaeological deposits. The deposits are also younger towards the south. It is assumed that the dune was formed differently in the past such that the older occupation to the north was buried at the time of the southern occupation and is now becoming exposed through deflation (Orton & Halkett 2006). The following dates were obtained:

Lab. No.	Provenience	Material	^{14}C date BP	Calibrated age (95.4%)
OxA-24552	Layer 1, A39 2nd Layer	Bone (*Chersina angulata*)	2190 ± 27	353–52 BC
OxA-24553	Layer 1, A39 4th Layer	Bone (*Chersina angulata*)	2176 ± 27	349–46 BC
OxA-24554	Layer 2, A39 8th Layer	Bone (*Chersina angulata*)	2796 ± 27	975–812 BC
GX-32756	Layer 3, H43 TOP	Marine shell	3810 ± 145	2121–1226 BC
GX-32757	Layer 4, H43 Layer 6	Marine shell	4180 ± 90	2470–1751 BC

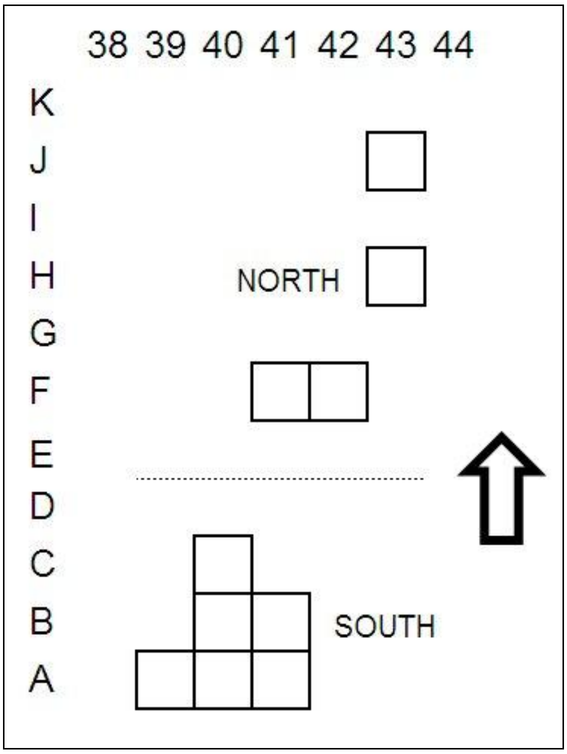


Figure 5.36: Plan of the excavation at MB2005/001E.

For the purposes of analysis the excavation levels have been combined into four layers as shown in Table 5.42.

Table 5.42: Stratigraphic groupings at MB2005/001E.

Analytical layer	Excavation rows and levels
Layer 1	Rows A–C: Surf, 2nd layer–5th layer
Layer 2	Rows A–C: 7th layer–8th layer
Layer 3	Row F: Top, Layer 2–Layer 4 Row H: Top, Layer 2–Layer 3 Row J: Top
Layer 4	Row F: Layer 5–Layer 9 Row H: Layer 4–Layer 6 Row J: Lower

Cultural material

Stone artefacts were found in variable density throughout the site (Tables 5.43–5.46). Although density was clearly reduced in the lower part of the south excavation, the very low artefact numbers are due to the small area excavated. The quartz is all clear and, despite the dominance of scrapers, Layer 1 is considered to represent an early manifestation of Group 3. Although quartz consistently comprises more than 90% of the assemblages, the presence of CCS retouched tools in the older levels, albeit minimal but in the absence of quartz tools, supports a likely assignation to Group 1.

Table 5.43: Stone artefacts from MB2005/001E, Layer 1 (Group 3).

	Quartz	CCS	Silcrete	Quartzite	Other
Bipolar core	3	1	-	-	-
Single platform core	2	-	-	-	-
Irregular core	4	-	-	-	-
Sidescraper	3	-	-	-	-
Backed bladelet	1	-	-	-	-
Bladelet	12	-	-	-	-
Flake	116	10	1	2	1
Edge-damaged flake	2	-	-	-	-
Chunk	21	-	-	-	-
Chip	193	8	-	-	-

Total	**357**	**19**	**1**	**2**	**1**
Stone material % total	**93.9**	**5.0**	**0.3**	**0.5**	**0.3**
Stone material % formal	**100.0**	**-**	**-**	**-**	**-**

Table 5.44: Stone artefacts from MB2005/001E, Layer 2 (Group 1).

	Quartz	CCS
Flake	-	1
Chunk	-	-
Chip	3	-
Total	**3**	**1**
Stone material % total	**75.0**	**25.0**
Stone material % formal	**-**	**-**

Table 5.45: Stone artefacts from MB2005/001E, Layer 3 (Group 1).

	Quartz	CCS	Other
Bipolar core	1	1	-
Single platform core	1	-	1
Irregular core	1	-	-
Thumbnail scraper	-	1	-
Bladelet	2	-	-
Flake	28	6	1
Chunk	17	-	2
Chip	104	1	-
Total	**154**	**9**	**4**
Stone material % total	**92.2**	**5.4**	**2.4**
Stone material % formal	**-**	**100.0**	**-**

Table 5.46: Stone artefacts from MB2005/001E, Layer 4 (Group 1).

	Quartz	CCS	Other
Bipolar core	2	-	-
Scraper fragment	-	1	-
Bladelet	1	-	-
Flake	24	3	-
Chunk	5	1	-
Chip	37	-	-
Total	**49**	**5**	**0**
Stone material % total	**93.2**	**6.8**	**-**
Stone material % formal	**-**	**100.0**	**-**
Hammer stone/upper grindstone	-	-	1
Lower grindstone	-	-	1

Three small ostrich eggshell beads are present, one in each of Layers 1, 3 and 4 (Table 5.47). The only other cultural item is a water-worn *Bullia* sp. shell in Layer 1.

Table 5.47: Measurement of the three finished ostrich eggshell beads from MB2005/001E.

	Outside diameter (mm)	Aperture diameter (mm)	Thickness (mm)
Layer 1	3.71	1.26	1.77
Layer 3	4.93	1.52	1.75
Layer 4	4.35	1.38	1.72

5.1.17 MB2005/013

The site

This dense shell midden lay on the east-facing slope of a low hill north of the Spoeg River estuary, 750 m from the river and some 550 m from the coastline (30°27'52.9" S 17°21'40.6" E). The midden was buried beneath approximately 130 mm of nearly sterile sand. While 12 m^2 were excavated from the main midden area to the east, only 4 m^2 had the upper deposits sieved and sorted – the remainder was shovelled off due to its extremely sparse content. A second part of the site to the west had 8 m^2 taken from the surface with no midden found below. It too had minimal content (Orton & Halkett 2006). Internal consistency suggests all to be one site. The following date was obtained:

Lab. No.	Provenience	Material	^{14}C date BP	Calibrated age (95.4%)
OxA-24555	I24 Lower	Bone (*Chersina angulata*)	717 ± 25	AD 1281–1387

Cultural material

A small collection of flaked stone artefacts was recovered (Table 5.48). Most was in quartz with all of this being clear. CCS accounts for a small proportion only, yet all three retouched pieces are in this material. All are thumbnail scrapers with one made on a bipolar core. Although the CCS frequency is very low, the scrapers support assignation to Group 1. Two hammer stones and a lower grindstone fragment were also found. The latter artefact is unusual in that it is a very small piece of an unusually deeply grooved grindstone.

Table 5.48: Stone artefacts from MB2005/013 (Group 1).

	Quartz	CCS	Silcrete	Quartzite	Other
Bipolar core	2	-	-	-	-
Thumbnail scraper	-	3	-	-	-
Blade	2	-	-	-	-
Bladelet	4	-	-	-	-
Flake	56	3	2	7	-
Edge-damaged flake	2	-	-	-	-
Chunk	6	-	-	-	-
Chip	54	1	-	3	-
Total	**126**	**7**	**2**	**10**	**-**
Stone material % total	**86.9**	**4.8**	**1.4**	**6.9**	**-**
Stone material % formal	**-**	**100.0**	**-**	**-**	**-**
Hammer stone	-	-	-	2	-
Lower grindstone fragment	-	-	-	-	1

Also present were eight ostrich eggshell beads, four from each excavation (Table 5.49). All were medium or large. Five fragments of ostrich eggshell flask mouth were found in two neighbouring squares with only one possible refit. Three collected shells were found, two of *Marginella* sp. and one a fragment of cowrie (Figure 5.37). The former are not threadable and were thus not collected for use as pendants. Ten potsherds weighing 38.5g were recovered, one a plain rim. Nine came from two neighbouring squares and the tenth was collected from the surface a few metres away. Some were quite weathered but there was little to distinguish the nine found in the excavation. Only that collected from the surface may be a different vessel. The rim is a simple rounded rim, but its orientation cannot be determined. The mean thickness of the walls was found to be 5.36 ± 1.02 mm.

Table 5.49: Summary statistics for finished ostrich eggshell beads from MB2005/013.

		Outside diameter (mm)	Aperture diameter (mm)	Thickness (mm)
n=8	Mean	6.02	2.25	1.67
	Std Deviation	0.52	0.29	0.14
	Minimum	5.26	1.73	1.5
	Maximum	6.60	2.56	1.95

Figure 5.37: The three collected shells from MB2005/013, two *Marginella* sp. on the left and a cowrie fragment on the right. Scale in 5 mm intervals.

5.1.18 MB2005/027

The site

This site was some distance up the slope of the hill forming the north bank of the Spoeg River estuary (30°27'54.4" S 17°21'41.6" E). It was 550 m from the beach and 700 m north of the river. Although appearing sparse on the surface, a thin but dense shell midden with charcoal-rich hearths was present below (Figure 5.38). The site was excavated in two levels over 11 m^2, but these clearly represent a single occupation event (Orton & Halkett 2006). The following date was obtained:

Lab. No.	Provenience	Material	^{14}C date BP	Calibrated age (95.4%)
OxA-22978	G13 Hearth 1	Charcoal (sp. unknown)	650 ± 22 BP	AD 1304–1402

Figure 5.38: The MB2005/027 shell midden as revealed from above and in section.

Cultural material

Cultural material consisted solely of a small assemblage of stone artefacts of which the vast majority was clear quartz (Table 5.50). The collection of backed artefacts in the absence of scrapers is typical of Group 3.

Table 5.50: Stone artefacts from MB2005/027 (Group 3).

	Quartz	CCS	Silcrete	Quartzite	Other
Bipolar core	4	-	-	-	-
Single platform core	1	-	-	-	-
Backed flake	1	-	-	-	-
Backed bladelet	1	-	-	-	-
Backed bladelet fragment	4	-	-	-	-
Backed point fragment	1	-	-	-	-
Miscellaneous backed piece	2	-	-	-	-
Backed piece fragment	1	-	-	-	-
Bladelet	6	-	-	-	-
Flake	83	5	3	6	1
Edge-damaged flake	-	-	-	1	-
Chunk	21	1	-	1	-
Chip	55	1	2	2	-
Total	**180**	**7**	**5**	**10**	**1**
Stone material % total	**88.7**	**3.4**	**2.5**	**4.9**	**0.5**
Stone material % formal	**100.0**	**-**	**-**	**-**	**-**

5.1.19 MB2005/028A

The site

The site lay 700 m north of the Spoeg River estuary and 450 m from the coast (30°27 55.3” S 17°21’40.3” E). Although two patches of deposit were evident, only Patch A is incorporated here. Just 4 m^2 were excavated and sieved on a 1.5 mm mesh (Halkett & Dewar 2007). The following date was obtained:

Lab. No.	Provenience	Material	^{14}C date BP	Calibrated age (95.4%)
OxA-24626	C11 Lower	Bone (*Chersina angulata*)	680 ± 25	AD 1296–1392

Cultural material

A small assemblage of clear quartz artefacts with backed tools was recovered from the site (Table 5.51). Although a few quartzite flaked artefacts were also present, the assemblage is clearly Group 3. A remarkable and very large lower grindstone with multiple grooves was found (Figure 5.39). The down-facing surface had five grooves and the other three. Such artefacts are extremely rare with just one other similar one found in Namaqualand to date. One small ostrich eggshell bead was found; its external, aperture and thickness dimensions are 4.72, 1.72 and 1.58 mm respectively. The two remaining cultural items are a fragment of tortoise plastron ground on one edge and on its outer surface, and a water-worn but freshly broken piece of cowrie shell. Pottery was absent.

Table 5.51: Stone artefacts from MB2005/028A (Group 3).

	Quartz	CCS	Quartzite	Other
Bipolar core	3	-	-	-
Single platform core	1	-	-	-
Irregular core	1	-	1	-
Backed bladelet	2	-	-	-
Backed piece fragment	1	-	-	-
Blade	1	-	-	-
Bladelet	1	-	-	-
Flake	38	1	4	-

	Quartz	CCS	Quartzite	Other
Chunk	5	-	1	-
Chip	41	-	-	-
Total	**94**	**1**	**6**	**0**
Stone material % total	**93.1**	**1.0**	**5.9**	**-**
Stone material % formal	**100.0**	**-**	**-**	**-**
Lower grindstone	-	-	-	1
Upper grindstone	-	-	-	3
Hammer stone/upper grindstone	-	-	-	2

Figure 5.39: The grooved lower grindstone found at MB2005/028A. The left view was facing down. Scale in 50 mm intervals.

5.1.20 MB2005/059

The site

MB2005/059 was a deflated shell scatter on a low dune ridge overlooking the Spoeg River estuary 800 m to its north and 550 m from the coast (30°27'51.2" S 17°21'40.2" E). Two patches 19 m apart had a combined total of 19 m^2 excavated from them with the material sieved on a 1.5 mm sieve (Halkett & Dewar 2007). Whether the two patches are related is unknown, but the peculiar and very similar shellfish frequencies make this likely (Appendix 1). The following date has been obtained from Patch A of the site:

Lab. No.	Provenience	Material	^{14}C date BP	Calibrated age (95.4%)
OxA-24556	Patch A, L45	Bone (*Chersina angulata*)	2641 ± 29	821–557 BC

Cultural material

A small assemblage dominated by clear quartz, but including CCS, was found. Retouched artefacts on CCS came from both patches (Tables 5.52-5.53). The lower grindstone was used on both sides. Aside from the lack of pottery on Patch B, there is no evidence to suggest that two entirely separate sites are present. The differing tool types may suggest activity differences. The artefacts suggest a combination of Groups 1 and 3.

Table 5.52: Stone artefacts from MB2005/059, Patch A (Group 1/3).

	Quartz	CCS	Quartzite	Other
Bipolar core	1	-	1	-
Single platform core	1	-	-	-
Irregular core	-	-	1	-
Miscellaneous retouched piece	-	1	-	-
Bladelet	1	-	-	-
Flake	13	-	-	-
Chunk	3	-	1	-
Chip	10	1	-	-
Total	**29**	**2**	**3**	**0**
Stone material % total	**85.3**	**5.9**	**8.8**	**-**
Stone material % formal	**-**	**100.0**	**-**	**-**
Upper grindstone	-	-	1	1
Hammer stone / upper grindstone	-	-	-	1
Lower grindstone	-	-	-	1

Table 5.53: Stone artefacts from MB2005/059, Patch B (Group 1/3).

	Quartz	CCS	Quartzite	Other
Thumbnail scraper	-	1	-	-
Denticulate	-	1	-	-
Flake	14	-	-	-
Chunk	-	-	-	-
Chip	7	-	-	-
Total	**21**	**2**	**0**	**0**
Stone material % total	**91.3**	**8.7**	**-**	**-**

Stone material % formal	**-**	**100.0**	**-**	**-**
Hammer stone	-	-	-	1

There were no ostrich eggshell beads, but two flask mouth fragments were found, one indicating an opening of *c.* 9 mm. Quite a large pottery assemblage of 32 sherds (196.5 g) was recovered from Patch A and enough pieces could be refitted to establish that a large, round pot of about 280 mm maximum width was present. Only a few millimetres of the neck was preserved so no information on rim form could be obtained, but the diameter at the neck was about 140 mm. The outside of the pot was ochred and the lower part was darkened, presumably from use on a fire (Figure 5.40). The mean thickness of the potsherds was 5.69 ± 0.61 mm.

Figure 5.40: The refitted pottery from MB2005/059. Scale in 10 mm intervals.

Given the deflated nature of the site, its pottery content, and the radiocarbon date (pre-dates the appearance of pottery to South Africa by at least five centuries), it is concluded that the site is a palimpsest.

5.1.21 MV2007/005

The site

This very low density artefact scatter was found in a shallow deflation bay of some 25 m by 50 m in size (Figure 5.41). It lies in a zone of dunes and deflations 1.1 km south of the Buffels River and 19.7 km from the coast (29º 36’ 03.2” S 17º 14’ 07.2” E). The density of finds was too low to merit excavation so all visible material was collected from the deflated surface (Orton 2007c). Owing to a lack of suitable material, no date was run for this site.

Figure 5.41: View towards the northwest across the deflated area containing MV2007/005.

Cultural material

Stone artefacts are limited to 19 flakes, seven chunks and one chip in quartz, one quartzite flake and one CCS adze-like MRP. Despite the MRP, the assemblage is likely Group 2. The only other artefact was a single decorated rim sherd (3.6 g) with a row of irregularly spaced oblong impressions about 10 mm below the lip of the vessel (Figure 5.42). The rim orientation is vertical and its form is simple rounded. It has a thickness of 5.94 mm.

Figure 5.42: The impressed rim sherd from MV2007/005. Scale in 5 mm intervals.

5.1.22 MV2007/009

The site

This very low density artefact scatter was found in the central part of a large, shallow deflation in an inland dune system 1.4 km south of the Buffels River and 19.6 km inland (29º 36’ 02.3” S 17º 14’ 10.7” E). Due to the ephemeral but extensive nature of the archaeological material no formal excavation was carried out. Instead, the site was divided into four discrete areas with all material collected from each. A small, dense scatter of potsherds within Area 1 was collected separately (Orton 2007c). Owing to a lack of suitable material, no date was run for this site.

Cultural material

A small collection of stone artefacts was obtained from each area of the deflation (Tables 5.54–5.57). The quartz appeared yellow from light exposure, very fractured and heavily weathered; on occasions it was difficult to be certain about whether each piece was actually flaked. Other materials were rarer and less problematic. The assemblages are very informal in character and can be assigned to Group 2.

Table 5.54: Stone artefacts from MV2007/009, Area 1 (Group 2).

	Quartz	Sandstone
Bipolar core	1	-
Flake	10	-
Chunk	4	-

Chip	1	-
Total	**16**	**0**
Stone material % total	**100.0**	**-**
Stone material % formal	**-**	**-**
Hammer stone	-	1

Table 5.55: Stone artefacts from MV2007/009, Area 2 (Group 2).

	Quartz	Quartzite
Single platform core	-	1
Flake	16	1
Edge-damaged flake	1	-
Chunk	4	1
Chip	3	-
Total	**24**	**3**
Stone material % total	**88.9**	**11.1**
Stone material % formal	**--**	**-**

Table 5.56: Stone artefacts from MV2007/009, Area 3 (Group 2).

	Quartz	CCS	Silcrete	Quartzite
Irregular core	1	-	-	-
Blade	1	-	-	-
Flake	48	1	1	1
Edge-damaged flake	-	-	1	-
Chunk	17	-	-	-
Chip	3	-	-	-
Total	**70**	**1**	**2**	**1**
Stone material % total	**94.6**	**1.4**	**2.7**	**1.4**
Stone material % formal	**-**	**-**	**-**	**-**

Table 5.57: Stone artefacts from MV2007/009, Area 4 (Group 2).

	Quartz	CCS	Quartzite	Sandstone
Flake	39	-	4	2
Edge-damaged flake	-	-	-	-
Chunk	9	1	-	-
Chip	2	-	-	-
Total	**50**	**1**	**4**	**2**
Stone material % total	**87.7**	**1.8**	**7.0**	**3.5**
Stone material % formal	**-**	**-**	**-**	**-**

Four ostrich eggshell beads were found in Area 1. All are very large and surprisingly thin (Table 5.58). A peculiarity noted at this site was that unworked ostrich eggshell fragments were also very thin. A sample of 45 yielded a mean thickness of

1.61 ± 0.11 mm. It is commonplace to find a bimodal distribution with modes of approximately 1.65 and 1.90 mm (own data), but this was not the case here with the range being 1.27–1.75 mm. Whether the beads were old or made from thin eggshell thus remains unknown.

Table 5.58: Summary statistics for finished ostrich eggshell beads from MV2007/009.

		Outside diameter (mm)	Aperture diameter (mm)	Thickness (mm)
n=4	Mean	9.23	2.10	1.69
	Std Deviation	0.26	0.15	0.09
	Minimum	8.94	1.93	1.56
	Maximum	9.53	2.25	1.75

This site contained one of the largest pottery collections from the area. Forty-three sherds weighing 428.5 g were recovered. Most came from Area 1 with one each from Areas 2 and 3. It seems likely that three vessels are represented, but with most sherds probably originating from a single large, wide vessel with a nippled base (Figure 5.43). Also found in this deflation was a horizontally pierced lug which would have been part of a tall jar (Figure 5.43). Its temper is rich in mica. No decorated or painted sherds occurred. Not all sherds had their thicknesses calculated, but those measured indicated a thickness range from 5.64 to 6.67 mm.

Figure 5.43: Pottery from MV2007/009, Area 1(A). A: lug; B: base of a large vessel. Scale in 5 mm intervals.

5.1.23 PN2009/001

The site

This site was located on the western edge of the salt pan that lies on the north-eastern outskirts of Port Nolloth, some 800 m from the sea (29° 14' 46.6" S 16° 52' 27.7" E). It presented as a series of deflated shell and artefact scatters draped across the surface of low dunes (Webley 2009). During excavation one small area of *in situ* shell midden was found and it was from there that a dating sample was selected. Spread over multiple patches, 133 m^2 were excavated to depths varying between 2 cm and 10 cm, although one patch was somewhat deeper (14 cm) and also revealed a 21 cm deep hollow filled with shell and some ash. A 1.5 mm sieve was used throughout (Webley & Orton 2010). Figure 5.44 maps the site. The following date was obtained:

Lab. No.	Provenience	Material	^{14}C date BP	Calibrated age (95.4%)
UGAMS-6607	I64	Marine shell	2670 ± 30	504 BC–AD 28

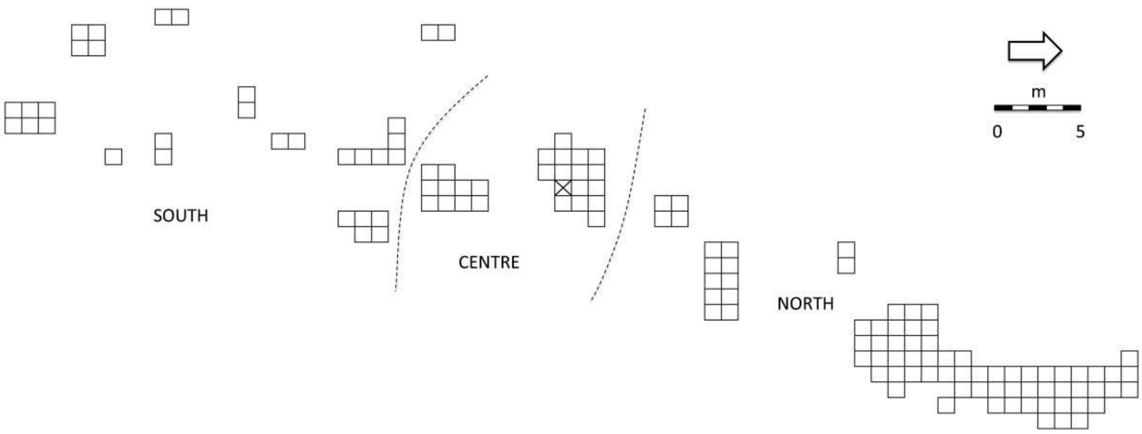


Figure 5.44: Layout of the excavated areas at PN2009/001. The X marks the origin of the date sample.

Cultural material

Aside from a scatter of glass and iron fragments relating to twentieth century use of the dune area, the cultural material included a rich assemblage of stone artefacts, ostrich eggshell beads and engraved ostrich eggshell. The stone artefact assemblage is unusual in that, after quartz, silcrete was the next most important material. The silcrete is extremely fine-grained and, given the coarse silcretes generally available to the south, it is no doubt for this reason that it was used above CCS. Its source is unknown, but Roberts (2003) maps a silcrete outcrop some 10 km inland of the site. Taken together, silcrete and CCS comprise almost half the assemblage which is unusually high. The assemblage is of Group 1 character. Although scrapers dominate strongly, some backed tools are present along with a few denticulates and notched pieces (Table 5.59, Figure 5.45-5.46). The excavated area is large but little spatial variation was evident. Of note, perhaps, is the ratio of sidescrapers to backed scrapers (Table 5.60). The northern area has more backed scrapers which may suggest a slightly different age there. However, all artefact types appear to occur throughout the excavated area.

Table 5.59: Stone artefacts from PN2009/001 (Group 1).

	Quartz	CCS	Silcrete	Quartzite	Sandstone	Other
Bipolar core	24	3	2	-	-	-
Single platform core	7	1	6	-	-	-
Irregular core	18*	3	14	-	-	-
Radial core	1	-	-	-	-	-
Backed scraper	-	1	19	-	-	-
Sidescraper	1	1	36	-	-	-
Endscraper	-	-	1	-	-	-
Thumbnail scraper	-	1	-	-	-	-
Miscellaneous backed scraper	-	-	5	-	-	-
Large miscellaneous scraper	-	1	-	-	-	-
Miscellaneous scraper	-	1	2	-	-	-
Scraper fragment	-	1	7	-	-	-
Backed flake	-	-	2	-	-	-
Curve-backed bladelet	-	1	-	-	-	-
Backed bladelet fragment	-	-	1	-	-	-
Large segment	-	-	1	-	-	-

	Quartz	CCS	Silcrete	Quartzite	Sandstone	Other
Miscellaneous backed piece	-	-	1	-	-	-
Backed piece fragment	2	-	9	-	-	-
Notched piece	-	3	1	-	-	-
Denticulate	-	2	-	-	-	-
Miscellaneous retouched piece	-	1	6	-	-	-
Blade	17	2	16	-	-	-
Bladelet	77	6	83	-	-	-
Edge-damaged bladelet	1	-	1	-	-	-
Flake	1050	104	842	5	2	-
Edge-damaged flake	19		21	-	-	-
Chunk	330	26	126	2	-	-
Edge-damaged chunk	-	1	-	-	-	-
Chip	327	30	281	1	-	-
Total	**1874**	**189**	**1483**	**8**	**2**	**-**
Stone material % total	**52.6**	**5.4**	**41.6**	**0.2**	**0.1**	**-**
Stone material % formal	**2.8**	**11.3**	**85.8**	**-**	**-**	**-**
Hammer stone	1	-	-	1	-	-
Hammer stone fragment	-	-	-	-	1	-
Hammer stone/upper grindstone	-	-	-	2	4	-
Lower grindstone	-	-	-	1	-	-
Lower grindstone fragment	-	-	-	-	-	1
Upper grindstone	-	-	-	1	1	-
Upper grindstone fragment	-	-	-	1	1	-

*One irregular core is also the hammer stone

Table 5.60: Ratio of sidescrapers to backed scrapers at PN2009/001.

	North	Centre	South
Sidescrapers	13	14	10
Backed scrapers	12	4	4
Ratio	1.08	3.5	2.5

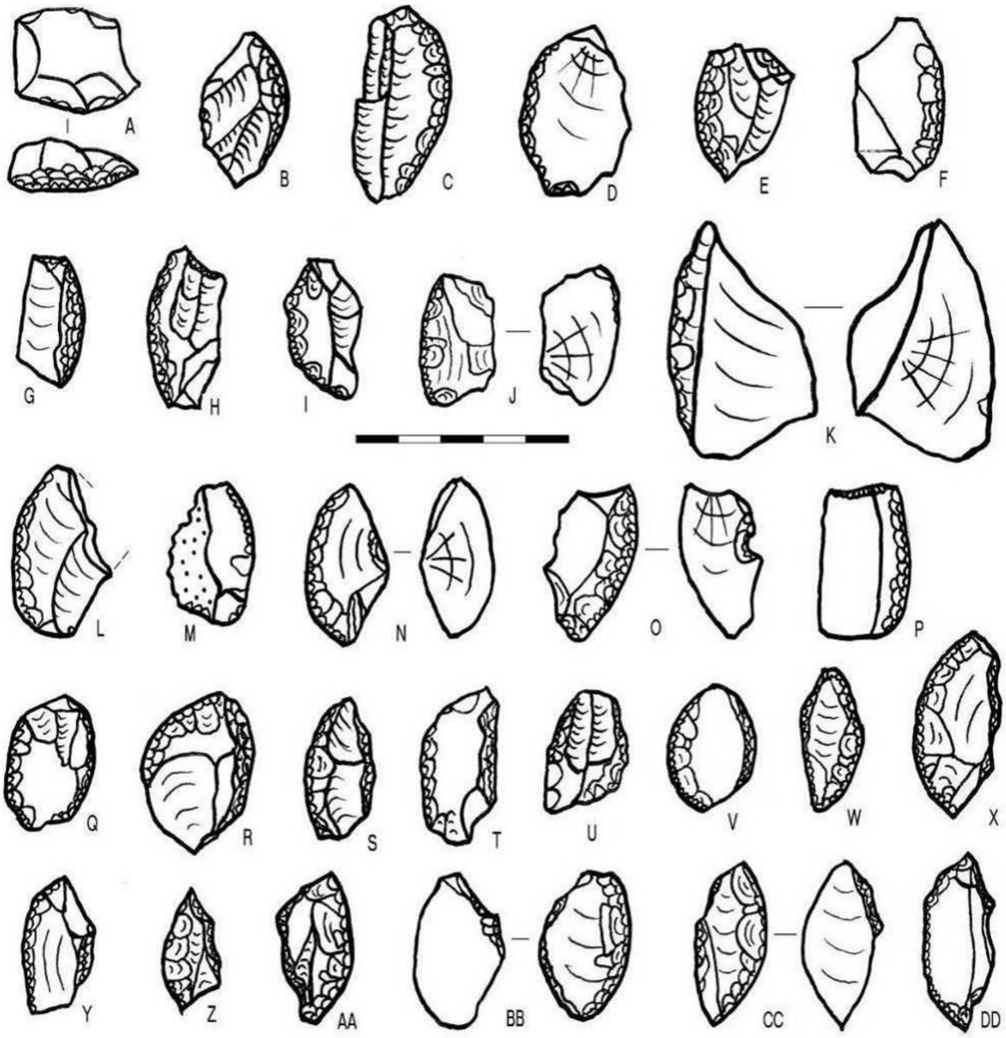


Figure 5.45: Stone artefacts from PN2009/001. A–P: sidescrapers; Q–DD: backed scrapers. All in silcrete except A: CCS & K: quartz. O has a notch opposite the scraper retouch, P has a truncation with the platform removed. Scale in 5 mm intervals.

A collection of 36 ostrich eggshell beads was found, the majority of which were small; just one medium bead occurred (Table 5.61). They are spread throughout the site but with about half (17) from the dated patch. Some spatial variation seems present: using the same northern, central and southern areas one finds mean external dimensions of 4.50 mm (n = 7), 4.29 mm (n = 19) and 3.89 mm (n = 10) respectively. It is acknowledged, however, that the southern area is comprised of ten small excavated patches and that two of its beads are unusually small. Just one broken bead and six unfinished beads were found. The latter included three in Stage IIIb and one each in Stages Va, Vb and VIb.

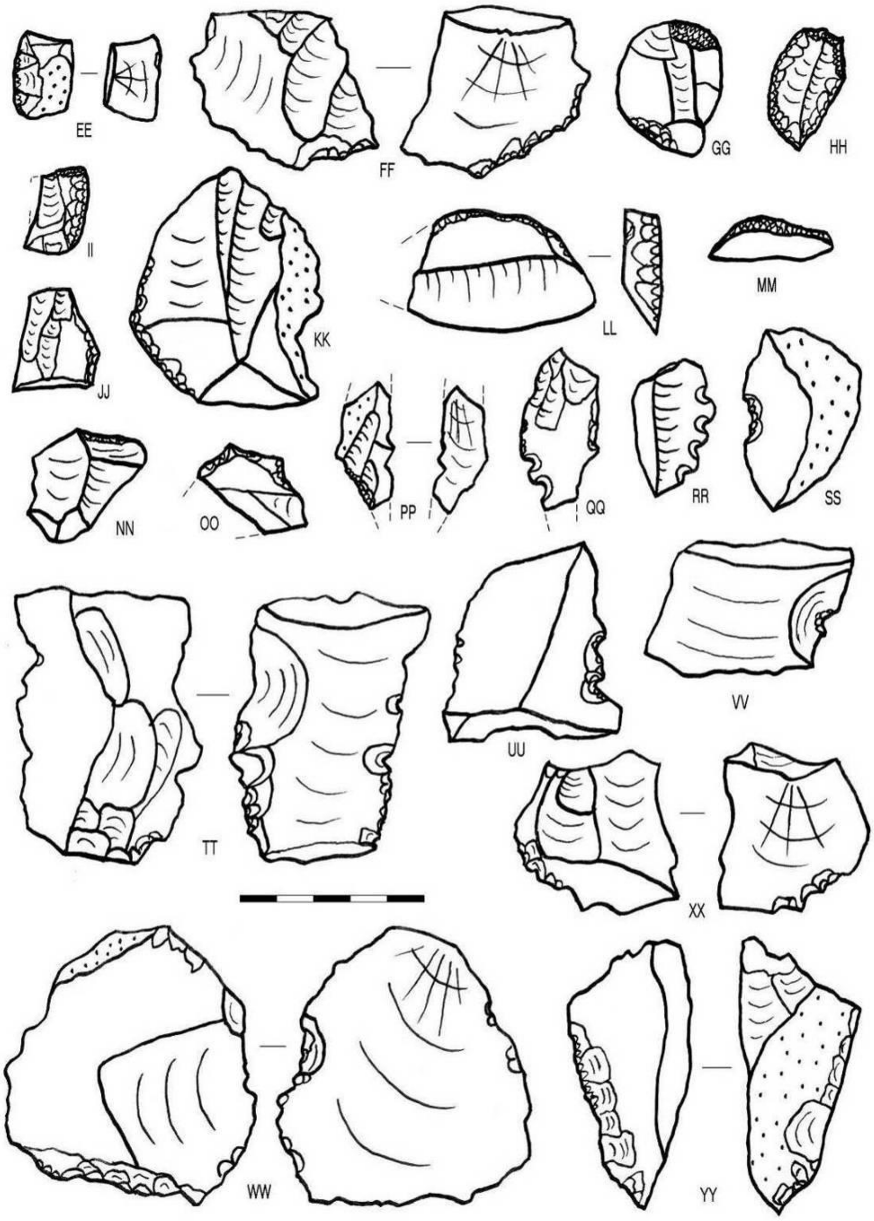


Figure 5.46: Stone artefacts from PN2009/001. EE: thumbnail scraper; FF: endscraper; GG–II: miscellaneous backed scrapers; JJ–KK: miscellaneous scraper; LL: large segment; MM: curve-backed bladelet; NN: miscellaneous backed piece; OO–PP: backed piece fragments; QQ–RR: denticulates; SS–VV: notched pieces; WW–YY: miscellaneous retouched pieces. All in silcrete except PP: quartz & EE, JJ, KK, MM, QQ, RR, SS, UU, VV: CCS. Scale in 5 mm intervals.

Table 5.61: Summary statistics for finished ostrich eggshell beads from PN2009/001.

		Outside diameter (mm)	Aperture diameter (mm)	Thickness (mm)
n=36*	Mean	4.22	1.61	1.51
	Std Deviation	0.50	0.26	0.14
	Minimum	2.50	0.88	1.14
	Maximum	5.16	2.19	1.77

*One bead was burnt and exfoliated such that for thickness n=35.

Three flask mouth fragments and 17 engraved ostrich eggshell fragments were also recovered. Twelve of the latter came from the central area but all areas had some. Most consist of parallel lines, sometimes wavy, while ladder designs were also present. Some were wind-abraded and this is no doubt a product of variable exposure (Figure 5.47).

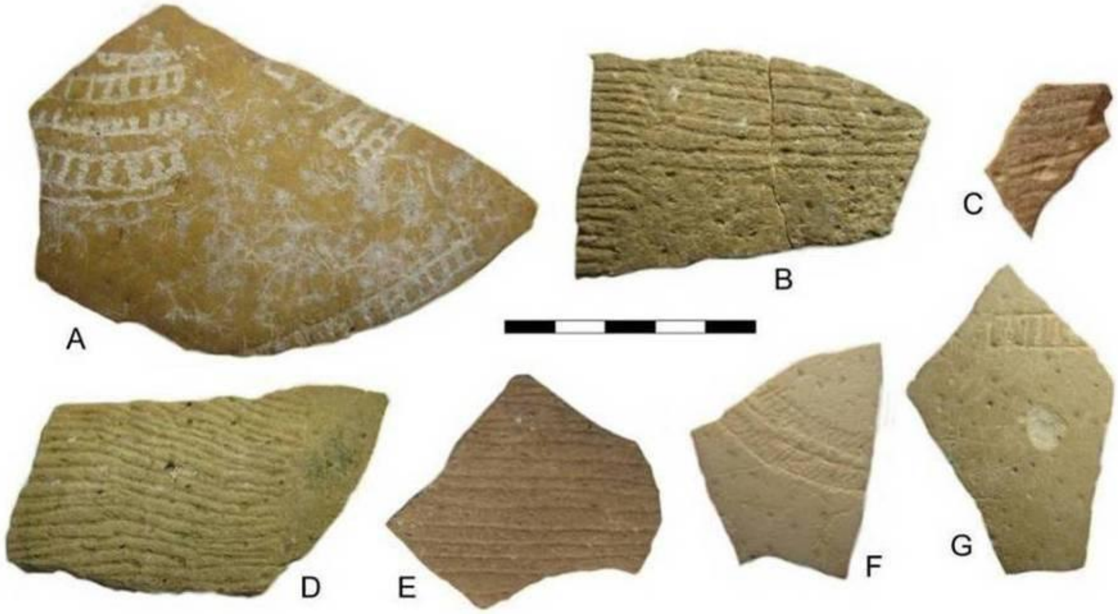


Figure 5.47: Engraved ostrich eggshell fragments from PN2009/001. Scale in 5 mm intervals.

5.1.24 SK2001/024

The site

The site lay among very low dunes 1 km from the shoreline and 1.6 km south of the Buffels River (29°41'12.5"S 17°03'56.5"E). Fourteen discrete shell dumps were spread over an area of approximately 80 m diameter. Each midden probably relates to a single family, perhaps indicating the approximate positions of huts in the camp (Figure 5.48; Halkett 2003). Four were sampled, with one having 3 m^2 excavated (Patch A) and the rest 1 m^2 each (Patches B, C and M). The following date was obtained:

Lab. No.	Provenience	Material	^{14}C date BP	Calibrated age (95.4%)
OxA-24523	Patch A, F10	Bone (*Chersina angulata*)	570 ± 25	AD 1393–1440

Cultural material

A very limited stone artefact assemblage was recovered, but this displayed a very informal character with quartzite markedly present (Tables 5.62-5.64). The assemblage likely belongs in Group 2. Patch C had just one quartz chip. No ostrich eggshell beads occur. Three large potsherds (73.5 g) came from Patch M, two of which refitted to leave two fragments of undecorated rim (Figure 5.49). Both reflect a vertically oriented neck and everted lip; they seem likely to originate from the same pot. The mean wall thickness was 5.90 ± 0.22 mm.

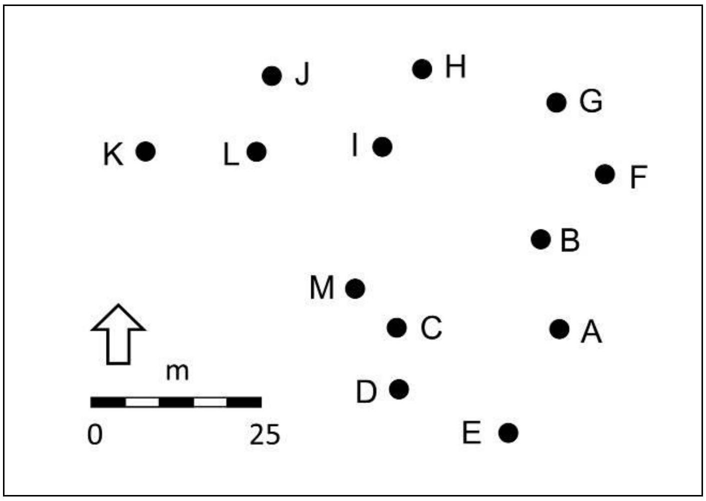


Figure 5.48: Schematic map of the patches at SK2001/024.

Table 5.62: Stone artefacts from SK2001/024, Patch A (Group 2).

	Quartz	Silcrete	Quartzite
Flake	16	1	8
Edge-damaged flake	-	-	1
Chunk	2	-	7
Chip	8	-	2
Total	**26**	**1**	**18**
Stone material % total	**57.8**	**2.2**	**40.0**
Stone material % formal	**-**	**-**	**-**

Table 5.63: Stone artefacts from SK2001/024, Patch B (Group 2).

	Quartz	Quartzite
Flake	3	1
Chunk	1	-
Chip	2	-

Total	**6**	**1**
Stone material % total	**85.7**	**14.3**
Stone material % formal	**-**	**-**

Table 5.64: Stone artefacts from SK2001/024, Patch M (Group 2).

	Quartz	Quartzite
Flake	6	1
Chunk	-	2
Chip	1	-
otal	**7**	**3**
Stone material % total	**70.0**	**30.0**
Stone material % formal	**-**	**-**

Figure 5.49: Pottery rims from SK2001/024, Patch M. Scale in 10 mm intervals.

5.1.25 SK2001/025

<u>The site</u>

This site was spread out along the crest of an ephemeral dune cordon some 1.6 km inland and 1.9 km south of the Buffels River (29° 41' 08.0" S 17° 04' 15.2" E). Several patches of shell lay exposed in deflations and hollows along the cordon (Figure 5.50). The south-westernmost of the six excavated areas was heavily deflated, seemingly due to mining-related disturbance. It was from this area that the very poorly preserved remains of a human burial (a few cranial and vertebral fragments) were recovered. The burial, dating earlier in the mid-first millennium BC (Dewar 2008), is older than the occupation debris. The other patches exhibited variable preservation with only Area C well enough preserved to be called a proper shell midden. The excavations were mostly conducted in units of 0.25 m^2, but the single square from Area E and much of the heavily deflated Area F were taken in 1 m^2 units. A total area of 149.75 m^2 was excavated (Table 5.65) and a 1.5 mm sieve was employed throughout (Halkett 2003). The following dates were obtained:

Lab. No.	Area	Provenience	Material	^{14}C date BP	Calibrated age (95.4%)
Pta-9310	Area C	Unknown	Marine shell	2640 ± 60	497 BC–AD 84
OxA-22976	Area C	P197 Midden	Bone (*Raphicerus campestris*)	2172 ± 25	346–47 BC
UGAMS-9708	Area F	YC/YD 119/120	Marine shell	2320 ± 25	65 BC–AD 428

Notes:

- Pta-9310 Genevieve Dewar, pers. comm. 2006.

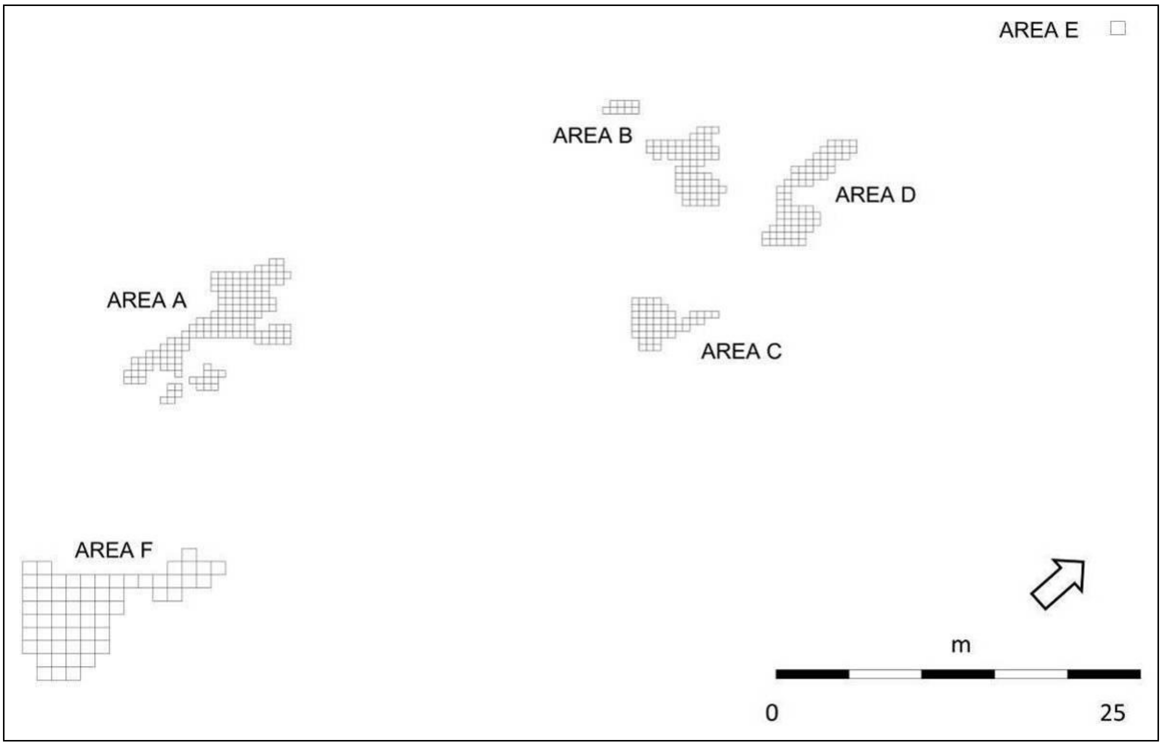


Figure 5.50: Layout of the excavated areas at SK2001/025.

Table 5.65: Excavated areas at SK2001/025.

Area A	38.5 m^2
Area B	18.75 m^2
Area C	12.0 m^2
Area D	18.5 m^2
Area E	1.0 m^2
Area F	61.0 m^2

<u>Cultural material</u>

Stone artefacts were recovered from all areas (Tables 5.66-5.71). Areas A to D are all dominated by scrapers, while only Area F has a good selection of backed artefacts including the only segment. Among its scrapers it also has the only backed scraper. The two denticulates from Area F are both atypical; one is on a blade, while the other is quite minimal and made on a fragment of a large flake. Stone material frequencies are fairly consistent across the six areas although Area E has too few artefacts to be meaningful. The rest have approximately two-thirds quartz and one-third CCS. Some pieces of CCS have cortex supporting an origin within calcrete. All the assemblages are Group 1.

Table 5.66: Stone artefacts from SK2001/025 Area A (Group 1).

	Quartz	CCS	Silcrete	Quartzite	Sandstone	Other
Bipolar core	4	-	-	-	-	-
Single platform core	1	-	-	-	-	-
Irregular core	3	1	-	-	-	-
Sidescraper	-	2	-	-	-	-
Miscellaneous scraper	-	2	-	-	-	-
Scraper fragment	-	3	-	-	-	-
Backed piece fragment	-	2	-	-	-	-
Miscellaneous retouched piece	-	2	-	-	-	-
Blade	2	-	-	-	-	-
Bladelet	4	7	-	-	-	-
Flake	96	34	3	3	1	3
Edge-damaged flake	2	2	-	-	-	-
Chunk	29	4	-	-	-	1
Chip	87	31	-	-	-	-
Edge-damaged chip	-	1	-	-	-	-
Total	**228**	**91**	**3**	**3**	**1**	**3**

	Quartz	CCS	Silcrete	Quartzite	Sandstone	Other
Stone material % total	**69.1**	**27.6**	**0.9**	**0.9**	**0.3**	**1.2**
Stone material % formal	**-**	**100.0**	**-**	**-**	**-**	**-**
Lower grindstone fragment	-	-	-	-	-	1
Upper grindstone fragment	-	-	-	1	-	-

Table 5.67: Stone artefacts from SK2001/025 Area B (Group 1).

	Quartz	CCS	Silcrete	Quartzite	Sandstone	Other
Bipolar core	2	-	-	-	-	-
Single platform core	1	1	-	1	-	-
Irregular core	1	-	-	-	-	-
Sidescraper	-	7	-	-	-	-
Thumbnail scraper	-	3	-	-	-	-
Scraper fragment	-	1	-	-	-	-
Backed point	-	1	-	-	-	-
Miscellaneous backed piece	-	1	-	-	-	-
Backed piece fragment	-	1	-	-	-	-
Notched piece	1	1	-	-	-	-
Blade	-	2	-	-	-	-
Bladelet	11	3	-	1	-	-
Flake	91	51	1	11	-	-
Edge-damaged flake	-	3	-	-	-	-
Chunk	23	7	-	3	-	-
Edge-damaged chunk	1	-	-	-	-	-
Chip	116	14	-	6	-	-
Total	**247**	**96**	**1**	**22**	**0**	**0**
Stone material % total	**67.3**	**26.4**	**0.3**	**6.0**	**-**	**-**
Stone material % formal	**5.9**	**94.1**	**-**	**-**	**-**	**-**
Upper grindstone	-	-	-	-	1	-
Lower grindstone	-	-	-	-	-	1
Lower grindstone fragment	-	-	-	-	-	1

Table 5.68: Stone artefacts from SK2001/025 Area C (Group 1).

	Quartz	CCS	Silcrete	Quartzite	Sandstone	Other
Bipolar core	2	3	-	-	-	-
Single platform core	1	1	-	3	-	-
Irregular core	6	3	-	3	-	-
Sidescraper	-	5	-	-	-	-
Thumbnail scraper	-	1	-	-	-	-
Miscellaneous backed scraper	-	1	-	-	-	-
Backed piece fragment	1	-	-	-	-	-

	Quartz	CCS	Silcrete	Quartzite	Sandstone	Other
Notched piece	-	1	-	-	-	-
Miscellaneous retouched piece	-	1	-	-	-	-
Blade	3	1	-	1	-	-
Bladelet	13	8	-	2	-	-
Flake	231	96	-	50	-	5
Edge-damaged flake	1	4	-	-	-	-
Chunk	85	11	-	30	-	1
Chip	195	26	-	9	-	-
Total	**538**	**162**	**0**	**98**	**0**	**6**
Stone material % total	**67.0**	**20.1**	**-**	**12.2**	**-**	**0.7**
Stone material % formal	**18.2**	**81.8**	**-**	**-**	**-**	**-**
Hammer stone	-	-	-	1	-	1
Hammer stone/upper grindstone fragment	-	-	-	-	1	-
Lower grindstone fragment	-	-	-	-	-	3
Grindstone fragment	-	-	-	-	-	3

Table 5.69: Stone artefacts from SK2001/025 Area D (Group 1).

	Quartz	CCS	Silcrete	Quartzite	Sandstone	Other
Bipolar core	-	3	-	-	-	-
Single platform core	-	-	-	1	-	-
Irregular core	1	3	1	-	-	-
Sidescraper	-	2	-	-	-	-
Miscellaneous scraper	-	1	-	-	-	-
Bladelet	7	3	-	-	-	-
Flake	75	26	-	5	1	-
Chunk	16	7	-	-	-	-
Chip	62	9	-	1	-	-
Total	**161**	**54**	**1**	**7**	**1**	**0**
Stone material % total	**71.9**	**24.1**	**0.4**	**3.1**	**0.4**	**-**
Stone material % formal	**-**	**100.0**	**-**	**-**	**-**	**-**

Table 5.70: Stone artefacts from SK2001/025 Area E (Group 1).

	Quartz	CCS	Silcrete	Quartzite	Sandstone	Other
MBP	-	1	-	-	-	-
Bladelet	-	1	-	-	-	-
Flake	2	2	-	-	-	-
Chunk	1	1	-	-	-	-
Chip	1	-	-	-	-	-

	Quartz	CCS	Silcrete	Quartzite	Sandstone	Other
Total	**4**	**5**	**0**	**0**	**0**	**0**
Stone material % total	**44.4**	**55.6**	**-**	**-**	**-**	**-**
Stone material % formal	**-**	**100.0**	**-**	**-**	**-**	**-**
Lower grindstone fragments	-	-	-	1	-	-

Table 5.71: Stone artefacts from SK2001/025 Area F (Group 1).

	Quartz	CCS	Silcrete	Quartzite	Sandstone	Other
Bipolar core	9	1	-	-	-	-
Bipolar bladelet core	-	1	-	-	-	-
Single platform core	1	-	-	-	-	-
Irregular core	10	10	-	-	-	-
Backed scraper	-	1	-	-	-	-
Sidescraper	-	3	-	-	-	-
Thumbnail scraper	-	4	-	-	-	-
Miscellaneous backed scraper	-	1	-	-	-	-
Miscellaneous scraper	-	1	-	-	-	-
Scraper fragment	-	3	-	-	-	-
Backed bladelet	-	1	-	-	-	-
Segment	-	1	-	-	-	-
Miscellaneous backed piece	-	1	-	-	-	-
Backed piece fragment	1	3	-	-	-	-
Adze	-	1	-	-	-	-
Notched piece	-	3	-	-	-	-
Denticulate	-	2	-	-	-	-
Miscellaneous retouched piece	1	-	-	-	-	-
Blade	5	-	-	1	1	-
Bladelet	13	15	-	-	-	-
Flake	254	123	2	22	6	1
Edge-damaged flake	8	16	-	1	1*	-
Chunk	58	15	-	7	-	-
Edge-damaged chunk	1	2	-	-	-	-
Chip	146	99	-	8	-	-
Total	**507**	**307**	**2**	**39**	**8**	**1**
Stone material % total	**58.5**	**35.9**	**0.2**	**4.5**	**0.8**	**0.1**
Stone material % formal	**6.5**	**93.5**	**-**	**-**	**-**	**-**
Lower grindstone	-	-	-	-	-	1
Lower grindstone fragments	-	-	-	1	2	-
Grindstone fragments	-	-	-	-	3	-

* MSA artefact excluded from material frequencies.

Two fragments of ostrich eggshell appeared to be engraved. One (from Area B) is heavily burnt and the engraving, two fine, parallel lines, may not be real. The second (from Area C) is weathered but bears a single clear line incised across its face. One flask mouth fragment was found in Area E. Ostrich eggshell beads were found only in Areas A, C and F. Their size data are given in Table 5.72. All the beads are small, with none bigger than 4.5 mm external diameter (Figure 5.51).

Table 5.72: Summary statistics for finished ostrich eggshell beads from SK2001/025.

Area		Outside diameter (mm)	Aperture diameter (mm)	Thickness (mm)
	Mean	3.71	1.69	1.01
A	Std Deviation	0.29	0.05	0.14
(n=3)	Minimum	3.39	1.66	0.92
	Maximum	3.94	1.75	1.19
C (n=1)		3.24	1.18	1.67
	Mean	4.20	1.77	1.57
F	Std Deviation	0.35	0.28	0.12
(n=12)	Minimum	3.50	1.01	1.41
	Maximum	4.50	2.11	1.76

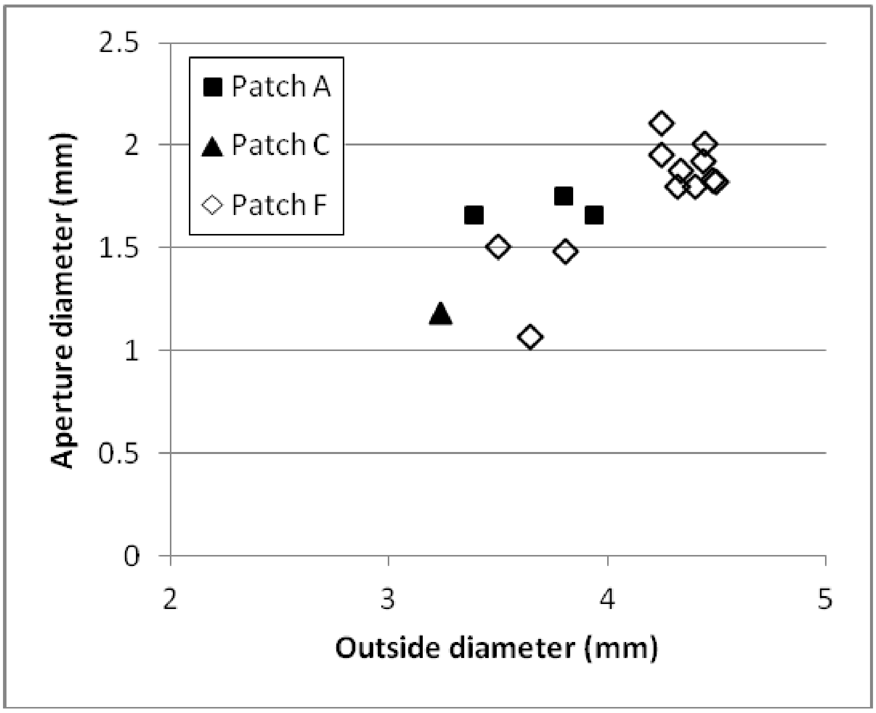


Figure 5.51: Scatter plot of ostrich eggshell bead dimensions from SK2001/025.

5.1.26 SK2001/039

The site

This small site lay on the west side of a low dune, 1.2 km south of the Buffels River and 1.05 km from the coast (29° 40' 59.8" S 17° 03' 51.2" E). While most of the site was shell scatter, part of the 8 m^2 excavated was *in situ* shell midden (Halkett 2003). The following dates were obtained:

Lab. No.	Provenience	Material	^{14}C date BP	Calibrated age (95.4%)
OxA-24524	J33	Bone (*Chersina angulata*)	606 ± 25	AD 1319–1425
OxA-24525	J33	Bone (*Chersina angulata*)	609 ± 25	AD 1319–1422

Notes:

- OxA-24524 & OxA-24525 were run on the same sample.

Cultural material

A moderate assemblage of flaked stone artefacts was recovered with the majority being quartz (Table 5.73). Most of this was clear quartz, including one backed bladelet, although the presence of CCS and particularly some retouched artefacts in that material suggest Groups 1 and 3. The thumbnail scraper, unusually, was retouched on its ventral surface. Interestingly, the silcrete was all of a very fine-grained, pale brown type, similar to that noted at PN2009/001, some 52 km to the north. Three fragments of ochre were also present.

Table 5.73: Stone artefacts from SK2001/039 (Group 1/3).

	Quartz	CCS	Silcrete	Quartzite	Other
Bipolar core	2	-	-	-	-
Irregular core	1	1	-	-	-
Thumbnail scraper	-	1	-	-	-
Scraper fragment	-	1	-	-	-
Backed bladelet	1	-	-	-	-
Backed piece fragment	-	1	-	-	-
Blade	1	-	-	-	-
Bladelet	4	1	-	-	-

	Quartz	CCS	Silcrete	Quartzite	Other
Flake	82	15	6	28	-
Chunk	20	1	-	8	-
Edge-damaged chunk	1	-	-	8	-
Chip	115	6	-	-	-
Total	**227**	**27**	**6**	**44**	**0**
Stone material % total	**74.7**	**8.9**	**2.00**	**14.5**	**-**
Stone material % formal	**25.0**	**75.0**	**-**	**-**	**-**
Upper grindstone fragment	-	-	-	1	-
Grindstone fragments	-	-	-	-	1

No ostrich eggshell beads were present but two fragments of ostrich eggshell flask mouth were noted. Twenty-nine potsherds weighing 174 g and having a mean thickness of 5.71 ± 0.61 mm were found. Some of the body sherds showed an external surface with numerous striations, presumably reflecting the method of finishing employed (Figure 5.52). Four refitting sherds with a heavy residue on the outside form a flared neck with a variably tapered and simple rounded lip. It is decorated with small impressions (Figure 5.52). This set reflects a mouth diameter of *c.* 100 mm. A further decorated fragment seemed to have slightly different shaped impressions. Two sherds show evidence of coil manufacture.

Figure 5.52: The striated body sherd and decorated rims from SK2001/039. Scale in 5 mm intervals.

5.1.27 SK2005/057A

The site

This site lay atop a prominent vegetated sand dune 1.8 km south of the Buffels River estuary and 780 m from the sea (29°41’19.0” S 17°03’48.7” E). It is on the eastern (inland) side of the dune with older occupations present to the west and northwest. Although a small part of the site was disturbed, most was in pristine condition beneath 30 cm of sterile dune sand and consisted of a string of small middens extending north-south. A hearth was found in the southern part of the site. A single layer was excavated over 54 m^2 with some of this area being dense shell midden (Orton & Halkett 2006). The following date was obtained:

Lab. No.	Provenience	Material	^{14}C date BP	Calibrated age (95.4%)
OxA-22981	Y22 Hearth	Charcoal (sp. unknown)	400 ± 22	AD 1455–1625

Cultural material

A rich assemblage of flaked artefacts, worked ostrich eggshell and pottery was recovered. The stone includes a variety of materials and types suggesting overprinting of material of different ages (Table 5.74). The vast majority, however, belongs to this site and represents a Group 2 assemblage. The older artefacts, particularly those in CCS, are focussed in the north-western part of the site and no doubt originate from the nearby Group 1 site of SK2005/074A (185 BC–AD 85; see below). One single platform core is a large, possibly ESA, flake that was collected and further flaked from its ventral surface. The large chopper is made on a flat slab of quartzite (Figure 5.53). Twelve small ochre fragments were found clustered in the northern part of the site.

Table 5.74: Stone artefacts from SK2005/057A (Group 2).

	Quartz	CCS	Quartzite (brown)	Quartzite (other)	Other
Bipolar core	3	-	-	-	-
Single platform core	-	-	2	-	-
Irregular core	3	-	-	-	-
Backed scraper	-	1	-	-	-
Sidescraper	-	1	-	-	-
Scraper fragment	-	1	-	-	-
Large chopper	-	-	-	1	-
Blade	3	-	-	-	-
Bladelet	2	1	-	-	-
Flake	137	22	26	2	1
Chunk	62	3	6	3	1
Chip	164	7	13	-	-
Total	**374**	**36**	**47**	**6**	**2**
Stone material % total	**80.4**	**7.7**	**10.1**	**1.3**	**0.4**
Stone material % formal	**-**	**75.0**	**-**	**25.0**	**-**
Upper grindstone	-	-	-	-	2
Upper grindstone fragment	-	-	-	-	4
Lower grindstone fragment	-	-	-	-	1
Grindstone fragments	-	-	-	-	2

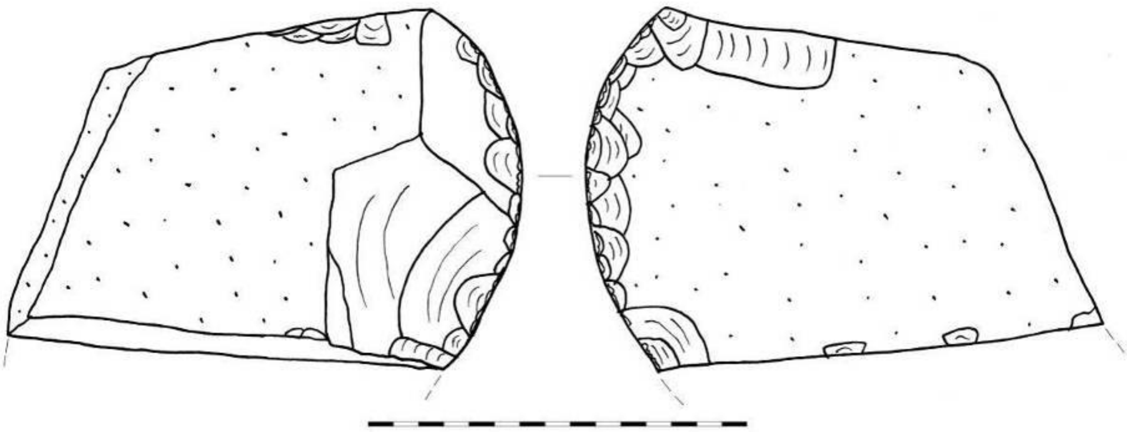


Figure 5.53: The quartzite large chopper from SK2005/057A. Stippling denotes cortex. Scale in 5 mm intervals.

The worked ostrich eggshell includes two refitting flask mouth fragments with an opening of just less than 10 mm that were found a few metres from the main concentration of ostrich eggshell fragments. Also present were a good collection of ostrich eggshell beads and manufacturing fragments. Small unworked fragments, probably off-cuts, were concentrated in a similar area to the manufacturing debris. The bead production debris is tabulated in Table 5.75, while summary statistics for the finished beads appear in Table 5.76. The only small bead (4.11 mm diameter) comes from the northern part of the site and likely originated from SK2005/074A. The other 25 beads are all medium to large, clustering between 5.1 and 6.4 mm. A single large bead of 12.4 mm external diameter was found in a disturbed area some 10 m east of the excavation and has not been included in the data presented here.

Table 5.75: Ostrich eggshell bead manufacturing debris from SK2005/057A.

Stage	IIa	IIb	IIIa	IIIb	IVa	IVb	Va	Vb	VIa	VIb	VIIa	VIIb
	-	18	9	73	-	16	-	2	-	-	26	3

Table 5.76: Summary statistics for finished ostrich eggshell beads from SK2005/057A.

		Outside diameter (mm)	Aperture diameter (mm)	Thickness (mm)
n=26	Mean	5.58	1.98	1.79
	Std Deviation	0.41	0.50	0.18
	Minimum	4.11	1.10	1.47
	Maximum	6.39	2.80	2.05

Eighty-six potsherds weighing 317.1 g were clustered in two main areas of the site. In the north a single rim fragment with two rows of impressions (Figure 5.54) and a plain rim suggest two vessels, while in the south a cluster of very fine-grained and thinner-walled sherds suggest a third. The decorated rim has a mouth diameter of about 100 mm. The mean wall thickness was 6.32 ± 1.12 mm. Half a water-worn ring of *C. granatina* was also present, along with many other collected shells (14 *Conus mozambicus*, 10 *Bullia digitalis*, 1 *Marginella rosea*). Some *Bullia* shells showed possible signs of threading, but none were convincing.

Figure 5.54: The decorated rim sherd from SK2005/057A. Scale in 5 mm intervals.

5.1.28 SK2005/074A

<u>The site</u>

This site lies immediately north of SK2005/057A, on the northern part of the same sand dune (29°41'18.5" S 17°03'49.0" E). It is 1.8 km south of the Buffels River and 770 m from the beach. Four layers were identified with variable areas of each being excavated (Table 5.77; Orton & Halkett 2006). The total depth at the base of Layer 4 was approximately 50 cm. The following dates were obtained:

Lab. No.	Provenience	Material	^{14}C date BP	Calibrated age (95.4%)
OxA-24526	Layer 1, N24 Surface	Bone (*Raphicerus campestris*)	2132 ± 27	185 BC–AD 1
OxA-24527	Layer 2, M24 M1/L1	Bone (*Chersina angulata*)	2052 ± 34	107 BC–AD 85

Bone from Layer 3 yielded too little collagen for a date and Layer 4 remains undated. The dates and stone artefacts support all but Layer 4 being of similar age. Layer 3 had extremely low density shell and effectively represents the gap between the two primary occupation periods (and shell middens) at the site.

Table 5.77: Excavated areas and artefact densities at SK2005/074A. Surface, L1 and L2 are shell scatter, while M1 and M2 are midden levels.

Layer	Excavation levels	Area excavated	Flaked artefacts/m^2
1	Surface	17 m^2	21.8
2	M1 & L1	9 m^2	54.6
3	L2	2 m^2	20.5
4	M2	2 m^2	0.5

Cultural material

Due primarily to the larger excavated areas, most flaked stone artefacts occur in Layers 1 and 2 (Tables 5.78-5.79). Artefacts in Layer 3 (Table 5.80) are assumed to have filtered down from above and Layer 4 contains just one quartz flake. The curve-backed flake and truncated bladelet are rare forms. The proportions of stone materials used remains fairly consistent with CCS always comprising about one quarter. This figure, and the presence of CCS retouched pieces, places the assemblages within Group 1 (Figure 5.55). Most of the quartz is clear, but some was difficult to distinguish from quartzite. Manuports were fairly common in Layers 1 and 2 and ochre fragments were present in all Layer 1 (one fragment), Layer 2 (five fragments) and Layer 3 (one fragment).

Table 5.78: Stone artefacts from SK2005/074A, Layer 1 (Group 1).

	Quartz	CCS	Silcrete	Quartzite	Other
Bipolar core	2	-	-	1	-
Irregular core	2	2	-	-	-
Backed scraper	-	1	-	-	-
Sidescraper	-	2	-	-	-
Thumbnail scraper	-	1	-	-	-
Backed flake	-	1	-	-	-
Truncated bladelet	-	1	-	-	-
Backed piece fragment	-	1	-	-	-
Notched piece	1	-	-	-	-
Blade	1	-	-	-	-
Bladelet	6	4	-	-	-
Flake	117	51	3	21	3
Edge-damaged flake	-	1	-	-	-
Chunk	35	6	-	5	-

	Quartz	CCS	Silcrete	Quartzite	Other
Chip	78	18	-	4	-
Total	**242**	**89**	**3**	**31**	**3**
Stone material % total	**65.4**	**24.6**	**0.8**	**8.4**	**0.8**
Stone material % formal	**12.5**	**87.5**	**-**	**-**	**-**

Table 5.79: Stone artefacts from SK2005/074A, Layer 2 (Group 1).

	Quartz	CCS	Silcrete	Quartzite	Sandstone	Other
Bipolar core	3	-	-	-	-	-
Single platform core	-	-	-	1	-	-
Irregular core	4	1	-	-	-	-
Large thumbnail scraper	1	-	-	-	-	-
Scraper fragment	-	1	-	-	-	-
Backed blade	-	1	-	-	-	-
Curve-backed flake	-	1	-	-	-	-
Segment	-	1	-	-	-	-
Backed piece fragment	-	3	-	-	-	-
Miscellaneous retouched piece	-	1	-	-	-	-
Blade	1	3	-	-	-	-
Bladelet	6	4	-	1	-	1
Flake	132	63	-	32	-	-
Edge-damaged flake	2	2	-	-	-	-
Chunk	32	6	1	16	-	-
Chip	111	32	-	19	-	-
Total	**292**	**119**	**1**	**69**	**0**	**1**
Stone material % total	**60.6**	**24.7**	**0.2**	**14.3**	**-**	**0.2**
Stone material % formal	**10.0**	**90.0**	**-**	**-**	**-**	**-**
Upper grindstone/hammer stone	-	-	-	-	2	1
Lower grindstone fragment	-	-	-	-	1	-

Table 5.80: Stone artefacts from SK2005/074A, Layer 3 (Group 1).

	Quartz	CCS	Quartzite
Bladelet	-	-	1
Flake	13	4	3
Edge-damaged flake	-	1	-
Chunk	3	-	-
Chip	9	4	2
Total	**25**	**9**	**6**
Stone material % total	**62.5**	**22.5**	**15.0**
Stone material % formal	**-**	**-**	**-**

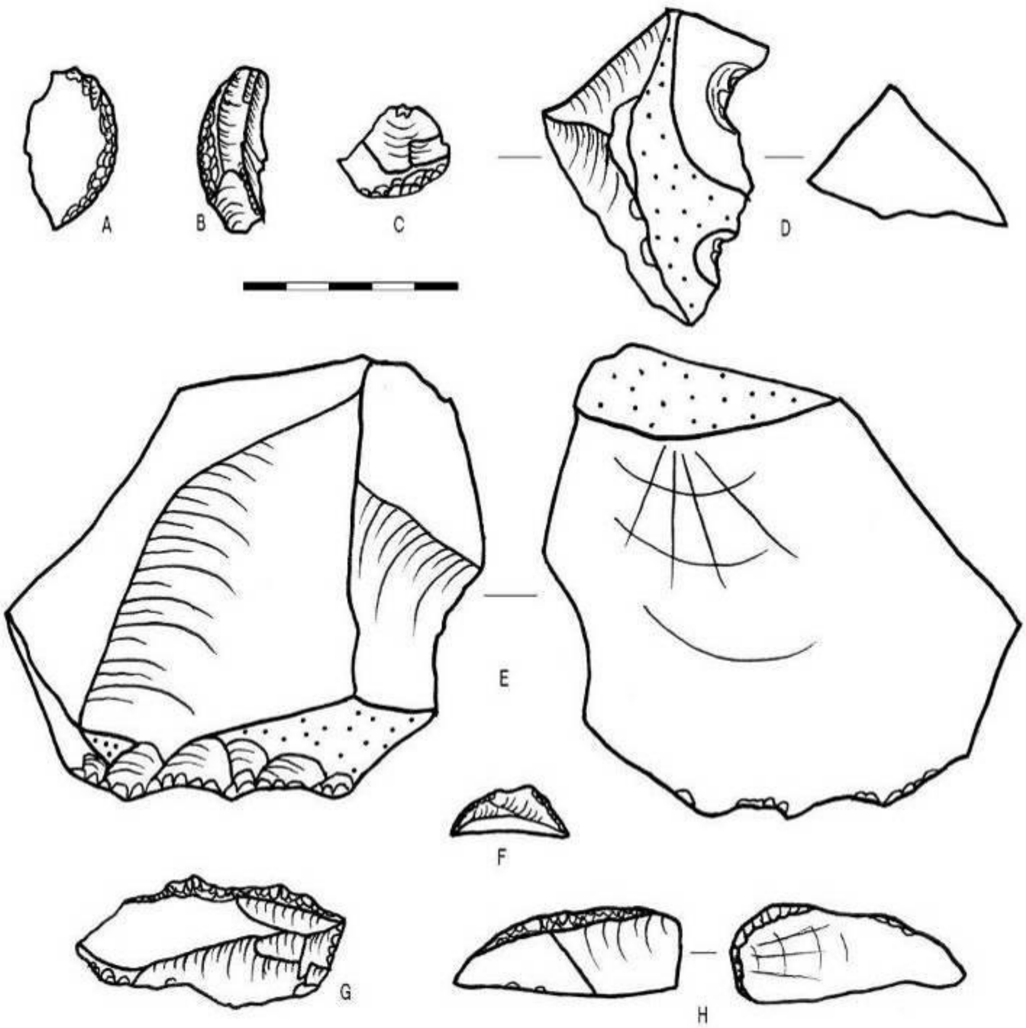


Figure 5.55: Stone artefacts from SK2005/074. All from M1/L1 except D: Surface. A, B: sidescrapers; C: thumbnail scraper; D: notched piece; E: large thumbnail scraper; F: segment; G: backed blade; H: curve-backed bladelet. All in CCS except D & E: quartz. Scale in 5 mm intervals.

Only three ostrich eggshell beads were found, two in Layer 1 and one in Layer 2. All are small and, given the similar ages, I have grouped them in Table 5.81. Two flask mouth fragments from Layer 1 refit to give a mouth diameter of 8.8 mm. One plain potsherd (weight = 3.3 g, thickness = 4.20 mm) was found on the surface and is assumed to relate to a later occupation of the hill, perhaps even to SK2005/057A described above.

Table 5.81: Summary statistics for finished ostrich eggshell beads from SK2005/074A.

Layer		Outside diameter (mm)	Aperture diameter (mm)	Thickness (mm)
	Mean	4.46	1.67	1.79
1&2	Std Deviation	0.08	0.20	0.2
(n=3)	Minimum	4.39	1.55	1.63
	Maximum	4.55	1.90	2.01

5.1.29 SK2005/084

The site

This deflated shell scatter lay in a flat, open area some 820 m from the coast and 1.5 km south of the Buffels River (Figure 5.56; 29°41'11.4" S 17°03'48.8" E). It was excavated over an area of 17 m^2 (Orton & Halkett 2006). The following date was obtained:

Lab. No.	Provenience	Material	^{14}C date BP	Calibrated age (95.4%)
UGAMS-6608	S3	Marine shell	2420 ± 30	196 BC–AD 325

Figure 5.56: Surface appearance of the deflated shell scatter at SK2005/084.

Cultural material

The 458 flaked stone artefacts are dominated by quartz and include a quartz segment that likely broke during manufacture and two CCS miscellaneous backed scrapers (Table 5.82). The assemblage appears to be quite typical of Group 1 (Figure 5.57). Four ostrich eggshell beads are present, one small, one medium and two large (Table 5.83). A most interesting find is a piece of engraved ostrich eggshell with a unique design (Figure 5.58). Six potsherds weighing 6.0 g are also present, three of which are undecorated rims. Two of the latter are vertical tapered rims, while the third is flaring and tapered. The mean wall thickness was 3.56 ± 0.45 mm. The ostrich eggshell (worked and unworked) and pottery is all very weathered owing to wind exposure and all is assumed to be the same age.

Table 5.82: Stone artefacts from SK2005/084 (Group 1).

	Quartz	CCS	Quartzite
Bipolar core	2	-	-
Miscellaneous backed scraper	-	2	-
Miscellaneous scraper	-	1	-
Segment	1	-	-
Miscellaneous retouched piece	-	2	-
Blade	1	-	-
Bladelet	2	3	-
Flake	154	40	9
Edge-damaged flake	1	1	-
Chunk	58	5	8
Chip	143	25	-
Total	**362**	**79**	**17**
Stone material % total	**79.0**	**17.2**	**3.7**
Stone material % formal	**16.7**	**83.3**	**-**

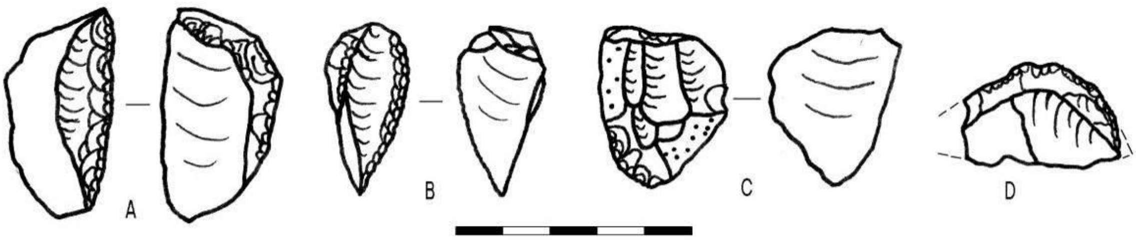


Figure 5.57: Stone artefacts from SK2005/084. A, B: miscellaneous backed scrapers; C: miscellaneous scraper; D: segment. All in CCS except D: quartz. Scale in 5 mm intervals.

Table 5.83: Summary statistics for finished ostrich eggshell beads from SK2005/084.

		Outside diameter (mm)	Aperture diameter (mm)	Thickness (mm)
n=6	Mean	5.51	1.82	1.79
	Std Deviation	1.10	0.18	0.10
	Minimum	3.91	1.57	1.68
	Maximum	6.28	1.98	1.87

Figure 5.58: The engraved ostrich eggshell fragment from SK2005/084. Scale in 5 mm intervals.

5.1.30 SK2005/095

The site

This site comprised five patches (Figure 5.59). The north-western one, Patch A, was richer than the rest that are cumulatively taken as Patch B. The site lay in an open area 1.6 km south of the Buffels River and 950 m inland (29°41'18.5" S 17°03'49.0" E). Some disturbed shell patches to the north were not sampled and may also have belonged to the site (Orton & Halkett 2006). Whether the patches are related is unknown, they exhibit both differences and similarities, and the dating does not help. Although the site was all a single layer, the presence of wind-blasted stone artefacts shows that the area was previously occupied. The following dates were obtained:

Lab. No.	Provenience	Material	^{14}C date BP	Calibrated age (95.4%)
OxA-24551	Patch A, F29 Midden	Bone (*Chersina angulata*)	468 ± 25	AD 1429–1497
OxA-24550	Patch B, S20 L2	Bone (?medium bovid)	389 ± 24	AD 1459–1626

Cultural material

Small stone artefact assemblages, based mostly on clear quartz, were recovered from both the main excavation (Patch A) and the remainder (Patch B) (Tables 5.84-5.85). The only retouched item in Patch A was a large thumbnail scraper on either calcrete or silcrete, though the former seems more likely (Figure 5.60). A CCS adze occurs in Patch B. Neither piece is typical of any Group and, on the strength of the clear quartz component, this site is allocated to Group 3.

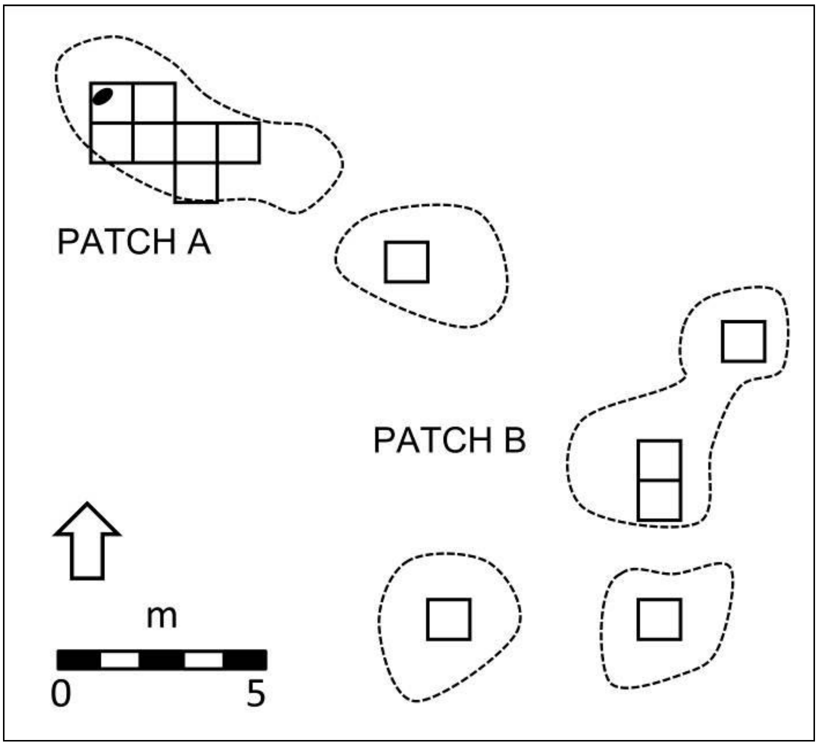


Figure 5.59: Layout of SK2005/095. The dotted lines indicate visible surface shell scatter and the small black oval in Patch A is a tortoise burial.

Table 5.84: Stone artefacts from SK2005/095, Patch A (Group 3).

	Quartz	Calcrete	Other
Bipolar core	2	-	-
Large thumbnail scraper	-	1	-
Bladelet	7	-	-
Flake	67	-	-
Edge-damaged flake	3	-	-
Chunk	18	-	-
Chip	38	-	-
Total	**135**	**1**	**0**
Stone material % total	**99.3**	**0.7**	**-**
Stone material % formal	**-**	**100.0**	**-**
Grindstone fragments	-	-	2

Table 5.85: Stone artefacts from SK2005/095, Patch B.

	Quartz	CCS	Quartzite
Adze	-	1	-
Flake	10	1	2
Edge-damaged flake	2	-	-
Chunk	4	-	1
Chip	12	-	-
Total	**28**	**2**	**3**
Stone material % total	**84.8**	**6.1**	**9.1**
Stone material % formal	**-**	**100.0**	**-**
Hammer stone/grindstone fragment	-	-	1

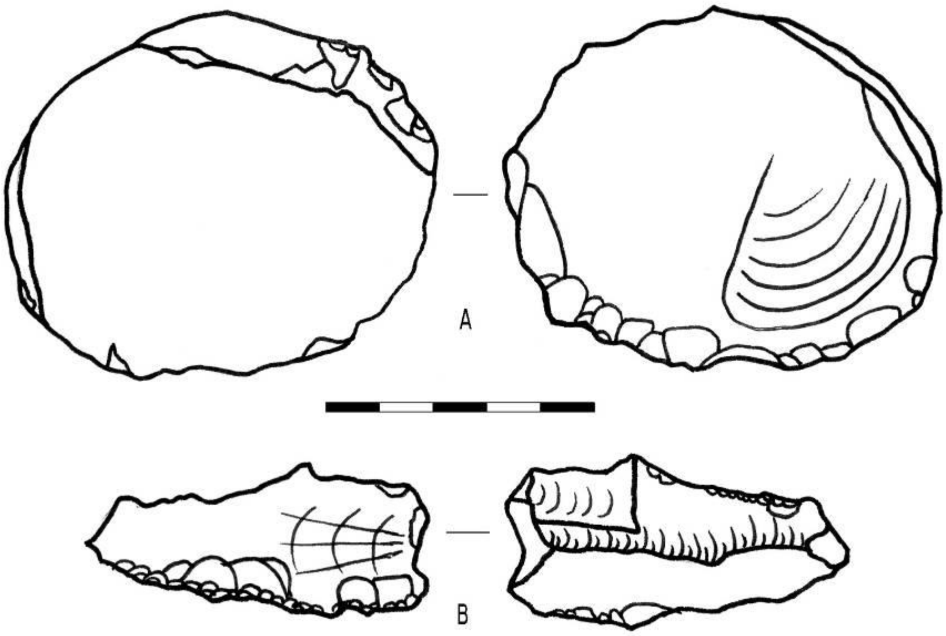


Figure 5.60: Stone artefacts from SK2005/095. A: calcrete large thumbnail scraper (Patch A); B: CCS adze (Patch B). Scale in 5 mm intervals.

Patch A contained eight whole large and very large ostrich eggshell beads (Table 5.86) and a significant collection of bead manufacturing debris (Table 5.87), while on Patch B square N16 contained one whole bead (7.24 mm diameter, 2.20 mm aperture, 1.85 mm thickness) and some manufacturing debris. Three potsherds (weight = 18.7 g, thickness = 5.95 ± 0.37 mm) were found on Patch B with one of the two in M25 almost certainly the same pot as a sherd collected from the surface of U22. A number of water-worn shells of various species were also found in both areas (Table 5.88).

Table 5.86: Summary statistics for finished ostrich eggshell beads from SK2005/095.

		Outside diameter (mm)	Aperture diameter (mm)	Thickness (mm)
n=8	Mean	6.99	2.33	1.93
	Std Deviation	0.80	0.24	0.19
	Minimum	6.11	2.05	1.74
	Maximum	8.00	2.67	2.04

Table 5.87: Ostrich eggshell bead manufacturing debris from SK2005/095.

Stage	IIa	IIb	IIIa	IIIb	IVa	IVb	Va	Vb	VIa	VIb	VIIa	VIIb
Patch A	1	65	4	273		28		11	1	1	8	2
Square N16		3		24		1		2			1	

Table 5.88: Water-worn shells from SK2005/095.

	Conus mozambicus (whole)	*Conus mozambicus* (fragments)	*Bullia* sp.	Unknown
Patch A	5	3	11	
Patch B	1		1	1*

* Likely *Marginella* sp., *Volvarina* sp. or *Prunum capensis*.

5.1.31 SK2005/096

The site

This site included multiple patches of archaeological material some 800 m from the sea and 1.9 km south of the Buffels River (29°41’19.9” S 1703’51.4” E). Patch A was a small, *in situ* shell midden with two areas of dense shell. A single layer was excavated over an area of 20 m^2 and passed through a 3 mm sieve, while a second, deflated patch (096B) had 13 m^2 excavated with a 1.5 mm sieve employed (Orton & Halkett 2006). The following dates were obtained:

Lab. No.	Provenience	Material	^{14}C date BP	Calibrated age (95.4%)
OxA-22974	Patch A, G28	Bone (*Chersina angulata*)	611 ± 23	AD 1319–1420
OxA-22975	Surface		654 ± 23	AD 1301–1401
UGAMS-8871	Patch B, F15	Marine shell	2740 ± 25	648–60 BC

Notes:

- OxA-22974 & OxA-22975 were run on the same sample.

Cultural material

The Patch A stone artefact assemblage is primarily of quartz and CCS with the vast majority of the former being clear. Both clear quartz backed tools and other non-backed types in CCS are present (Table 5.89). The quartz backed tools are of the types expected of a Group 3 assemblage but their small size and often quite informal shapes made identification difficult at times; the sidescraper resembles a backed bladelet, while the miscellaneous backed scraper could easily be a heavily utilised backed bladelet. One of the CCS sidescrapers also had a notch retouched into its distal end and the CCS tools indicate a Group 1 component (Figure 5.61). Not included in the inventory is a heavily weathered clear quartz flake which must have been collected elsewhere for its novelty value. Its frosted surface was likely the result of much sand-blasting. Three fragments each of ochre and another darker pigment were also present. A large lower grindstone with three parallel grooves was found upside down on the surface of the midden (Figure 5.62). The central and deepest groove measures about 30 x 170 mm.

Table 5.89: Stone artefacts from SK2005/096A (Group 1/3).

	Quartz	CCS	Silcrete	Quartzite	Sandstone
Bipolar core	2	1	-	-	-
Irregular core	5	-	-	-	-
Radial core	3	-	-	-	-
Sidescraper	1	4	-	-	-
Thumbnail scraper	-	2	-	-	-
Miscellaneous backed scraper	1	-	-	-	-
Backed bladelet	1	-	-	-	-
Backed bladelet fragment	1	-	-	-	-
Backed piece fragment	1	-	-	-	-
Notched piece	-	1	-	-	-
Miscellaneous retouched piece	-	1	-	-	-
Bladelet	8	3	-	-	-
Flake	116	42	1	6	-
Edge-damaged flake	1	-	-	-	-
Chunk	45	2	-	2	-
Chip	120	13	-	3	-
Total	**305**	**69**	**1**	**11**	**0**

	Quartz	CCS	Silcrete	Quartzite	Sandstone
Stone material % total	**79.0**	**17.9**	**0.3**	**2.9**	**-**
Stone material % formal	**38.5**	**61.5**	**-**	**-**	**-**
Lower grindstone	-	-	-	-	1
Upper grindstone fragment	-	-	-	-	1

Patch B represents a typical Group 1 assemblage with a high proportion of CCS and retouched artefacts in this material (Table 5.90). The quartz is again almost entirely clear but, importantly, the lack of clear quartz backed tools in Patch B supports the presence of a different phenomenon there. Five fragments of ochre were also found.

Table 5.90: Stone artefacts from SK2005/096B (Group 1).

	Quartz	CCS	Quartzite	Other
Single platform core	1	-	-	-
Sidescraper	1	2	-	-
Thumbnail scraper	-	2	-	-
Blade	-	1	-	-
Bladelet	1	-	-	-
Flake	33	17	-	-
Edge-damaged flake	-	1	-	-
Chunk	6	5	1	-
Chip	76	44	-	-
Total	**118**	**72**	**1**	**0**
Stone material % total	**61.8**	**37.7**	**0.5**	**-**
Stone material % formal	**20.0**	**80.0**	**-**	**-**
Hammer stone fragment	-	-	-	1

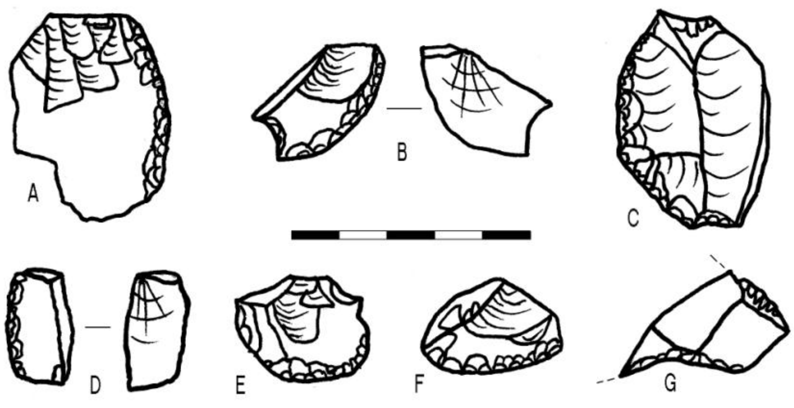


Figure 5.61: Stone artefacts from SK2005/096A. A–D: sidescrapers; E–F: thumbnail scrapers; G: notched piece. All in CCS. Scale in 5 mm intervals.

Figure 5.62: The unusually deeply grooved lower grindstone from SK2006/096A. Scale in 50 mm intervals.

Whether the CCS component at SK2006/096A belongs with the site or is part of a background scatter relating to the far older SK2006/096B cannot be proven. Evidence points both ways (Table 5.91), but given the occurrence of similar assemblages elsewhere the Patch A collection is assumed to be uncontaminated.

Table 5.91: Evidence for the origin of the CCS retouched tools in SK2006/096.

CCS tools originate from 096A	CCS tools originate from 096B
• Greater density of CCS tools in 096A than in 096B, while total CCS density is lower in 096A.	• CCS tools all in northern part of 096A, closest to 096B.
• Scrapers, and particularly thumbnail scrapers, occur in other late sites.	• Notched pieces are absent from other sites dating within the last 2000 years.
• Generally large number of CCS artefacts in what would otherwise be a Group 3 assemblage.	• The same scraper types occur in both assemblages.

A single fragment of an ostrich eggshell flask mouth, one engraved fragment and two ostrich eggshell beads, one large and one medium, were found in Patch A (Table 5.92). The engraved fragment has just one line across it. Eight probable *Bullia* pendants were found in five contiguous squares (Figure 5.63). All are water-worn and it is not possible to tell whether the holes were formed as a result of natural degradation in the ocean or if they are anthropogenic. All are well worn and some seem to display slightly greater wear at the end from which they would hang had the holes been threaded. Just one small bead (3.62 mm diameter, 1.56 mm aperture, 1.45 mm thickness) was found in Patch B.

Table 5.92: Summary statistics for finished ostrich eggshell beads from SK2005/096A.

		Outside diameter (mm)	Aperture diameter (mm)	Thickness (mm)
n=2	Mean	6.04	1.81	1.68
	Std Deviation	0.83	0.28	0.00
	Minimum	5.45	1.61	1.68
	Maximum	6.62	2.01	1.68

Figure 5.63: Two perforated *Bullia* shells from SK2005/096A. Scale in 5 mm intervals.

A collection of ten potsherds (73.6 g) was found in Patch A. All are body sherds with nine, all from the same square, likely originating from a single vessel. One seems to be from the neck area and the other eight all have a thick residue adhering to their inner surfaces. These eight refit to form two sets. The tenth sherd has a very smooth surface that may have been burnished. The mean wall thickness was 5.92 ± 0.47 mm.

5.1.32 SK2006/006

The site

Three patches of shell were excavated surrounding a dune 480 m from the coast and 250 m south of the Buffels River (29°40’39.7” S 17°03’24.7” E). Patches 1 to 3 had 12 m^2, 13 m^2 and 8 m^2 excavated from them respectively, but at Patch 2 the deeper levels were sampled over a smaller area. All three had a shell midden just beneath the surface, but Patch 2 had a second one further down. A 1.5 mm sieve was used throughout

(Halkett & Dewar 2007). The two middens at Patch 2 are referred to as Upper and Lower. Differential abrasion of ostrich eggshell (fragments and beads) and stone artefacts throughout the site suggests the possibility of mixing of different aged assemblages, but the dating supports one general period of occupation. The following dates were obtained:

Lab. No.	Provenience	Material	^{14}C date BP	Calibrated age (95.4%)
OxA-24077	Patch 2, Upper, S39 Lower 2	Charcoal (sp. unknown)	377 ± 24	AD 1465–1630
OxA-25329	Patch 2, Lower, S39 Lower 2A	Charcoal (sp. unknown)	401 ± 25	AD1455–1625
OxA-24076	Patch 3, B53	Charcoal (sp. unknown)	425 ± 24	AD 1446–1621

Cultural material

Patch 1 yielded a small, undiagnostic assemblage (Table 5.93) possibly ascribable to Group 1. Patch 2 contains a larger assemblage including both scrapers and backed tools (Tables 5.94-5.95). Despite the dating, there were enough differences in the two layers to support retention of two assemblages. Although numbers are small, it seems that CCS backed tools are more frequent in Lower. The miscellaneous backed scraper in Upper is unusual and essentially a truncated scraper. In Lower the borer is unconventional being rather flat and having a truncation opposite the tip (Figure 5.64). Local silcrete is typically very coarse-grained and seldom flaked. All the silcrete in Patch 2, however, is very fine-grained, resembling that from PN2009/001. Both layers have Group 1 components but the quartz backed tools are all clear suggesting Group 3 contributions as well. Pigment occurs on Patch 2 with specularite (one fragment in Upper), mica (three fragments in Lower), ochre (one fragment in Upper and nine on Lower) and other dark pigment (one fragment in Upper) present. The Patch 3 assemblage seems more characteristic of Group 1 (Table 5.96). Although scraper-dominated, its tools are atypical. The side scraper's retouched edge tends towards backing in one part and the MRP has both scraper and denticulate retouch opposing a backed edge (Figure 5.65).

Table 5.93: Stone artefacts from SK2006/006, Patch 1 (Group 1).

	Quartz	CCS	Quartzite
Bipolar core	1	-	-
Irregular core	1	-	-
Bladelet	1	-	-
Flake	17	3	1
Edge-damaged flake	-	1	-
Chunk	6	-	-
Chip	6	1	-
Total	**32**	**5**	**1**
Stone material % total	**84.2**	**13.2**	**2.6**
Stone material % formal	-	-	-
Upper grindstone	-	-	1

Table 5.94: Stone artefacts from SK2006/006, Patch 2 Upper (Group 1/3).

	Quartz	CCS	Silcrete	Quartzite	Other
Bipolar core	2	1	-	-	-
Sidescraper	-	1	-	-	-
Thumbnail scraper	-	1	-	-	-
Miscellaneous backed scraper	-	1	-	-	-
Backed piece fragment	2	-	-	-	-
Bladelet	2	-	-	1	-
Flake	54	21	4	8	-
Edge-damaged flake	-	1	-	-	-
Chunk	13	1	-	3	-
Chip	88	11	-	1	-
Total	**161**	**38**	**4**	**13**	**-**
Stone material % total	**74.5**	**17.6**	**1.9**	**6.0**	**-**
Stone material % formal	**40.0**	**60.0**	**-**	**-**	**-**
Hammer stone/upper grindstone	-	-	-	-	1

Table 5.95: Stone artefacts from SK2006/006, Patch 2 Lower (Group 1/3).

	Quartz	CCS	Silcrete	Quartzite	Other
Single platform core	1	-	-	-	-
Irregular core	-	-	-	1	-
Double endscraper	-	1	-	-	-

	Quartz	CCS	Silcrete	Quartzite	Other
Thumbnail scraper	-	1	-	-	-
Scraper fragment	-	1	-	-	-
Backed bladelet	1	1	-	-	-
Backed point	1	-	-	-	-
Borer	-	1	-	-	-
Miscellaneous backed piece	-	1	-	-	-
Backed piece fragment	1	-	-	-	-
Notched piece	-	1	-	-	-
Blade	-	1	-	-	-
Bladelet	5	5	-	-	-
Flake	38	41	3	5	-
Edge-damaged flake	-	2	-	-	-
Chunk	15	3	-	1	-
Chip	57	21	-	1	-
Total	**119**	**80**	**3**	**8**	**0**
Stone material % total	**56.3**	**38.5**	**1.4**	**3.8**	**-**
Stone material % formal	**30.0**	**70.0**	**-**	**-**	**-**
Lower grindstone fragment	-	-	-	1	-
Hammer stone/upper grindstone fragment	-	-	-	1	-

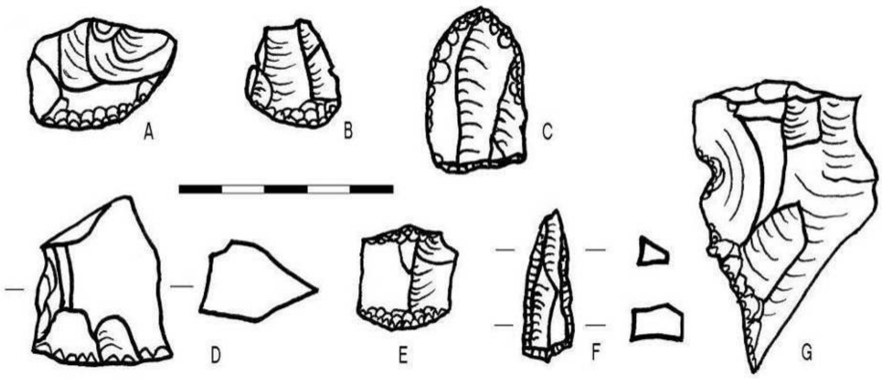


Figure 5.64: Stone artefacts from SK2006/006 Patch 2 Upper (A-C) and Lower (D-G). A: sidescraper; B, D: thumbnail scrapers; C: miscellaneous backed scraper; E: double endscraper; F: borer; G: notched piece. All in CCS. Scale in 5 mm intervals.

Table 5.96: Stone artefacts from SK2006/006, Patch 3 (Group 1).

	Quartz	CCS	Silcrete	Quartzite	Other
Sidescraper	-	1	-	-	-
Scraper fragment	-	1	-	-	-
Miscellaneous retouched piece	-	1	-	-	-
Bladelet	1	2	-	-	-

	Quartz	CCS	Silcrete	Quartzite	Other
Flake	17	4	1	2	-
Edge-damaged flake	-	2	-	-	-
Chunk	2	1	-	-	-
Chip	12	1	-	1	-
Total	**32**	**13**	**1**	**3**	**0**
Stone material % total	**65.3**	**26.5**	**2.0**	**6.1**	**-**
Stone material % formal	**-**	**100.0**	**-**	**-**	**-**

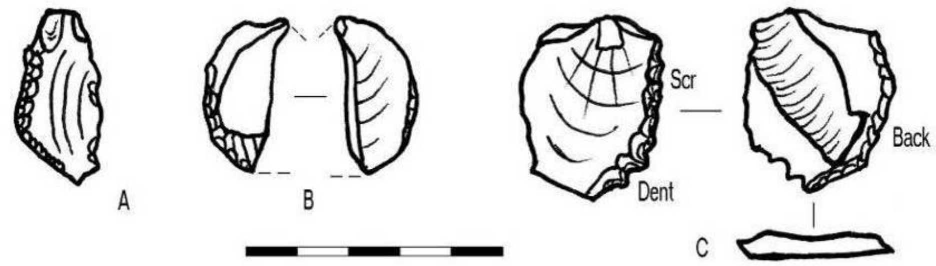


Figure 5.65: Stone artefacts from SK2006/006 Patch 3. A: sidescraper; B: scraper fragment; C: miscellaneous retouched piece with scraper, denticulate and backing retouch all present as indicated. All in CCS. Scale in 5 mm intervals.

Patches 1 and 2 contained ostrich eggshell beads (Tables 5.97). On the former there were just three – two large and one small. In Patch 2 Upper the very large (8.20 mm) bead may well be intrusive since the rest are all medium and small (the second largest bead is 5.31 mm in diameter). With the largest bead excluded the mean drops to 4.69 ± 0.58 mm. The beads from Lower are more homogenous (SD = 0.55 mm) with nine small and only two medium beads. Also on Patch 2 Upper was a single weathered fragment of engraved ostrich eggshell with several parallel lines on it. A single flask mouth fragment with a diameter of approximately 20 mm came from Patch 3.

Table 5.97: Summary statistics for finished ostrich eggshell beads from SK2006/006.

Patch / Layer		Outside diameter (mm)	Aperture diameter (mm)	Thickness (mm)
1 (n=3)	Mean	6.07	1.84	1.68
	Std Deviation	1.63	0.28	0.10
	Minimum	4.25	1.52	1.58
	Maximum	7.40	2.02	1.78
2 Upper	Mean	5.19	1.67	1.76

Patch / Layer		Outside diameter (mm)	Aperture diameter (mm)	Thickness (mm)
(n=7)	Std Deviation	1.43	0.44	0.14
	Minimum	3.68	1.16	1.53
	Maximum	8.20	2.53	1.95
	Mean	4.32	1.52	1.62
2 Lower	Std Deviation	0.55	0.26	1.16
(n=11)	Minimum	3.54	1.10	1.33
	Maximum	5.09	1.98	1.87

A single undiagnostic potsherd (weight = 1.5 g, thickness = 5.61 mm) was present on Patch 1. The Upper layer of Patch 2 produced 12 sherds weighing 68.9 g and with a mean thickness of 6.12 ± 0.37 mm. Four refit to produce a horizontally-pierced lug (Figure 5.66), while four more clearly belong to the same pot. These eight were in the bottom part of the layer, while the other four sherds from above were somewhat weathered. No pottery occurred in Lower. Patch 3 had eight plain sherds weighing 26.4 g and with a mean thickness of 5.34 ± 0.31 mm.

Figure 5.66: The pot lug from SK2006/006, Patch 2, Upper. Scale in 5 mm intervals.

5.1.33 TP2004/003

The site

This large shell scatter lay in a depression along the western side of a low, vegetated dune ridge 1.4 km from the coast (S 29°29’52.7” E 16°59’55.8”). The site was well deflated and, except for the stone artefacts, all material was in very poor condition. Various patches were sampled over a total area of 9 m^2 (Orton & Halkett 2005). The following date was obtained:

Lab. No.	Provenience	Material	^{14}C date BP	Calibrated age (95.4%)
UGAMS-8424	S20	Marine shell	2230 ± 25	AD 52–539

Cultural material

The small assemblage is exclusively of clear quartz and includes two backed tools (Table 5.98). The site is thus in Group 3. Two engraved ostrich eggshell fragments with grid-type designs on them were also recovered (Figure 5.67).

Table 5.98: Stone artefacts from TP2004/003 (Group 3).

	Quartz
Backed flake	1
Backed bladelet	1
Bladelet	1
Flake	26
Edge-damaged flake	1
Chunk	3
Chip	20
Total	**53**
Stone material % total	**100.0**
Stone material % formal	**100.0**

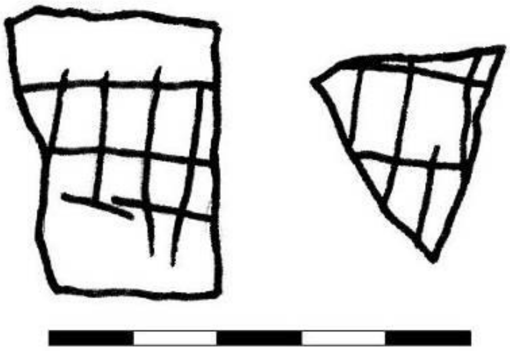


Figure 5.67: The two engraved ostrich eggshell fragments from TP2004/003. Scale in 5 mm intervals.

5.1.34 TP2004/014

The site

This site was 900 m inland in a gently undulating area (29°29’06.7” S 16°59’33.8” E). Various scatters were evident and sampled with two containing pottery. Only Area A is of concern here and this lacked pottery. Two spits were removed, the first from 6 m^2 and the second from 2 m^2. Most artefacts (79.9%) were located between 8 and 15 cm below the surface in the lower spit. Unfortunately the site was only briefly sampled and, since mining did not proceed there, no further excavation was carried out. The deposits were screened on a 1.5 mm sieve (Orton & Halkett 2005). The following date was obtained:

Lab. No.	Provenience	Material	^{14}C date BP	Calibrated age (95.4%)
UGAMS-8425	H44 Lower	Marine shell	3430 ± 25	1417–908 BC

Cultural material

Aside from a single broken ostrich eggshell bead in stage IVb (Orton 2008d) the only cultural material in this excavation was a rich lithic assemblage. Although some of the lithics came from above the main layer it is likely that they are of broadly similar age and are dispersed through bioturbation. The stone artefacts are presented in Table 5.99 and the types are typical of Group 1 and include a rare truncated bladelet (Figure 5.68).

Table 5.99: Stone artefacts from TP2004/014 (Group 1).

	Quartz	CCS
Bipolar core	-	-
Single platform core	2	2
Edge-damaged single platform core	-	1
Irregular core	4	1
Backed scraper	-	2
Sidescraper	-	1
Miscellaneous scraper	-	1
Backed bladelet	-	2
Curve-backed bladelet	-	1
Truncated flake	-	1
Segment	-	1
Backed piece fragment	-	1
Notched piece	-	1
Miscellaneous retouched piece	1	2
Blade	-	1
Edge-damaged blade	-	1
Bladelet	-	1
Flake	36	20
Edge-damaged flake	2	2
Chunk	24	7
Chip	134	32
Total	**203**	**81**
Stone material % total	**71.5**	**28.5**
Stone material % formal	**6.7**	**93.3**

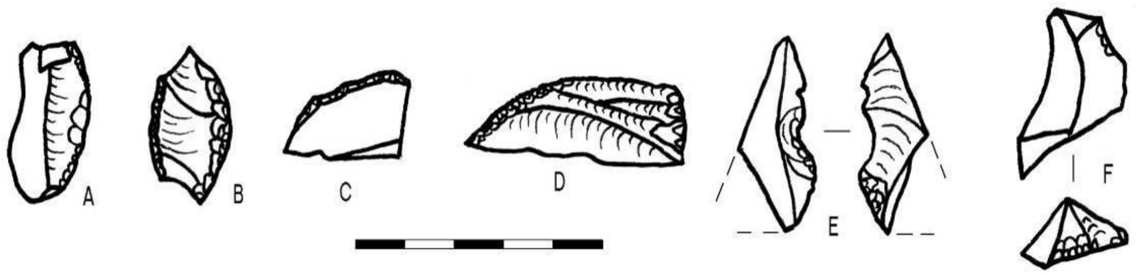


Figure 5.68: Stone artefacts from TP2004/014. A: sidescraper; B: backed scraper; C: segment; D: curve-backed bladelet; E: notched piece; F: truncated bladelet. All in CCS. Scale in 5 mm intervals.

5.1.35 Assemblages described elsewhere

Here I very briefly describe the sites incorporated within my Sandveld cultural sequence but published elsewhere. With two exceptions, detailed data are omitted, since these are available in the relevant publications. Although other categories of finds occur, I refer only to stone artefacts, ostrich eggshell beads and pottery as it is these three that are of concern to my research. Note that for the sake of standardisation all radiocarbon dates have been recalibrated and their full details are presented in Appendix 2.

DP2004/014

This *in situ* shell midden dates to AD 1287–1666 (GX-32060; Dewar 2008). A large, mostly informal stone artefact collection was recovered. Most was quartz with a very small proportion of it clear. The latter included one backed piece fragment, while two backed bladelets in clear quartz were found in a disturbed area. The assemblage thus includes Group 2 and Group 3 components. Since spatial data are not important here, material from the disturbed area is included and the full stone data set is presented in Table 5.100. Ostrich eggshell bead manufacturing took place on site and the whole beads were variable in external diameter ranging from 4.40 to 7.90 mm and with a mean diameter of 5.50 ± 0.8 mm. Pottery was rare with just one plain rim sherd found.

Table 5.100: Stone artefacts from DP2004/014 (Group 2/3).

	Quartz	CCS	Quartzite	Other
Bipolar core	15	-	-	-
Single platform core	1	-	1	-
Irregular core	5	-	-	-
Backed bladelet	2	-	-	-
Backed piece fragment	1	-	-	-
Blade	2	-	-	-
Bladelet	7	-	-	-
Flake	385	2	44	-
Chunk	217	-	16	-

Chip	211	-	5	-
Total	**846**	**2**	**66**	**0**
Stone material % total	**92.6**	**0.2**	**7.2**	**-**
Stone material % formal	**100.0**	**-**	**-**	**-**
Lower grindstone fragment	-	-	1	-
Upper grindstone fragment	-	-	-	3
Upper grindstone/hammer stone	-	-	-	6
Upper grindstone/hammer stone fragment	-	-	-	2
Hammer stone	-	-	-	1

KN6-3C (KN2001/008C)

This large site has two contemporary middens, North and South, but with an older occupation beneath the North Midden and extending eastwards into an unexcavated area. The levels are here termed Upper and Lower. Three dates were obtained by Dewar (2008) and a fourth has been added (see below). A rich and unusual stone artefact collection was recovered and, owing to errors in Dewar (2008, table 9.2), the details are presented again here (Table 5.101-5.102). The assemblage is remarkable and unique along this coastline for the many borers present, though these tools are reported from Elizabeth Bay on the Namibian coastline (Rudner & Grattan-Bellew 1964). A variety of scrapers and other backed artefacts also occur. There were 40 ostrich eggshell beads, all in the upper layer, with a mean external diameter of 4.20 ± 0.5 mm (Dewar 2008). The vast majority are small. Engraved ostrich eggshell is also present in both levels. The dates are as follows:

Lab. No.	Midden	Provenience	Material	^{14}C date BP	Calibrated age (95.4%)
Pta-9335	North	M18 SMU	Marine shell	3720 ± 45	1813–1272 BC
Pta-9325	North	M18 Surf 1	Marine shell	3740 ± 60	1862–1293 BC
Pta-9316	North	M18 Surf 3	Marine shell	4630 ± 70	3036–2401 BC
OxA-22970	South	G16 Surface	Bone (*Chersina angulata)*	3355 ± 28	1681–1498 BC

Notes:

- Pta-9335, Pta-9325 & Pta-9316 obtained by Dewar (2008) all from the North Midden.
- Pta-9335 was incorrectly reported with M18 SMU being the correct provenience.
- Given the overlap between bone and shell dates, OxA-22970 is used for the age of ‘Upper’.

Table 5.101: Stone artefacts from KN2001/008C, Upper (Group 1).

	Quartz	CCS	Quartzite	Sandstone	Other
Bipolar core	12	10			
Edge-damaged bipolar core	-	2			
Single platform core	3	1			
Irregular core	24*	4			
Backed scraper	-	7			
Sidescraper	-	8			
Double sidescraper	-	1			
Thumbnail scraper	-	5			
Miscellaneous backed scraper	1	5			
Miscellaneous scraper	1	4			
Backed flake	1	4			
Backed bladelet	1	10	-	-	-
Backed point	3	3	-	-	-
Backed bladelet fragment	-	1	-	-	-
Borer	-	27	-	-	-
Segment	4	2	-	-	-
Miscellaneous backed piece	2	15	-	-	-
Backed piece fragment	2	15	-	-	-
Notched piece	-	1	-	-	-
Miscellaneous retouched piece	2	13	-	-	-
Blade	6	2	-	-	-
Bladelet	26	13	-	-	-
Edge-damaged bladelet	2	1	-	-	-
Flake	544	252	3	-	8
Edge-damaged flake	22	20	-	-	-
Chunk	322	99	7	-	3
Edge-damaged chunk	2	6	-	-	-
Chip	1623	502	4	-	4
Edge-damaged chip	2	3	-	-	-
Total	**2605**	**1036**	**14**	**0**	**15**
Stone material % total	**71.0**	**28.2**	**0.4**	**-**	**0.4**
Stone material % formal	**12.3**	**87.7**	**-**	**-**	**-**
Upper grindstone	1	-	-	-	1
Hammer stone/upper grindstone	-	-	1	1	1
Hammer stone	-	-	1	1	3
Lower grindstone	-	-	-	2	1

* One irregular core is also the upper grindstone

Table 5.102: Stone artefacts from KN2001/008C, Lower (Group 1).

	Quartz	CCS	Quartzite	Sandstone	Other
Single platform core	1	-	-	-	-
Irregular core	1	-	-	-	-
Sidescraper	-	1	-	-	-
Thumbnail scraper	-	1	-	-	-
Miscellaneous scraper	-	2	-	-	-
Baked flake	-	1	-	-	-
Backed bladelet	1	-	-	-	-
Miscellaneous backed piece	-	4	-	-	-
Backed piece fragment	-	1	-	-	-
Flake	24	17	-	1	-
Edge-damaged flake	-	1	-	-	-
Chunk	19	5	-	-	-
Chip	121	125	-	-	-
Total	**167**	**158**	**0**	**1**	**0**
Stone material % total	**51.2**	**48.5**	**-**	**0.3**	**-**
Stone material % formal	**9.1**	**90.9**	**-**	**-**	**-**

KV502 (KV2001/011)

This deflated shell midden yielded an age of 826–339 BC (Pta-9306; Dewar 2008). It has a collection of stone artefacts based primarily on milky quartz, but including fine-grained materials as well, from which most of the retouched tools are made. Silcrete is included, with both very fine-grained and coarser material present. Retouched artefacts are on both CCS and fine silcrete and most are scrapers. The assemblage falls within Group 1. Ostrich eggshell beads and pottery are absent.

Rooiwal Midden (LK2001/003)

This small midden lay near the Spoeg River estuary atop a small but high dune field on the north edge of Rooiwal Bay. It was dated to AD 1196–1581 (Pta-8910) and revealed an assemblage of clear quartz artefacts belonging to Group 3. The 21 ostrich eggshell beads are mostly medium in size, but range from 4.5 to 7.95 mm in external diameter with a mean of 5.70 ± 1.01 mm. Twenty-one small potsherds (18.8 g) suggest two pots.

Although the eight rims sherds are very small, they appear to be undecorated (Orton *et al.* 2005).

Rooiwal Hollow (LK2001/004)

This site lay in a large deflation hollow at the foot of the dune field containing Rooiwal Midden. Dates from two areas suggest ages of 331 BC–AD 180 (Pta-8915) and 156 BC-AD 410 (Pta-8909). The flaked stone assemblage is of clear quartz with backed tools (Group 3) and the eight ostrich eggshell beads are all small, their mean external diameter being 3.77 ± 0.37 mm. Pottery was absent (Orton *et al.* 2005).

LK2004/011

This midden was found partially deflated and partially *in situ* and two radiocarbon dates from the latter part suggested an age of AD 1241–1481 (GX-32057, GX-32059; Dewar 2008). All quartz was clear, prompting assignation to Group 3. However, the assemblage is somewhat atypical, since only one of the three retouched pieces was backed, and quartzite and a peculiar dark-coloured CCS comprised a larger than usual proportion of the materials. Three medium-sized ostrich eggshell beads yielded a mean diameter of 5.3 ± 0.17 mm (calculated from Dewar 2008).

MB2005/005A

This *in situ* shell midden yielded two strongly overlapping radiocarbon ages calibrating to 383 BC–AD 118 (GX-32524, GX-32525; Dewar 2008). The very large assemblage of clear quartz artefacts included many retouched items, both scrapers and backed tools (Group 3). A small collection of CCS also included both tool types. Five ostrich eggshell beads, mostly small, had a mean external diameter of 3.30 ± 1.10 mm and there was no pottery.

MB2005/005B

This site was largely deflated but part was preserved *in situ* beneath MB2005/005A. A single date from the *in situ* midden provided an age of 3932–3383 BC (GX-32526; Dewar 2008). The stone artefacts included mostly quartz, but some CCS was also present. The majority of backed tools were in quartz and scrapers were mostly in CCS. The assemblage is an atypical Group 1 assemblage. The collection of 38 ostrich eggshell beads was mostly small with a mean external diameter of 4.20 ± 0.60 mm.

SK400 (SK2001/026)

This midden contained a rich assemblage of springbok (*Antidorcas marsupialis*; MNI=123) bone that was interpreted to represent a mass-kill site (Dewar 2008; Dewar *et al.* 2006). Two almost identical dates place the site at AD 1438–1627 (Pta 9099, Pta-9105). The stone assemblage is highly informal, based largely on milky quartz, and has no retouched items (Group 2). The 182 ostrich eggshell beads were mostly large with a mean external diameter of 7.40 ± 1.4 mm, but the range included beads from 2.90 to 10.50 mm. Pottery was abundant and included four plain rims and one with a double row of impressions. A spout fragment was also present.

TP2004/004

This site had two spatially discrete middens on it that were assumed to be related. A date from the northern midden, from which almost all the cultural material originates, places the site at AD 1300–1680 (GX-32058; Dewar 2008). Although the quartz in the tiny assemblage was all clear, the very low artefact density and its informal nature prompted a Group 2 assignation. One unfinished ostrich eggshell bead was found. The primary significance of this site is the large pottery assemblage which includes two plain rims and seven rims with elongated impressions below the lip.

5.2 Hardeveld assemblages

Two newly documented sites from opposite sides of the Groot Goeraap River in the southernmost Hardeveld are presented here. The surroundings are really more typical of the rolling hills of the inland Sandveld, but the valley has been carved into the underlying hard geology to reveal the granite.

5.2.1 KK002

The site

This shallow rock shelter was located on the northern side of a small rocky valley in the south-western extremity of the Hardeveld, 17 km from the sea (31°14'32.9" S 18°03'05.8" E; Figure 3.4). An excavation of 7.5 m^2 was conducted (Figure 5.69) and the *in situ* deposits, including a layer of bedding grass, were found to vary from 0 to 9 cm deep over bedrock. Towards the front of the shelter poorer contexts were encountered with a depth of 21 cm where the bedrock dips gently downwards (Figure 5.70). It appears that the shelter was largely empty prior to the final occupation, but there may have been residual deposits on the bedrock when the grass layer was introduced. The shelter is south-facing and overlooks a small river valley (Figure 5.71). The following dates were obtained:

Lab. No.	Provenience	Material	^{14}C date BP	Calibrated age (95.4%)
OxA-25346	I11 NW L2/4 interface	Bone (*Chersina angulata*)	701 ± 23	AD 1285–1390
OxA-25347	I11 NW L4B	Bone (*Chersina angulata*)	334 ± 23	AD 1503–1647
OxA-25348	G10 NE L6	Bone (*Chersina angulata*)	175 ± 23	AD 1671–1954
OxA-25349	I12 SE L5B	Bone (*Chersina angulata*)	1462 ± 24	AD 597–666
OxA-25350	I8 NE L3	Bone (*Chersina angulata*)	932 ± 24	AD 1046–1218
OxA-25351	I8 NE L3C	Bone (*Chersina angulata*)	644 ± 23	AD 1305–1404

Using the dates and finds it is possible to envisage an occupation sequence. Rare retouched tools typical of the mid-Holocene were present in levels close to bedrock and suggest some mid-Holocene occupation; this deposit was probably washed out of the shelter during a period of non-occupation. A mid-first millennium AD occupation is represented by the L5 deposits against the back wall with the remainder perhaps also having washed out. Sporadic occupation then took place throughout the second millennium AD until the start of the twentieth century. For the purposes of analysis, L5 and L5B are together regarded as a layer and termed ‘Lower’, while the remaining deposits are grouped as ‘Upper’.

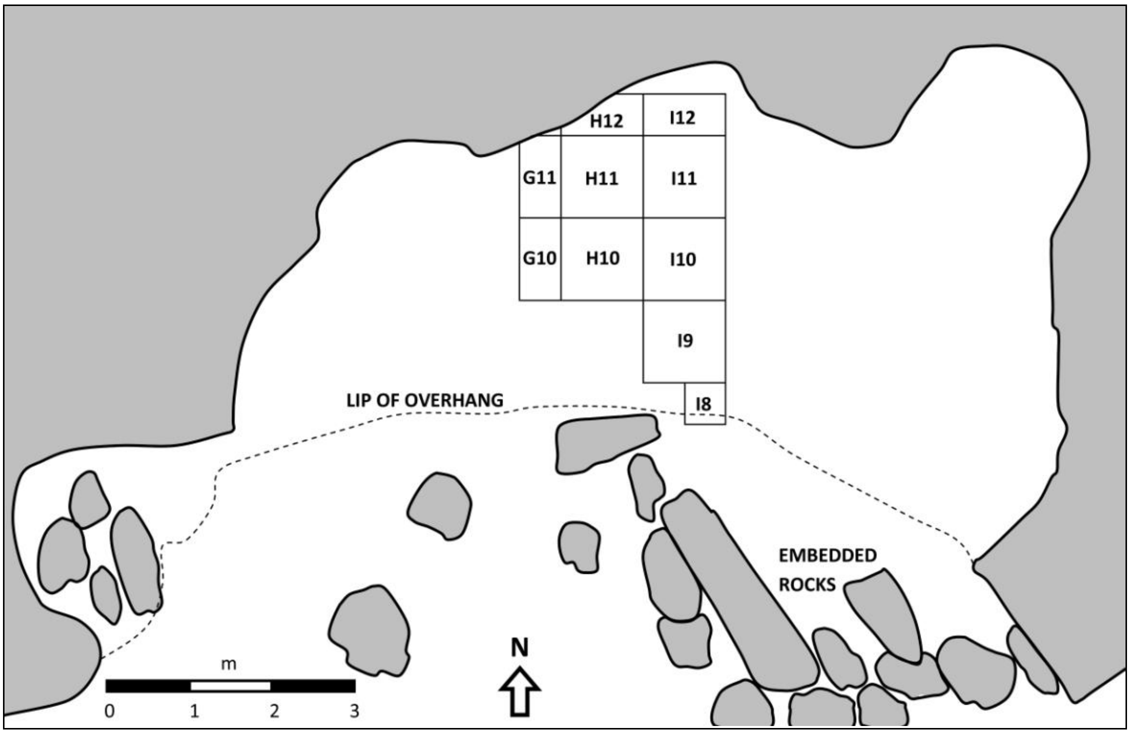


Figure 5.69: Floor plan of KK002.

<u>Cultural material</u>

The Upper occupation contained a large flaked stone artefact assemblage very strongly dominated by quartz but with various other materials present. A variety of retouched artefacts was found, but most were backed and made from clear quartz (Group 3; Table 5.103; Figure 5.72). Of the 38 quartz retouched pieces, 29 are clear (76.3%) indicating a strong Group 3 component.

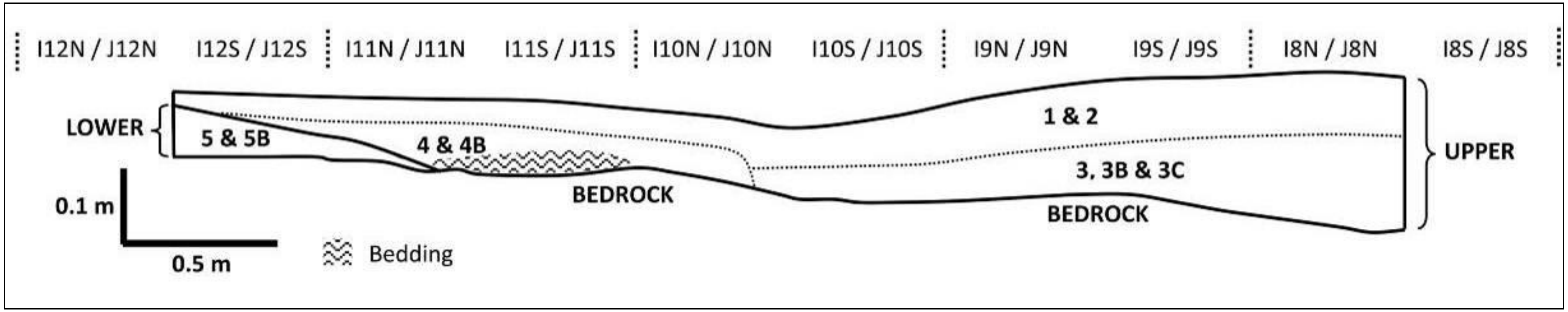


Figure 5.70: Section through the KK002 deposits facing east.

Figure 5.71: Northwest view towards KK002 (dome-shaped shelter in mid-picture).

Segments and triangles are typically expected in mid-Holocene occupations (Orton & Halkett 2010) but, given the two segments at LK2004/011B and these finds here, it may be that they are simply rare occurrences in late sites. The three silcrete and CCS tools, however, are more likely to be mid-Holocene Group 1 remnants. Four small grindstone fragments and one hammer stone were found, along with minimal specularite (one fragment) and black pigment (two fragments) and 32 fragments of ochre.

Table 5.103: Stone artefacts from KK002, Upper (Group 3, with residual Group 1).

	Quartz	CCS	Silcrete	FGBR	Quartzite	Sandstone	Other
Bipolar core	64	-	-	-	-	-	-
Single platform core	6	-	-	1	1*	-	-
Irregular core	16	-	1	-	-	-	-
Sidescraper	2	-	-	-	-	-	-
Miscellaneous scraper	1	-	-	-	-	-	-
Scraper fragment	1	-	-	-	-	-	-
Baked flake	1	-	-	-	-	-	-
Backed bladelet	9	-	-	-	-	-	-
Backed point	6	-	1	-	-	-	-
Curve-backed bladelet	1	-	-	-	-	-	-
Backed bladelet fragment	6	-	-	-	-	-	-
Backed point fragment	2	-	-	-	-	-	-
Borer	-	1	-	-	-	-	-
Segment	1	-	1	-	-	-	-
Triangle	3	-	-	-	-	-	-
Backed piece fragment	3	1	-	-	-	-	-
Notched piece	1	-	-	-	-	-	-
Adze	-	-	-	-	-	-	-
Miscellaneous retouched piece	1	1	-	-	-	-	-
Blade	13	-	-	1	2	-	-
Bladelet	213	4	5	2	7	-	-
Edge-damaged bladelet	1	-	3	-	-	-	-
Flake	2167	42	63	21	232	3	9
Edge-damaged flake	17	3	3	-	-	-	-
Chunk	739	9	4	7	49	-	4

	Quartz	CCS	Silcrete	FGBR	Quartzite	Sandstone	Other
Edge-damaged chunk	3	-	-	-	-	-	-
Chip	4956	32	10	3	47	-	1
Total	**8233**	**93**	**91**	**35**	**338**	**3**	**14**
Stone material % total	**93.5**	**1.1**	**1.0**	**3.8**	**0.4**	**0.0**	**0.2**
Stone material % formal	**88.4**	**7.0**	**4.7**	**-**	**-**	**-**	**-**
Lower grindstone fragment	-	-	-	-	2	-	-
Grindstone fragment	-	-	-	-	2	-	-
Hammer stone	-	-	-	-	1	-	-

* The quartzite single platform core is also a lower grindstone fragment.

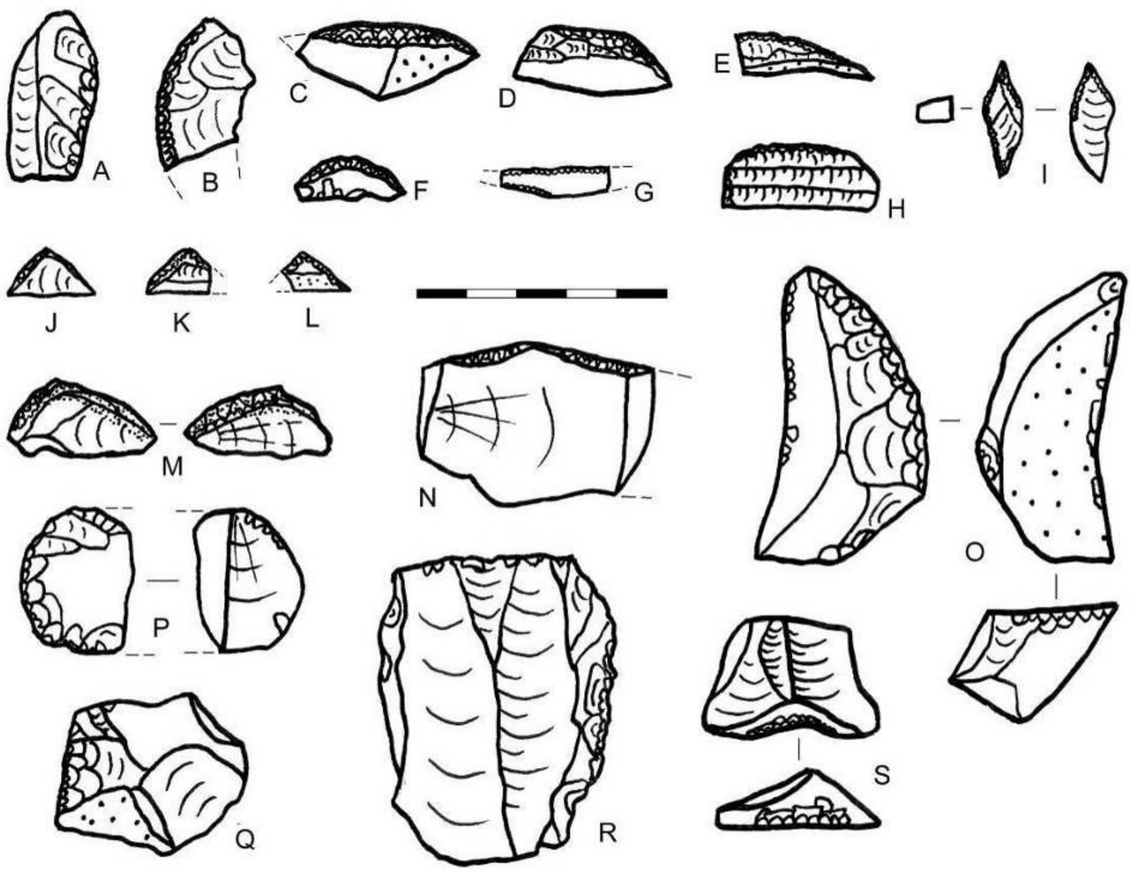


Figure 5.72: Stone artefacts from KK002, Upper. A, B: sidescrapers; C, G, H: backed bladelet; D: curve-backed bladelet; E: backed point; F: segment; I: borer; J–L: triangles; M: segment with red mastic stain (stippled); N: backed piece fragment; O, R: miscellaneous retouched piece; P: scraper fragment; Q: miscellaneous scraper; S: notched piece. A, D, M, N, Q, R: quartz; B, C, E, J–L, P, S: clear quartz; G, I, O: CCS. F, H: silcrete. Scale in 5 mm intervals.

A large assemblage was also present in the considerably smaller excavated volume of Lower (Table 5.104). Material frequencies are virtually identical and 73.3% of the quartz retouched tools are clear indicating Group 3. The silcrete adze is not well developed but, as sometimes occurs in south-western Cape assemblages (J. Kaplan 1987), appears to be made on a MSA blade, in this case broken. No ground artefacts were found but two fragments of ochre and one fragment of specularite were present.

Table 5.104: Stone artefacts from KK002, Lower (Group 3).

	Quartz	CCS	Silcrete	FGBR	Quartzite	Other
Bipolar core	5	-	-	-	-	-
Irregular core	1	-	-	-	-	-
Backed flake	1	-	-	-	-	-
Backed bladelet	6	-	-	-	-	-
Backed point	3	-	-	-	-	-
Backed point fragment	1	-	-	-	-	-
Backed piece fragment	2	-	-	-	-	-
Segment	1	-	-	-	-	-
Adze	-	-	1	-	-	-
Miscellaneous retouched piece	1	-	-	-	-	-
Blade	2	1	-	-	-	-
Bladelet	29	-	1	1	5	-
Edge-damaged bladelet	-	-	-	-	-	-
Flake	242	9	10	2	28	1
Edge-damaged flake	5	1	-	-	-	-
Chunk	78	1	4	-	13	-
Edge-damaged chunk	-	-	-	-	-	-
Chip	532	2	1	1	4	-
Total	**909**	**14**	**17**	**4**	**-**	**1**
Stone material % total	**91.4**	**1.4**	**1.7**	**5.0**	**0.4**	**0.1**
Stone material % formal	**93.8**	**-**	**6.3**	**-**	**-**	**-**

That both segments were in milky quartz and came from the base of the deposits may support an older age for them. One of these and a backed bladelet in Lower had mastic stains along their backed edges, one red and one yellow-green (Figure 5.73 G & H). Ochre has been shown to be a good additive to mastic (Wadley *et al.* 2009).

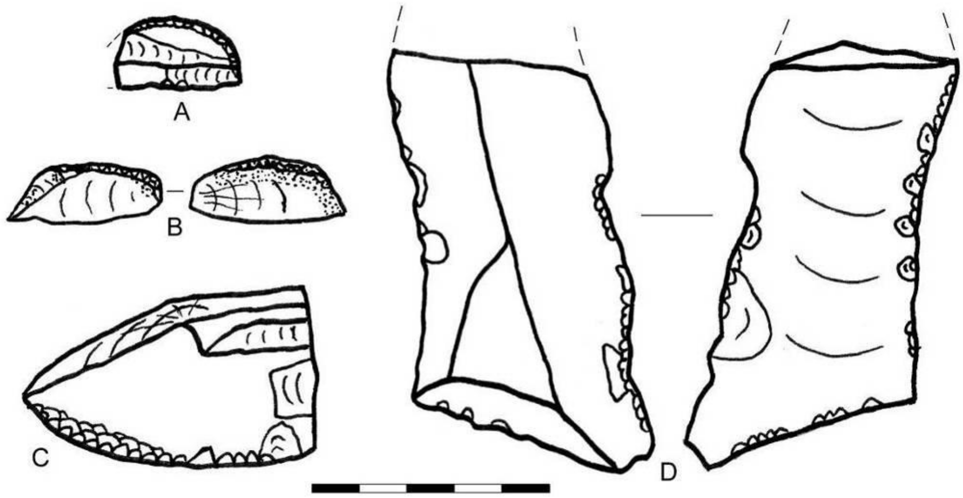


Figure 5.73: Stone artefacts from KK002, Lower. A: segment; B: backed bladelet with yellow-green mastic stain (stippled); C: miscellaneous retouched piece; D: adze. A-C: quartz; D: silcrete. Scale in 5 mm intervals.

Twenty-four whole ostrich eggshell beads were recovered from Upper and seven from Lower (Table 5.105). Although a wide range of diameters is represented, a scatter plot does not show two distinct populations and also reveals a similar pattern for both layers (Figure 5.74). When the diameters of the 25 broken beads from Upper are examined in the same way, however, it seems clear that a separate population of far larger beads is present. Add to this 21 further bead fragments falling between 9.0 and 12.5 mm, but whose remaining proportions were too small to allow reliable estimation, and the pattern is even stronger (although some of the latter undoubtedly refit with the first set of 25 broken beads). There is a clear pattern of large beads being broken and small beads being whole. What this signifies is unknown, though one might speculate on the possibilities of ritual given the association of small and large beads with hunter-gatherers and herders respectively. Another way of looking at this is via thickness. All whole beads have a mean thickness of 1.57 ± 0.21 mm (n = 26), while broken beads average 1.85 ± 0.16 (n = 45), almost identical to the thickness of unmodified ostrich eggshell fragments from Upper of 1.86 ± 0.15 mm (n = 142). Although larger beads can be expected to wear down more slowly, these data present a strong case for the broken beads being quite newly made.

Table 5.105: Summary statistics for finished ostrich eggshell beads from KK002.

Layer		Outside diameter (mm)	Aperture diameter (mm)	Thickness (mm)
	Mean	5.32	1.89	1.60
Upper	Std Deviation	1.14	0.57	0.22
(n=24*)	Minimum	3.05	0.93	1.13
	Maximum	7.31	3.38	1.96
	Mean	5.73	2.57	1.50
Lower	Std Deviation	1.11	0.67	0.15
(n=7**)	Minimum	3.59	1.47	1.29
	Maximum	6.82	3.38	1.68

*Four beads were burnt and exfoliated such that for thickness n=20.

**One bead was burnt and exfoliated such that for thickness n=6.

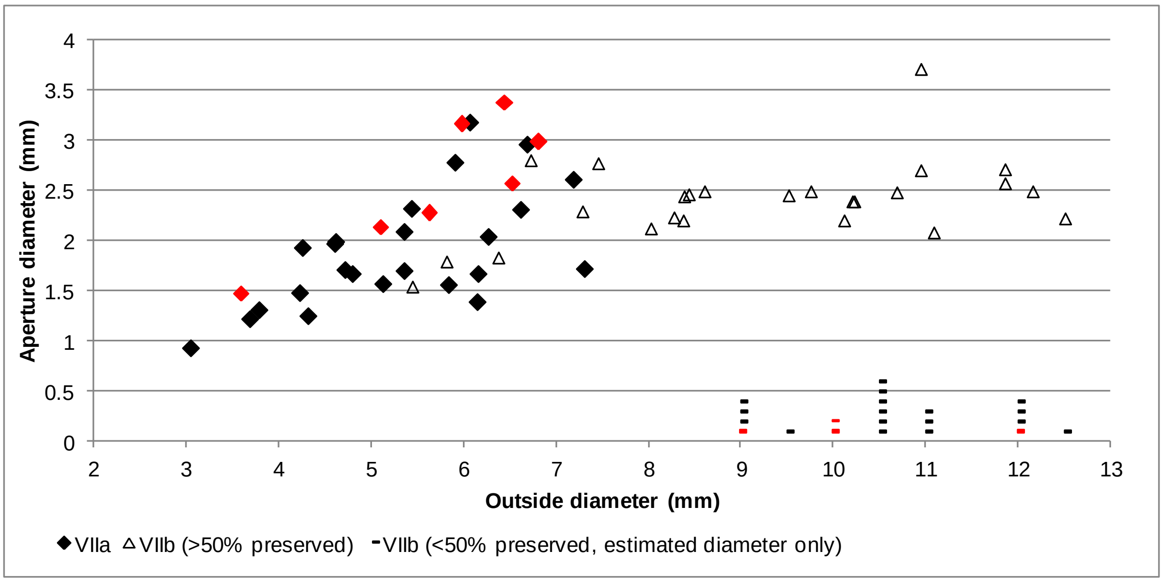


Figure 5.74: Scatter plot of ostrich eggshell bead dimensions from KK002. Upper are in black (whole beads) and white (broken beads with >50% preserved), Lower are in red.

Nineteen potsherds weighing 52.0 g (mean thickness 5.59 ± 0.71 mm) were recovered from Upper, while one weighing 1.6 g (thickness = 5.96 mm) came from Lower. Among the former three had red slip painted on them with one being a plain rim sherd. Average sherd thickness for Upper is 5.59 ± 0.71 mm with a range of 3.84–6.68 mm. The sherd from Lower is 5.96 mm thick.

Other categories of cultural material from the Upper occupation include a single broken *Conus* shell, probably collected for decorative purposes, 289 wood shavings, seven pieces of worked wood, 12 cut reeds and one possible seed bead. One wooden item is the blunt end of a small peg, while another, judging by its very well-worn appearance, may have been a handle of sorts (Figure 5.75). Also found were a 12.4 mm long and *c.* 2–3 mm wide fragment of copper wire, a very tiny clear glass fragment, a small iron rod of 93.4 mm length and 5.6 x 4.5 mm at its thickest part (Figure 5.76), a brass pendant of the sort made from a Dutch button (Figure 5.77; Miller *et al.* 1998), and six glass trade beads (Table 5.106). The iron rod may be a link shaft; it was found within the bedding grass and is definitely not intrusive. Thin section examination revealed that it originated as a flat sheet that was rolled and hammered into shape; it is definitely not from a modern blast furnace (F. Bandama, pers. comm. 2012). Miller and Markell (1993) noted that the upper domes of Dutch brass buttons were frequently perforated for use as pendants, while Miller *et al.* (1998) describe a number of examples from Western Cape LSA sites. Such buttons were available from at least the late seventeenth century as testified by their presence on the wreck of the *Oosterland* which sank in Table Bay, Cape Town, 1697 (Werz 1994). The glass beads are European, and probably Venetian, in origin and likely date to the late nineteenth or early twentieth centuries (M. Wood, pers. comm. 2011). That all were found in the uppermost levels rather than in the bedding supports this contention.

Figure 5.75: A wooden artefact from the bedding layer in Upper at KK002. Scale in 5 mm intervals.

Table 5.106: K002 glass bead attributes.

Provenance	Colour	Translucency	Outside diameter (mm)	Aperture diameter (mm)	Thickness (mm)	Photograph
H10 SE L.1-2	Brownish-red on red	Opaque	3.51	1.19	1.81	
H10 SW L.1-2	Pale blue	Opaque-translucent	2.9	1.14	2.43	
H11 NW L.1	Black	Opaque	5.1	1.77	3.21	
H11 SW L.2	Black/very dark blue	Opaque	4.42	1.43	4	
I11 SW L.2	Oyster white	Opaque-translucent	4.11	1.13	2.61	
I11 NW L.2	Blue (medium)	Opaque-translucent	3.65	0.92	1.9	

Figure 5.76: The iron rod from the bedding layer in Upper at KK002. Scale in 10 mm intervals.

Figure 5.77: The brass pendant from Upper in KK002. Scale in 5 mm intervals.

5.2.2 KK003

The site

This site is located around a large boulder on the southern side of a small, rocky valley in the south-western extremity of the Hardeveld, 17 km from the sea and overlooking the Groot Goeraap River (31°14’37.0” S 18°03’01.0” E; Figure 3.4). It is not habitable, although a tiny alcove behind the boulder houses rock paintings (Figure 5.78) and an extensive scatter of archaeological material lies on the talus. The talus is mostly of exposed bedrock (Figure 5.79). Nothing in good context could be dated and no attempt was made to directly date the remaining paint.

Figure 5.78: View of KK003 showing the location of the primary painted panel (arrow) and the knee-high cavity beneath the boulder.

Cultural material

The primary significance of this site is its rock art. It is of the type described by Eastwood and Smith (2005; Eastwood 2003; B. Smith & Ouzman 2004) from the Central Limpopo Basin in the northern part of South Arica and ascribed by them to the Khoekhoen. The paintings are bold, red and white finger-painted images emphasizing circles, grids and dots (Figures 5.80 & 5.81). Owing to a precipitate emanating from a seam above the panel, the images are poorly preserved. The circular motifs along the top of the panel are particularly badly affected and it seems likely that the remaining visible paint reflects only part of each.

Figure 5.79: Oblique aerial view of KK003 showing the approximate extent of the artefact-bearing talus (between the dashed lines).

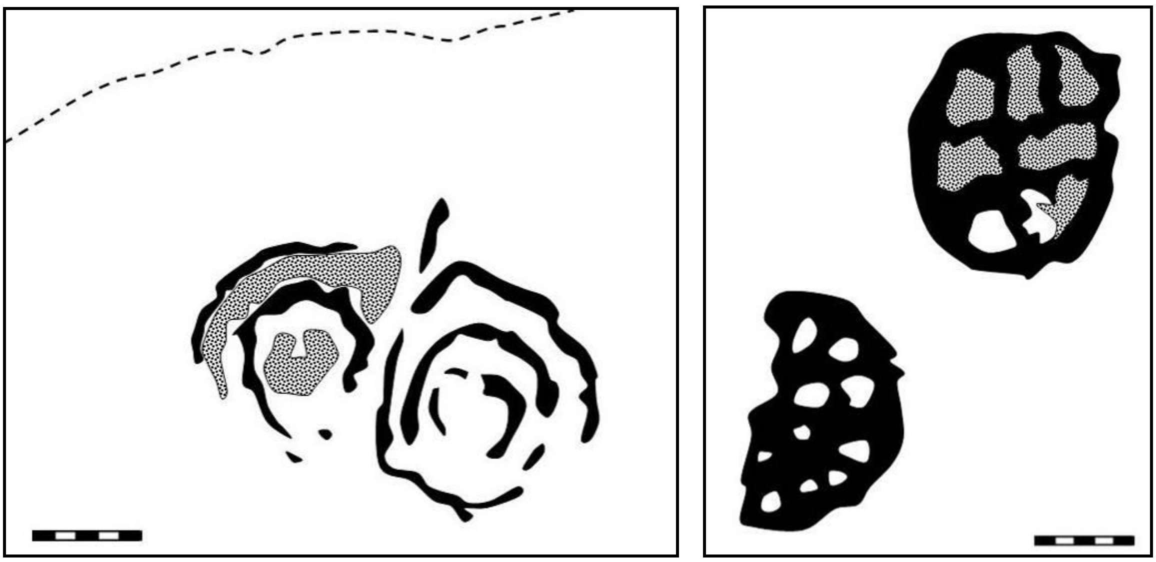


Figure 5.80: Circular motifs in the upper left and upper right parts of the main panel. The dotted line at top left represents the position of a seam in the boulder from which precipitate has flowed. Black denotes red paint and the stippled areas are white. Scales in 10 mm intervals.

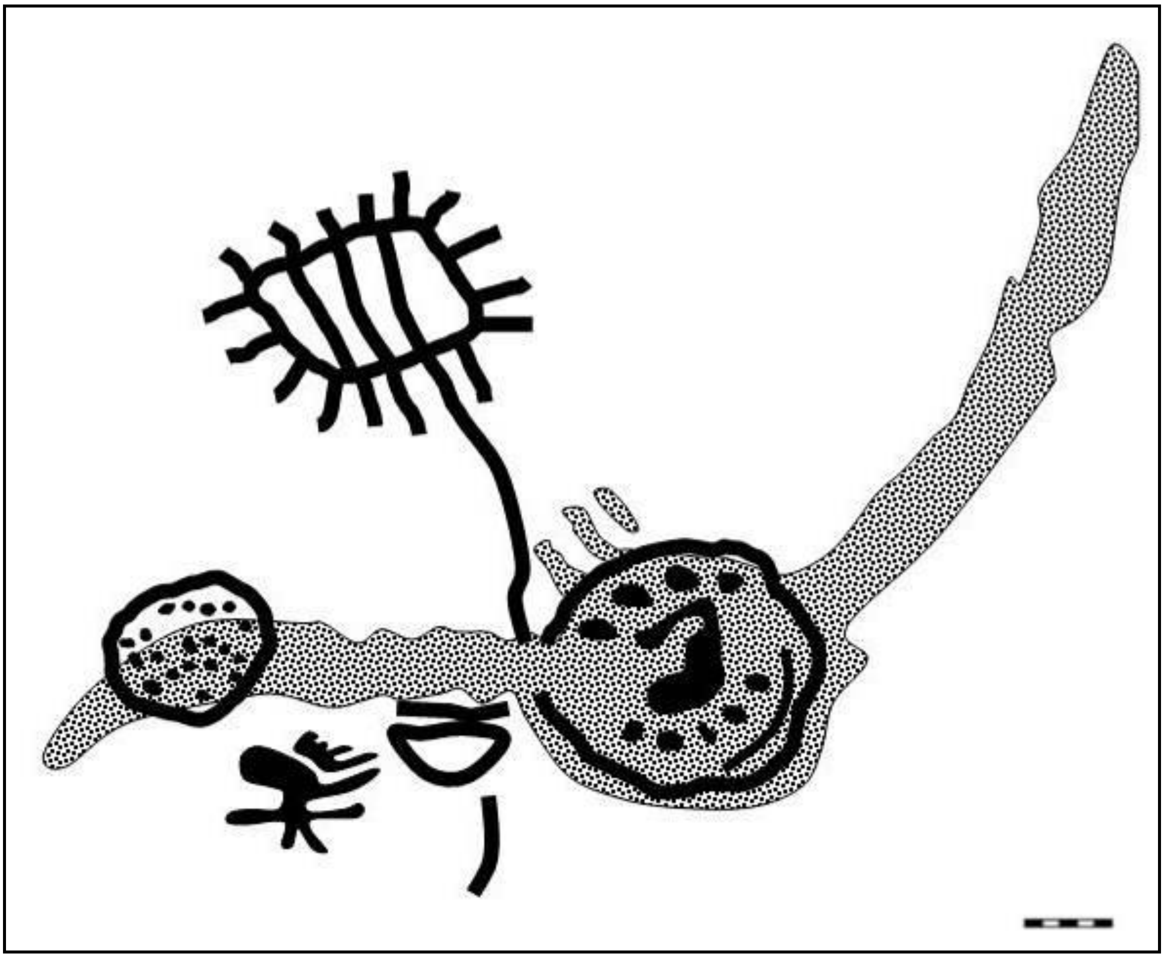


Figure 5.81: The lower group of images on the main panel. The right hand motifs in Figure 5.80 lie just above the right hand side of this image. Black denotes red paint and the stippled areas are white. Scale in 10 mm intervals.

Scattered over the talus slope was a large number of stone artefacts, marine shells, bone and ostrich eggshell fragments and one piece of undiagnostic pottery 5.85 mm thick. The stone artefacts are tabulated in Table 5.107, but, with no secure context, it is unknown whether these relate to the art or not. The lithics are probably a mixture of Groups with Group 1 the only one that can be confidently identified

Table 5.107: Stone artefacts from KK003 (Group 1 & possibly others).

	Quartz	CCS	Silcrete	Quartzite	FGBR	Quartz porphyry	Other
Bipolar core	5	-	-	-	-	1	-
Single platform core	3	-	1	1	-	1	1

	Quartz	CCS	Silcrete	Quartzite	FGBR	Quartz porphyry	Other
Irregular core	12	-	-	4	-	1	-
Sidescraper	1	-	-	-	-	-	-
Thumbnail scraper	-	1	-	-	-	-	-
Backed piece fragment	-	1	-	-	-	-	-
Blade	1	-	-	-	-	-	-
Bladelet	10	-	-	-	-	-	-
Flake	262	1	6	23	-	1	6
Edge-damaged flake	1	-	1	-	-	-	-
Chunk	45	-	2	8	1	-	1
Chip	24	1	-	-	-	-	-
Total	**364**	**4**	**10**	**36**	**1**	**4**	**8**
Stone material % total	**85.2**	**0.9**	**2.3**	**8.4**	**0.2**	**0.9**	**1.9**
Stone material % formal	**33.3**	**66.7**	**-**	**-**	**-**	**-**	**-**
Hammer stone	-	-	-	1	-	-	-

5.3 Southern Sandveld assemblages

5.3.1 MS3

This site was a deflated shell and artefact scatter found in a shallow deflation hollow (31°15’52.8” S 17°54’39.0” E). It produced only shell and stone artefacts and all material was recovered from a 1.5 mm mesh sieve (Hart & Halkett 1994). The following date was obtained by ACO (unpublished):

Lab. No.	Provenience	Material	^{14}C date BP	Calibrated age (95.4%)
GX-32062	Unknown	Marine shell	3160 ± 70	966–492 BC

Cultural material

Table 5.108 presents the stone analysis. The vast majority of flaked artefacts were in quartz and most of this was yellowed from sun exposure. Backed tools dominate strongly and the single truncated flake had the appearance of an unfinished triangle or trapezium.

Occasional pebble cortex was evident on the quartz while some CCS had calcrete cortex present. The two ‘other’ chunks were both calcrete and no doubt originally came in with CCS attached. A number of small ochreous nodules were present but these may have been naturally occurring.

Table 5.108: Stone artefacts from MS3 (Group 1).

	Quartz	CCS	Silcrete	Quartzite	Sandstone	Other
Bipolar core	3	-	-	-	-	-
Single platform core	4	-	-	1	-	-
Irregular core	8	-	1	1	-	-
Radial core	-	-	-	1	-	-
Sidescraper	-	1	1	-	-	-
Backed flake	1	2	-	-	-	-
Backed bladelet	3	-	-	-	-	-
Backed point	2	1	-	-	-	-
Curve-backed flake	1	-	-	-	-	-
Backed point fragment	1	-	-	-	-	-
Truncated flake	-	1	-	-	-	-
Segment	4	1	-	-	-	-
Miscellaneous backed piece	-	2	-	-	-	-
Miscellaneous retouched piece	-	1	-	1	-	-
Blade	1	-	-	1	-	-
Bladelet	54	-	2	6	-	-
Flake	719	3	19	98	3	2
Edge-damaged flake	2	-	-	-	-	-
Chunk	190	3	4	12	-	2
Chip	1059	3	9	45	-	-
Total	**2052**	**18**	**36**	**166**	**3**	**4**
Stone material % total	**90.0**	**0.8**	**1.6**	**7.3**	**0.1**	**0.2**
Stone material % formal	**52.2**	**39.1**	**4.3**	**4.3**	**-**	**-**
Hammer stone	-	-	-	1*	-	-

* The hammer stone is also a chunk

5.3.2 Assemblages described elsewhere

Two sets of sites have been commercially excavated in the southern Sandveld and are recorded only in grey literature (Halkett *et al.* 1993; Hart & Halkett 1994). They come from coastal and near-coastal contexts respectively, 50 km northwest of the Olifants River mouth. Unfortunately, limited dating and analytical detail precluded the coastal set from further consideration. While MS3 was reanalysed and presented above, Hart and Halkett's (1994) analysis from the MS1 was deemed consistent enough with the present research to merit direct use.

<u>MS1</u>

This deflated shell and artefact scatter was located on the east side of a silcrete outcrop (31°15'52.8" S 17°54'39.0" E). The excavation produced only shell and stone artefacts with the latter including both the remains of earlier (ESA) silcrete quarrying activities and overprinted LSA material. These were separated based on patina prior to analysis (Hart & Halkett 1994). One date puts the LSA component at 1842–1407 BC (GX-32063; ACO, unpublished). The coarse-grained silcrete is commonly encountered as outcrops in the area. Note that in MS3 reanalysis suggested the coarse silcrete to be quartzite. Table 5.109 presents the LSA stone analysis.

Table 5.109: Stone artefacts from MS1 (Group 1; source: Hart & Halkett 1994).

	Quartz	CCS	Silcrete (fine)	Silcrete (coarse)
Bipolar core	5	-	-	-
Single platform core	1	-	-	1
Irregular core	21	-	-	5
Backed bladelet	2	1	-	-
Backed point	2	2	-	-
Segment	9	2	-	-

	Quartz	CCS	Silcrete (fine)	Silcrete (coarse)
Miscellaneous backed piece	4	-	-	-
Miscellaneous retouched piece	4	-	-	1
Blade	-	-	-	-
Bladelet	37	2	1	23
Flake	708	5	1	777
Chunk	224	12	2	145
Chip	1325	3	1	709
Total	**2342**	**27**	**5**	**1661**
Stone material % total	**58.5**	**0.7**	**0.1**	**41.2**
Stone material % formal	**77.8**	**18.5**	**-**	**3.7**
Hammer stone	-	-	1	-

5.4 Knersvlakte assemblages

This section presents two newly excavated rock shelters from along the Varsche River in the Knersvlakte. A proximate open site at which research is ongoing is also briefly discussed. It was sampled in order to determine whether occupation had occurred in the open at the same time as in the shelters, since open LSA sites have been found to be extremely rare in the Knersvlakte.

5.4.1 Reception Shelter (VR001)

The site

Reception Shelter (VR001) is located in a small cave in partly metamorphosed limestone along the south bank of the Varsche River (31°31’33.6” S 18°36’04.0” E; Figure 5.82). It is 43 km from the coast and 16.5 km from the Olifants River. A full description of the site and its deposits is contained in Orton *et al.* (2011). However, since that publication, further excavations and dating have resulted in minor restructuring of the analytical groups. Table 5.110 shows the grouping of excavation levels now employed and the total area excavated inside the shelter is 3 m^2 (Figure 5.83). Just two major bedding layers were located (Figure 5.84). The first, forming the upper part of Layer 4A, seemed to be composed primarily of hay, perhaps brought in to feed livestock penned in the shelter. The second occupied a hollow against the cave wall and was part of the only typical LSA cave deposit found in the site. Layers 9 and 10, although containing typical LSA material, were affected by moisture such that the expected organic material was not preserved. A strange concentration of rocks was found occurring between excavation levels 17 (lower Layer 6) and 20 (upper Layer 8) in the southern part of the excavation. They were densely packed and appeared to form a mound in the middle of the cave, but their function could not be determined. The present study concerns itself primarily with the better resolved deposits from inside the rock shelter and only these are presented, although the talus slope was also sampled.

Table 5.110: Stratigraphic grouping of levels at Reception Shelter. Layer numbers follow Orton *et al.* (2011) but Layers 4 and 9 are newly divided.

Layer	Excavation levels	Brief description
1	1, 2	Crusty dung.
2	3, 4	Crusty dung on top, softer with grass/wheat & ash patches below.
3	5	Grass bedding that thickens away from the cave wall and includes a hearth in a pit.
4A	6	Patches of bedding in a hard, compact deposit.
4B	7, 8	Ashy and dusty with vegetation. Dense accumulation ash covering multiple levels in the south.
5	9, 10, 11, 12, 13, 14	Organic-rich with dense bedding layer (11) and ashy patches. Dense ash covering multiple levels in the south.
6	15, 15A, 15B, 15C, 16, 16A, 16B, 17	Decomposed bedding with corm casings, silty deposits below. Several hearths to the south.
7	18, 19(A-D)	Silty deposit with spalls near the cave wall.
8	20, 20AR, 21, 21A, 21B, 22, 23, 23B, 23C	Powdery, silty, snail-rich deposit with spalls near the cave wall. Hearths in the south.
9A	24, 24A, 24B	Powdery, silty deposit. Hearths in the south.
9B	25, 25A, 25B, 25C	Powdery, silty deposit with some ash. Hearths in the south.

Important additions from the new excavations are a suite of four tortoise burials containing seven or eight tortoises (Orton 2012) and a new basal lens (L25C).

Figure 5.84: View of Reception Shelter and its talus facing east. Its tiny entrance is arrowed.

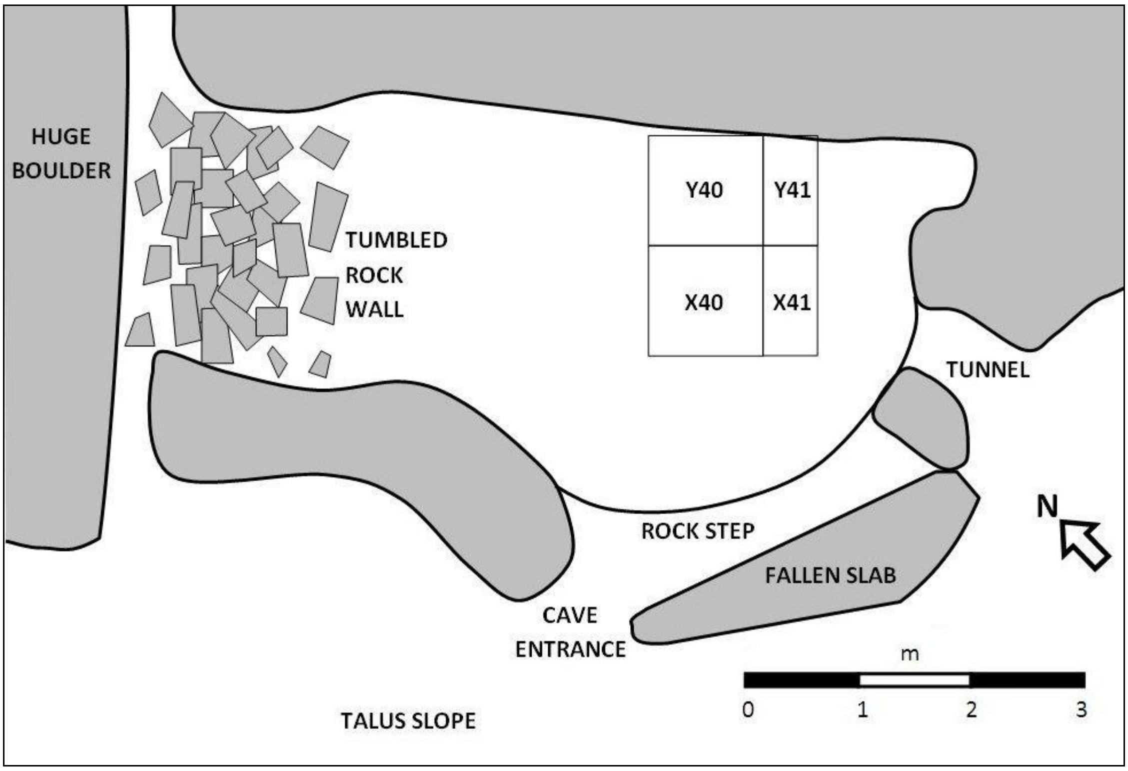


Figure 5.83: Floor plan of the interior of Reception Shelter.

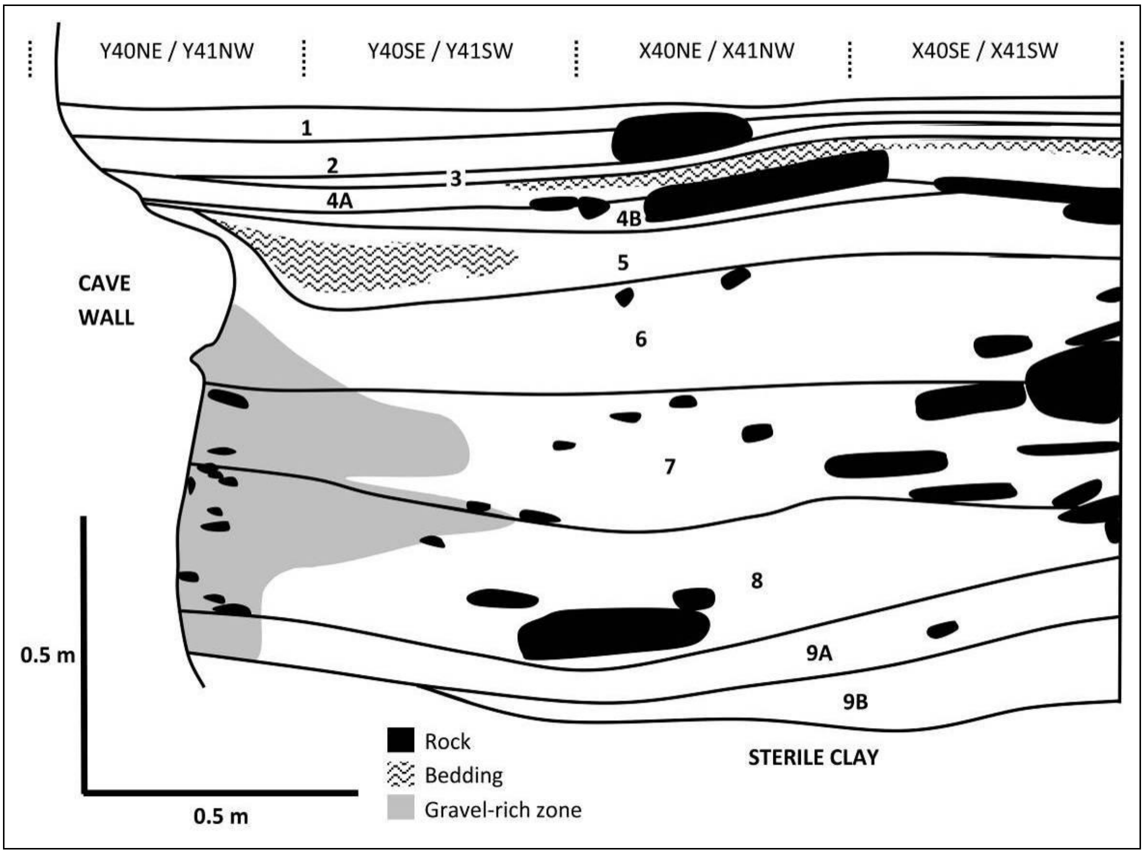


Figure 5.84: Section through the Reception Shelter deposits along the 40/41 line.

The following dates were obtained:

Lab. No.	Provenience	Material	^{14}C date BP	Calibrated age (95.4%)
OxA-24513	Layer 4, top (X40 L6)	Bone (*Chersina angulata*)	589 ± 23	AD 1326–1422
OxA-22876	Layer 4, middle (Y40 L7)	Charcoal (sp. unknown)	622 ± 21	AD 1318–1411
OxA-22982	Layer 5, middle (Y40 L11)	Sticks (sp. unknown)	474 ± 22	AD 1429–1483
AA-89909	Layer 6, top (X40 NW L15A)	Bone (*Chersina angulata*)	828 ± 44	AD 1177–1293
OxA-22983	Layer 7, top (Y40 L18)	Charcoal (sp. unknown)	2578 ± 25	794–539 BC
OxA-25353	Layer 8, middle (Y40 L22)	Bone (*Chersina angulata*)	1897 ± 25	AD 85–292
OxA-25354	Layer 9A (Y40 L24)	Bone (*Bos taurus*)	1840 ± 26	AD 133–336
AA-89910	Layer 9B (Y40 SW L25)	Bone (*Chersina angulata*)	2560 ± 49	793–416 BC

Lab. No.	Provenience	Material	^{14}C date BP	Calibrated age (95.4%)
OxA-24514	U47 SW Spit 2	Bone (*Chersina angulata*)	394 ± 23	AD 1457–1626
AA-89907	P43 NW Level 1 (5 cm bel surf)	OES (*Struthio camelus*)	679 ± 44	AD 1220–1951
AA-89908	Q43 SW Level 6 (105 cm bel surf)	OES (*Struthio camelus*)	21,900 ± 120	out of range

Notes:

- OxA-22892: small sticks taken from bedding material.
- OxA-22876 & OxA-22983: possibly *Acacia karoo* and seem to be old wood.
- OxA-24514 from test hole on terrace outside cave mouth.
- AA-89907, AA-89908: from test hole in talus slope.

Cultural material

By rock shelter standards, this site was relatively poor in cultural finds, although a diverse collection was recovered. Altogether, 1664 flaked stone artefacts were found with just 19 being retouched (Tables 5.111-5.16). Layers 5 and 6 contained 50.5% of all flaked artefacts and 36.8% of retouched pieces. Nine out of fourteen quartz backed artefacts are in clear quartz and are spread throughout the sequence. They presumably indicate a Group 3 input to the assemblages, although the lower overall quartz frequencies indicate other influences as well. It should, of course, be remembered that a Group 3 assemblage may look rather different in an environment abundant in cobbles of milky quartz, fine-grained quartzite, silcrete and other rocks. Whether Group 1 is represented by the milky quartz retouched items in Layers 8-9A is unknown, but the rarity of retouched items in fine-grained materials may argue against this. Overall, because of the mixing that occurs within rock shelters, the assemblages here cannot be assigned to specific groups. Ochre was rare through much of the sequence (Layers 1-4A have one fragment, Layers 4B-5 have two, Layer 6 has four and Layer 7 has one), but far more common in Layers 8-9A (twenty-three fragments) and Layer 9B (seven fragments). Included in Layer 8 was a large lump of very hard ochre exhibiting grinding striations. Layer 5 contained a small slab of rock with an ochre stain on it, while a lower grindstone in Layer 7 was heavily ochred and found upside down. It is intriguing that

Layers 1 to 4A, representing the historical occupation of the cave, contain a prehistoric stone artefact assemblage essentially unchanged from those below.

Table 5.111: Stone artefacts from Reception Shelter, Layers 1–4A. Clear quartz artefacts are summed in parentheses in the quartz column.

	Quartz	CCS	Silcrete	Quartzite	Fine-grained black rock	Other
Bipolar core	1	-	-	-	-	-
Irregular core	2	-	1	-	-	-
Backed bladelet	1 (1)	1	-	-	-	-
MRP	1	-	-	-	-	-
Blade	-	-	-	1	-	-
Bladelet	3	-	-	1	-	-
Flake	49	1	13	11	6	1
Edge-damaged flake	5	1	2	-	-	-
Chunk	17	3*	3	-	1	2
Edge-damaged chunk	1	-	-	-	-	-
Chip	51	1	2	-	-	-
Total	**131**	**7**	**21**	**13**	**7**	**3**
Stone material % total	**72.0**	**3.8**	**11.5**	**7.1**	**3.8**	**1.6**
Stone material % formal	**66.7**	**33.3**	**-**	**-**	**-**	**-**
Hammer stone	-	1	-	-	-	-

***** One chunk is also the hammer stone.

Table 5.112: Stone artefacts from Reception Shelter, Layers 4B–5. Clear quartz retouched artefacts are indicated in parentheses in the quartz column.

	Quartz	CCS	Silcrete	Quartzite	Fine-grained black rock	Other
Bipolar core	14	-	-	-	-	-
Single platform core	-	-	-	1	*1	1
Irregular	3	-	1	-	-	-
Backed bladelet	3 (2)	-	-	-	-	-
Backed piece fragment	1 (1)	-	-	-	-	-
Blade	-	-	2	-	1	1
Bladelet	14	-	2	1	-	-
Flake	173	7	41	43	37	11

	Quartz	CCS	Silcrete	Quartzite	Fine-grained black rock	Other
Edge-damaged flake	5	-	-	-	-	-
Chunk	47	2	7	2	7	5
Chip	178	-	3	1	1	2
Total	**438**	**9**	**56**	**48**	**47**	**20**
Stone material % total	**70.9**	**1.5**	**9.1**	**7.8**	**7.6**	**3.3**
Stone material % formal	**100.0**	**-**	**-**	**-**	**-**	**-**
Hammer stone	-	-	-	-	1	-
Lower grindstone	-	-	-	-	-	2
Lower grindstone fragment	-	-	-	-	-	1
Grindstone fragment	-	-	-	-	-	1

*The single platform core is also the hammer stone.

Table 5.113: Stone artefacts from Reception Shelter, Layer 6. Clear quartz retouched artefacts are indicated in parentheses in the quartz column.

	Quartz	CCS	Silcrete	Quartzite	Fine-grained black rock	Other
Bipolar core	4	-	-	-	-	-
Single platform core	2	-	-	-	-	-
Backed bladelet	1 (1)	-	-	-	-	-
Curve-backed bladelet	1 (1)	-	-	-	-	-
Backed piece fragment	1 (1)	-	-	-	-	-
Adze	-	1	-	-	-	-
Miscellaneous retouched piece	-	-	-	-	2	-
Blade	1	1	-	1	-	-
Bladelet	6	-	-	-	1	-
Edge-damaged bladelet	1	-	-	-	-	-
Flake	72	1	20	32	37	9
Edge-damaged flake	4	1	-	1	1	-
Chunk	29	-	2	4	2	4
Edge-damaged chunk	-	-	-	-	-	1
Chip	95	-	3	3	3	-
Total	**217**	**4**	**25**	**41**	**46**	**14**
Stone material % total	**62.5**	**1.2**	**7.2**	**11.8**	**13.3**	**4.0**
Stone material % formal	**50**	**16.7**	**-**	**-**	**33.3**	**-**
Hammer stone fragment	-	-	-	2	-	-

Table 5.114: Stone artefacts from Reception Shelter, Layer 7. Clear quartz retouched artefacts are indicated in parentheses in the quartz column.

	Quartz	CCS	Silcrete	Quartzite	Fine-grained black rock	Other
Bipolar core	1	-	-	-	-	-
Single platform core	-	-	1	-	-	-
Irregular core	2	-	-	-	1*	-
Backed bladelet	1 (1)	-	-	-	-	-
MSA retouched flake	-	-	-	-	1**	-
Bladelet	3	-	1	-	-	-
Flake	29	1	2	3	-	3
Edge-damaged flake	-	1	-	-	-	-
Chunk	10	4	-	-	-	-
Chip	50	4	-	-	1	-
Total	**96**	**10**	**4**	**3**	**3**	**3**
Stone material % total	**81.4**	**8.5**	**3.4**	**2.5**	**2.5**	**2.5**
Stone material % formal	**100.0**	**-**	**-**	**-**	**-**	**-**
Lower grindstone	-	-	-	-	-	1
Upper grindstone/anvil	-	-	-	-	1	-
Upper grindstone/hammer stone	-	-	-	1	-	-

*Irregular core is also the upper grindstone/anvil.

**Excluded from material frequencies.

Table 5.115: Stone artefacts from Reception Shelter, Layers 8–9A.

	Quartz	CCS	Silcrete	Quartzite	Fine-grained black rock	Other
Bipolar core	3	-	-	-	-	-
Single platform core	2	-	1	2	1*	-
Irregular core	4	1	2	-	-	-
Backed point	1	-	-	-	-	-
Segment	1	-	-	-	-	-
Trapezium	1	-	-	-	-	-
Backed piece fragment	1	-	-	-	-	-
Blade	-	1	-	-	-	-
Edge-damaged blade	1	-	-	-	-	-
Bladelet	5	1	-	-	-	-
Flake	61	10	3	3	-	6

	Quartz	CCS	Silcrete	Quartzite	Fine-grained black rock	Other
Edge-damaged flake	5	1	-	-	1	-
Chunk	23	4	4	1	1	7
Edge-damaged chunk	1	-	-	-	-	-
Chip	70	3	2	-	-	1
Total	**179**	**21**	**12**	**7**	**3**	**14**
Stone material % total	**76.5**	**9.0**	**5.1**	**2.6**	**0.9**	**6.0**
Stone material % formal	**100.0**	**-**	**-**	**-**	**-**	**-**
Hammer stone	-	-	-	-	1	2**
Upper grindstone/hammer stone	-	-	-	3	-	-
Upper grindstone	-	-	-	2	-	-
Lower grindstone	-	-	-	-	-	1
Lower grindstone fragment	-	-	-	1	-	1
Grindstone fragment	-	-	-	1	-	-

*Single platform core is also the hammer stone.

**Both hammer stones are in sandstone.

Table 5.116: Stone artefacts from Reception Shelter, Layer 9B. Clear quartz artefacts are summed in parentheses in the quartz column.

	Quartz	CCS	Silcrete	Quartzite	Fine-grained black rock	Other
Bipolar core	3	-	-	-	-	-
Irregular core	2	1	1	-	-	-
Sidescraper	1 (1)	-	-	-	-	-
Backed point	1 (1)	-	-	-	-	-
MRP	1	-	-	-	-	-
Blade	1	1	-	-	-	-
Bladelet	6	-	-	-	-	-
Flake	72	4	7	1	2	3
Edge-damaged flake	2	-	1	-	-	-
Chunk	13	1	-	-	1	1
Edge-damaged chunk	1	1	-	-	-	-
Chip	32	2	1	-	-	-
Total	**135**	**10**	**10**	**1**	**3**	**4**
Stone material % total	**82.8**	**6.1**	**6.1**	**0.6**	**1.8**	**2.5**

	Quartz	CCS	Silcrete	Quartzite	Fine-grained black rock	Other
Stone material % formal	**100.0**	**-**	**-**	**-**	**-**	**-**
Upper grindstone	-	-	-	1	-	-
Lower grindstone/anvil	-	-	-	-	-	1

Ostrich eggshell beads remain small to medium throughout the occupation of the shelter with mean external diameters ranging between 3.80 and 5.80 mm (Table 5.117). Interestingly, very large beads are completely absent from the sample of 84 reflected in Figure 5.85. It should be noted that 15 of the beads from Layer 9A came from a single bucket of deposit and almost all bore ochre traces; they probably came from a single item of jewellery. Evidence of bead manufacture is entirely absent. Another form of worked ostrich eggshell is in the form of fragments, often triangular in shape, that have been 'retouched' along an inner margin (Figure 5.86). They came from Layers 5 (1), 6 (3) and 7 (1). Webley (1992b) reports similar artefacts from Frummel Bakkies and assumes they had a utilitarian function. Fragments of painted ostrich eggshell were found in Layers 3, 5 and 6 with twelve of the fifteen examples from the latter (Figure 5.86). Such finds are rarely reported but include one similar fragment from Apollo 11 in Namibia (Wendt 1972) and those from Buzz Shelter reported below.

Table 5.117: Summary statistics for finished ostrich eggshell beads from Reception Shelter.

Layers		Outside diameter (mm)	Aperture diameter (mm)	Thickness (mm)
1-4A (n=2)	Mean	4.90	1.55	1.77
	Std Deviation	0.76	0.22	0.06
	Minimum	4.36	1.39	1.73
	Maximum	5.43	1.70	1.81
4B-5 (n=17*)	Mean	5.85	2.15	1.57
	Std Deviation	0.95	0.38	0.23
	Minimum	4.24	1.21	1.27
	Maximum	7.29	2.76	1.92

Layers		Outside diameter (mm)	Aperture diameter (mm)	Thickness (mm)
6 (n=7**)	Mean	4.44	1.82	1.38
	Std Deviation	0.73	0.47	1.12
	Minimum	3.56	1.27	1.13
	Maximum	5.42	2.47	1.75
7 (n=6†)	Mean	3.86	1.49	1.43
	Std Deviation	0.25	0.14	0.15
	Minimum	3.52	1.23	1.27
	Maximum	4.18	1.59	1.67
8-9A (n=48††)	Mean	4.93	1.86	1.49
	Std Deviation	0.94	0.40	0.18
	Minimum	3.18	0.84	1.03
	Maximum	6.48	2.67	1.82
9B (n=4)	Mean	4.27	1.56	1.47
	Std Deviation	0.47	0.28	0.19
	Minimum	3.68	1.34	1.23
	Maximum	4.82	1.94	1.66

*Two beads were burnt and exfoliated such that for thickness n=15.

**One bead was burnt and exfoliated such that for thickness n=6.

†One bead was split laterally such that for thickness n=5.

†† Six beads were burnt and exfoliated such that for thickness n=42.

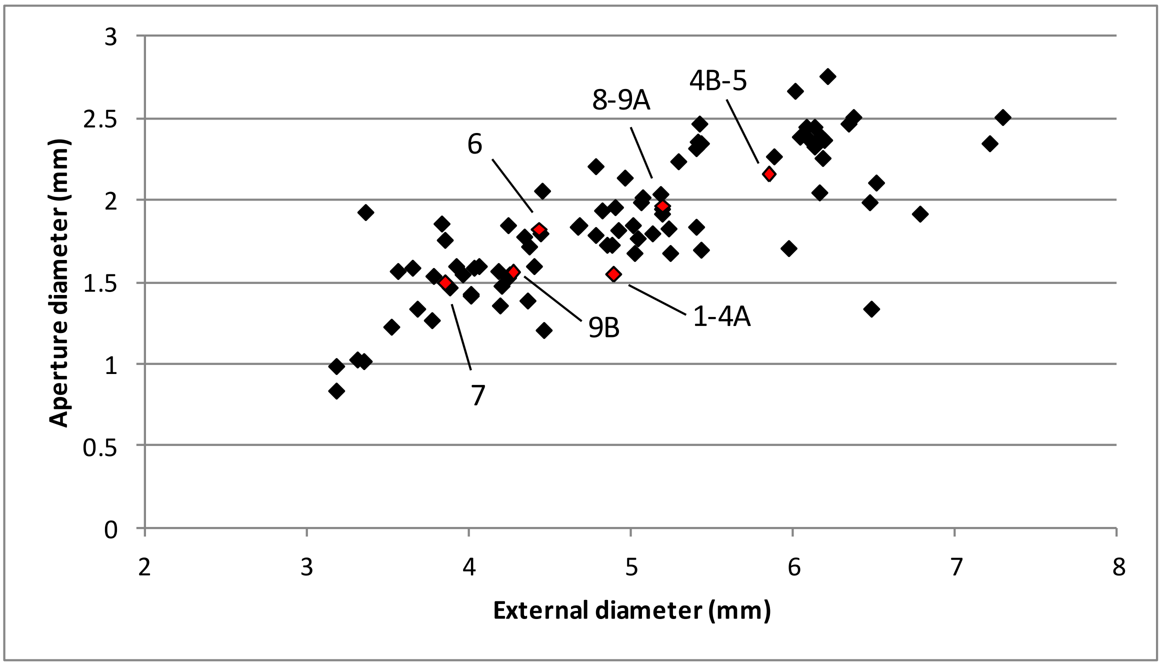


Figure 5.85: Scatter plot of ostrich eggshell bead dimensions from Reception Shelter. Red symbols represent layer means as labelled.

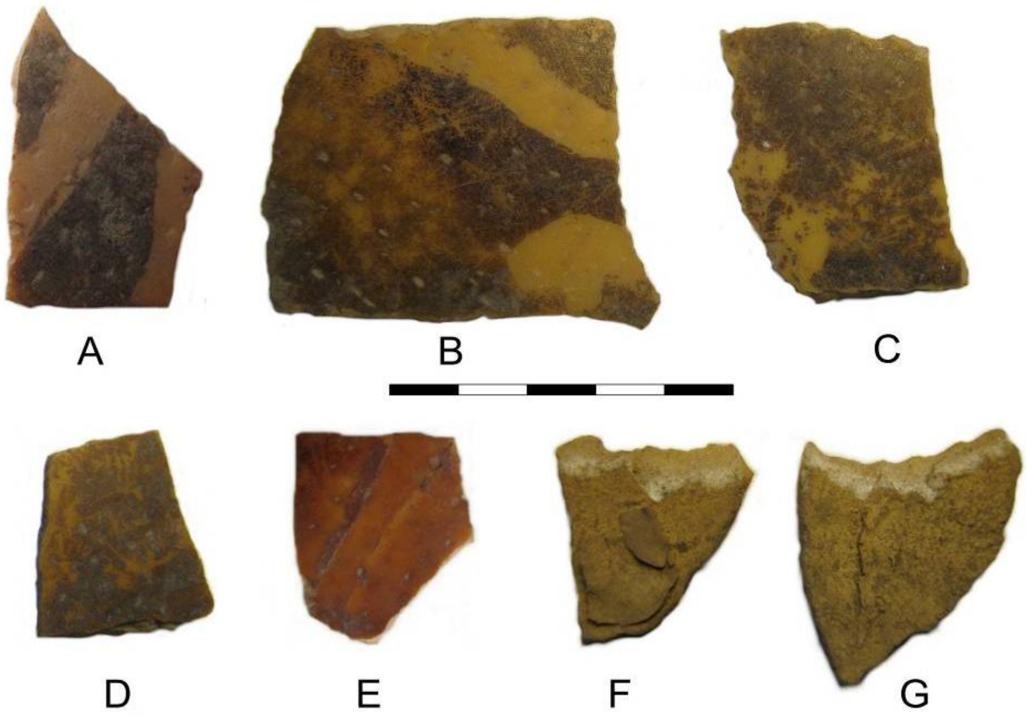


Figure 5.86: Painted (A-E) and worked (F-G) ostrich eggshell fragments from Reception Shelter Layer 6. Scale in 5 mm intervals.

Pottery is present throughout the sequence but is very sparse in the upper layers. The uppermost sherds in fact lie in Layer 3, possibly suggesting that by the time historical use of the shelter commenced indigenous pottery was no longer being used there. Although a handful of sherds came from the middle layers of the site, dating to the fourteenth and fifteenth centuries AD, the majority of sherds originate from Layers 8 (6 sherds) and 9A (32 sherds) where the domestic animal bones are also concentrated. Layer 5 includes a vertical or possibly flared rim with a simple rounded form and a diameter of approximately 140 mm. In Layer 6 a small rim sherd has an everted lip form and is painted red to just below the lip. This layer is the only one to include ochred sherds with three of the eleven being painted. A vertically oriented rim with a thickened flat and slightly bevelled lip occurs in Layer 8. No decorated sherds were found. Pottery thickness increases progressively through time: in Layers 8-9A mean thickness is 5.21 ± 0.71 mm, in Layer 6 it is 6.01 ± 1.63 mm, in Layers 4B-5 it is 7.59 ± 1.45 mm and in Layers 1-4A it is 8.24 ± 2.64 mm.

The talus slope was rich in pottery with decorated sherds found there and on the platform above the cave. These include: two refitting sherds with broad-incised decoration in a basket-weave pattern; a tiny sherd with parallel, very closely spaced, fine-incised lines that may have been dragged with a comb; another with similar but more widely spaced lines that could have been etched into the already dry sherd (cf. Bakoond, Orton 2009b); a sherd with a row of small, circular impressions; and a rim with multiple fine-incised lines below the lip (Figure 5.87).

A few items from the upper four layers are historical. These include fragments of thread and of a glass mirror, a bone button, a match stick, wire and other metal fragments, a rusted adze or axe head, several wheat grains and part of a leather shoe sole 80 mm long. The button, which comes from Layer 1, has four holes and a recessed centre. It appears to be a 19th-century British-turned bone button (Peacock 1978: fig. 13). The upper levels of the excavation were dominated by dense dung with bedding layers immediately below. The shoe sole is certain to be in place. The Layer 4 date of AD 1326–1422 (OxA-24513) presumably reflects the surface on which the historical occupation began. The fact that historical items occur in tandem with Stone Age material in these levels opens up the possibility of indigenous people working for European colonists in the nineteenth century. Archival records show that the Varsrivier farm was first owned in quitrent from 1843 and the ruined buildings are thus likely to date between then and 1899 when the farm was subdivided (N. Amschwand, pers. comm. 2011). This age matches that of the button.

Figure 5.87: Decorated potsherds from the Reception Shelter talus. Scale in 5 mm intervals.

5.4.2 Buzz Shelter (VR005)

<u>The site</u>

Buzz Shelter (VR005) is located in a small cave in partly metamorphosed limestone along the north bank of the Varsche River (31°31'25.1" S 18°36'01.0" E). It is 43 km from the coast and 16.5 km from the Olifants River. A full description of the site and its deposits is contained in Orton *et al.* (2011) but the excavation inside the shelter has now been expanded to 4 m^2 – only this excavation is considered here (Figure 5.88), since those outside are poorly stratified. The grouping of excavation levels is shown in Table 5.118. The roof of the cave is formed from a thin layer of limestone which has been eroding back with time (Figure 5.89). As such, earlier occupations appear to have been focused towards the south and as the lip migrated northwards so did the habitable floor space inside the shelter. Significantly, this site has yielded early, but as yet not directly dated caprine teeth from Layer 3.

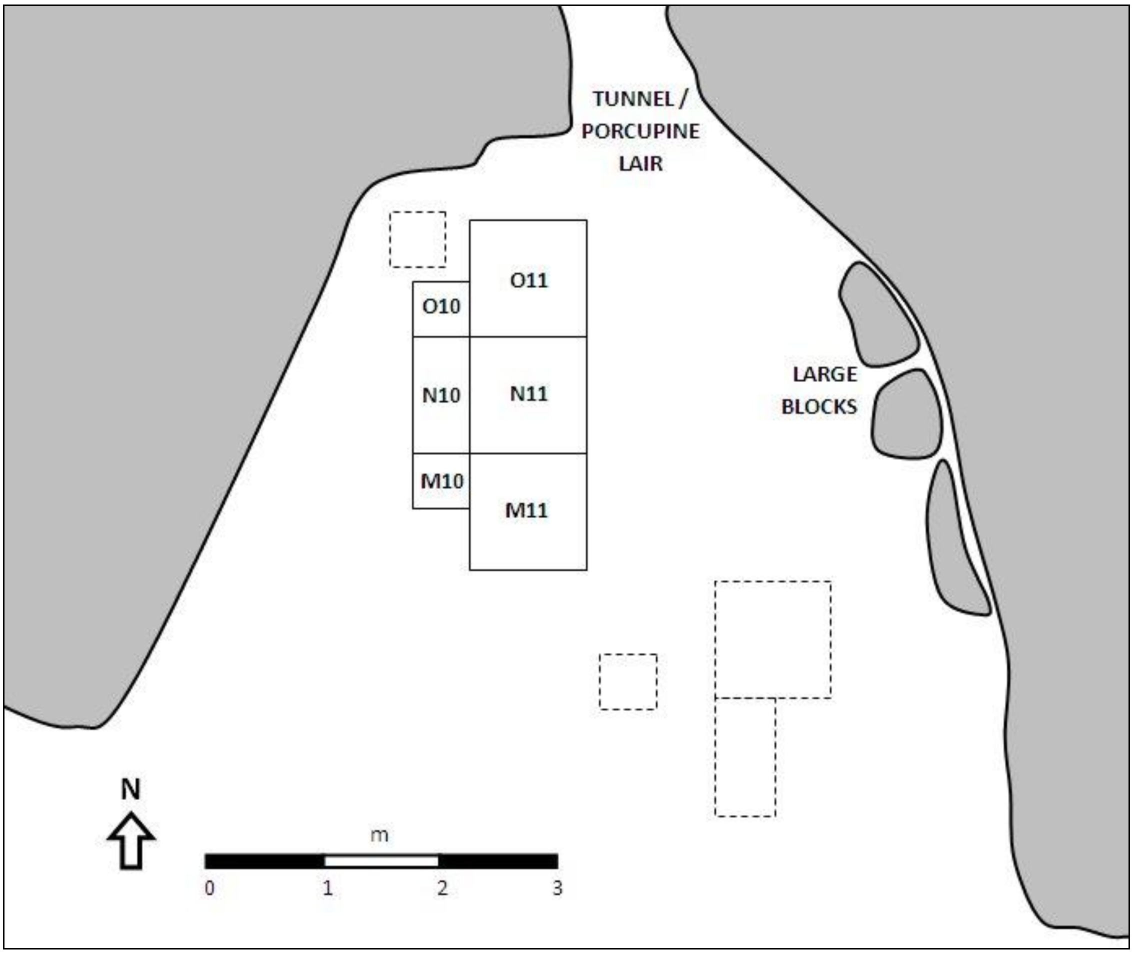


Figure 5.88: Floor plan of the interior of Buzz Shelter. The dashed outlines denote other test excavations.

Figure 5.89: View into Buzz Shelter looking towards the northwest. The excavation described here is the rear trench.

Table 5.118: Stratigraphic grouping of levels at Buzz Shelter. Layer numbers follow Orton *et al.* (2011).

Layer	Excavation levels	Brief description
1	1, 1a, 1b, 2, 2a	Crusty dung with animal hairs. Becomes looser lower down but towards the north it has many sticks and spalls (like Layer 2).
2	3, 3a, 3b, 3c	Poorly stratified and variable layer of round droppings (mostly in the south), roof spalls, and sticks (mostly in the north). Overlies a clear base throughout.
3	8, 4, 4a, 4b, 4GH, 5, 5ASH, 6, 6b, 7, 7NTR	Finer deposits with well-preserved bedding grass and few droppings. Generally excellent organic preservation. (7NTR = O10SE only)
4	9, 9a, 9aii, 9aiii, 9b, 9c, 9d, 10, 10a, 10b, 11	Pit deposits are unconsolidated with dense, variably preserved grass. Stratified deposits are powdery with decomposing grass layers. Possibly multiple overlapping hollows. Grass sometimes extends from stratified deposits into pit.
5	12, 13	Fine, ashy deposits with small amounts of decomposing grass.
6	14, 14a, 14b, 14c, 15, 15a, 15b, 15c, 7NTR	Fine, ashy deposits with variably preserved but mostly well decomposed grass. Overlies decomposing bedrock. (7NTR = all squares except O10SE)
7	16	Fine, moist, clay-rich, dark brown deposit with little content.

The following dates were obtained:

Lab. No.	Provenience	Material	^{14}C date BP	Calibrated age (95.4%)
OxA-22984	Layer 2 (M11NE L3)	Charcoal (species unknown)	3327 ± 26	1627–1455 BC
OxA-25352	Layer 2 (O11 SW L3a)	Bone (*Chersina angulata*)	1646 ± 25	AD 410–543
OxA-24515	Layer 3 top (O11 SW L4a)	Bone (*Chersina angulata*)	1921 ± 25	AD 76–232
OxA-22985	Layer 3 middle (N11NW L5)	Charcoal (species unknown)	12770 ± 50	out of range
OxA-24722	Layer 3 middle (N11NW L5)	Charcoal (species unknown)	12955 ± 60	out of range
OxA-22877	Layer 3 base (N11NW L7)	Grass (species unknown)	324 ± 22	AD 1505–1650
AA-89911	Layer 4 top (M11 NE/NW L9a)	Bone	4551 ± 54	3366–2945 BC

Lab. No.	Provenience	Material	^{14}C date BP	Calibrated age (95.4%)
UGAMS-11683	Layer 4 pit (N11 SE L10)	Grass	3890 ± 20	2458 - 2155 BC
OxA-22986	Layer 5 (M11NE L12)	Charcoal (species unknown)	4185 ± 31	2872–2580 BC
AA-89912	Layer 6 (M11 SE/SW L15c)	Bone	5452 ± 54	4347–4053 BC

Notes:

- OxA-22877: Grass clump taken from floor of shelter beneath roof collapse. The date seems inexplicably young.
- OxA-22984, OxA-22985 & OxA-22986 are possibly *Acacia karoo*.
- While OxA-22984 is likely old wood, OxA-22985 is inexplicably old and indicates contamination. The sample was redated to produce OxA-24722.

The dating at Buzz Shelter was problematic. The presence of historical material as far down as the top of Layer 3 supports a recent component and, despite a first millennium AD age in Layer 2, the loose nature of its deposits no doubt facilitated migration of artefacts. This was exacerbated towards the rear of the cave where Layer 1 was similarly loose. The better stratified deposits below the clear Layer 2 base appeared more typical of LSA cave deposits. Although the OxA-22877 grass sample was trapped between an apparent roof fall and bedrock, and no disturbance was evident in this area, the very late date it produced for the base of Layer 3 is inexplicable in light of the overlying early to mid-first millennium AD ages and has been disregarded. In Layer 4 there seems to have been a period during which disturbance of the deposits took place, perhaps through excavation and infilling of multiple bedding hollows in the centre of the cave. These were not readily separable from the better stratified deposits of similar age and all are therefore lumped in Layer 4 (Figure 5.90). The inversion of dates in Layer 4 may reflect the AA-89911 bone having been excavated from the hollows with UGAMS-11683 dating their subsequent infill. Layer 5, with a younger radiocarbon date, is likely of broadly similar age to Layer 4. Layers 6 and 7 are older and were split based on their texture.

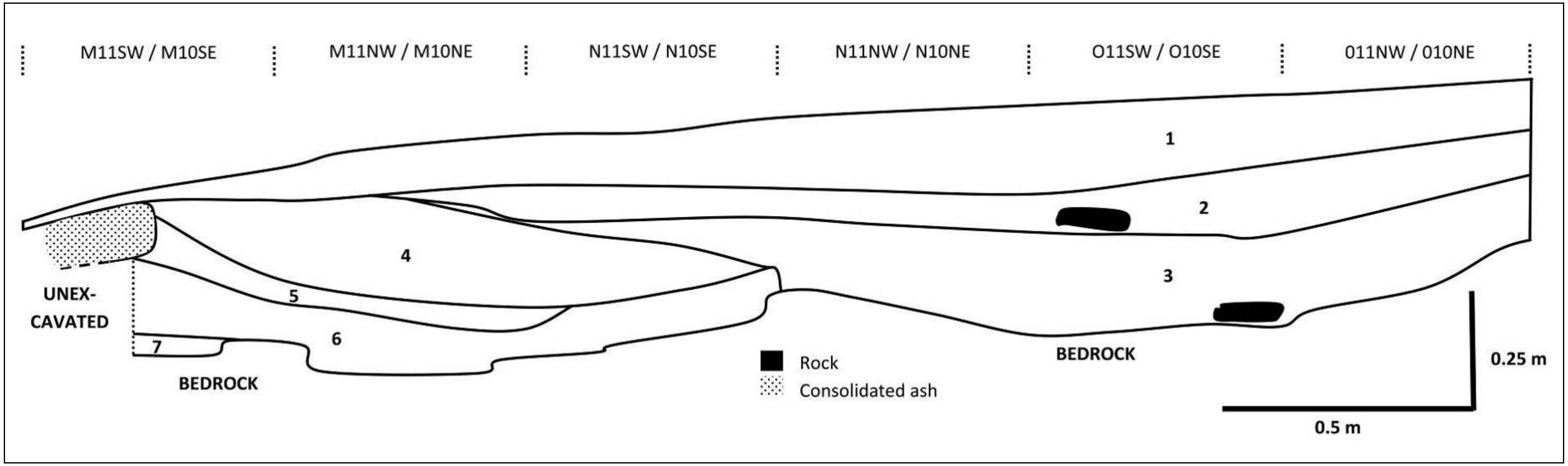


Figure 5.90: Section through the deposits inside Buzz Shelter along the 10/11 line. Aside from the disturbed area which does not intersect this section (see Orton *et al.* 2011, fig. 6 for a section further east), there are several thinner bedding layers which are not indicated.

Cultural material

Buzz Shelter contained a rich collection of 3721 flaked stone artefacts with 39 retouched items (Tables 5.119-5.125). Quartz is typically dominant, although the mid-Holocene levels contain higher frequencies of CCS and silcrete. They also contain more retouched items. Just four retouched pieces (from Layers 2 to 4) are in clear quartz indicating very limited inputs from Group 3 with much of the rest likely Group 2. Layers 4 to 6 are typically characteristic of Group 1, since they include many backed artefacts in CCS (none occur in layers 1 to 3) and many scrapers (7 of the total of 8 for the site). Layer 4 specifically includes a clear quartz triangle, two curve-backed flakes (quartz and CCS), a truncated flake (CCS) and three truncated points (CCS). The various Layers show characteristics of different Groups and it is not possible to assign specific Layers to specific Groups. Layer 4 also includes artefacts with mastic on them: a quartz blade with probable white mastic, a CCS adze with dark, bubbly mastic opposite the working edge and a CCS backed point with dark mastic on its butt. Whether occupation pre-dating the mid-Holocene is present seems unlikely, although an MSA quartzite flake was found in Layer 6 overlying bedrock and a quartz flake from Layer 7 was probably MSA.

Utilised manuports were generally rare but Layer 4 included a *//khom* stone, used for scraping skins (Nienaber & Raper 1977; Webley 1990), and a small pebble of fine-grained black rock with a groove on one side and a notch in one edge (Figure 5.91). Ochre occurred throughout but was particularly common in Layer 4 (61.7% of the total by number) which included one round fragment. The seven layers had two, three, twenty-eight, ninety-five, six, seventeen and three fragments respectively. The presence of ochre powder in the deposit (particularly in Layer 3) was noted and it may have lined one of the grass-filled hollows.

Table 5.119: Stone artefacts from Buzz Shelter, Layer 1 (Group 2).

	Quartz	CCS	Silcrete	Quartzite	Fine-grained black rock
Bipolar core	3	-	-	-	-
Bladelet	1	-	-	-	-
Flake	40	6	2	3	2
Chunk	21	1	-	2	-
Chip	39	-	-	-	-
Total	**104**	**7**	**2**	**5**	**2**
Stone material % total	**86.7**	**5.8**	**1.7**	**4.2**	**1.7**
Stone % formal	**-**	**-**	**-**	**-**	**-**

Table 5.120: Stone artefacts from Buzz Shelter, Layer 2. Clear quartz retouched artefacts are indicated in parentheses in the quartz column.

	Quartz	CCS	Silcrete	Quartzite	Fine-grained black rock	Other
Bipolar core	3	-	-	-	-	-
Single platform core	3	-	1	-	1	-
Backed bladelet fragment	1 (1)	-	-	-	-	-
Miscellaneous retouched piece	-	1	-	-	-	1
Blade	1	-	-	-	1	-
Bladelet	5	1	-	-	-	-
Flake	60	16	6	8	5	-
Edge-damaged flake	2	-	1	-	1	-
Chunk	18	1	-	1	2	1
Chip	66	5	1	1	-	-
Total	**159**	**24**	**9**	**10**	**10**	**2**
Stone material % total	**74.3**	**11.2**	**4.2**	**4.7**	**4.7**	**0.9**
Stone material % formal	**33.0**	**33.0**	**-**	**-**	**-**	**33.0**

Table 5.121: Stone artefacts from Buzz Shelter, Layer 3. Clear quartz retouched artefacts are indicated in parentheses in the quartz column.

	Quartz	CCS	Silcrete	Quartzite	Fine-grained black rock	Other
Bipolar core	2	-	-	-	-	-
Single platform core	1	-	-	-	-	1*
Irregular core	2	-	-	-	-	-
Thumbnail scraper	-	-	1	-	-	-
Backed point fragment	1 (1)	-	-	-	-	-
Segment	1 (1)	-	-	-	-	-
Backed piece fragment	1	-	-	-	-	-
Adze	-	1	-	-	-	-
Blade	-	1	-	1	-	-
Bladelet	14	3	3	-	-	-
Edge-damaged bladelet	2	-	-	-	-	-
Flake	103	42	26	19	7	1
Edge-damaged flake	3	3	2	-	-	-
Chunk	31	4	2	5	3	-
Chip	122	15	3	1	1	-
Total	**283**	**69**	**37**	**26**	**11**	**2**
Stone material % total	**66.1**	**16.1**	**8.6**	**6.1**	**2.6**	**0.5**
Stone material % formal	**60.0**	**20.0**	**20.0**	**-**	**-**	**-**
Grindstone	-	-	-	-	-	1
Upper grindstone fragment	-	-	-	2	-	-
Lower grindstone	-	-	-	1	-	-
Lower grindstone fragment	-	-	-	1	-	-

*Single platform core is also the grindstone (sandstone cobble)

Table 5.122: Stone artefacts from Buzz Shelter, Layer 4. Clear quartz retouched artefacts are indicated in parentheses in the quartz column.

	Quartz	CCS	Silcrete	Quartzite	Fine-grained black rock	Other
Bipolar core	6	1	-	-	-	-
Bipolar bladelet core	1	-	-	-	-	-
Single platform core	2	2	-	-	-	-
Single platform bladelet core	-	1	2	-	-	-
Irregular core	4	4	-	1	-	-

	Quartz	CCS	Silcrete	Quartzite	Fine-grained black rock	Other
Thumbnail scraper	-	1	-	-	-	-
Large sidescraper	-	-	-	1	-	-
Backed bladelet	2	-	-	-	-	-
Backed point	-	2	1	-	-	-
Curve-backed flake	1	1	-	-	-	-
Double-backed point	-	3	-	-	-	-
Truncated flake	-	1	-	-	-	-
Triangle	1 (1)	-	-	-	-	-
Adze	-	1	-	-	-	-
Miscellaneous retouched piece	1	-	-	-	-	-
Blade	4	4	6	1	1	-
Bladelet	31	16	7	1	-	-
Flake	317	115	111	38	33	13
Edge-damaged flake	4	2	2	-	-	-
Chunk	85	25	7	8	5	3
Edge-damaged chunk	1	-	-	-	-	-
Chip	485	36	22	14	4	-
Total	**945**	**215**	**158**	**64**	**43**	**16**
Stone material % total	**65.6**	**14.9**	**11.0**	**4.4**	**3.0**	**1.1**
Stone material % formal	**31.3**	**56.3**	**6.3**	**6.3**	**-**	**-**
//Khom stone	-	-	-	-	-	1*
Grooved & notched stone	-	-	-	-	1	-

*Calcrete

Table 5.123: Stone artefacts from Buzz Shelter, Layer 5.

	Quartz	CCS	Silcrete	Quartzite	Fine-grained black rock	Other
Bipolar core	4	-	-	-	-	-
Single platform core	1	1	-	-	1	-
Side-endscraper	-	-	1	-	-	-
Backed flake	-	1	-	-	-	-
Backed bladelet	1	2	-	-	-	-
Blade	-	-	1	-	-	-
Bladelet	7	6	2	3	-	-

	Quartz	CCS	Silcrete	Quartzite	Fine-grained black rock	Other
Flake	79	29	17	35	8	2
Edge-damaged flake	1	-	-	-	-	-
Chunk	15	5	3	3	1	1
Edge-damaged chunk	1	-	-	-	-	-
Chip	128	21	6	11	1	-
Total	**237**	**65**	**30**	**52**	**11**	**3**
Stone material % total	**59.5**	**16.3**	**7.5**	**13.1**	**2.8**	**0.8**
Stone material % formal	**20.0**	**60.0**	**20.0**	**-**	**-**	**-**

Table 5.124: Stone artefacts from Buzz Shelter, Layer 6.

	Quartz	CCS	Silcrete	Quartzite	Fine-grained black rock	Other
Bipolar core	7	-	-	1	-	-
Single platform core	3	1	1	-	-	-
Irregular core	1	-	1	-	-	-
Double endscraper	1	-	-	-	-	-
Thumbnail scraper	-	-	1	-	-	-
Scraper fragment	1	-	-	-	-	-
Backed point	-	1	1	-	-	-
Double-backed bladelet	-	1	-	-	-	-
Backed piece fragment	-	-	1	-	-	-
Miscellaneous retouched piece	1	1	-	-	-	-
Blade	-	-	1	1	-	-
Bladelet	18	8	8	2	-	-
Edge-damaged bladelet	-	-	1	-	-	-
Flake	185	55	84	67	11	9
Edge-damaged flake	3	-	2	1	-	-
Chunk	67	3	9	5	4	7
Chip	406	14	32	17	8	-
Edge-damaged chip	-	-	1	-	-	-
Total	**693**	**84**	**143**	**94**	**23**	**16**
Stone material % total	**65.8**	**8.0**	**13.6**	**8.9**	**2.2**	**1.5**
Stone material % formal	**33.3**	**33.3**	**33.3**	**-**	**-**	**-**
Grindstone fragment	-	-	-	-	-	1

Table 5.125: Stone artefacts from Buzz Shelter, Layer 7.

	Quartz	CCS	Silcrete	Quartzite	Fine-grained black rock	Other
Bipolar core	1	-	-	-	-	-
Single platform core	1	-	-	-	-	-
Circular scraper	1	-	-	-	-	-
Blade	2	1	-	-	-	-
Bladelet	1	2	-	-	-	-
Flake	17	2	2	4	1	-
Edge-damaged flake	2	-	-	-	-	-
Chunk	7	2	-	-	-	1
Chip	19	2	-	-	-	-
Total	**51**	**9**	**2**	**4**	**1**	**1**
Stone material % total	**75.0**	**13.2**	**2.9**	**5.9**	**1.5**	**1.5**
Stone material % formal	**100.0**	**-**	**-**	**-**	**-**	**-**
Upper grindstone fragment	-	-	-	1	-	-
Hammer stone	-	-	-	-	-	1

Figure 5.91: Grooved and notched stone from Layer 4 in Buzz Shelter.

Throughout the Buzz Shelter deposits the mean external diameter of ostrich eggshell beads is small with individual beads larger than 5 mm only present in Layers 3 and 4 (Table 5.126); none fall into the very large class (Figure 5.92). It is interesting to note how tightly clustered the beads are with only 0.38 mm separating the smallest and largest means. There is no evidence for an influx of larger beads at any time with just one whole bead surpassing 6 mm (in layer 3) and Layer 1 actually having the smallest mean. This contrasts markedly with the beads from Reception Shelter (Figure 5.85). Oddly, the one broken bead present, in Layer 3, is approximately 9.5 mm in diameter.

Table 5.126: Summary statistics for finished ostrich eggshell beads from Buzz Shelter.

Layer		Outside diameter (mm)	Aperture diameter (mm)	Thickness (mm)
1 (n=10)	Mean	3.94	1.71	1.20
	Std Deviation	0.35	0.13	0.20
	Minimum	3.25	1.39	1.07
	Maximum	4.20	1.79	1.48
2 (n=12)	Mean	4.20	1.53	1.52
	Std Deviation	0.34	0.25	0.24
	Minimum	3.84	1.25	1.10
	Maximum	4.93	2.06	1.76
3 (n=35*)	Mean	4.10	1.52	1.57
	Std Deviation	0.64	0.36	0.24
	Minimum	2.62	1.01	1.03
	Maximum	6.50	2.84	2.00
4 (n=32)	Mean	4.24	1.48	1.52
	Std Deviation	0.44	0.29	0.17
	Minimum	3.35	0.99	1.16
	Maximum	5.45	2.12	1.86
5 (n=10)	Mean	4.11	1.56	1.54
	Std Deviation	0.57	0.28	0.19
	Minimum	3.32	1.15	1.08
	Maximum	4.92	1.98	1.81
6 (n=19**)	Mean	4.32	1.67	1.45
	Std Deviation	0.44	0.29	0.20
	Minimum	3.35	1.13	1.06
	Maximum	4.98	2.10	1.84
7 (n=5)	Mean	4.10	1.71	1.43
	Std Deviation	0.06	0.23	0.03
	Minimum	4.01	1.47	1.40
	Maximum	4.15	1.97	1.46

*Two beads were strung and could not have their apertures measured (n=33), while one bead was burnt and exfoliated such that for thickness n = 34.

**Two beads were burnt and exfoliated such that for thickness n = 17.

Evidence for the manufacture of ostrich eggshell beads occurred, but was too minimal to suggest that active manufacture ever took place at the site (Table 5.127). Two beads were found strung with a seed bead in Layer 3, while an ochre-coated bead was found tied on the end of a loop of string in Layer 4, providing evidence for the irregular wear sometimes found on beads (Figure 5.93). Several fragments of engraved, painted and 'retouched' ostrich eggshell and two pendant blanks were also recovered (Figure 5.94). Engraved eggshell occurs in Layers 3, 4 and 6, while 'retouched' fragments come from Layers 3 and 4 only. The vast majority of painted fragments are from Layer 3 but they also occur in Layers 2 and 4. Flask mouth fragments are present in Layers 3 and 4. Just two potsherds were recovered from Buzz Shelter, one in Layer 2 (4.69 mm thick) and the other at the top of Layer 3 (5.60 mm thick). Both were plain body sherds.

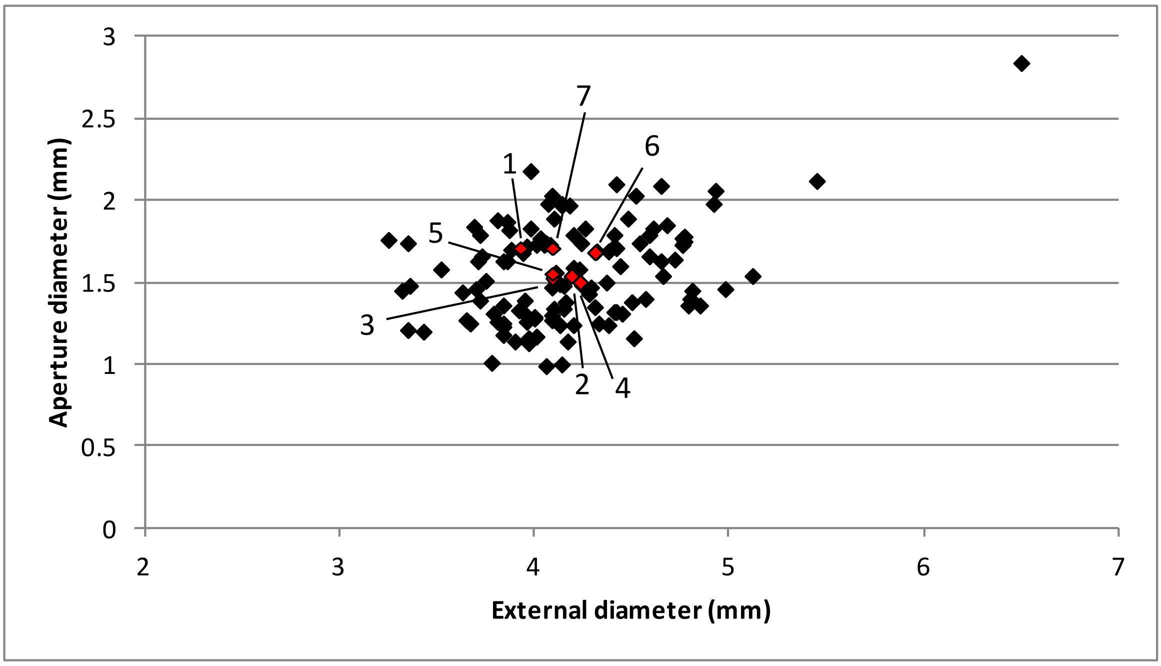


Figure 5.92: Scatter plot of ostrich eggshell bead dimensions from Buzz Shelter. Red symbols represent layer means as labelled.

Table 5.127: Ostrich eggshell bead manufacturing debris from Buzz Shelter.

Stage	IIa	IIb	IIIa	IIIb	IVa	IVb	Va	Vb	VIa	VIb	VIIa	VIIb
Layer 1	-	-	-	-	-	-	-	-	-	-	5	-
Layer 2	-	-	-	1	-	-	-	-	-	-	12	-
Layer 3	-	-	4	1	-	-	-	-	-	-	35	1
Layer 4	-	-	5	1	-	-	-	-	-	-	32	-
Layer 5	-	-	1	2	-	-	-	-	-	-	10	-

Stage	IIa	IIb	IIIa	IIIb	IVa	IVb	Va	Vb	VIa	VIb	VIIa	VIIb
Layer 6	-	-	2	4	1	2	-	-	-	-	19	-
Layer 7	-	-	-	-	-	-	-	-	-	-	5	-

Figure 5.93: Ostrich eggshell and seed beads strung with sinew from Layer 3 (A) and an ochred bead tied on a loop of string from Layer 4 (B) of Buzz Shelter. Scale in 1 mm intervals.

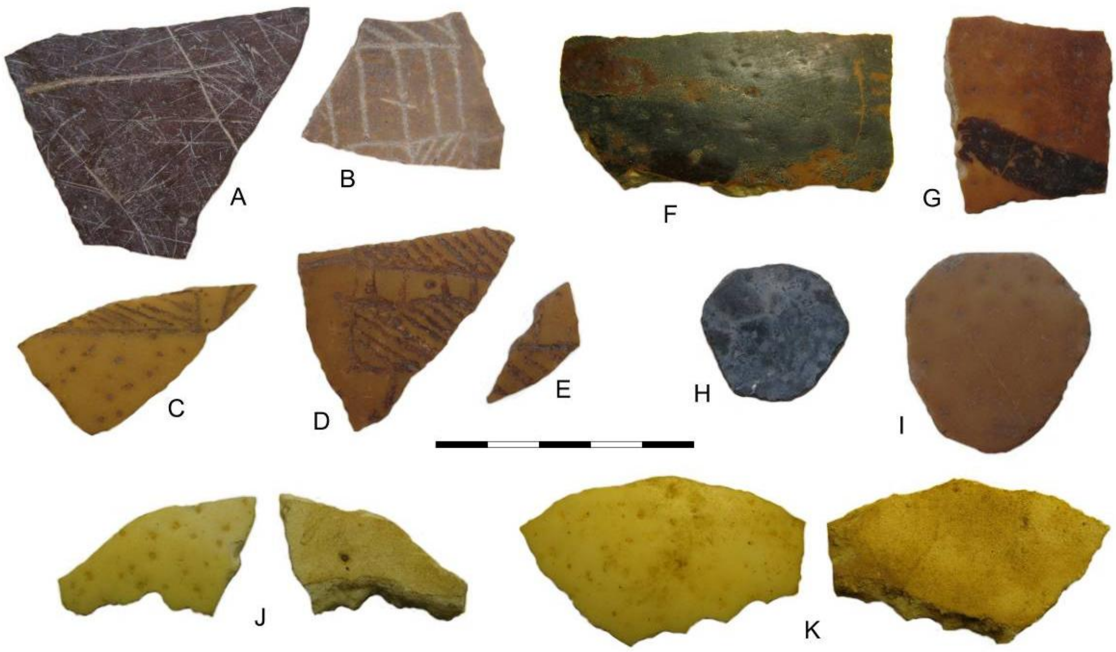


Figure 5.94: Ostrich eggshell artefacts from Buzz Shelter. Engraved fragments from Layers 3 (A & B) and 6A (C-E), painted fragments from Layer 3 (F) and Layer 4 (G), pendant blanks from Layers 4 (H) and 5 (I) and 'retouched' fragments from Layer 3 (J & K). Scale in 5 mm intervals.

The excellent preservation of organic materials in Buzz Shelter has resulted in a wonderful record of other non-lithic artefacts. Space precludes a detailed description of other organic finds but these include wooden artefacts, wood shavings, string and netting, cut and split reeds, worked bone (including one tortoise bowl fragment), estuarine shell beads (*Nassarius krausianus*, some strung) and two marine shell pendants (*Turbo sarmaticus* and *Cypraea* sp.). Some of these were discussed in Orton *et al.* (2011).

Several historical artefacts were also found. These include three used matches from Layer 1 and one from the top of Layer 3, two small fragments of fabric (10 and 55 mm long respectively), two short threads and a metal loop from Layer 2 and a tiny green bottle glass fragment from the top of Layer 3. As with Reception Shelter, these items likely relate to 19th century use of the cave.

5.4.3 Varsche Rivier 048 (VR048)

Research at this site is ongoing and, as such, only a general discussion of the site and its character is presented here.

<u>The site</u>

VR048 is located on an island between braids on the Varsche River flood plain (31°31'43.9" S 18°35'07.4" E), which at this point is 240 m wide; the main channel runs to the south of VR048. The site has had 646 m^2 excavated to date. The actual area of discrete artefact scatter is some 4900 m^2, but with density varying greatly (Figure 5.95); virtually nothing is evident in the immediate surrounding area and similar mud flats just downstream were found to be sterile suggesting this location to have been particularly desirable for settlement. The assemblages consist of material of mixed age and no dates have been obtained.

Figure 5.95: View to the east showing a dense patch of artefact scatter on VR048.

<u>Cultural material</u>

The large stone artefact assemblage (9417 artefacts) includes 107 retouched tools from which both Group 1 and Group 3 components can be identified. Scrapers and backed tools on CCS and silcrete typify Group 1, while Group 3 is marked by the many clear quartz backed bladelets, points and flakes. Just eight ostrich eggshell beads have been found and their diameters range from small (3.11 mm) to very large (8.23 mm). Pottery was abundant with 264 sherds weighing 760 g. The wall thicknesses vary greatly between 3.9 and 10.4 mm with a mean of 5.97 ± 1.37 mm. Lugs were present and the only decoration evident was broad-incised parallel lines. All rim sherds were vertically oriented with simple round lips, and red slip was found on about 43% of all sherds.

5.5 Richtersveld assemblages

Two pottery period sites from the vicinity of Sendelingsdrif on the left bank of the Orange River are presented here. Several other sites from this area, some 65 km from the coast, have already been published (Brink & Webley 1996; Miller & Webley 1994; Webley 1997a; Orton & Halkett 2010).

5.5.1 Jakkalsberg K (JKB K)

The site

JKB K lay on the bank of the Orange River, beneath the strip of large trees bordering the river in this area (28°10'56.1" S 16°52'55.9" E). The site was deflated and 67 m^2 were excavated on a 0.25 m^2 grid, while two areas demonstrating poorer context were collected individually in bulk (Halkett 2001). Although the fauna was poorly preserved, two bones were identified as probable sheep (R. Klein & T. Steele, pers. comm. 2006). The following dates were obtained:

Lab. No.	Provenience	Material	^{14}C date BP	Calibrated age (95.4%)
GX-32761	Alongside Hearth A1	Charcoal (sp. unknown)	660 ± 100	AD 1212–1459
OxA-24528	K60	Bone (*Raphicerus campestris*)	358 ± 26	AD 1488–1640

Note:

- Possibly *Acacia karoo* which is abundant along the river and could return old dates. OxA-24528 is thus taken as the most reliable age for the site.

Cultural material

The site yielded a large, informal stone artefact assemblage dominated by quartz. However, various other local materials were also flaked (Table 5.128). Retouch was entirely absent prompting a Group 2 ascription. Ochre fragments were abundant on the site (195 fragments being found) and strongly concentrated in one area. Ostrich eggshell beads were mostly large and medium, but small and very large beads also occurred (Table 5.129; Figure 5.96). Seven broken complete beads were found and, interestingly, five with at least half retained were all between 4.85 and 5.35 mm in external diameter. One manufacturing fragment in stage IVb was found. Whether larger beads had already been removed from this site, as occurred at JKB A (Webley 1997a), is unknown. Two flask mouth fragments were present and refit to make an opening of approximately 8.5 mm diameter.

Table 5.128: Stone artefacts from JKB K (Group 2).

	Quartz	CCS	Quartzite	Sandstone	Other
Bipolar core	2	1	-	-	-
Single platform core	-	1	-	-	-
Irregular core	6	-	-	-	-
Blade	4	-	1	-	-
Bladelet	8	-	4	-	-
Flake	207	1	164	31	10
Edge-damaged flake	2	1	1	-	-
Chunk	209	-	85	22	6
Edge-damaged chunk	-	-	1	-	-
Chip	319	1	23	7	-
Total	**757**	**5**	**279**	**60**	**16**
Stone material % total	**67.77**	**0.45**	**24.98**	**5.37**	**1.43**
Stone material % formal	**-**	**-**	**-**	**-**	**-**
Upper grindstone	1	-	-	-	-
Upper grindstone fragment	-	-	-	-	1
Lower grindstone fragment	-	-	-	-	1
Upper grindstone/hammer stone	-	-	1	-	-
Hammer stone	-	-	-	-	1

Table 5.129: Summary statistics for finished ostrich eggshell beads from JKB K.

		Outside diameter (mm)	Aperture diameter (mm)	Thickness (mm)
n=14	Mean	6.16	1.86	1.79
	Std Deviation	1.38	0.24	0.14
	Minimum	4.02	1.29	1.52
	Maximum	8.90	2.14	2.00

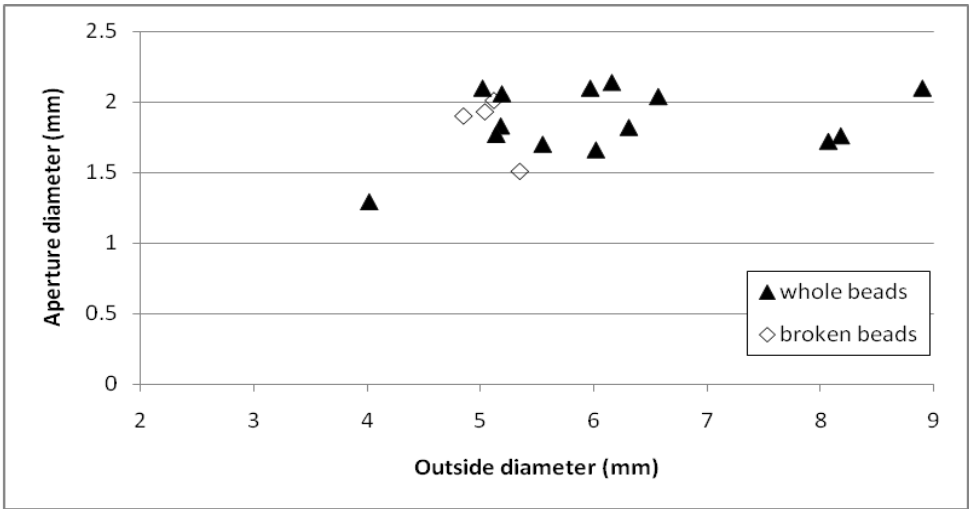


Figure 5.96: Scatter plot of ostrich eggshell bead dimensions from JKB K.

The most significant aspect of this site is its very large pottery assemblage. Altogether, the 798 sherds weigh 1667 g. Twenty-four rim sherds were found with all being plain (Figure 5.97). Those with enough preserved all display a flared orientation, while most are tapered in form. There are two lugs present and one sherd may come from the base of a spout. Where rim diameters could be estimated these varied, with some being 80–100 mm, others 140 mm and one about 200 mm. Just one sherd has red slip on the outside and another has a burnished surface. Two holes of the sort made for mending pots (Rudner 1968) are present, but both are broken. One displays damage on the inner surface indicating boring through from the outside. While all sherds have mineral temper, a few may have included some organic temper. This may, of course, have been an accidental inclusion. Wall thickness averages 5.22 ± 0.94 mm. Although difficult to tell, there may be up to nine individual pots represented. Webley (1997a) stated that a local herder had collected pottery from nearby Jakkalsberg A and B, and it seems quite possible that JKB K was also pillaged in this way. The few shells present included two *Corbicula fluminalis* (freshwater) and four *Bullia* sp. (marine) and may have been collected or exchanged as curios. A few historical artefacts were also found, but such items occur widely across the area, having been collected in other proximate excavations as well (Orton & Halkett 2010; Webley 1997a).

Figure 5.97: Pottery from JKB K. Scale in 5 mm intervals.

5.5.2 Jakkalsberg M (JKB M)

The site

JKB M lay on the edge of a tributary stream some 200 m from the Orange River (28°10'50.5" S 1653'13.0" E). It was exposed in a deep deflating area between eroding stacks of silts (Halkett 2001b). The poorly preserved faunal assemblage includes two sheep limb bones and one tooth identifiable to caprine (R. Klein & T. Steele, pers. comm. 2006). The following date was obtained:

Lab. No.	Provenience	Material	^{14}C date BP	Calibrated age (95.4%)
GX-32760	L32, L33, M33	OES (*Struthio camelus*)	1740 ± 75	AD 83–943

Sadr (2003) notes that no pierced pottery lugs are reliably dated to before about 1200 years ago and it is perhaps prudent to regard JKB M as dating to the late first millennium AD. Dating was thus important here and it is unfortunate that two further samples, on bovid and sheep bones respectively, both failed due to poor collagen preservation.

Cultural material

A small, quartz-dominated flaked stone assemblage was found with no retouch present (Table 5.130). It is no doubt a Group 2 assemblage. Hammer stones and grindstones occur and one upper grindstone/hammer stone was ochre-stained. Seven ochre fragments and two 'ochre cakes' were found. The 'cakes' contain ferruginous gravel, quartz fragments, occasional bone fragments and much ochre, and were made by patting muddy lumps into shape and allowing them to dry on a flat surface. They are fragile but one that was recovered whole measures about 260 x 180 x 70 mm (Figure 5.98). An unusual find was a collection of small pebbles, not unlike marbles in size and shape, of which 48 are white quartz, 21 are variable-coloured agates, three are black and two are red. Although most were concentrated in the western part of the site, a few were scatterd over the rest of the excavated area. Twenty complete and four broken ostrich eggshell beads were found (Table 5.131), along with a collection of manufacturing debris (Table 5.132; Orton 2008). The beads range widely in size but no very large beads occur. Their small mean thickness indicates that most were well worn at the time of their loss. As before, it is unknown whether larger beads were removed from this site, but the small size of the partly made beads (Orton 2008d) argues against this.

Table 5.130: Stone artefacts from JKB M.

	Quartz	CCS	Quartzite	Sandstone	Other
Single platform core	-	-	1	-	-
Irregular core	1	-	-	-	-
Flake	39	1	11	4	3
Chunk	53	1	11	-	2
Chip	89		2	1	-
Total	**182**	**2**	**25**	**5**	**5**
Stone material % total	**83.1**	**0.9**	**11.4**	**2.3**	**2.3**
Stone material % formal	**-**	**-**	**-**	**-**	**-**
Upper grindstone/hammer stone	-	-	-	2	-
Lower grindstone	-	-	3	-	-
Lower grindstone fragment	-	-	1	-	-
Hammer stone	-	-	1	-	1

Figure 5.98: Upper and lower surfaces of one of the ‘ochre cakes’ from JKB M. Scale in 10 mm intervals.

Table 5.131: Summary statistics for finished ostrich eggshell beads from JKB M.

		Outside diameter (mm)	Aperture diameter (mm)	Thickness (mm)
n=20	Mean	4.90	2.20	1.50
	Std Deviation	0.97	0.41	0.24
	Minimum	3.64	1.36	1.09
	Maximum	7.10	3.07	1.96

Table 5.132: Ostrich eggshell bead manufacturing debris from JKB M.

Stage	IIa	IIb	IIIa	IIIb	IVa	IVb	Va	Vb	VIa	VIb	VIIa	VIIb
	4	8	4	29	-	8	-	5	-	-	20	4

The pottery collection includes 202 sherds weighing 393 g. Six, and possibly seven, sherds are rims, with all but one displaying horizontal incised decoration (Figure 5.99) – the last is plain. In total, 19 decorated sherds were found, all incised. One rim is possibly flared in orientation, while all are either everted or thickened round in form. Three lugs and two small bosses are present. All sherds have mineral temper but a few cavities suggest possible, and probably incidental, fibre inclusions. The mean wall thickness is 5.38 ± 1.04 mm. Red slip on the outside is common (115 sherds) and some had noticeable inclusions of shiny specularite ground into the paint. A few rims had red paint on their inner surfaces as well. At least five sherds have edges ground smooth, possibly to facilitate reuse of a broken pot. One, however, was ground around some 75% of its edge suggesting an alternative function. Collected shells include three *Corbicula fluminalis* and two *Unio* sp. fragments (freshwater), and one piece of an unidentifiable whelk (marine).

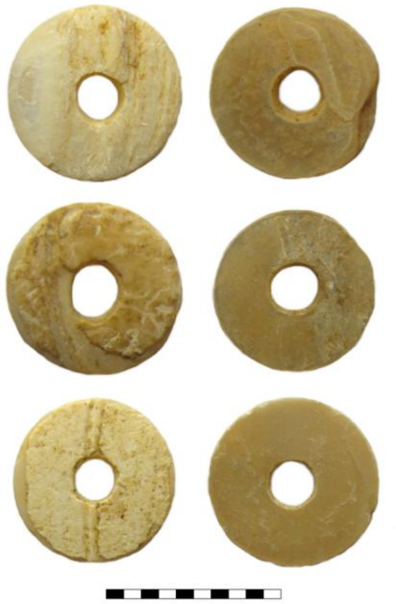
Figure 5.99: Pottery from JKB M. Scale in 5 mm intervals.

5.6 Other material culture

Although this thesis necessarily focuses on lithics, ostrich eggshell beads and pottery, which preserve best on west coast sites, other categories of material culture do exist. These are now briefly discussed for the sake of completeness but, owing to their rarity, are not examined any further in the following chapters. Undoubtedly, other aspects of material culture existed but have failed to survive the ravages of time.

5.6.1 Shell beads

Shell beads are known from just one site in Namaqualand, AK2001/002 (Figure 100; Halkett 2003). They were probably made on *Unio caffer* (freshwater mussel; G. Avery, G. Branch & D. Herbert, pers. comm. 2005) which occurs commonly in many South African rivers (Appleton 2002). Whether the beads were imported from some distance or the shell obtained from the Buffels River estuary cannot be known. The site is undated and its context unfortunately poor, but pottery (with bosses) indicates an age within the last 2000 years. The AK2001/002 beads are remarkably consistent in size with all being in the range of 8.4–9.6 mm external diameter (Figure 101).



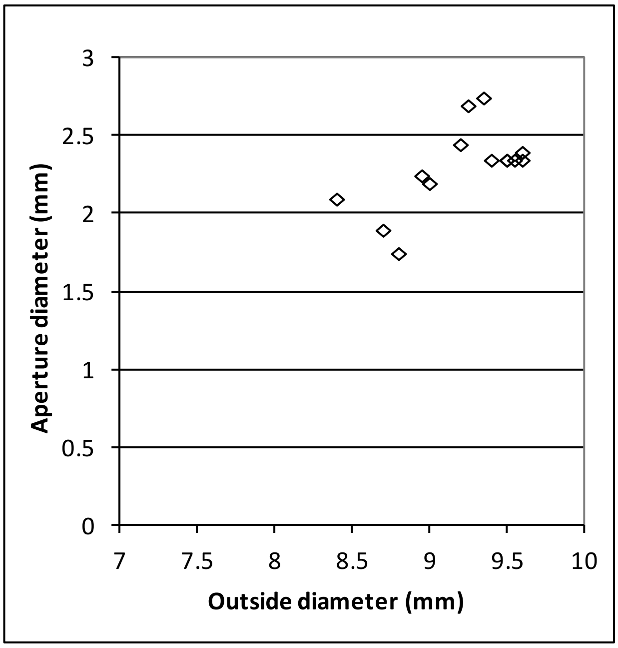


Figure 5.100: Outer (left) and inner (right) surfaces of shell beads from AK2001/002 showing. Scale in 1 mm intervals.

Figure 5.101: External and aperture diameters of the shell beads from AK2001/002.

Freshwater shell beads and pendants are rare but found throughout southern Africa. Mitchell (1993b) reports *Achatina* sp. (land snail) beads and a pendant fragment on *U. caffer* from Tloutle in Lesotho, and another pendant from nearby Ha Makotoko (Mitchell 1993a), both from early Holocene contexts. Mazel (1999) found two land snail beads at iNkolimahashi Shelter in Kwazulu-Natal, while Laidler (1936) found freshwater shell beads associated with pottery in an Eastern Cape cave. A worked freshwater mussel fragment and a land snail bead from Balerno Main Shelter in the Limpopo area date to the first millennium AD (Van Doornum 2008), while a single shell bead (not described further) was found at Geduld in Namibia (A. Smith & Jacobson 1995).

5.6.2 Bone beads

Bone beads are seldom encountered. Two types exist: flat beads resembling those on ostrich eggshell can be made on a flat bone or sidewall fragment of a shaft, while tubular beads are made from a section of hollow bone, usually bird. These items are rare in Namaqualand. In the Sandveld two broken flat bone beads were found at KN2001/008C (Dewar 2008), while in the Richtersveld two whole beads were recorded at JKB N (Orton & Halkett 2010) and one at Spitzkloof from an MSA context (Dewar & Stewart 2012) (Table 5.133). Just one bone tube is known – from KN2004/012 described above.

Table 5.133: Dimensions of flat bone beads from Namaqualand. Source data from Dewar (2008:82), Dewar & Stewart (2012) and Orton and Halkett (2010:15).

Site	Diameter (mm)	Aperture (mm)	Thickness (mm)
KN2001/008C	~9.1	~3.1	2.4
KN2001/008C	~9.1	~3.3	2.4
JKB N	11.58*	2.5	4.5
JKB N	4.24	1.75	1.52
Spitzkloof	4.2	2.1	1.5

* Value is the average of maximum and minimum diameters.

The south coast of South Africa generally reveals far richer worked bone assemblages and tubular beads are common there. A survey of the literature on many important sites failed to reveal many flat beads; Robey (1987) notes their presence at Tortoise Cave. Inskeep (1987) reports a collection of what he termed 'bone rings' from Nelson Bay Cave, while another was found at Matjies River Rock Shelter (Louw 1960: fig. 34). That these latter items are not beads is perhaps demonstrated by their far larger apertures (Figure 5.102). Given the prevalence of ostrich eggshell across much of southern Africa there seems little reason to make beads of bone and this is probably the main reason for their considerable scarcity.

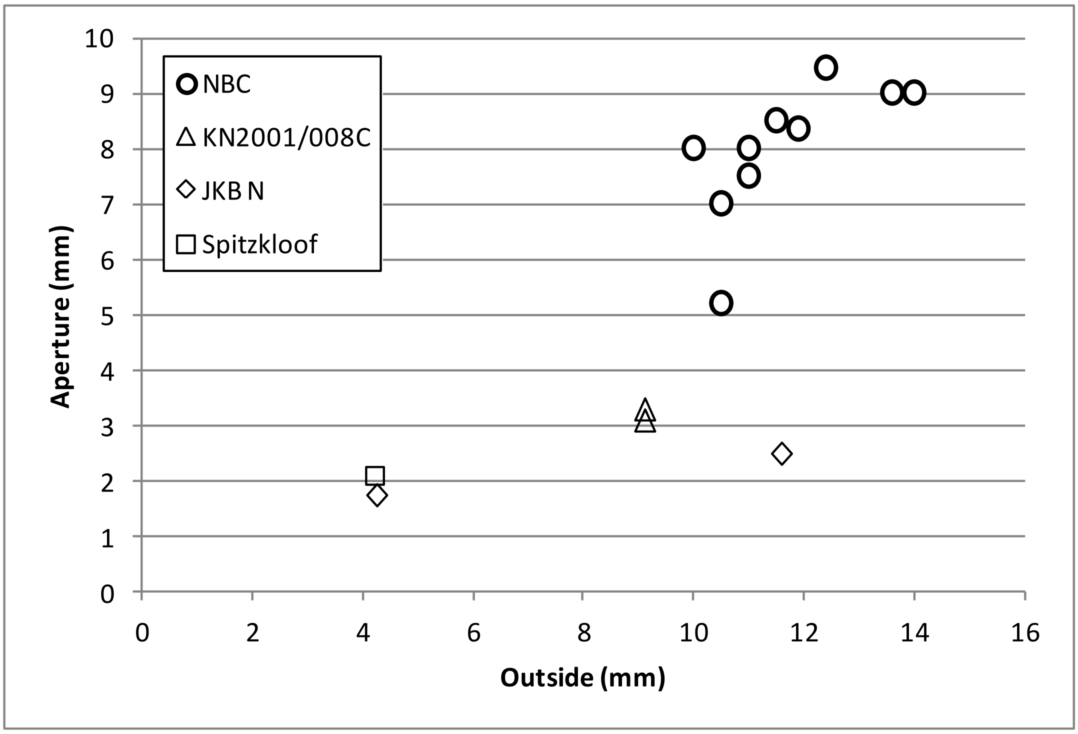


Figure 5.102: Graph showing the ratio of external to aperture diameters of bone beads from Namaqualand and bone rings from Nelson Bay Cave. Source data as in Table 5.133 above and NBC from Inskeep (1987: appendix 35).

5.6.3 Ostrich eggshell pendants

Ostrich eggshell pendants are rare in Namaqualand but are occasionally found (Orton & Halkett 2005, 2006). Although broken, that from AK2005/001 is a fine example (Figure 5.103). The small nicks around the edge are a typical decorative feature, but many Namaqualand examples are plain, like the wind-blasted one from KN2004/012 (Figure 5.104). Stylistic continuity is demonstrated by the presence of an identical example to the AK2005/001 pendant from Noetzie on the south coast (Orton & Halkett 2007b: fig. 4a).

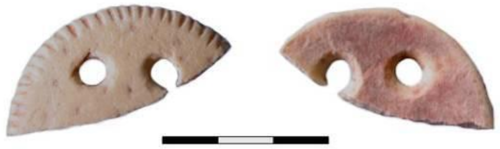


Figure 5.103: Front (left) and back (right) of the ostrich eggshell pendant fragment from site AK2005/001. The rear is ochred. Scale in 5 mm intervals.

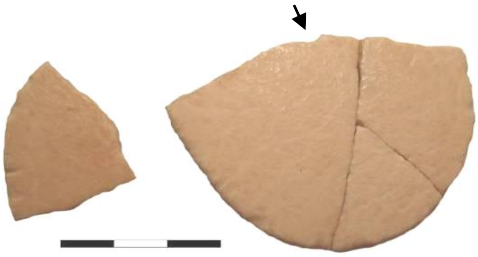


Figure 5.104: The wind-blasted ostrich eggshell pendant fragments from the background scatter at KN2004/012. The right hand one has part of a hole visible (arrowed). Scale in 5 mm intervals.

5.6.4 Marine shell pendants

Several types of marine shell pendants have been identified in Namaqualand. The first are broken cowrie shells[19] which might have been threaded through their openings (Dewar 2008: fig. 11.10). Cowries are usually assumed to originate in the Indian Ocean but one species, *Cypraea iutsui* (Shikama 1974), does occur in deep water off the coast south of the Olifants River mouth (Liltved 2000). It is unknown what species is present in the archaeological sites and, although none are whole, comparison with the various southern African species presented in Liltved's (2000) photographic catalogue suggests they are most likely to be *C. iutsui*. The second type of shell pendants are *Conus* shells that have their apices missing, enabling them to be threaded through their openings (Dewar 2008: fig. 5.12 and 8.13). It should be noted that on the south coast these shells receive perforations on their basal ends (e.g. Henshilwood 2008; Louw 1960; Orton & Halkett 2007). Although water-worn *Bullia* shells are common in Namaqualand, intentionally perforated examples are unknown. Further south, however, several were recovered from Tortoise Cave (Robey 1984). One example each of pendants made on *Haliotis midae* (Webley 1984) and *Turbo sarmaticus* (Orton *et al.* 2011) are known from

[19] Dewar referred to them as beads but I prefer pendants

central and southern Namaqualand respectively. Both artefacts must have travelled more than 200 km from the natural home ranges of the species from which they were made.

5.6.5 Bone points

These artefacts are uncommon but are found from time to time. They consist of a variety of ground points and awls. Examples have come from AK2006/006 (Orton 2007c), DP2004/014, LK2004/011, MB2005/005 (Dewar 2008), Rooiwal Hollow (Orton *et al.* 2005) and SK2001/033 (Halkett 2003).

5.6.6 Other worked bone

Aside from the items already discussed, the only other bone artefacts recovered from the study area are two pendant fragments from AK2006/006, one of which has small punctures decorating the edges of its upper surface (Figure 5.105; Orton 2007c). This site also contained an unbroken melon knife which is shown here (Figure 5.103). Just one other probable melon knife has been found in Namaqualand from MB2005/043 near the Spoeg River mouth (Halkett & Dewar 2006).

Figure 105: Bone pendant (top; scale in 5 mm intervals) and melon knife (bottom; scale in 10 mm intervals) from AK2006/006.

Tortoise shell bowls are found throughout South Africa (J. Deacon 1984a). Despite the large number found at Dunefield Midden 1, to the south of Namaqualand (Stewart *et al.* 2011), very few fragments have been recovered from Namaqualand. They may be bowl fragments.

5.6.7 Huts

A cluster of whale bone huts was recorded on the Namibian coastline (A. Smith & J. Kinahan 1984), while a single probable example is known from Samsons Bak 5 in central Namaqualand (Halkett & Hart 1997). The remnants of these structures present as a loose circle of whale ribs, sometimes still standing erect. While such huts were identified historically (Gordon 1779 cited in A. Smith & Kinahan 1984; J. Kinahan & J.H.A. Kinahan 1984; Paterson 1789), the antiquity of their use is unknown and no radiocarbon dating has yet been attempted.

The usual mode of making huts was through the erection of a framework of poles which was covered by branches in the case of the Bushmen and by mats in the case of the Khoekhoen (J. Deacon 1984a; Godee Molsbergen 1916), hence the terms *matjieshuis*[20]. The mats were made from reeds placed parallel to one another and fastened tightly together with sinews or thread, the latter in more recent times obtained from Europeans (Sparrman 1785).

[20] An Afrikaans word literally translated as 'mat house'.

5.6.8 Tortoise burials

Deliberate tortoise burials have been found in several sites in Namaqualand. The tortoises appear to have been cooked and eaten then generally buried without any bones besides the carapace and plastron. They are found beneath intact shell middens in coastal sites and may indicate some sort of consecration ritual. Further description is provided in Orton (2012)

5.6.9 Glass trade beads

The only glass trade bead yet found in coastal Namaqualand comes from LK2001/010a (Figure 5.106; Halkett & Dewar 2007). This type of bead (Indian red on green – IROG) was not made before AD 1600 (M. Wood, pers. comm. 2011). The likely age of this example is provided by the fact that in Namibia such beads were only found on Kuiseb Delta historical sites dating between the 1780s and 1840s (J.H.A. Kinahan 2000). LK2001/010a also contains clear quartz backed artefacts and pottery, as is the case at KK002, the only site in this thesis to include glass beads. Inland, Webley (1984) found glass beads at Bethelsklip, along with a metal and a ceramic bead. The source of these beads is unclear, however, since the site was regularly used in historic times for church services.

Figure 5.106: Glass bead from LK2001/010A. Scale in 1 mm intervals.

Chapter 6. Archaeological signatures in Namaqualand

This chapter analyses the cultural material and shellfish assemblages from the core study area, the central and northern Namaqualand coastline. The analyses are both temporal and by assigned lithic group with data presented graphically. The analyses have two aims:

- To describe the characteristics of Namaqualand assemblages and their overall sequence of change;
- To attempt to determine if any of these characteristics can help to inform on socio-economic grouping (i.e. hunter-gatherer or herder).

The dated assemblages are numbered consecutively from oldest to youngest with those numbers used in the graphs to avoid clutter. The reader is requested to fold out the key page from inside the back cover for easy identification of the assemblages. For the purposes of the graphical analyses, stone artefact assemblages with <50 artefacts were omitted as were ostrich eggshell bead assemblages with <3 stage VIIa beads. Due to the obvious discordance between age and pottery presence, MB2005/059 was disregarded completely, as were the undated assemblages.

In assemblages with two or more C14 determinations ages were assigned as follows:

- When the dates came from multiple layers or discrete parts of a site which could not be guaranteed contemporaneous but, for various reasons, the data from which were conflated, the maximum age range covered by both dates at 95.4% was used. There were two exceptions where lower ages post-dated those above them in which case the minimum range (period of overlap) was used;

- When the dates came from one layer or area and represented one archaeological occupation the range was taken as the period of overlap in the 2 sigma calibrated ranges;
- On one occasion (KN2005/067, Patch 1A) one date was significantly older than two others and, being away from the main excavation, was assumed to represent an intrusion.

Although the detailed analysis focuses on the coastal samples, reliable assemblages from other parts of Namaqualand are also discussed and related to the coastal data.

6.1 Stone artefacts

With stone artefacts being the most persistent artefact types found in archaeological sites of all ages, their technology and typology have routinely been used to define periods of time, sometimes refered to as culture-stratigraphic units. This section seeks to identify some of the patterning in coastal Namaqualand and hence identify changes occurring within the periods referred to as the 'Holocene microlithic' (post-dating *c.* 8000 BP) and 'Late Holocene assemblages' (post-dating *c.* 3000 BP; Orton 2006). Some of tis patterning is inherent in the lithic groups which is where I begin.

Figures 6.1 and 6.2 illustrate the principal characteristics of the assigned lithic groups. The categories generally hold true but do incorporate some variety. Aside from MB2005/005B (Assemblage 1), exceptions occur in either the overall or retouched material frequencies but never in both. Dating to the mid-4th millennium BC, MB2005/005B is far older than the next oldest assemblage (KN2001/008C; early to mid-3rd millennium BC) and its higher quartz frequencies may signal an earlier pattern.

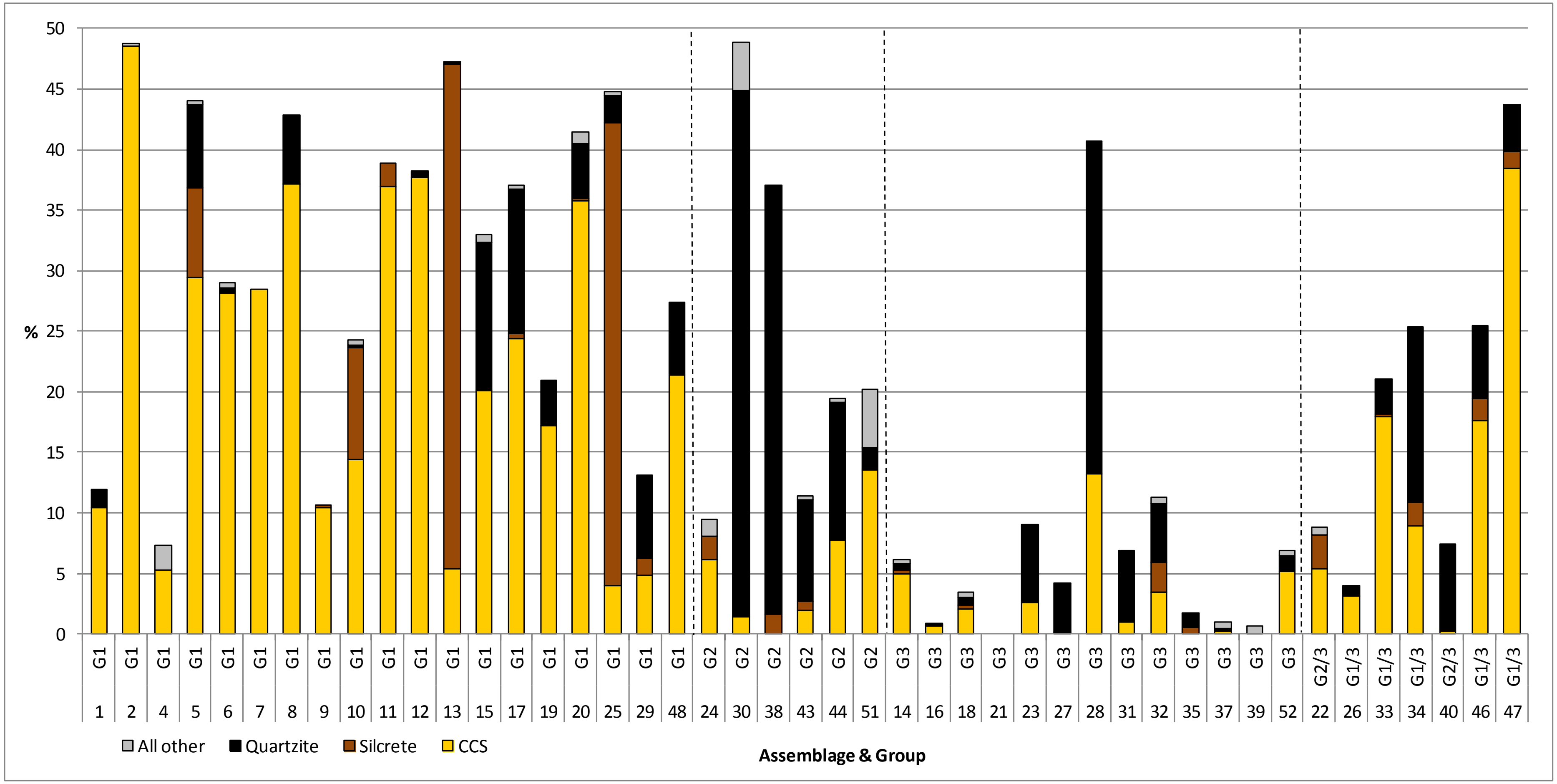


Figure 6.1: Stone material composition of the assemblages by assigned Group. Quartz is excluded and comprises the remaining amount in each assemblage.

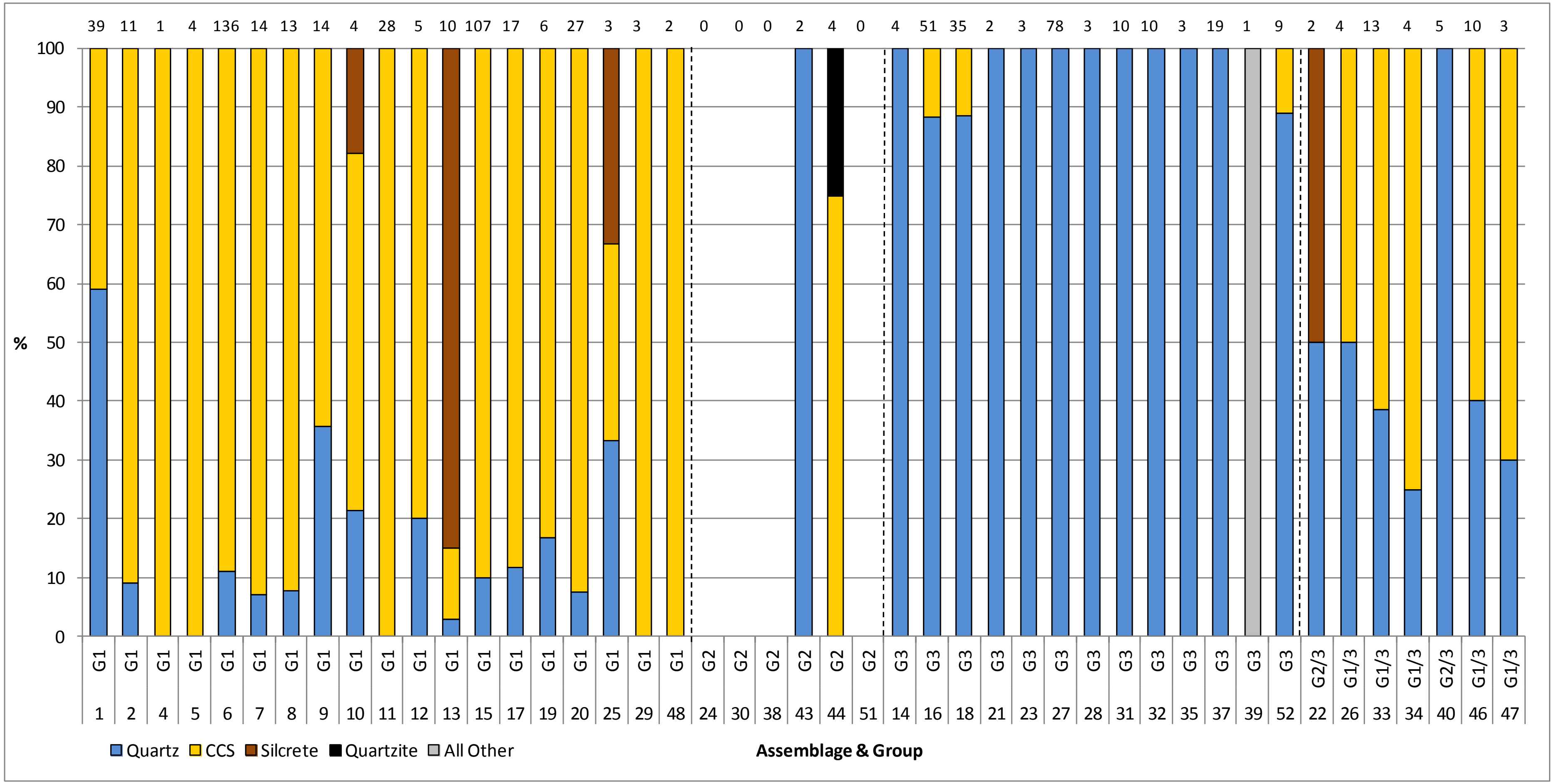


Figure 6.2: Stone material frequencies among all retouched tools by assigned group. The number of retouched tools per assemblage is indicated above each column.

The informal Group 2 assemblages are quartz-dominated, but two make opportunistic use of good local quartzite (Figure 6.1). Group 2 includes few retouched items with the main exception, SK2005/057A (Assemblage 44), no doubt including items from SK2005/074 (Assemblage 17), an immediately proximate older site (Figure 6.2). Group 3 sites are distinguished by very high quartz frequencies in either or both of the total assemblage and the retouched component. The primary exception in Figure 6.1 is LK2004/011 (Assemblage 28) which included much quartzite, but the lack of milky quartz militated against a Group 2 influence.

Placing the assemblages in temporal order is not overly helpful but shows that the general use of CCS declined rapidly about 2000 years ago (Figure 6.3); this reflects the abrupt drop in frequency of Group 1 assemblages. Plotting the same for materials used in retouch reflects a similar pattern, but emphasises the interchangeability between Group 3 and other assemblages through time (Figure 6.4).

Analysis of cores can only be undertaken for those in quartz, since too few are present in other materials. Figure 6.5 shows that all three primary core types are present in Groups 1 and 3 and that single platform cores are entirely absent from Group 2. Overall core frequencies in quartz vary up to about 7% but Group 2 frequencies are no different to the rest. Andrefsky (2005) differentiates between formalised and informal cores with the latter requiring little or no preparation. The lack of single platform cores in Group 2 thus indicates that simpler, unstandardised core technology was favoured for the expedient production of flakes. Single platform cores require greater preparation and provide more predictably sized and shaped flakes as might be required in the more formalised Group 1 and Group 3 industries.

The overall frequency of retouched items has often been cited as a means of distinguishing hunter-gatherer from herder sites (Sadr 1997; A. Smith 2006a; A. Smith *et* *al.* 1991, 2001). A plot of retouch frequencies in Namaqualand shows (1) that Group 1 and 3 assemblages contain higher frequencies, (2) that little retouch occurs in Group 2 assemblages, and (3) that – largely owing to the addition of Group 2 assemblages to the mix – the overall trend is decreasing (Figure 6.6). Sadr (1997) considered the relationship between 'Formal Tool Index' (FTI; percentage of retouched tools in an assemblage) and 'Pottery Index' (PI; percentage of potsherds in the sum of all potsherds and stone artefacts) to be a potential means of identifying hunter and herder sites. Figure 6.7 plots this for the present Namaqualand sample. In theory, assemblages on the lower right would be herder, while those to the upper left would be hunter-gatherer. All Group 1 pre-AD1 assemblages without pottery are omitted, since all would lie on the y-axis and hence be in the upper left (hunter-gatherer) as expected. Two clear patterns emerge: firstly, all Group 2 (red) and Group 2 combination (yellow) assemblages lie close to the bottom of the graph (FTI<1) (they can be separated from the remaining assemblages by a straight line), and, secondly, Group 2 assemblages are the ones most likely to have high pottery indices. SK2005/057A (Assemblage 44) is known to include three retouched items from nearby SK2005/074A so its FTI can be taken as 0.22. Two excluded Group 2 sites would also fall below the line, further reinforcing the pattern (Assemblage 36: FTI = 0, CI = 86.46; Assemblage 53: FTI = 0, CI = 22.22). Also omitted, LK2005/015, with its multiple coeval but spatially discrete middens, complicates matters by showing that assemblages belonging to all four Groups can potentially be deposited during a single occupation. The very tiny assemblage sizes, however, significantly reduce the reliability of any conclusions that may be drawn from this observation. Several other assemblages (on Figure 6.6) have similarly been adjudged to have two Groups, and hence cultural signatures, present. Interestingly, Sadr *et al.*'s (2003) proposed index of >60% for herders seldom applies, while indices <20% for hunter-gatherers encompass the vast majority of all assemblages. Their figures are thus not suited to use in Namaqualand and, in all likelihood, region-specific figures would need to be devised as appropriate.

When the primary categories of retouch are plotted one finds the already perceived view (see Section 3.7.1) to hold true: earlier assemblages (older than 1000 BC) tend to have more backed items than scrapers which in turn dominate during the subsequent millennium (Figure 6.8). Within the last two millennia Group 1 assemblages became more variable and Group 3 assemblages were strongly dominated by backed items but there is no obvious change around the transition to the pottery period.

Whether arguments around the influence of mobility on technology can be generally applied to Namaqualand seems uncertain. Kelly (1992) notes that the reconstruction of mobility patterns from technology is limited by many factors. Space precludes a full discussion but nevertheless some arguments are reviewed in Table 6.1 and the implications for Namaqualand considered. The evidence is contrasting and perhaps of limited use with Andrefsky's (1994) observation, which suggests that stone materials may be of little use in determining mobility, likely the most pertinent.

Assemblage richness, however, is worth considering further, since obvious patterning exists. Herders are well-known for their high mobility and, along the Namaqualand coast, they may have been far more mobile than hunter-gatherers due to pasture requirements. Given the expectation that hunter-gatherer assemblages should have many retouched items (A. Smith *et al.* 1991), as is usually the case with pre-pottery hunter-gatherer assemblages, we may expect the retouched assemblages with the lowest richness to be those of herders. Figure 6.9 shows that a wide range of retouched tool richness is represented within Groups 1 and 3, with the highest values falling into Group 1. Group 2 is informal with extremely low richness. Assemblage 44 (SK2005/057A) has four retouched items, three of which come from nearby SK2005/074A, with the fourth being a large chopper (richness = 1). Assemblage 43 (SK2001/026) has only miscellaneous retouched pieces (richness = 1). In temporal order we find a general decrease in tool richness with time (Figure 6.10). It is noticeable that within the last 2000 years (approximately Assemblages 20 to 51) richness fails to pass nine and that lower values (<3) are frequent occurrences in both Groups 1 and 3. Therefore, although the Group 2 assemblages have the low richness values expected by A. Smith *et al.* (1991) on herder sites, Table 6.1 shows that assemblage richness does not really help in the discernment of more or less mobile groups and certainly contributes little to the hunter-gatherer/herder debate.

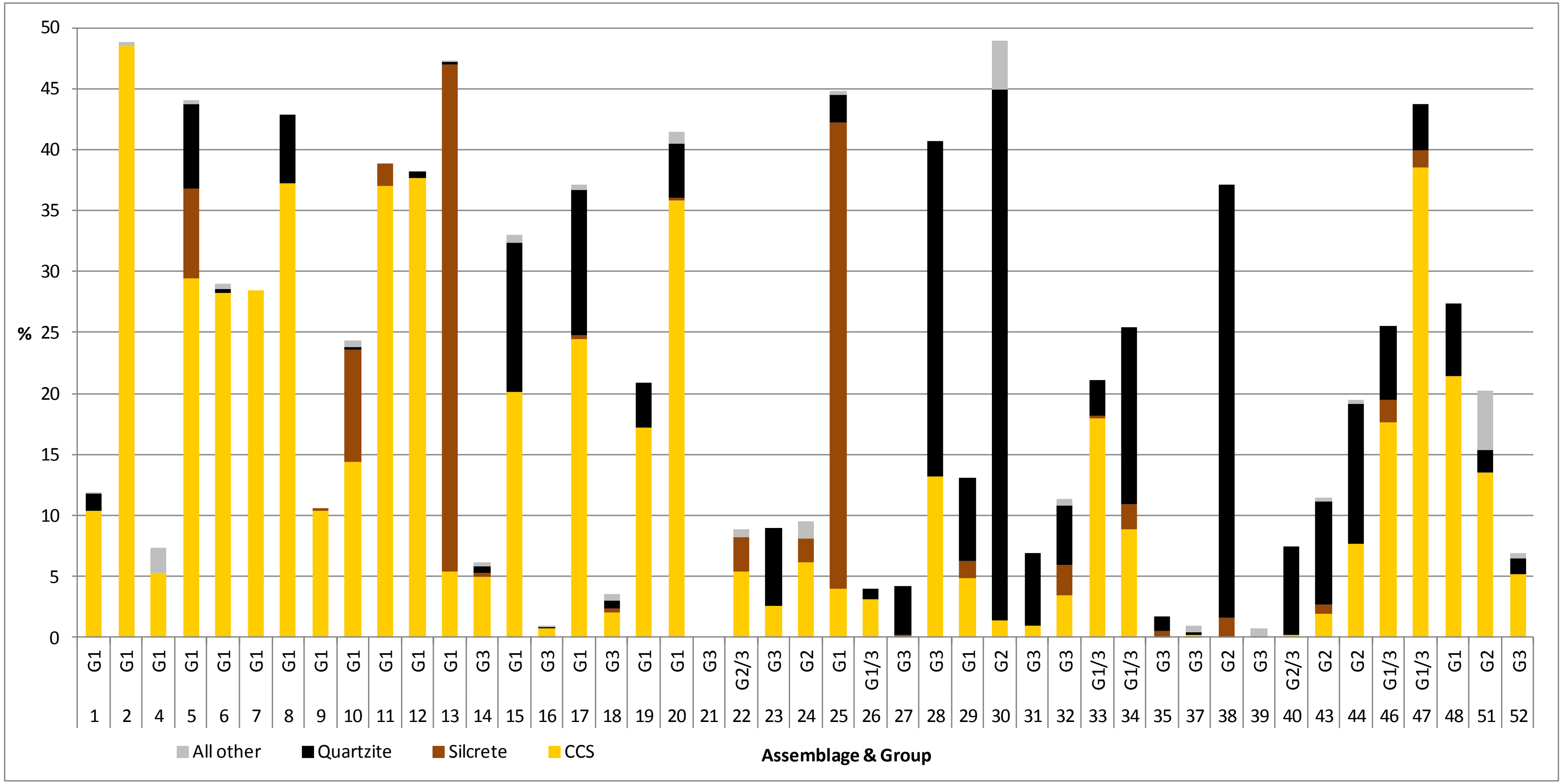


Figure 6.3: Stone material composition of the assemblages in temporal order. Quartz is excluded and comprises the remaining amount in each assemblage.

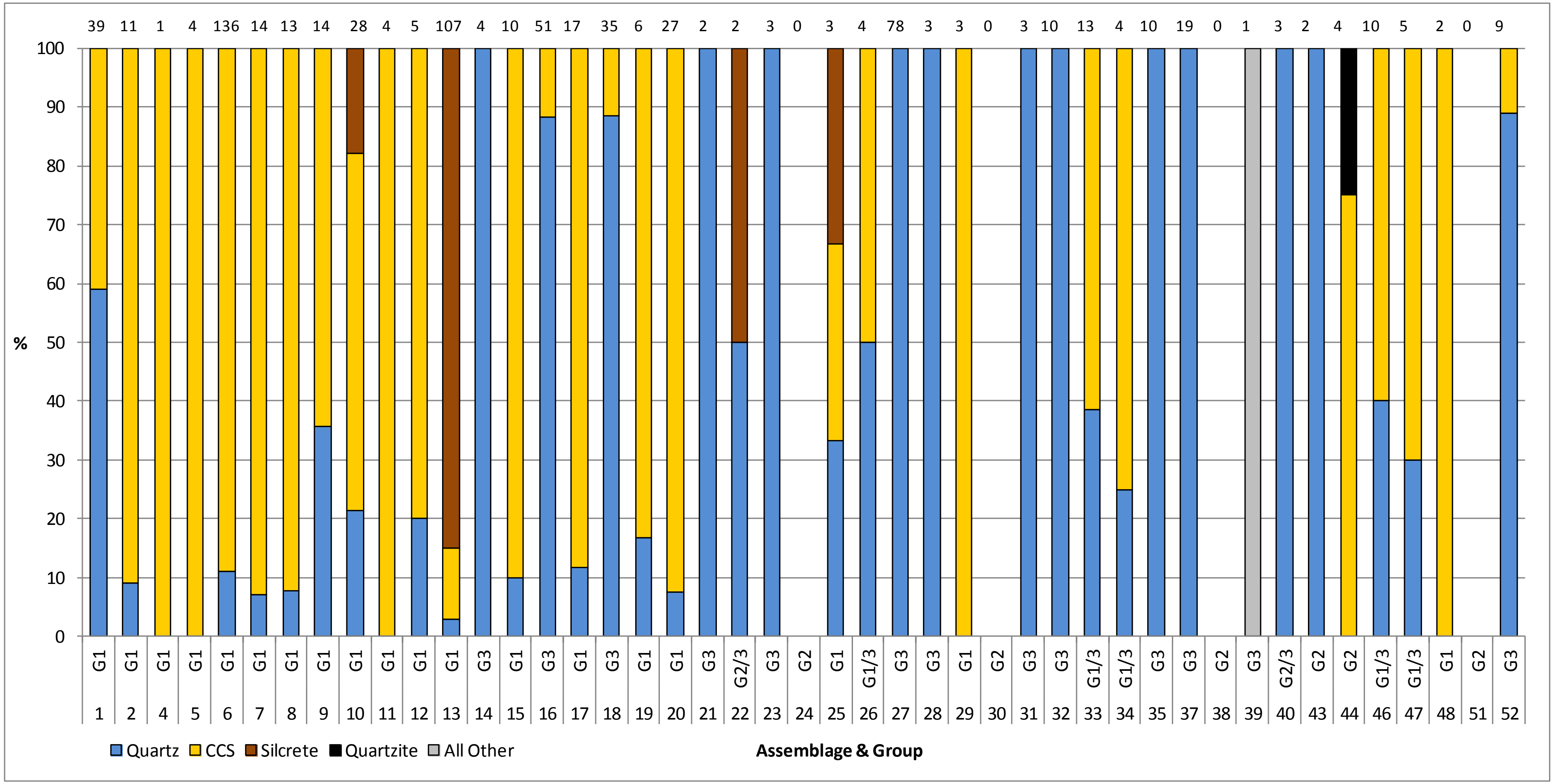


Figure 6.4: Stone material frequencies among all retouched tools in temporal order. The number of retouched tools per assemblage is indicated above each column.

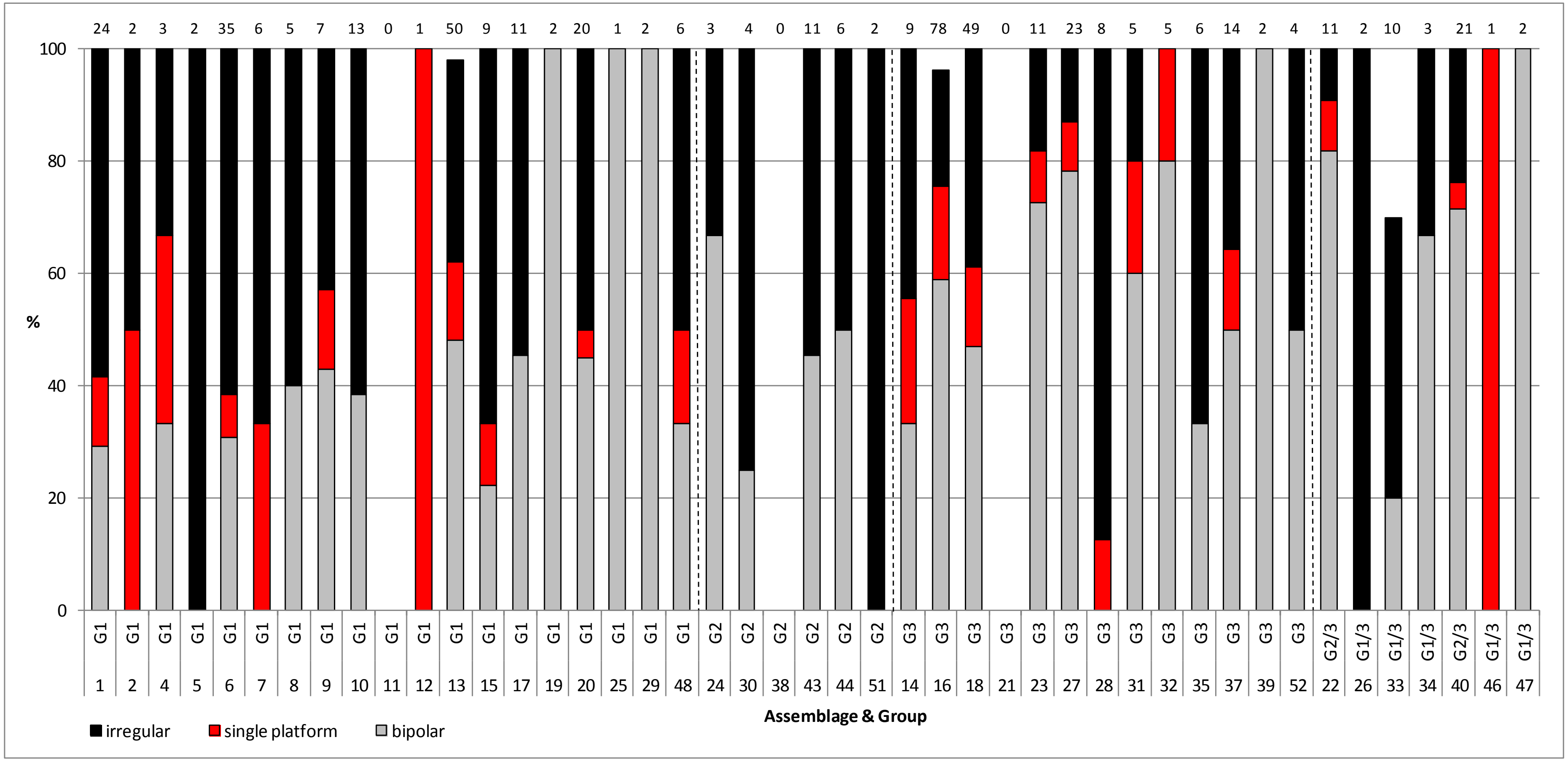


Figure 6.5: Primary core type frequencies among all quartz cores by assigned group. Minor types are omitted and the number of quartz cores per assemblage is indicated above each column.

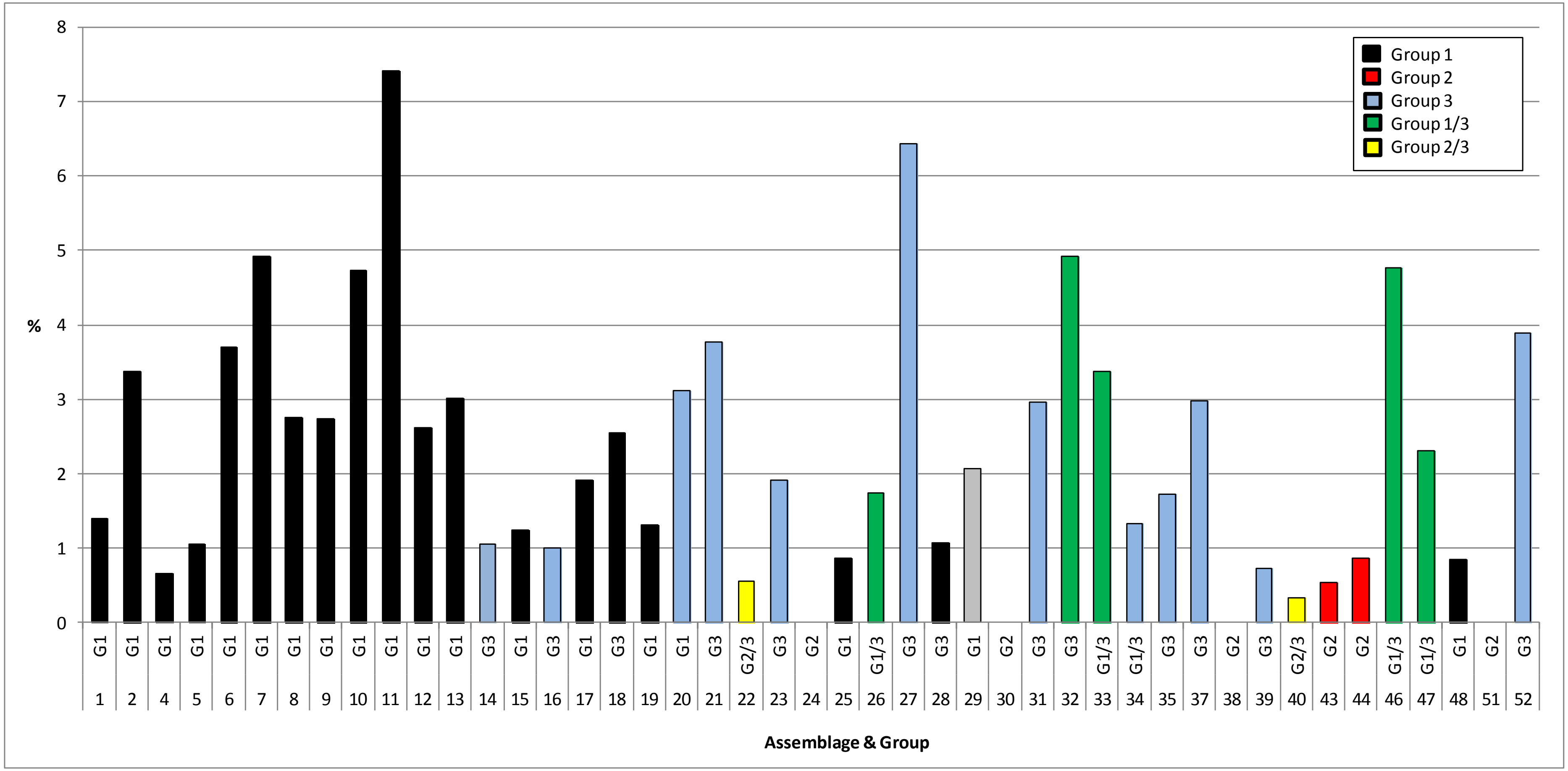


Figure 6.6: Retouch frequency in temporal order.

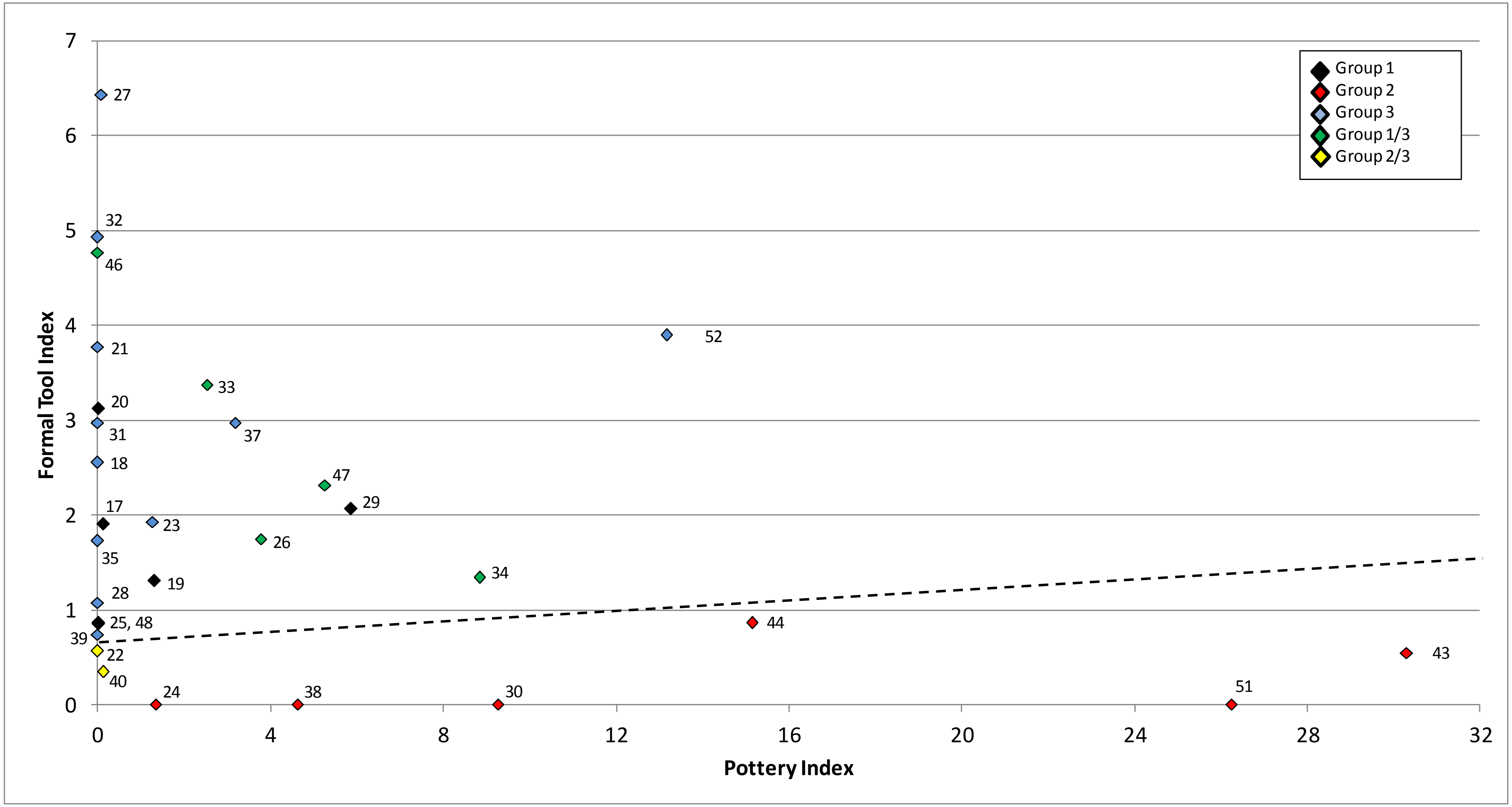


Figure 6.7: Scatter plot of formal tool index against pottery index. Assemblage numbers are indicated. For the sake of clarity, all sites older than 2000 years and with no pottery are excluded, since all would fall on the y-axis. The dashed line indicates the separation between Group 2 and Group 2/3 assemblages and the rest.

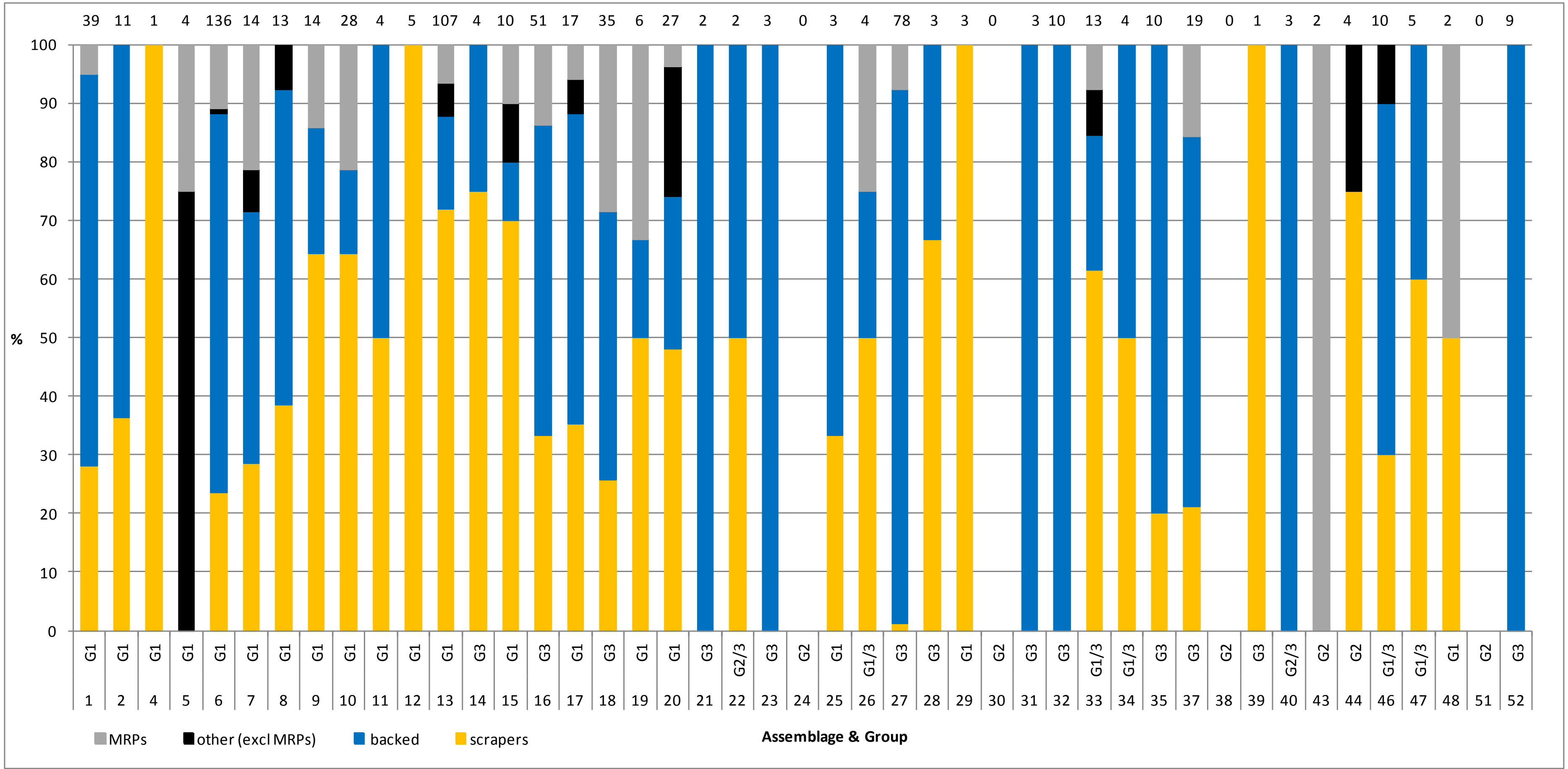


Figure 6.8: Retouch types in temporal order.

Table 6.1: Relationships between technology and mobility and implications for Namaqualand assemblages.

Criteria	Namaqualand assemblages	
	High mobility	**Low mobility**
Mobility is affected by "the time available for tool production and the amount of stone which can be transported from place to place" (Bamforth 1987:98). Sedentism thus encourages storage of stone material and reduced expenditure of time and energy on artefact production. Artefacts are thus more expedient (Parry & Kelly 1987). Expedient artefacts are technologically simple and less patterned than curated ones (Bamforth 1986) because they are made to serve an immediate need (Binford 1979).	**Group 1** and **Group 3** have curated stone tools made on materials thought to have been collected from the local environment.	**Group 2** is highly expedient (although storage is not necessarily required given abundant supplies of milky quartz in the local environment). **Group 3** assemblages may reflect expedient production of backed bladelets for frequent replacement from local material sources (c.f. Orton 2002).
High group mobility limits both the number of tools that can be carried around and the degree of specialisation of those tools (Torrence 1983). Mobility thus results in the need for smaller, lighter, multi-functional tools that are readily transportable (Shott 1986 and references therein).	The scrapers and backed artefacts (Hiscock 2006; Robertson *et al.* 2009) commonly found in **Group 1** and **Group 3** assemblages are small, light and multi-functional.	The expedient flakes of **Group 2** were likely produced as required and not transported.
Less mobile groups will have a focus on bipolar reduction (Parry & Kelly 1987).	Bipolar cores are equally common in all assemblage types (Figure 6.5) and likely do not inform on mobility. Although expedient assemblages typically focus on bipolar reduction, it is quite likely that other prepared cores, when exhausted, would have been further reduced via the bipolar technique (Downey 2010; Parry & Kelley 1987).	

<table>
<tr><th rowspan="2">Criteria</th><th colspan="2">Namaqualand assemblages</th></tr>
<tr><th>High mobility</th><th>Low mobility</th></tr>
<tr><td>Highly mobile groups should have less diverse toolkits (Shott 1986: fig. 2). (Shott uses ‘diverity’ where ‘richness’ is more correct.)</td><td>Group 2 has low richness (negligible retouch present).</td><td>Group 1 & Group 3 have high richness (many retouched classes).</td></tr>
<tr><td rowspan="2">Using three dichotomies, Cribb (1991:68) suggests that nomadic material culture in the archaeological record would consist of ‘fixtures’ (equatable with Binford’s (1980) site furniture), ‘durables’ and ‘expendables’ with the opposite, ‘portables’, ‘perishables’ and ‘valuables’ generally absent.</td><td colspan="2">Although with some variation, fixtures (large grindstones), portables (small flaked artefacts), durables (stone artefacts, pottery, ostrich eggshell fragments and beads), perishables (pottery – it breaks), expendables (discarded stone artefacts, ostrich eggshell fragments) and valuables (beads) occur equally in all assemblage types post-AD 1. This suggests their deposition by mobile people.</td></tr>
<tr><td>Group 2 and Group 3 stone artefacts may be considered more expendable in that they have low acquisition or replacement costs.</td><td>Group 1 stone artefacts are more valuable in that CCS can be seen as having a high acquisition or replacement cost.</td></tr>
<tr><td>Both mobile and sedentary people may have needed curated tools when abundance and quality of materials was restricted, while both groups might have focused on expedient production when materials were readily to hand (Andrefsky 1994).</td><td colspan="2">Given the short geological time span and thus unchanged access to stone materials, and the fact that expedient and curated technologies are present side-by-side suggesting similar material access, technology may not inform on mobility at all in Namaqualand.</td></tr>
</table>

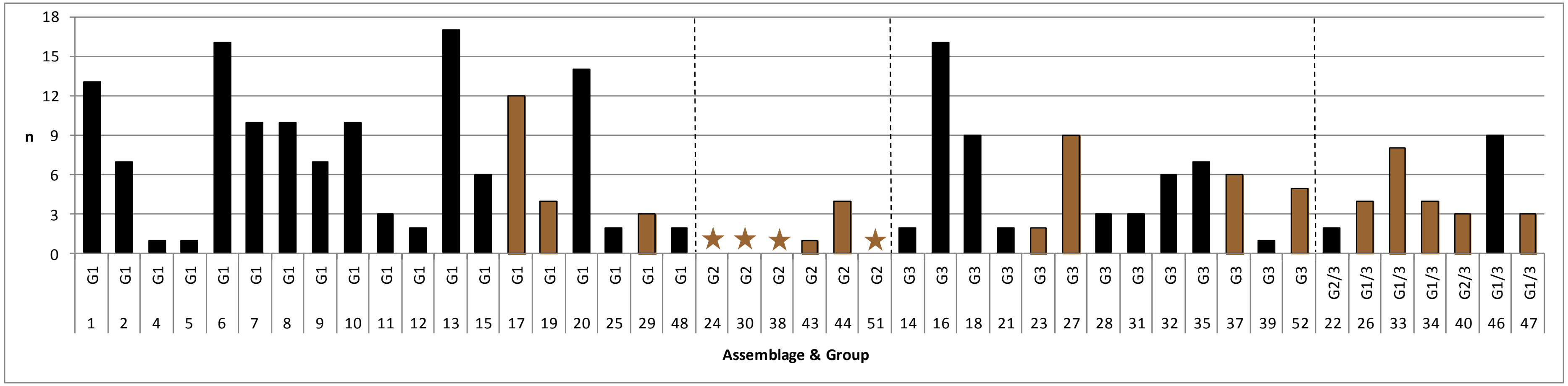


Figure 6.9: Number of retouched tool classes by assigned assemblage group. Brown bars are assemblages with pottery and stars indicate pottery but no retouch.

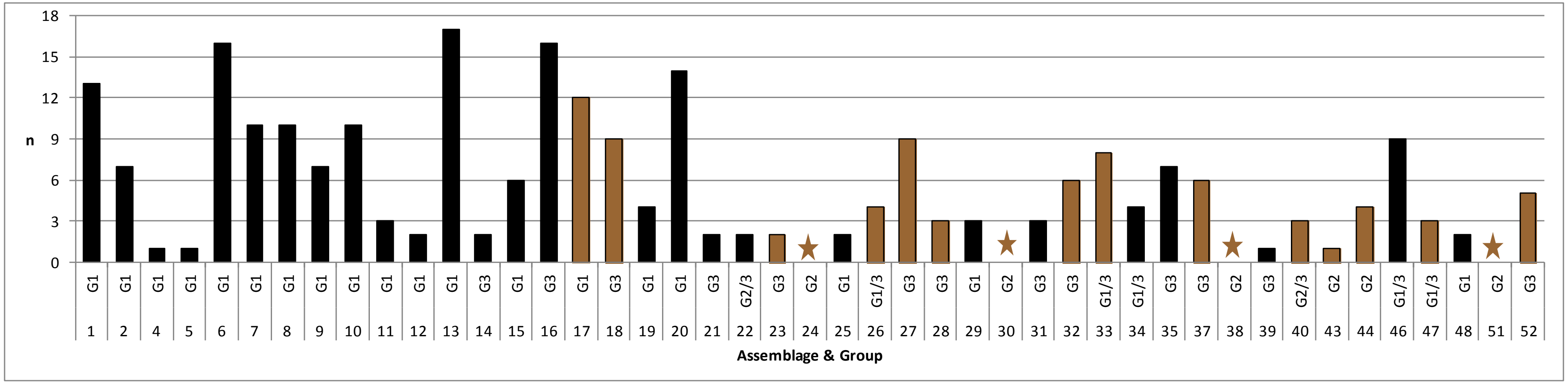


Figure 6.10: Number of retouched tool classes in temporal order. Brown bars are assemblages with pottery and stars indicate pottery but no retouch.

I turn now to a brief discussion of other Namaqualand sites and how their stone assemblages relate to the coastal samples.

Spoeg River Cave contains the most significant excavated Holocene deposit in Namaqualand. However, being a cave site, its assemblages will be mixed to some degree and cannot offer the clear windows of single occupation open sites. This is borne out by the consistency of stone material frequencies in the cave (Webley 2002: tables 3 & 6), while open sites show much fluctuation. Little detail on retouch materials is provided in Webley (2002) but, in common with the open sites, fine-grained materials appear to be more frequent pre-AD1 with quartz dominating strongly later on. Although Webley (1992b, 2002) offers no comment on clear and milky quartz, the high frequencies of both quartz and backed artefacts in later assemblages may well indicate the presence of Group 3 assemblages. The expected retouch pattern (Figure 6.8) does not occur at Spoeg River Cave (Table 6.2). There, scrapers and backed tools are fairly evenly represented pre-1000 BC and during the subsequent millennium (ratios of 7:5 and 18:16 in favour of scrapers for Layers 14–12 and 11-7 respectively). Whether this is due to differential class identification or other factors is unknown. The late Holocene is clearer and, as already noted, seems to be Group 3 focused. Webley (2002) considers the lack of scrapers post-AD 1 to be due to their replacement by large *//khom* scrapers. One was found in the Spoeg River Cave deposits, but they are absent from open sites in Namaqualand, the only other archaeological example known being from Buzz Shelter (reported above) and Renosterkop 1, near Kakamas (Morris & Beaumont 1991). While Webley (2002) remains fairly open on what occurred in the cave during the first millennium AD, Vogel *et al.* (1997) seem more convinced that either herders were present or that local hunter-gatherers had begun herding. Should Vogel *et al.* be correct then Group 3 assemblages could signify herding in one way or another.

Table 6.2: Retouch types at Spoeg River Cave (ages calibrated and data calculated from Webley 2002: tables 2 & 4).

Layer	Ages	n	Scrapers %	Backed %	Other (excl. MRPs) %	MRPs %
16	Early Holocene	10	70	20	10	
15	Early Holocene	4	100			
14		5	60		20	20
13	1921–1636 BC	12	8.3	33.3		58.3
12	2457–1980 BC	7	42.9	14.3		42.9
11		7	14.3	28.6	14.3	42.9
10	518–366 BC AD 55–325	4	50			50
9	AD 62–333 AD 55–325	10	40	40		20
8		8	37.5	12.5		50
7	AD 685–961 AD 469–680	19	42.1	47.4		10.5
6b	AD 6–313	4	25	25		50
6a		4	75	25		
5		9		55.6	11.1	33.3
4	AD 554–766	1		100		
3		2		100		
2		6		66	16.7	16.7
1		2		100		

No reliable observations can be drawn from the Hardeveld area but, to the north, assemblages from the Richtersveld are in general agreement with those from the Sandveld. Although JKB N is scraper-dominated, JKB L (Orton & Halkett 2010) and Die Toon (Webley *et al.* 1993) are dominated by backed tools as expected pre-1000 BC. Despite a few retouched items at JKB A (Webley 1997a), the four first and second millennium AD sites at Jakkalsberg all have informal stone artefact assemblages dominated by quartz and quartzite (Group 2) and low FTI and PI values. Further downstream, Bloeddrift 23 also shows an informal, quartz-dominated assemblage in the second millennium AD. Although the seemingly mixed assemblages at /hei-/khomas (see 3.7.3 above) offer the possibility of Group 1 assemblages occurring in this area post-AD

1, it seems that Group 2 assemblages dominate the Richtersveld landscape during this period.

In the far southern Sandveld contrasting signatures occur before 1000 BC: scrapers dominate at BSB2 (Halkett *et al.* 1993) and backed artefacts at MS1. Given the many backed artefacts at MS3, it likely dates in the early part of its calibrated range, before 1000 BC. Sites post-dating AD 1 are all informal assemblages, likely falling in Group 2.

Slightly inland, KK002 has a strong Group 3 signature throughout its occupation during the last 1500 years, while in the Knersvlakte Group 3 is well represented throughout the Reception Shelter Late Holocene deposits and also at VR048. The mid-Holocene assemblages from Buzz Shelter are Group 1, but the later material may represent a mixture of groups, possibly due to natural mixing of the rock shelter deposits. VR048 also shows evidence of Group 1 out in the open.

The above analysis shows that in Namaqualand temporally-based change among lithic assemblages is limited before 2000 years ago. All assemblages are typical of the Holocene microlithic with the only obvious change being a shift from backed tool to scraper domination between about 1100 and 800 BC. After this time change is limited but variation is strongly conditioned by the lithic Groups which have strongly differing characteristics. While Group 1 must belong to hunter-gatherers due to its existence before AD 1, the presence of two other assemblage types (Groups 2 and 3) complicates matters and they thus do not inform on issues of socio-economic grouping as well as they are said to do on the Vredenburg Peninsula where just two types are identified (see 2.1.1 above; A. Smith 2006; A. Smith *et al.* 1991). However, it does seem possible that the strikingly different Group 2 assemblages with their consistent pottery presence might be those of herders. Group 1 assemblages, particularly those predating AD 1, must belong to hunter-gatherers, while Group 3 remains enigmatic and will be further explored below.

6.2 Ostrich eggshell beads

Based on size change after the introduction of domestic stock, bead size has often been linked to socio-economic grouping (Jacobson 1987; A. Smith 2006; A. Smith *et al.* 1991). When the Namaqualand beads are examined by Group it becomes evident that lithic group has no bearing on bead size; size dominance varies within each group and similar ratios between different sizes occur in all three Groups (Figure 6.11). Similar to the present lithic groups, Jacobson (1987) proposed three assemblage types: typical microlithic LSA pre-herder with beads smaller than 7.5 mm; the same with the addition of some pottery and larger beads; and typical herder sites lacking retouch but with much pottery and generally larger beads. His Types I and II correspond broadly with early and late Group 1 assemblages respectively, while his Type III seems to correspond with Group 2. It has already been noted that bead size is not a respecter of lithic group in Namaqualand and, as such, not all of Jacobson's (1987) patterns apply there: in particular, late Group 1 assemblages are highly variable and contain very few small beads (Figure 6.11). It is quite clear that bead size is not conditioned in any way by lithic group. The Group 2 assemblages identified in Figure 6.7 as being different to the rest display no consistency in bead size. Comparison of Assemblages 24 (small-medium), 30 (medium-large), 43 (small-very large), 44 (small-large) and 51 (very large) makes this clear. Figure 6.12 presents the data in temporal order highlighting the general increase in size, while Figure 6.13 separates the bead sizes, clarifying the size shift. Reorganising the data into time periods shows the increase starting during the first millennium AD and consolidating strongly post-AD 1000 (Figure 6.14). The very strong consistency in bead size leading up to AD 1 is obvious. Figure 6.15 shows that, overall, mean external diameter increases from <5 to >6 mm during the period examined but that the pattern is not a clear-cut one – variation exists.

Yates *et al.* (1994) commented that a shift in aperture diameter was culturally significant in the south-western Cape, particularly so at the coast, with the apertures of both large and small beads increasing from about 650–1000 AD onwards. Although apertures are not studied in great detail here, comparison of Figures 6.15 and 6.16 demonstrates that in coastal Namaqualand mean aperture size is strongly related to external diameter and that when the external diameter remains small, so does the aperture. Plotting all beads in the sample together shows this relationship to be fairly consistent (Figure 6.17). I consider the main driver of this pattern to be that heavier beads will wear faster and thus develop larger apertures than equivalent aged small beads. That r^2 (which shows the degree to which aperture diameter relies on external diameter) is not higher than 52% is probably due to two factors: (1) variation in the as-drilled apertures and (2) the presence of older, well worn beads within the assemblages (these would be the outliers above the regression line). It thus seems clear that apertures are not culturally significant in Namaqualand.

In sum, mean ostrich eggshell bead size has little relationship to stone artefact group (Figure 6.18) or, by implication, to socio-economic group with temporal change occurring similarly in each lithic group. Although Group 3 lacks mean bead sizes exceeding 7.5 mm, individual beads in this size class do occur.

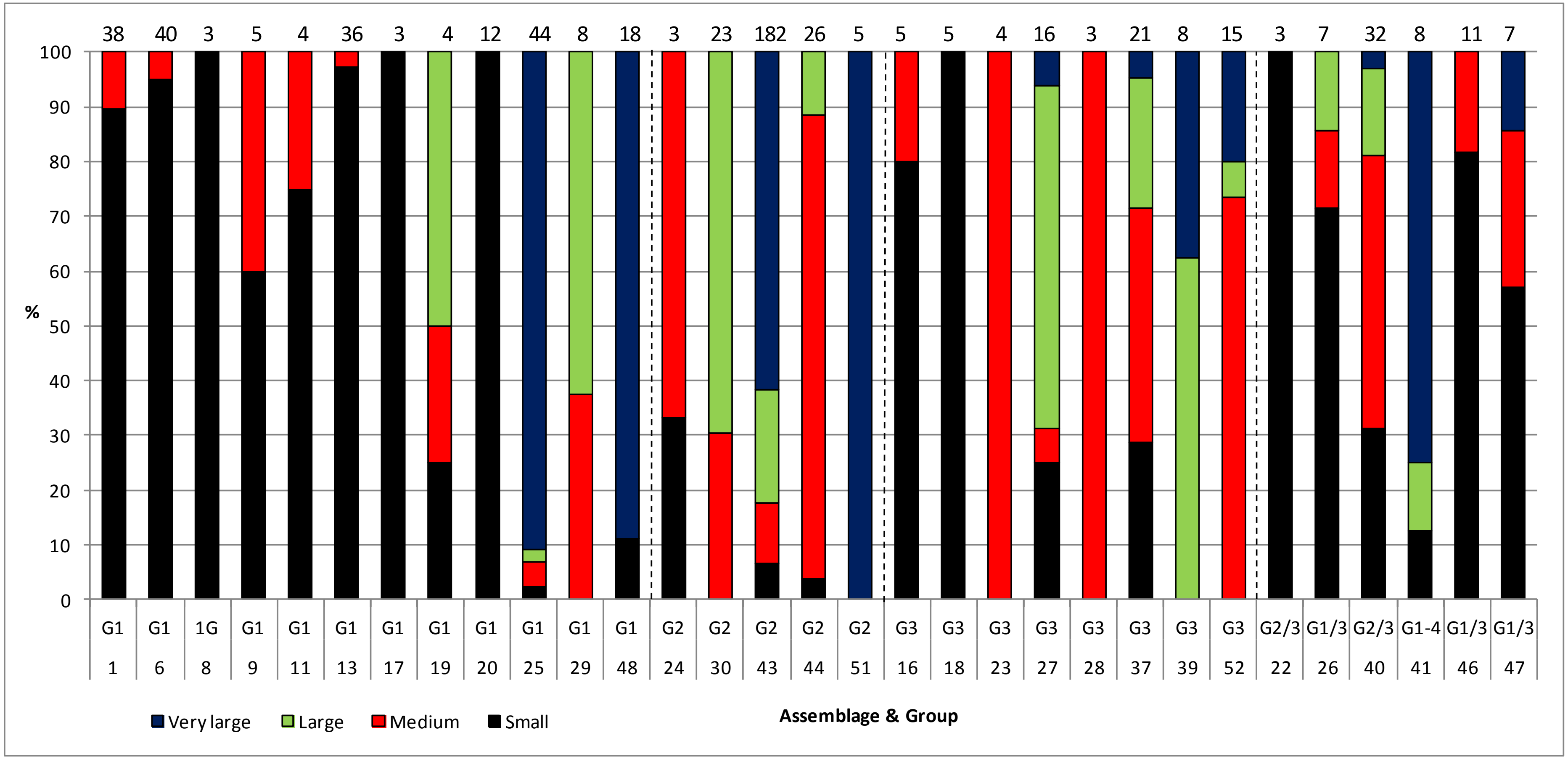


Figure 6.11: Ostrich eggshell bead size by assigned group.

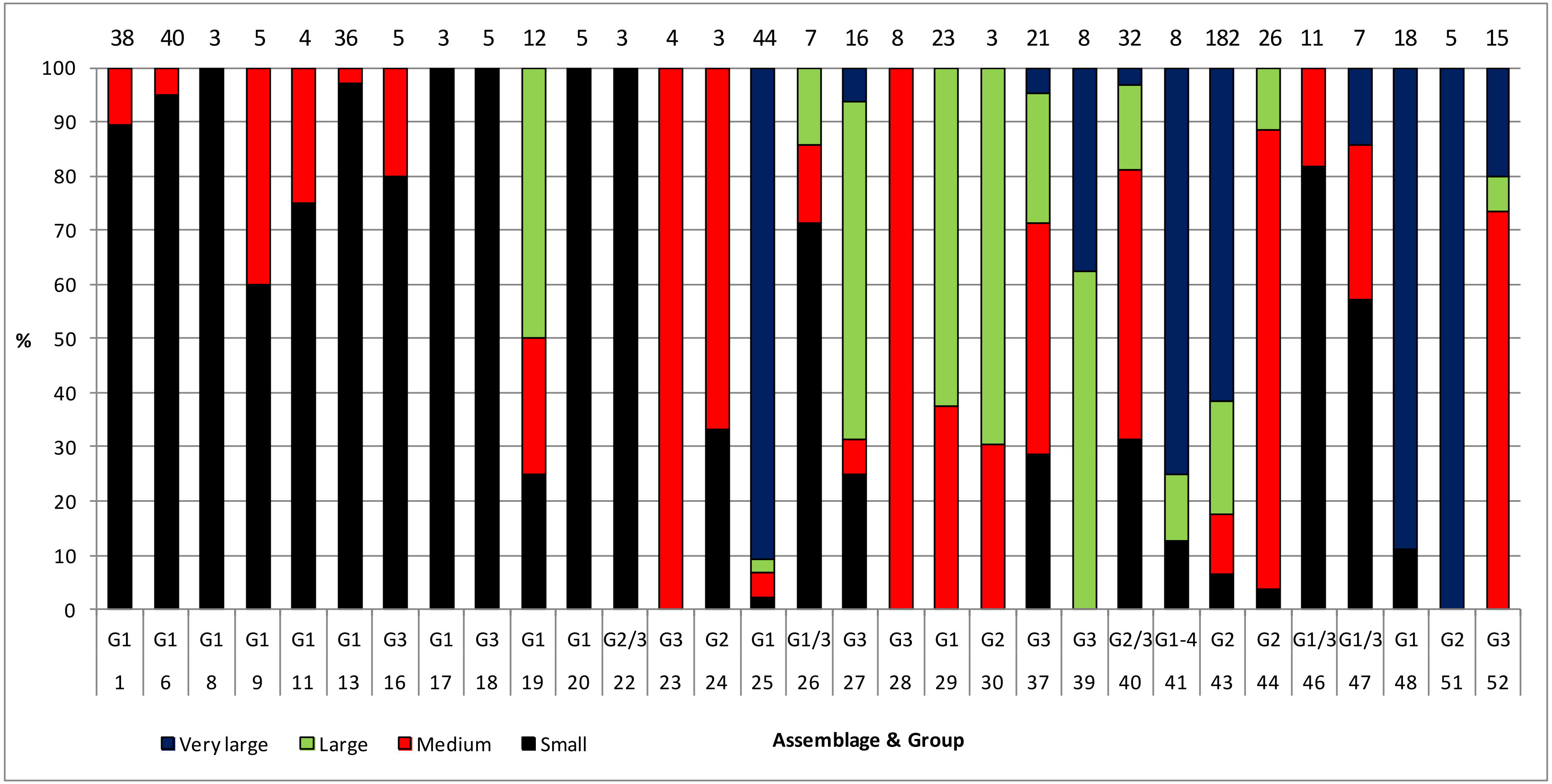


Figure 6.12: Ostrich eggshell bead size in temporal order showing the relative contributions of the various size categories to each assemblage.

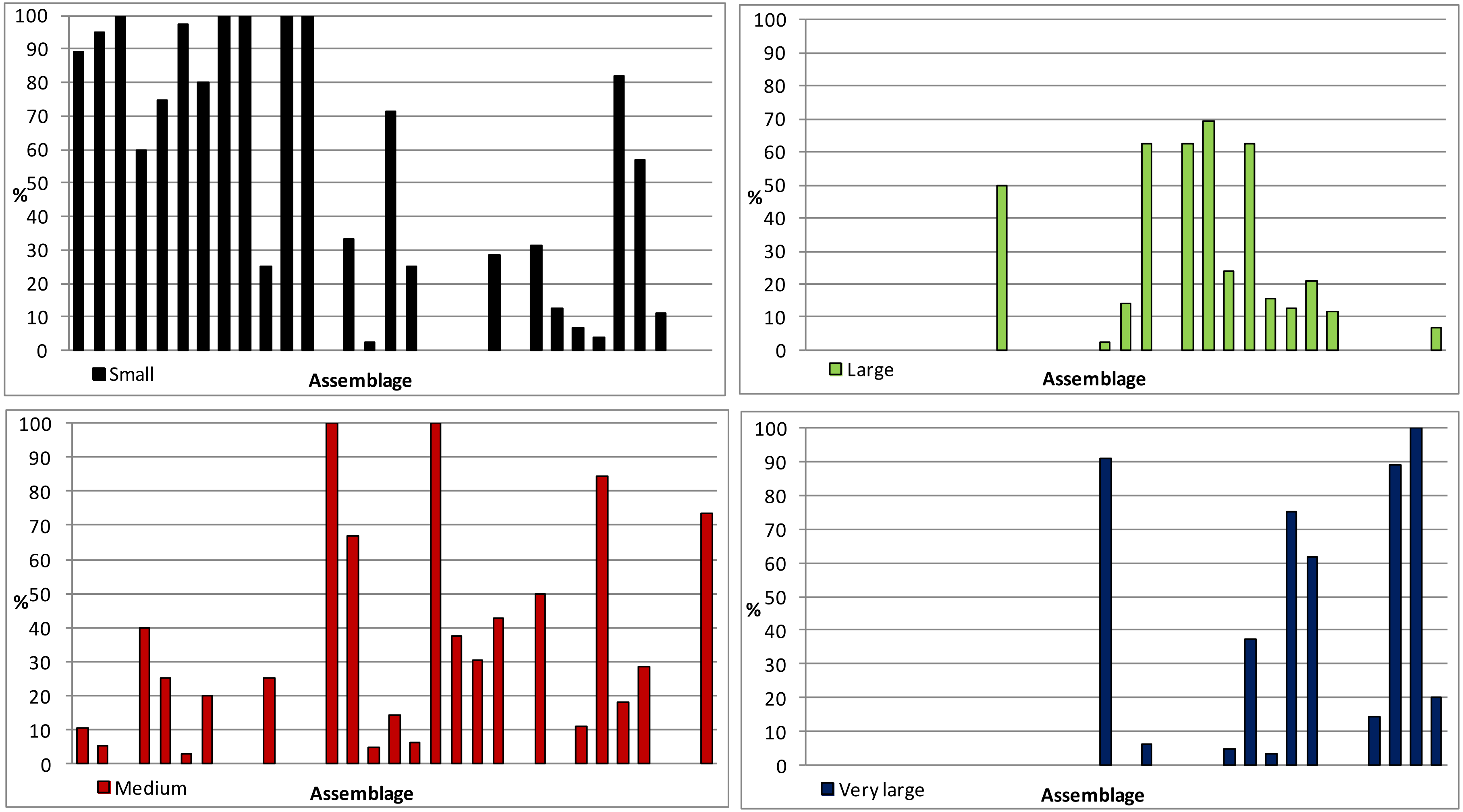


Figure 6.13: Ostrich eggshell bead size in temporal order for each size category based on the data in Figure 6.12 (from which assemblage numbers, groups and bead counts can be obtained).

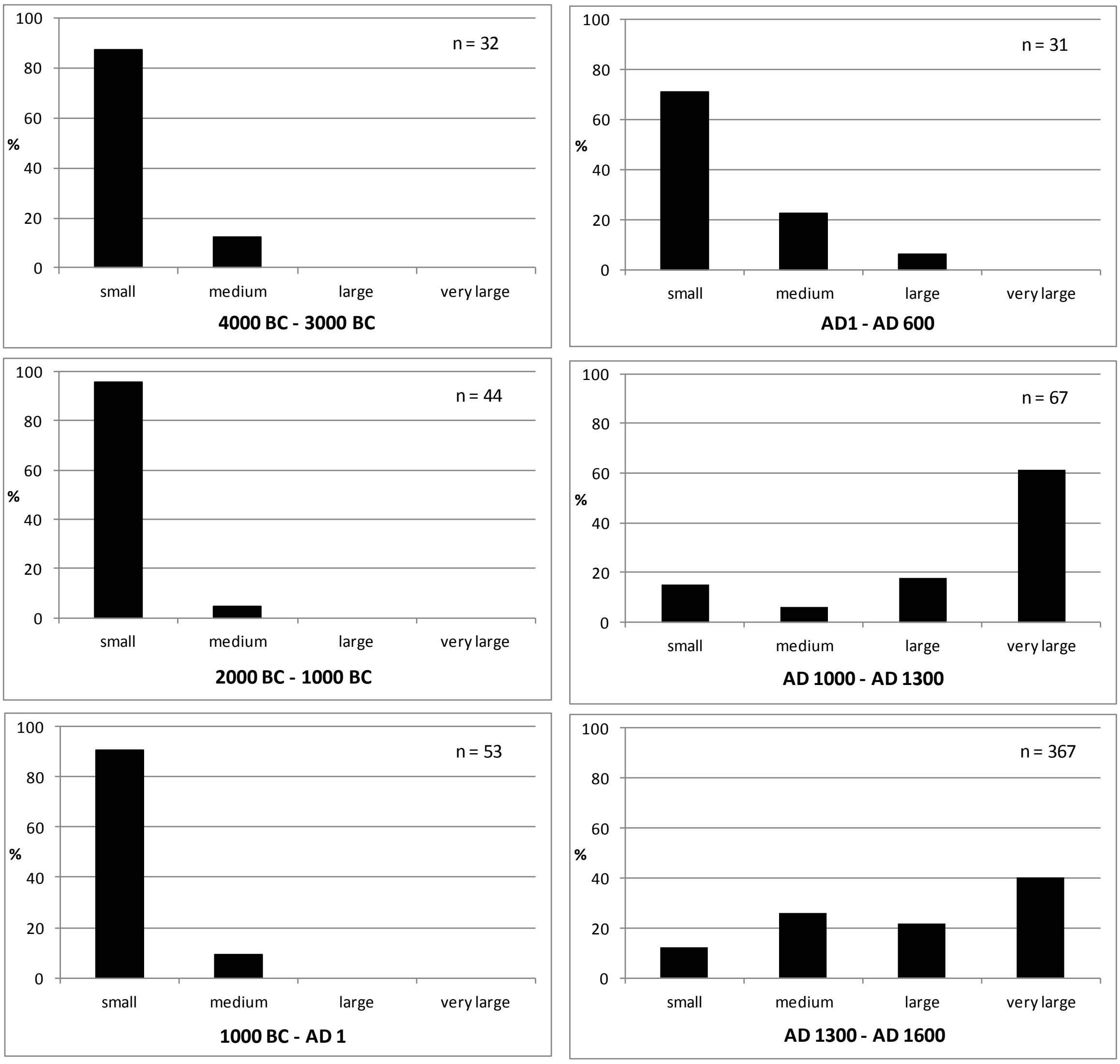


Figure 6.14 Histograms showing the change in ostrich eggshell bead size classes through time. Intervening periods that are not represented have no data available.

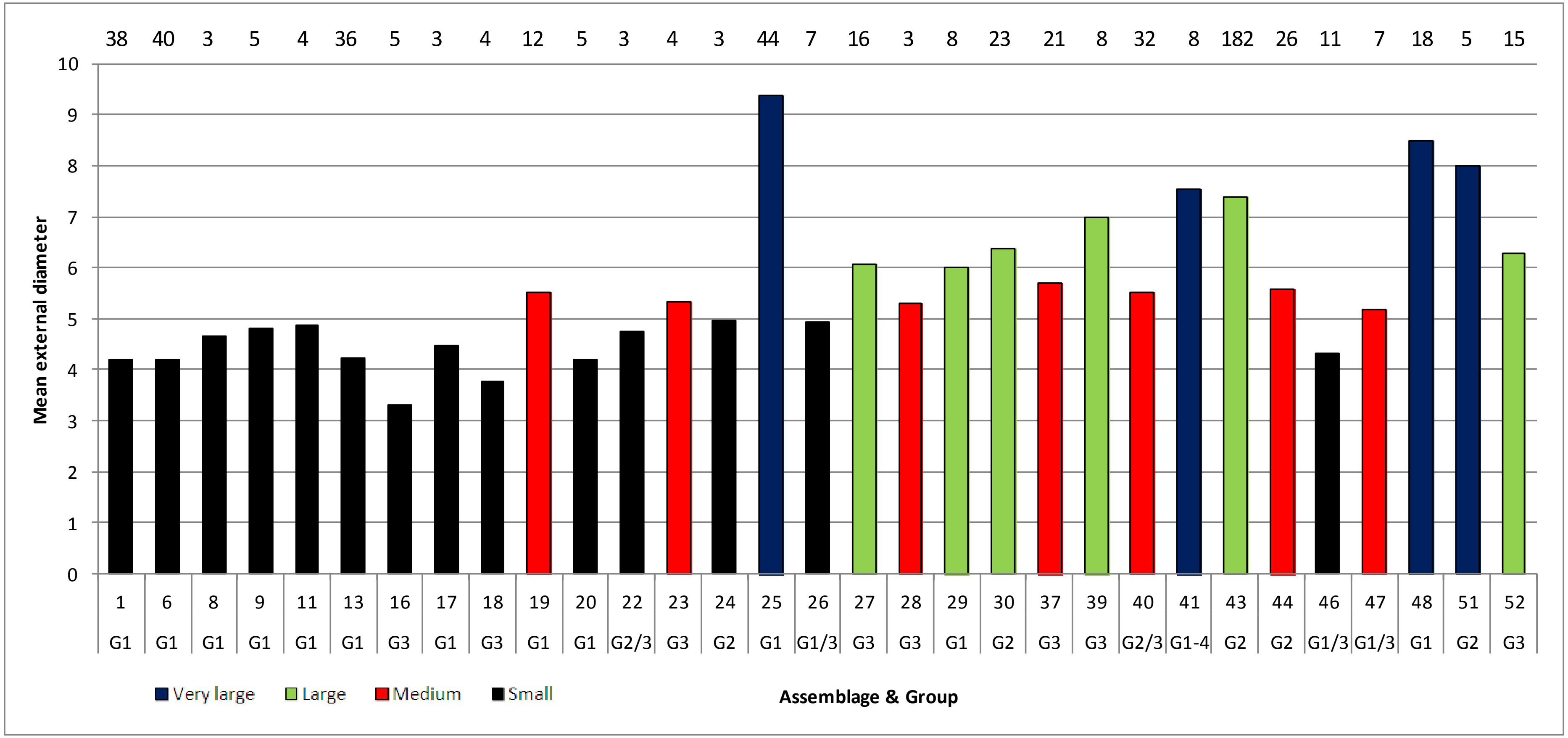


Figure 6.15: Ostrich eggshell bead mean external diameter in temporal order.

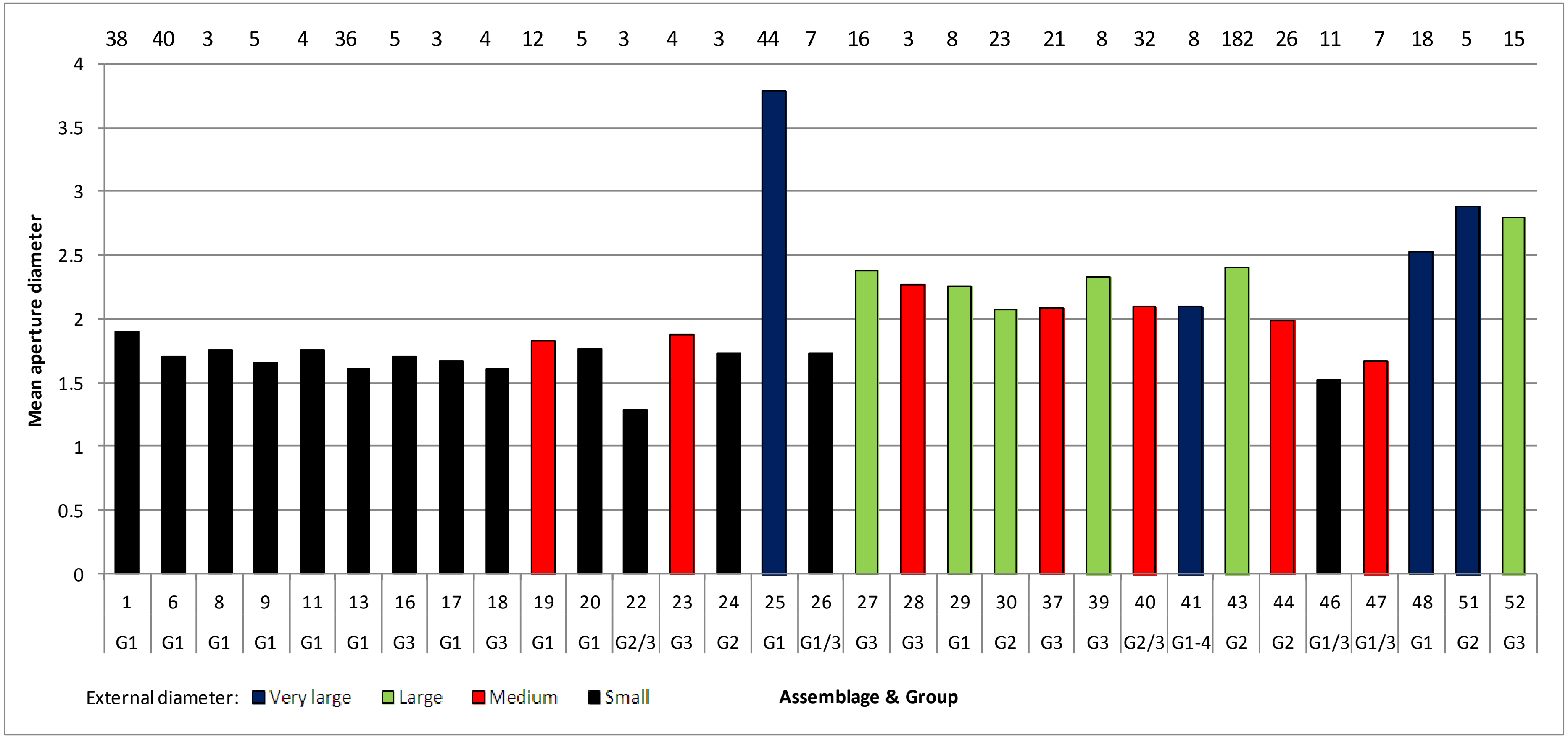


Figure 6.16: Ostrich eggshell bead mean aperture diameter in temporal order.

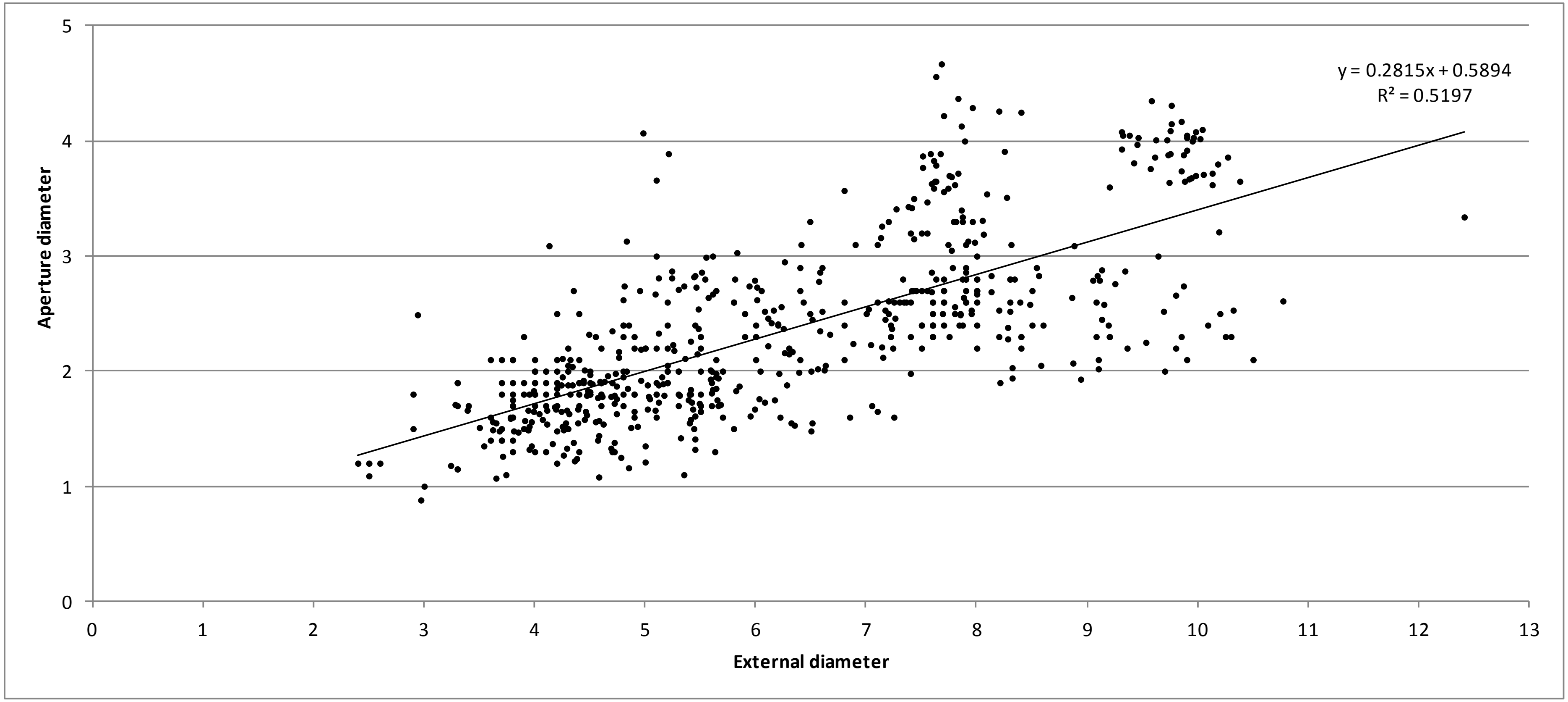


Figure 6.17: Scatter plot of all ostrich eggshell bead external and aperture diameters showing the relationship between them as a linear regression.

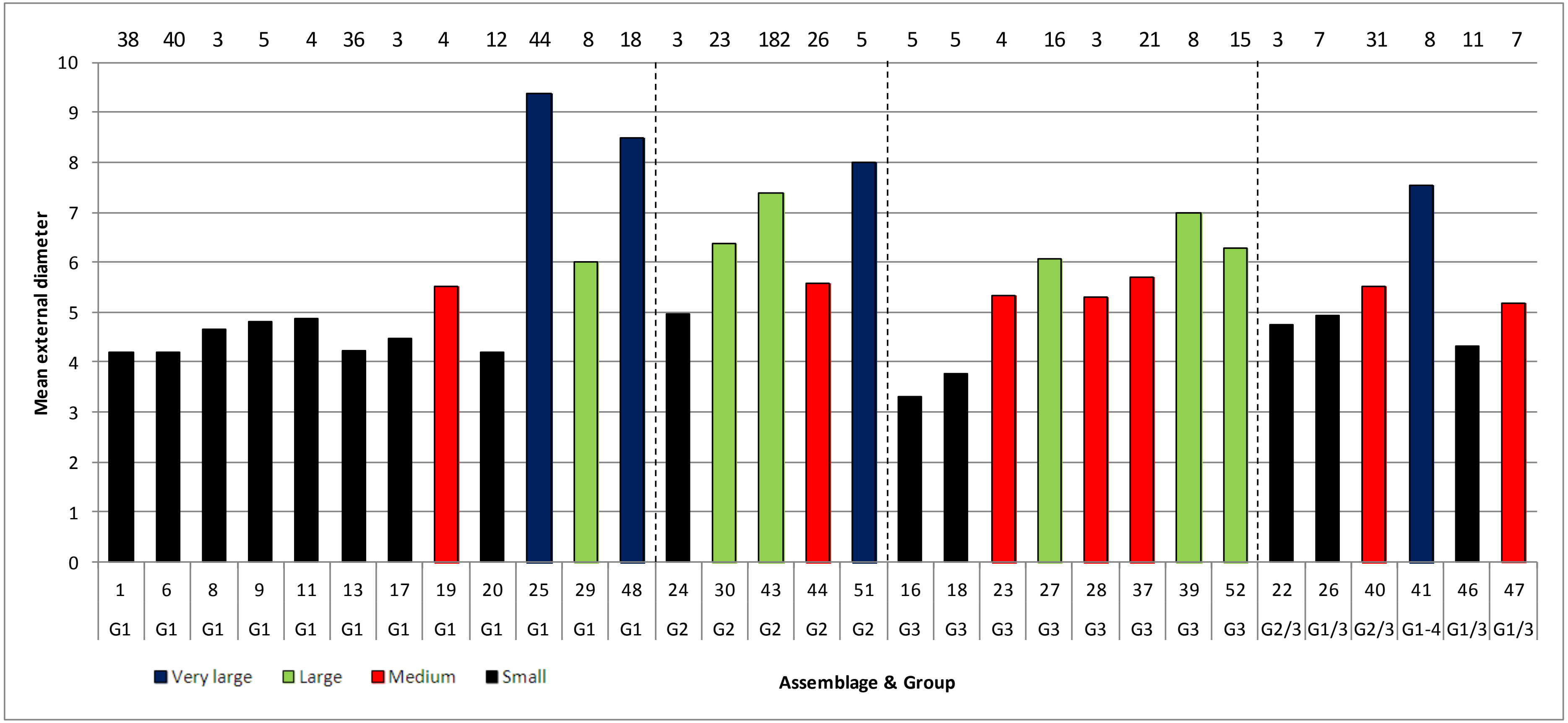


Figure 6.18: Mean ostrich eggshell bead size according to assigned lithic group.

Webley (2002: table 12) provides ostrich eggshell bead diameters for Spoeg River Cave. Graphing these shows a similar pattern to the open assemblages (Figure 6.19), the only difference being that bead size increases more rapidly during the early first millennium AD in the cave (Layers 6b to 1) than in the open sites (Assemblages 21 to 24). The marked reduction in variation (as compared to Figure 6.15) is likely due to the mixing effect in the rock shelter deposits. I now turn to an examination of beads from other parts of Namaqualand.

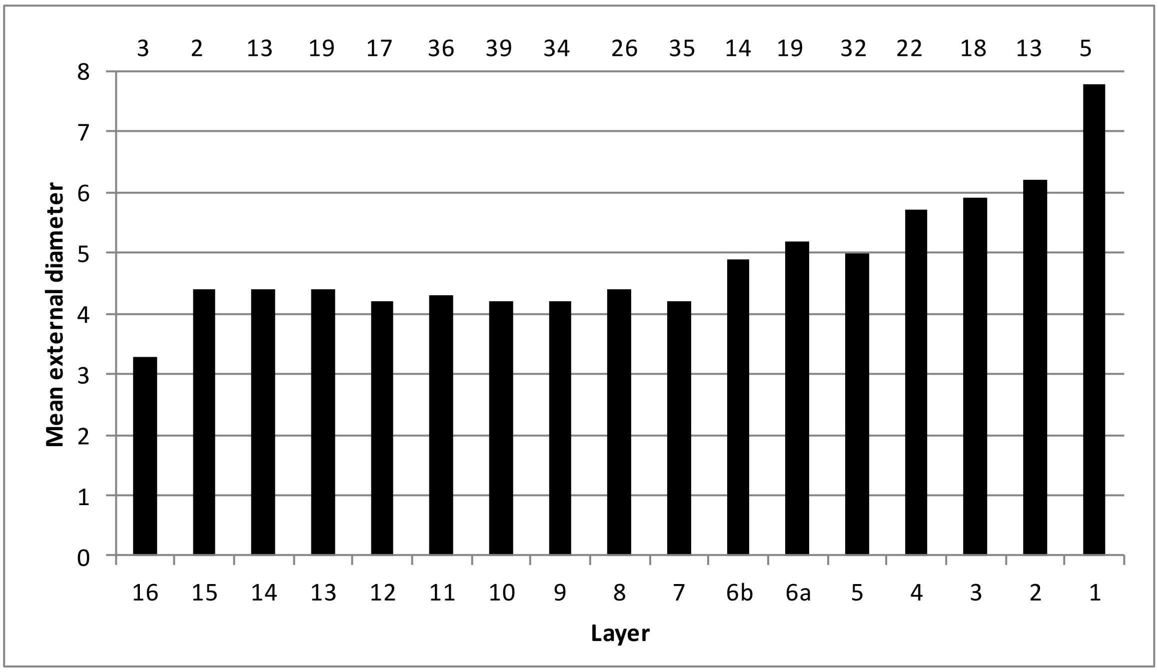


Figure 6.19: Mean ostrich eggshell bead size change through time at Spoeg River Cave (base don Webley 2002: table 12).

The earliest ostrich eggshell bead samples from the Richtersveld are from JKB N, JKB L and Die Toon. At all three the beads are focused between 3.0 mm and 5.5 mm (Orton & Halkett 2010; Webley *et al.* 1993). JKB M has small to medium beads during the first millennium AD, while JKB A and JKB B have medium beads (Webley 1997a). Later assemblages show the characteristic larger beads expected: JKB K and Bloeddrift 23 (A. Smith *et al.* 2001) have mean values exceeding 6 mm and 7 mm respectively.

In the south, Buzz Shelter has small beads throughout its mid- to late Holocene occupation. The late Holocene Reception Shelter deposits contain larger beads but lack very large ones. Nearer the coast, the late Holocene KK002 has a broad range of bead sizes, but with very large beads again noticeably absent. This, of course, assumes the broken very large beads to have been introduced deliberately for purposes other than domestic use.

6.3 Flasks and engraved ostrich eggshell

Flask mouth fragments are common and flasks were used throughout the period under examination and by the makers of all lithic groups (Figure 6.20). Engraved ostrich eggshell, on the other hand, belongs only to Groups 1 and 3. Although temporal patterning could be an artefact of small sample size, it does appear that while early assemblages contain various patterns, the later period, after AD 1000, contains only parallel lines (Table 6.3).

The Richtersveld sites contain many engraved ostrich eggshell fragments. Those predating AD 1000 contain the expected variety (Figure 6.21), but the dating resolution at /hei-/khomas is too poor to understand the temporal patterning of engraved designs there. Further north, at Rosh Pinah in Namibia, in a second millennium AD context, Sievers (1984) found decorated ostrich eggshell with multiple intersecting lines but no chevron-type patterns. At Reception Shelter, in the Knersvlakte, one tiny engraved fragment has three intersecting lines but the remainder have single lines each. Buzz Shelter has greater variety with parallel lines and more complicated designs occurring throughout its pre-AD 1000 sequence (Figure 6.22).

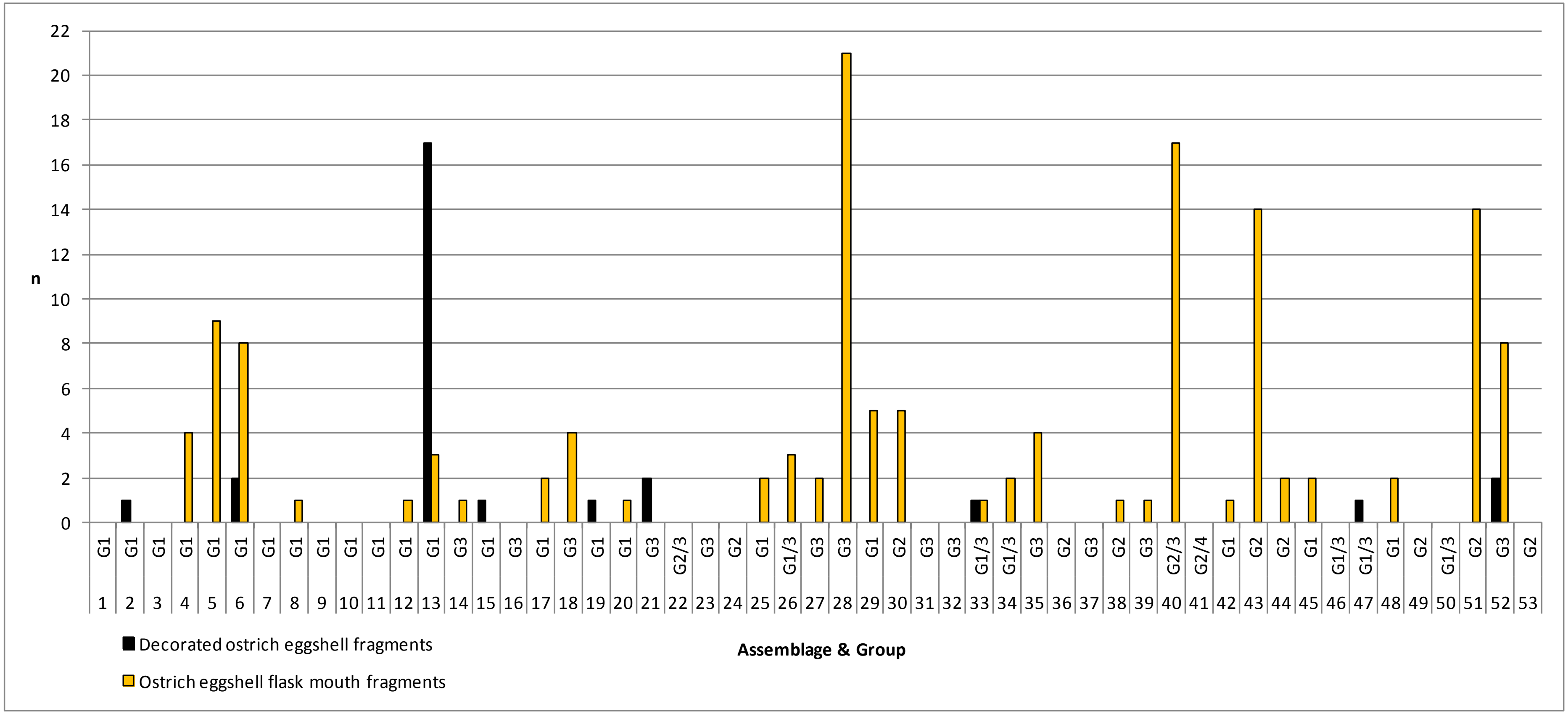


Figure 6.20: Frequency of engraved fragments and flask mouth fragments among all ostrich eggshell fragments excluding bead manufacturing debris.

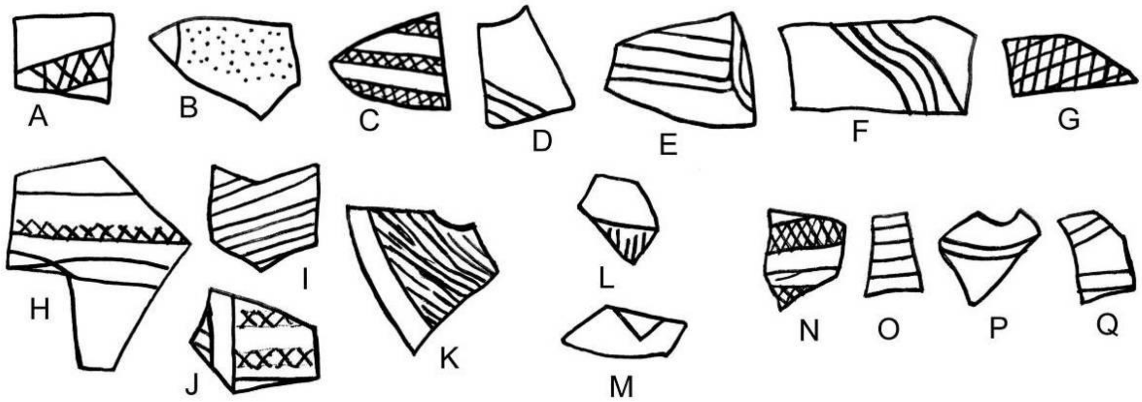


Figure 6.21: Engraved ostrich eggshell from the Richtersveld. A-G: Jakkalsberg N, fourth–third millennia BC (Orton & Halkett 2010, fig. 2); H-K: Jakkalsberg L, second millennium BC (Orton & Halkett 2010, fig. 7); L-M: Jakkalsberg A, first millennium AD (Webley 1997a: fig. 10); N-Q: /hei-/khomas, first & second millennia AD (Webley 2001: fig. 12). D, K & P are flask mouths.

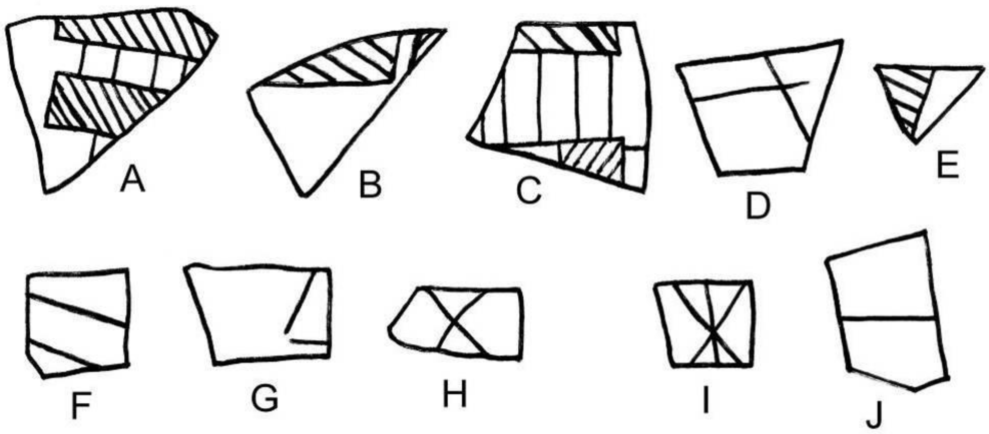


Figure 6.22: Engraved ostrich eggshell from the Knersvlakte. A: Buzz Shelter, *c.* fourth millennium BC; B-H: Buzz Shelter, first millennium AD; I-J: Reception Shelter talus excavation, second millennium AD.

Table 6.3: Engraved ostrich eggshell patterns as they appear in the coastal Namaqualand archaeological record.

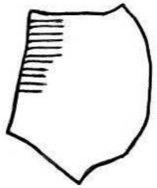
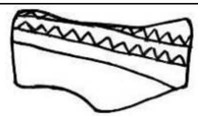
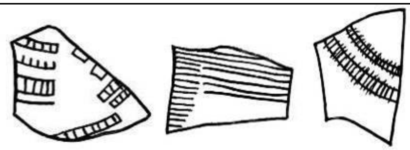
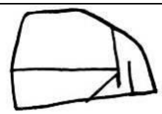
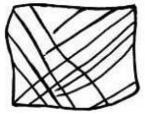
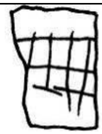
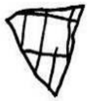
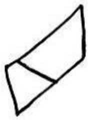
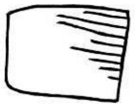
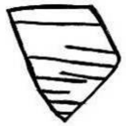
Assemblage	Assemblage Number	Date	Illustration	Lithic Group	Reference
KN2001/008C, Lower	2	3036–2401 BC		G1	Dewar 2008
Spoeg River Cave, Layer 14	-	?>2000 BC		unknown	Webley 2002: fig. 17
KN2001/008C, Upper	6	1862–1272 BC		G1	Dewar 2008
PN2009/001	13	504 BC–AD 28		G1	
Spoeg River Cave, Layer 11	-	2000 BC–?AD1		unknown	Webley 2002: fig. 17
SK2001/025, Area C	15	346 BC–47 BC		G1	

Table 6.3 continued.

Assemblage	Assemblage Number	Date	Illustration	Lithic Group	Reference
SK2005/084	18	196 BC–AD 325		G1	
TP2004/003	20	AD 52–539	 	G3	
Spoeg River Cave, Layer 7	-	AD 469–961		unknown	Webley 2002: fig. 17
SK2005/096, Patch A	32	AD 1319–1401		G1/3	
SK2006/006, Patch 2 Upper	47	AD 1465–1630		G1/3	
KN2005/067, Patch 1B	51	AD 1505–1652		G3	
ZD6	-	undated	 (This is a whole flask. Circle represents flask mouth with decoration running away from it.)	unknown	Halkett & Hart 1997: plate 5

6.4 Pottery

This section includes all dated pottery samples available from the core study area as well as others with diagnostic features. Pottery first appears in the Sandveld at or just after 2000 years ago, but only becomes commonplace after about AD 500. Given the small size of the pottery collections, the analysis is generally qualitative, examining the presence and absence of various characteristics. Rudner (1968) conducted an extensive collection and description of pottery from the west coast, but, being undated, his samples do not aid the determination of sequence. While features such as lugs, bosses, basal nipples and ochred walls occur, they were too rare for meaningful analysis, others, such as wall thickness and decoration style, however, could be temporally examined.

Figure 6.23 plots pottery indices. Two observations emerge: (1) pottery index increases with time, but some assemblages still contain no pottery; and (2) with one exception (Assemblage 38), Group 2 assemblages stand proud of their neighbours throughout. The implication is that people making informal stone artefacts had access to and/or used the most pottery but that with time pottery availability generally increased for everyone on the landscape.

Decorated sherds, although forming a very small proportion of the total number, are frequent enough for meaningful discussion. Halkett and Hart (1997), in their extensive survey, noted the dominance of three decoration styles: rows of rounded impressions, horizontal incised lines and small crescent-shaped impressions. While the latter are absent from the present study, rows of impressions of varying shape were found to dominate strongly – consistent with Rudner's (1968) observation that they were most frequent on the west coast. Ordering the various styles temporally shows that fine-and broad-incised decoration occurs in the company of impressed decoration during the first millennium AD, while second millennium AD assemblages show only impressions (Table 6.4). Unfortunately, most incised pots are from undated occurrences. It is tempting to presume that the lack of decorated sherds pre-dating the mid-first millennium AD means that early pottery was undecorated. There is, however, too little evidence for this. One can only label pots undecorated when rims are present since body sherds are frequently adiagnostic. In any case, plain rims were recorded throughout the sequence, sometimes accompanying impressed sherds.

Sadr (1998) contends that lugs appeared in the southern African archaeological record around AD 700 and may have signified the arrival of the Khoekhoen, since they occur throughout the western part of the subcontinent along their likely routes of spread. Although only one dated assemblage (SK2006/006, Patch 2 Upper from the mid-second millennium AD) includes a lug, others are known in combination with broad-incised (MB2005/135; Orton & Halkett 2006) and fine-incised sherds (ZD27; Halkett & Hart 1997) and may thus be earlier.

Comparison with the well-established south-western Cape and Karoo sequence (see Table 4.2 above) is merited. KN2004/012 (Assemblage 24) seems, on comparison with Sadr and Sampson (1999: fig. 6), to be spouted-incised (SPINC) ware. Spouts are rare in Namaqualand. Dewar (2008) reported just one, from a late site (SK2001/026, Assemblage 43), while Rudner (1968: fig. V:4), too, found only one spouted vessel – at Kleinzee. The latter was undecorated and, of course, undated. Although the SK2001/026 sample includes impressions and a spout, it is quite clear from Sadr and Sampson's (1999) description that it should not be termed spouted-incised (SPINC) ware on either stylistic or temporal grounds. With lugs so rare, lugged-undecorated (LUND) and lugged-incised (LINC) cannot be properly assessed except to say that the latter may occur, as noted above, at MB2005/135 and ZD27. While one impressed sherd also originates from KN2004/012, this form of decoration proliferated in Namaqualand after AD 1300 (Table

6.4). This is the most obvious indicator that the Namaqualand pottery sequence is different to that in the south-western Cape and Karoo where, at this time, a rich assortment of fine and broad lines was incised either vertically or diagonally and occasionally in conjunction with impressions (Sadr & Sampson 1999: fig. 12). In Namibia, Albrecht *et al.* (2001) show a variety of sherds from the late first millennium AD at Oruwanje 95/1 all with multiple incised lines, Jacobson (1977) describes pots with combined incised lines and circular impressions but with no horizontal bands, while at Big Elephant Shelter (Wadley 1979) and Geduld (A. Smith & Jacobson 1995) we find crescentic impressions similar to those noted in Namaqualand by Halkett and Hart (1997). Also like Namaqualand, Sievers (1984) found rows of vertical impressions at Rosh Pinah in the second millennium AD. Despite some commonalities between Namaqualand and Namibian pottery, the apparent absence of rows of circular impressions from the latter suggests at least one prominent difference. Overall, the differences between pottery decoration in Namaqualand and areas to the north, east and south could suggest that the variety is more cultural than temporal in nature.

Jacobson (1987) noted that in Namibia pottery wall thickness increased during the early second millennium AD but provided no dimensions. Rudner (1968:450) divided pottery walls into ‘very thin’ (< 6 mm), ‘thin’ (6–8 mm) and ‘thick’ (> 8 mm), although he changed this terminology in his Table 8 from which the following data originates. While very thin walls comprised some 20% to 40% of sherds in all areas, thin walls were most frequent from Namibia and the Saldanha Bay area (*c.* 75% of sherds) and reduced in frequency to the east. Namaqualand is listed as having 60% of its sherds as thin walled. Thick walls were rare, passing 10% of sherds only on the southeast coast and being entirely absent north of Saldanha Bay. Figure 6.24 plots mean wall thickness. A general increase through time is evident but with no obvious early second millennium AD change as suggested by Jacobson. In contrast with Rudner’s observation, the majority of values are less than 6 mm (very thin). What is perhaps significant is that the earliest pottery assemblage (excluding Assemblage 17 with its intrusive pottery), although based on very few sherds, is the thinnest. Although three of its four measureable sherds are rims, the body sherd is still the second thinnest.

Broad incised horizontal lines strongly dominate the Spoeg River Cave pottery assemblage with impressed decoration very rare (Webley 1992: fig. 8; 2002: fig. 13). The former style occurs only in the oldest of the open assemblages with decorated pottery (KN2005/054) and thus seems to be expected for the early first millennium AD in Namaqualand. In keeping with the open sequence, a combination style also occurs as is the case at the other early open site, KN2004/012 (Table 6.4). Wall thickness is consistent with the finds from the open sites: sherds from Layers 7 and 6 are the thinnest (<5 mm) and the mean sherd thicknesses for the overlying layers all fall in the 5.1–6.1 mm range (Webley 2002: table 7). Lugs, bosses and spouts are absent (Webley 2007).

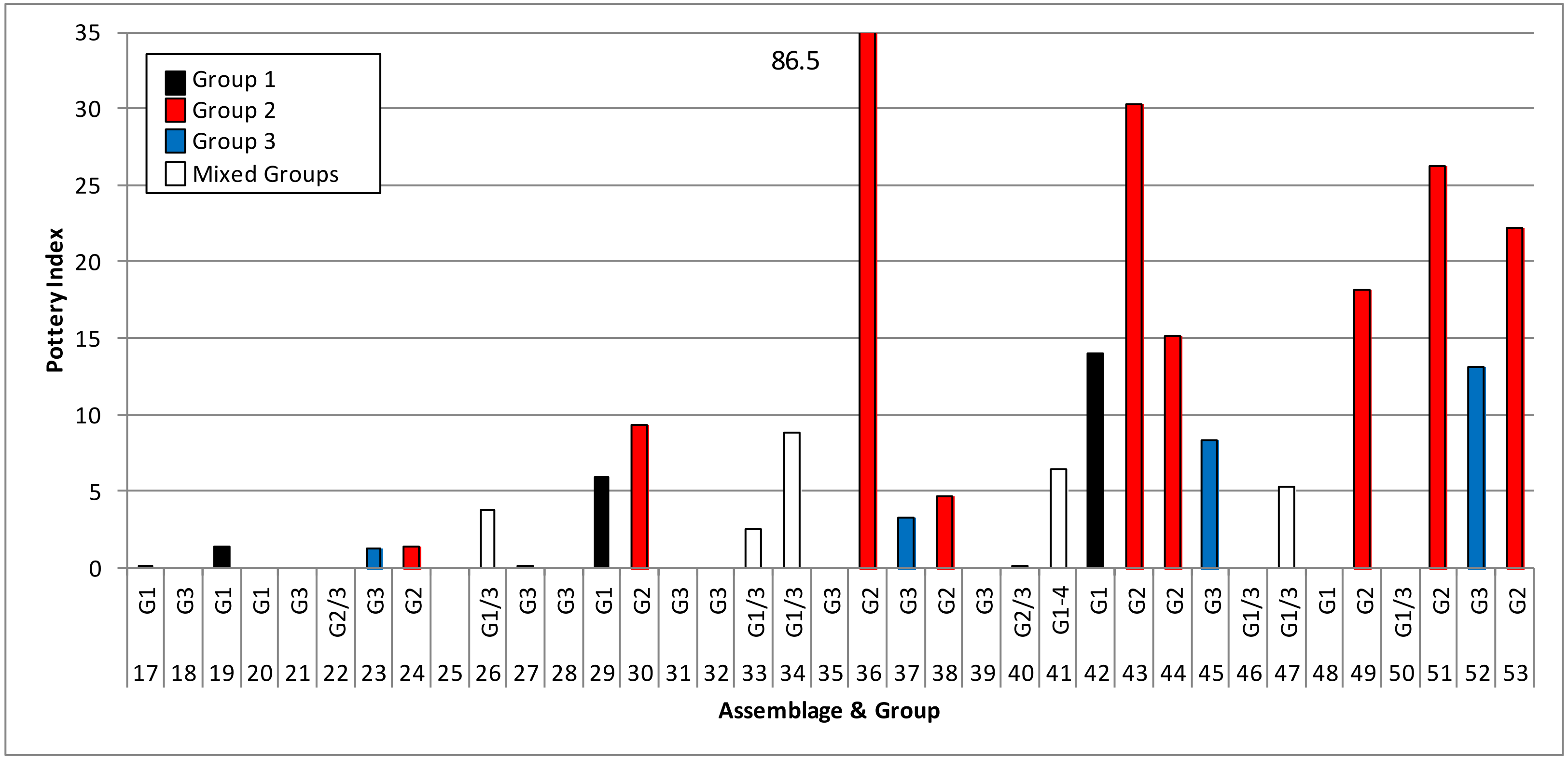


Figure 6.23: Pottery Index in temporal order.

Table 6.4: Pottery decoration styles as they appear in the coastal Namaqualand archaeological record. Rim sherds are indicated. Not to scale.

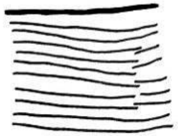
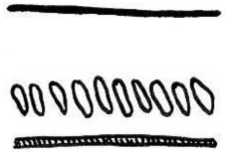
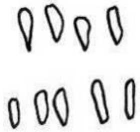
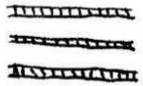
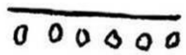
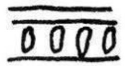
Assemblage / Site	Assemblage Number	Date	Decoration method	Illustration	Lithic Group	Reference
KN2005/054	23	AD 429–584	Fine-INC	 rim	G3	
KN2004/012	24	AD 432–606	IMP & Broad-INC	 rim	G2	
KN2004/012	24	AD 432–606	IMP		G2	
Spoeg River Cave, Layers 1–4		AD 554–806	Broad-INC		unknown	Webley 1992: fig. 8
Spoeg River Cave, Layers 1–4		AD 554–806	Fine-INC & IMP		unknown	Webley 1992: fig. 8
Spoeg River Cave, Layers 1–4		AD 554–806	Fine-INC & IMP		unknown	Webley 1992: fig. 8

Table 6.4 continued

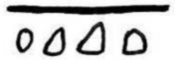
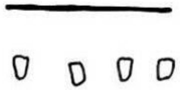
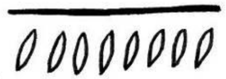
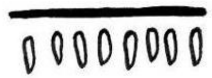
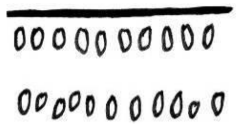
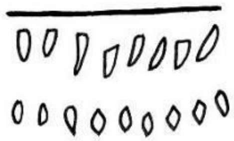
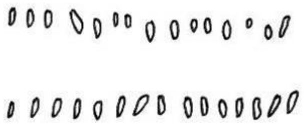
Assemblage / Site	Assemblage Number	Date	Decoration method	Illustration	Lithic Group	Reference
SK2001/039	33	AD 1319–1422	IMP	 rim	G1/3	
SK2001/039	33	AD 1319–1422	IMP	 rim	G1/3	
TP2004/004	36	AD 1300–1680	IMP	 rim	G2	Dewar 2008: fig. 7.9; Orton & Halkett 2005: fig. 3.12
TP2004/004	36	AD 1300–1680	IMP	 rim	G2	Dewar 2008: fig. 7.9; Orton & Halkett 2005: fig. 3.12
SK2001/026	43	AD 1445–1627	IMP	 rim	G2	Dewar 2008: fig. 5.9
SK2005/057A	44	AD 1455–1625	IMP	 rim	G2	
KN2005/067	51	AD 1505–1652	IMP		G3	

Table 6.4 continued

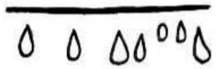
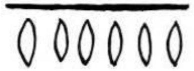
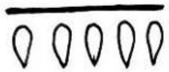
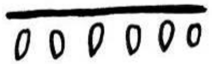
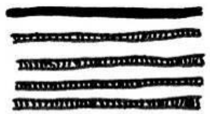
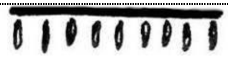
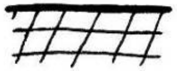
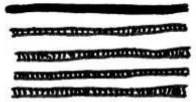
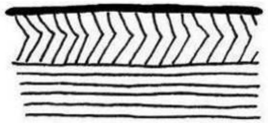
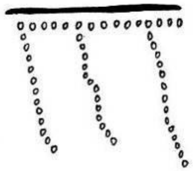
Site	Assemblage Number	Date	Decoration method	Illustration	Lithic Group	Reference
AK2006/006	-	undated	IMP	 rim	G2/3	Own data
AK2006/006	-	undated	IMP	 rim	G2/3	Own data
AK2006/006	-	undated	IMP	 rim	G2/3	Own data
AK2006/006	-	Undated	IMP	 rim	G2/3	Own data
SK2005/077	-	Undated	IMP	 rim	Unknown	Orton & Halkett 2006: plate 3.47
KN2005/006	-	Undated	Broad-INC		Unknown	Own data
MB2005/135	-	Undated	Broad-INC	 rim	G4	Orton & Halkett 2006: plate 3.122
Port Nolloth	-	Undated	IMP	 rim	Unknown	Rudner 1968: fig. XXXI (13)

Table 6.4 continued

Site	Assemblage Number	Date	Decoration method	Illustration	Lithic Group	Reference
Port Nolloth	-	Undated	IMP	 rim	Unknown	Rudner 1968: fig. XXXI (11)
Port Nolloth	-	Undated	IMP	 rim	Unknown	Rudner 1968: fig. XXXI (14)
McDougal's Bay	-	Undated	Fine-INC	 rim	Unknown	Rudner 1968: fig. XXXI (18)
McDougal's Bay	-	Undated	Fine-INC	 rim	Unknown	Rudner 1968: fig. XXXI (19)
Dreyers Pan 48	-	Undated	Broad-INC	 rim	Unknown	Halkett & Hart 1997: plate 9
Dreyers Pan	-	Undated	Fine-INC	 rim	Unknown	Rudner 1968: fig. XXXI (21)
Kleinzee	-	Undated	IMP	 rim	Unknown	Rudner 1968: fig. IV (1)
Zwart Duinen 27	-	Undated	Fine-INC	 rim	Unknown	Halkett & Hart 1997: plate 10

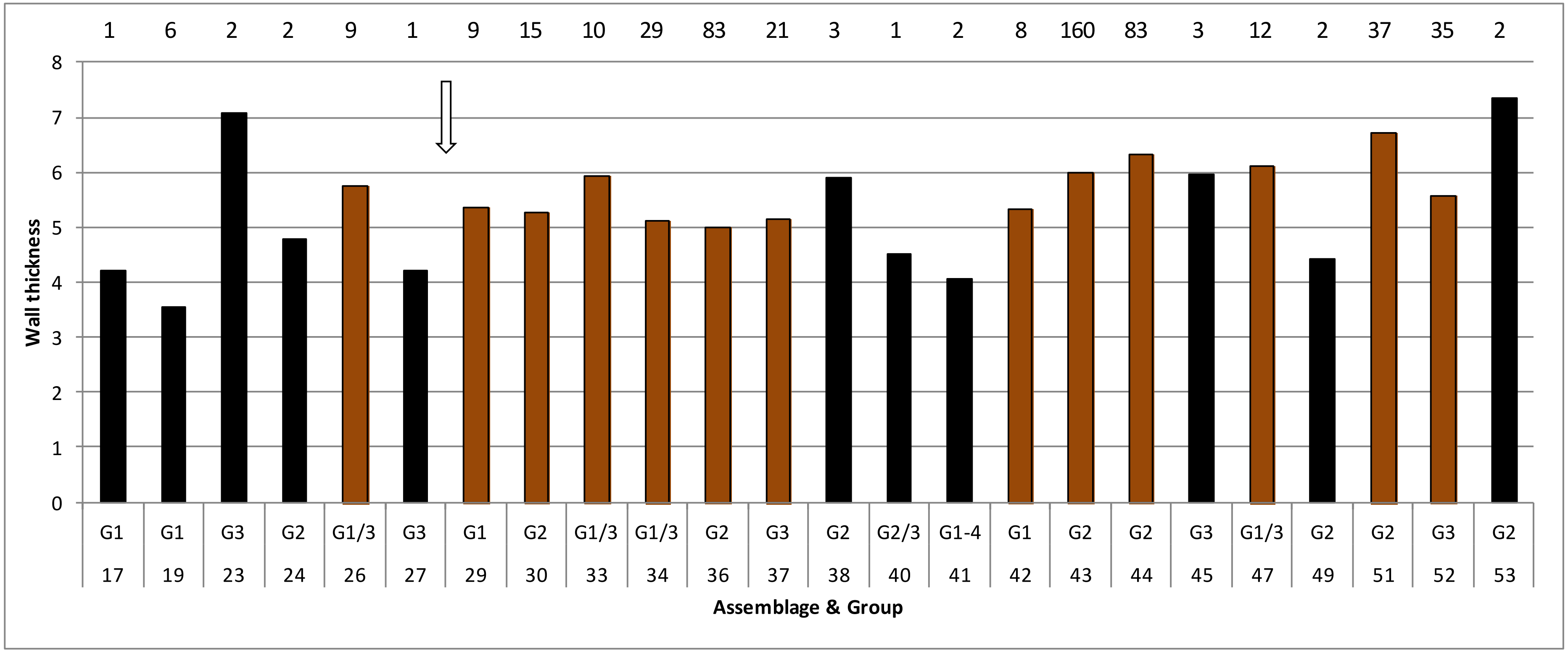


Figure 6.24: Pottery wall thickness in temporal order. Collections with eight or more sherds are shown in brown and assumed to be more reliable. Numbers along the top indicate number of sherds and the white arrow shows AD 1200.

In the Richtersveld between AD 600 and 900 we find richly decorated pottery with broad- and fine-incised lines occurring together with rarer oval impressions at Jakkalsberg A and B. Fine incisions also occur on the lip of some rim sherds, and bosses and a spout are present (Webley 1997a). Jakkalsberg M, dated only to the first millennium AD, has broad-incised horizontal lines in the presence of lugs. Bloeddrift 23 has only impressed decoration and is thus in keeping with similarly aged Sandveld assemblages. It also has lugs (A. Smith *et al.* 2001). A small undated pottery collection from elsewhere in the Bloeddrift area contains richly decorated sherds reminiscent of the JKB A and B pottery (Figure 6.25; D. Halkett, pers. comm. 2012). Unfortunately, sherds with decoration or other diagnostic features are absent from the dated southern Namaqualand deposits. Nevertheless, the central and northern Namaqualand assemblages show that during the first millennium AD both incised and impressed decoration was made, while during the second millennium AD only impressions were produced. The decorated sherds from the Reception Shelter talus demonstrate that fine-incised and impressed decoration occurs throughout Namaqualand; the broad-incised basket-weave-type decoration is rare in Namaqualand, occurring at just one site to the north (KN2005/006; Table 6.4). Stewart (2005: fig. 2) documents it at DFM1, near Elands Bay, while Rudner (1968) found a similar example at Modderrivier 50 km north of Cape Town, but with 'fine' rather than 'channelled' lines.

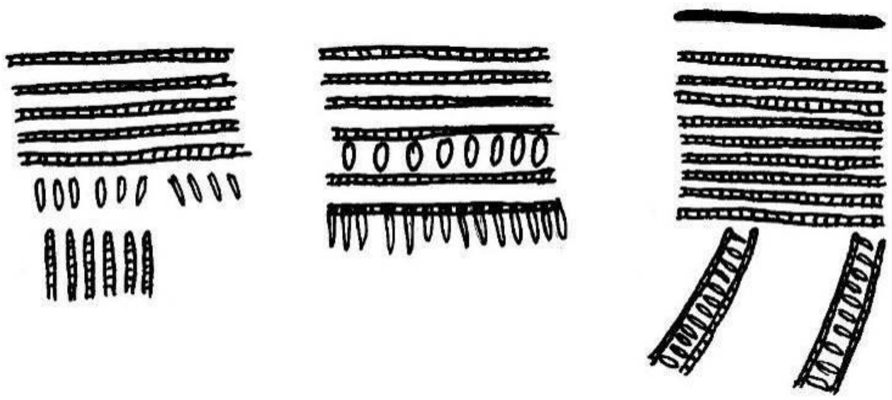


Figure 6.25: Unpublished decorated pottery from the Bloeddrift area of the Richtersveld (D. Halkett, pers. comm. 2012). No date is available. Bold line above right hand sherd is the rim.

6.5 Other material culture

Waterworn shells collected from the beach and carved bone melon knives occur in Namaqualand assemblages (Table 6.5). The collected shells were almost certainly ornamental, and, among the Bushmen, J. Wood (1870) saw cowrie shells hanging from womens' hair and noted their alternate use as a form of currency[21]. Among various other items, Barrow (1801) saw shells included as decoration on the aprons of Namaqua women. Mitchell (2002a) notes that, with the exception of Welgeluk in the Eastern Cape (S. Hall 1990), cowrie shells appear to post-date AD 1 in southern African sites. In Namaqualand they, and all other waterworn shells, are later, all post-dating AD 1300. Might shell ornamentation be linked to the advent of herding and indicate a diversification of ornamentation in general? This seems likely, though with the lack of observations between this time and AD 500 it cannot be proved.

Budack (1977) describes melon knives made by the ≠Aonin, a Khoekhoe group with domestic stock who still live near Walvis Bay on the Namibian coast. They are specialised tools for harvesting and processing *!nara* melons. Although *!nara* melons are not known from south of the Orange River (Klopatek & Stock 1994), three melon knives are known from Namaqualand, one from a midden near the Spoeg River (MB2005/043; Group 3; Halkett & Dewar 2006), one from AK2006/006 near the Buffels River (Orton 2007c) and the one from KN2005/067. This wide distribution could reflect alternative functions for these artefacts and/or, if they were exclusively used by the Khoekhoen, could reflect cultural and ethnic continuity throughout the region.

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[21]Wood's appears to be a generic description and gives no location for the observation.

Table 6.5: Occurrence of water-worn shells and melon knives from Sandveld assemblages. Numbers in parentheses indicate additional fragments.

Assemblage	Group	*Conus* sp.	*Bullia* sp.	Other whelk	Cowrie	*S. argenvillei* / *C. granatina* 'rings'	Melon knife	Reference
LK2004/011 (28)	3				2			Dewar 2008
MB2005/013 (29)	1			2	(1)			
MB2005/028A (31)	3				(1)			
SK2005/096A (33)	1/3		8 (1)					
KN2001/009 (35)	3	6*						
SK2005/095A (39)	3	5 (3)	11					
DP2004/014 (40)	2	5						Dewar 2008
SK2001/026 (43)	2	2						Dewar 2008
SK2005/057A (44)	2	14	10	1		1		
SK2005/095B (45)	3	1	1	1				
KN2005/067, Patch 1C (49)	2	1				3		
KN2005/067, Patch 1A (51)	2		1				1	
KN2005/067, Patch 1B (52)	3					3		
AK2006/006 (-)	3	8 (5)	1	3	(7)		1	Own data
MB2005/043 (-)	3			unknown			1	Halkett & Dewar 2006

* One of these was fresh.

Beads of metal and glass are well documented among the historical Khoekhoen but are virtually absent from the archaeology. A. Smith and Pheiffer's (1993:32 & 42) translations of early eighteenth century Dutch texts describing the Cape Khoekhoen reveal that despite copper beads being favoured, the Khoekhoen had more glass beads and they were of many colours. Goodwin (1952) related a late 17th century account of the Namaqua wearing vast numbers of copper and iron beads, bracelets and chains. The absence of these materials from the Namaqualand Sandveld is curious: aside from KK002 which has glass beads and copper and iron artefacts, just one glass bead is on record, from LK2001/010A (Halkett & Dewar 2007), and this despite their great frequency on recent coastal sites in Namibia (J.H.A. Kinahan 2000). A. Smith and Pheiffer (1993) consider the archaeological rarity of copper to be because it was such a precious commodity that it was treated with great care and seldom lost. While this seems plausible for larger items, it seems unlikely for the tiny glass trade beads: if dropped, they would be difficult to recover from sandy substrates. They also considered iron to be 'virtually unobtainable' in the west during prehistory and thus when brought by Europeans it commanded very high trading value. That it was present prehistorically is attested by the artefacts from Jakkalsberg (Miller & Webley 1994) and the iron rod at KK002 (F. Bandama, pers. comm. 2012). While the source of pre-colonial iron is unknown, Cornell (1920) notes the occurrence of prehistoric copper mining in the Richtersveld.

6.6 Domestic stock and the 'herder package'

The presence of domestic animal bones can indicate various things (as described in Section 2.1.2 above) but they are less informative in coastal Namaqualand than in areas to the south: too few sites contain domesticates (Appendix 2, Table A2.4) and, when they do, they usually have exceedingly few bones. The three assemblages on Figure 6.6 to include domestic animal bones occur in the upper left (Assemblage 27; Group 3), lower left (Assemblage 22; Group 2/3) and lower right (Assemblage 44; Group 2), thus demonstrating no consistency with regards to stone retouch and pottery. Ostrich eggshell bead size has been shown to relate to time and those assemblages containing stock and beads have mean bead diameters, in temporal order, of 4.74 mm (Assemblage 22), 6.08 mm (Assemblage 27), 6.99 mm (Assemblage 39) and 5.58 mm (Assemblage 44). Again, consistency is absent with small, medium and large means present, although, following A. Smith *et al.* (1991; A. Smith 2005), the latter three would be large enough to reflect herders in the context of the Vredenburg Peninsula. Perhaps significantly, very large means are not represented at all among sites with stock.

Spoeg River Cave is the only coastal site with many sheep bones (Webley 2002). Among the sheep-bearing deposits, Layers 11 to 7 appear to (and should) be Group 1-dominated, while the overlying layers are all dominated by either Group 1 or Group 3. From the formal tool and pottery indices (Table 6.6), Layers 1, 3 and 4 could nevertheless be accommodated beneath the dashed line in Figure 6.6. It may well be that with the blurring of fine stratigraphic distinctions expected in cave deposits we are seeing mixed assemblages containing Groups 1, 2 and 3. Webley (2002) does not list materials for the various artefact types, but from her Figure 7 caption we may deduce that the majority of backed items were of quartz. Whether these are milky or clear remains unknown. The mean bead diameters for the pottery-bearing layers conform to the A. Smith ideal for herders, but only Layers 1 and 2 surpass 6.0 mm. Again it appears that time is the major determinant of bead size.

Table 6.6: Formal tool index (FTI), pottery index (PI) and mean external ostrich eggshell bead diameter for Namaqualand assemblages associated with domestic stock (sheep, goats or cattle). For deep sites appropriate surrounding layers without stock are included for comparison. (SRC = Spoeg River Cave; JKB = Jakkalsberg; VR001 = Reception Shelter; VR005 = Buzz Shelter; NISP = number of identified specimens).

Layer	Ages	FTI	PI	OES bead	Stock NISP	References
SRC Layer 11		1.53	0	4.3	4	Ages calibrated and indices calculated from Webley (2002)* Beads: Webley (2002) Sheep: Webley (2002)
SRC Layer 10	518–366 BC AD 55–325	1.55	0	4.2	0	
SRC Layer 9	AD 62–333 AD 55–325	5.43	0	4.2	2	
SRC Layer 8		1.55	0	4.4	1	
SRC Layer 7	AD 685–961 AD 469–680	2.66	0.70	4.2	14	
SRC Layer 6b	AD 6–313	3.45	4.92	4.9	21	
SRC Layer 6a		2.61	6.71	5.2		
SRC Layer 5		3.73	18.03	5.0	38	
SRC Layer 4	AD 554–766	0.83	35.14	5.7	2	

Layer	Ages	FTI	PI	OES bead	Stock NISP	References
SRC Layer 3		0.90	39.45	5.9	15	As above.
SRC Layer 2		2.50	19.19	6.2	4	
SRC Layer 1		1.16	14.85	7.8	7	
JKB A	AD 653–970	0.06	8.84	5.97**	21	Ages calibrated and indices calculated from Webley (1997a) Beads: Webley (1997a) Fauna: Brink & Webley (1996)
JKB B	AD 610–855	0	13.25	5.7	27	
JKB M	AD 83–943	0	47.74	4.90	2 (or 3)	Fauna: R. Klein & T. Steele, pers. comm. 2006
JKB K	AD 1488–1640	0	26.95	6.16	?2	Fauna: R. Klein & T. Steele, pers. comm. 2006
VR001 Layer 9B	793–416 BC	1.84	2.40	4.27	0	Fauna: R. Klein & T. Steele (pers. comm. 2012)
VR001 Layer 8–9A	AD 85–336	1.70	13.91	4.93	1	
VR001 Layer 7		0.84	0	3.86	0	
VR001 Layer 6	AD 1177–1293	1.73	3.07	4.44	0	
VR001 Layer 4B–5	AD 1318–1483	0.65	2.06	5.85	1	
VR001 Layer 1–4A		1.65	1.62	4.90	0	
VR005 Layer 3	Problematic, but AD 76–232 most likely	1.01	0.20	4.10	2	Fauna: R. Klein & T. Steele (pers. comm. 2011)
VR005 Layer 2	Problematic, but AD 410–543 most likely	1.32	0	4.20	0	
VR005 Layer 1		0	0	3.94	0	

* Value calculated from all 375 beads in Webley (1997a: table 7).

**Webley (2002; table 8) calculated PI following Yates & Smith (1993) but I have recalculated following Sadr *et al.* (2003).

In the Richtersveld first millennium AD domestic animal bones have been found at Jakkalsberg A and B (Brink & Webley 1996) and also at JKB M. The younger JKB K has probable sheep. All appear to be Group 2 assemblages and, with their low formal tool indices and high pottery indices (Table 6.6), all would fall below the dashed line in Figure 6.6. Bead size again relates well to time with the four mean sizes increasing in temporal order. At Reception Shelter in the Knersvlakte only the second youngest layer grouping, with one domestic bone, would sneak below the Figure 6.6 line, while the only other layer with a domesticate has the highest pottery index but also a fairly high formal tool index. Bead sizes are variable and offer no further assistance here. Buzz Shelter appears more like a hunter-gatherer site with very few potsherds and very small, desite two stock bones in Layer 3.

It thus seems that the Richtersveld assemblages offer the best possibility of a 'herder package' but, as explored in Section 2.1.1, the picture is far from clear. It may be, of course, that those sites really do represent herders and that many of the others throughout the region relate either to hunter-gatherers who obtained stock as food or else to Sadr's (2003) 'hunters-with-sheep' (which, given a relatively early date on cattle (Orton *et al.* in press), are perhaps better termed 'hunters-with-stock'). Whatever the situation, it is nevertheless quite apparent that no Namaqualand assemblages unequivocally reflect the kind of pastoralist signature proposed by A. Smith *et al.* (1991) from their Vredenburg Peninsula data.

6.7 Shellfish

Shellfish are not cultural artefacts in and of themselves. Acquisition of terrestrial food parcels, besides plants, generally follows opportunistic strategies with antelope needing to be chased and caught and ground game collected when chanced upon. Shellfish, however, are easily harvested; their collection can be planned and several species are present. Shellfish choice may, therefore, be an artefact of culture. For this reason and considering Binneman's (2001) observed variability between sites with and without sheep and pottery, shellfish species frequency is explored here.

When the relative frequencies of shellfish species are examined through time there are no abrupt changes but a distinctive trend towards the use of larger food parcels is evident. In particular, the limpet *C. granatina* increases markedly through time to become approximately half of all collected shellfish, while the other common limpet, *S. granularis*, decreases in tandem (Figure 6.26). It would be tempting to conclude that people were becoming more accustomed to wading deeper, but this is only poorly supported by the slight increases in *S. argenvillei* and *S. barbara*, both of which (but particularly the latter) are generally subtidal (Figure 6.27). Black mussels (*C. meridionalis*) and whelks (*Burnupena* sp.) live in similar areas and both decrease (Figure 6.28); they form a small but consistent presence until about AD 400, after which they were seldom collected. With one exception, shellfish frequencies do not relate to groups at all, since there is plenty of variability within each. The exception is the lack of black mussels and whelks in Group 2 assemblages (highlighted in Table 6.7), which, together with their stone and pottery features, continue to stand out from the remaining groups.

Table 6.7: Minimum and maximum shellfish frequencies by assigned lithic group with the scarcity of mussels and whelks in Group 2 highlighted.

	Group 1		Group 2		Group 3		Mixed groups	
	Min	**Max**	**Min**	**Max**	**Min**	**Max**	**Min**	**Max**
C. granatina	7.4	62.9	17.3	74.9	7.2	63.7	26.9	70.5
S. granularis	6.8	79.8	21.2	81.5	25.1	80.3	18.6	51.5
S. argenvillei	0	24.0	0	28.7	0.6	27.3	0.8	18.6
S. barbara	0	3.4	0	1.1	0	2.1	0	5.9
C. meridionalis	0	24.7	0	0	0	16.9	0	0.4
Burnupena sp.	0	15.9	0	0.1	0	1.4	0	10.0

When the trends within each assigned lithic group are examined, a different picture emerges. In Group 1 there is consistency in *S. granularis* frequencies but *C. granatina* rises markedly at the expense of the minor species (Figure 6.29). Much variety exists in both primary species, but this is emphasized more in the earlier assemblages when people chose to focus on one of them; later both were harvested more equally.

Group 2 assemblages show a decline in *S. granularis* in the face of increasing *S. granatina* frequencies (Figure 6.30). Group 3 assemblages, interestingly, show a similar trend to Group 2, but with the increase in *C. granatina* more marked. There is also more variation among the minor species with a notable inclusion of black mussels at times (Figure 6.31). It seems evident that there was a conscious shift in focus from *S. granularis* to *C. granatina*, which is far more evident in these groups than in Group 1.

Unsurprisingly, no clear pattern emerges from the combination groups. Assemblage 49 is known to be historical and, besides not being strongly dominated by any one species (Figure 6.32), it has an unusually high number of *C. compressa* shells which grow on the stalks of kelp plants (Orton 2009a). This species was extremely rare in all other assemblages, perhaps because the animals usually detach when the plants are torn free of their roots, although small numbers do still cling to washed-up kelp (R. Anderson, pers. comm. 2012). With Hondeklipbaai being a protected, kelp-rich embayment, people may have waded into the water to collect the shells from the kelp stalks.

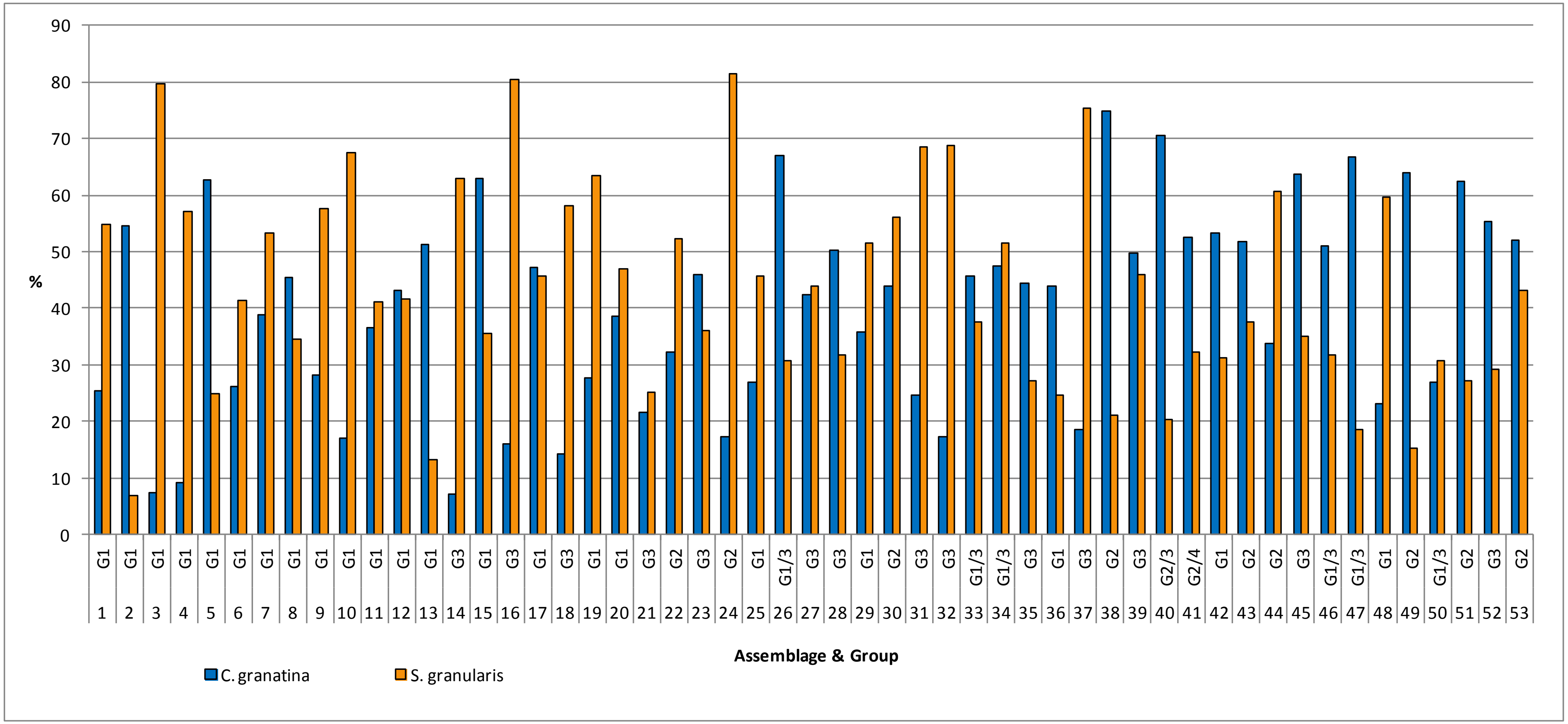

Figure 6.26: *C. granatina* and *S. granularis* frequencies in temporal order.

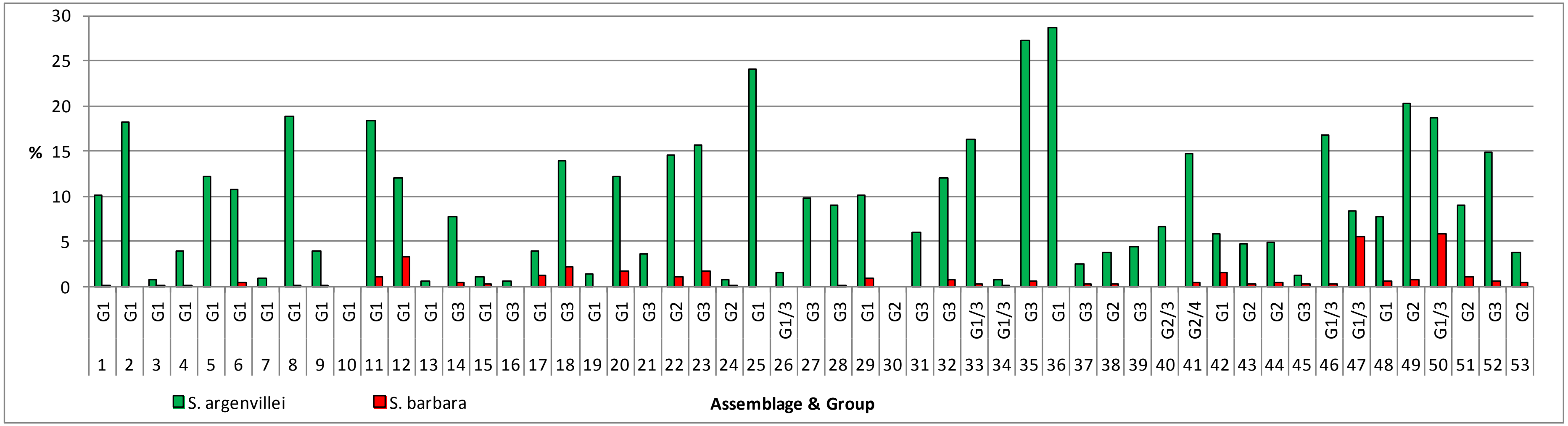

Figure 6.27: *S. argenvillei* and *S. barbara* frequencies in temporal order.

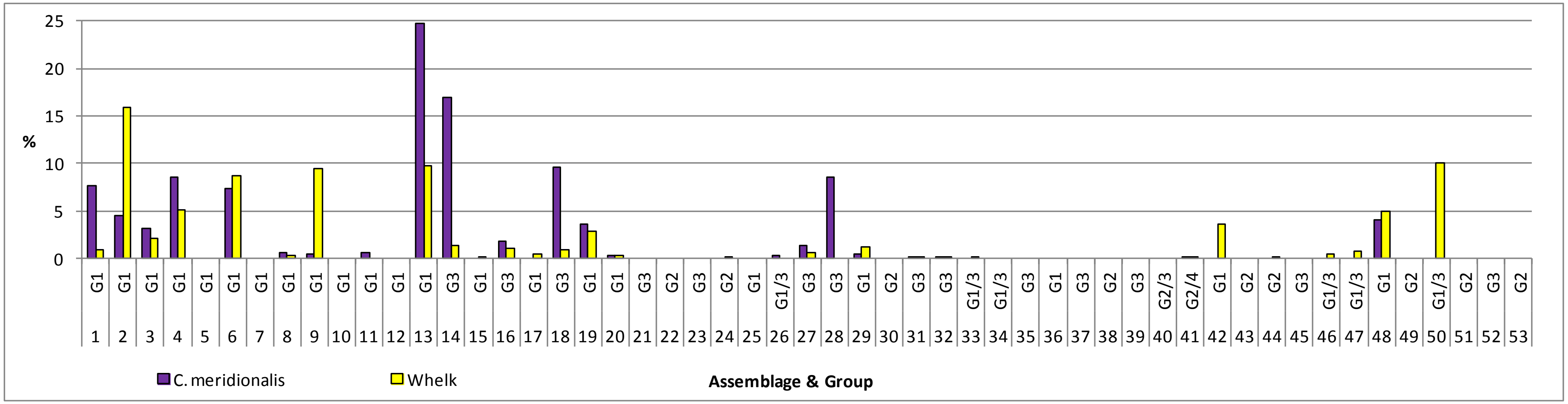

Figure 6.28: *C. meridionalis* and *Burnupena* sp. (whelk) frequencies in temporal order.

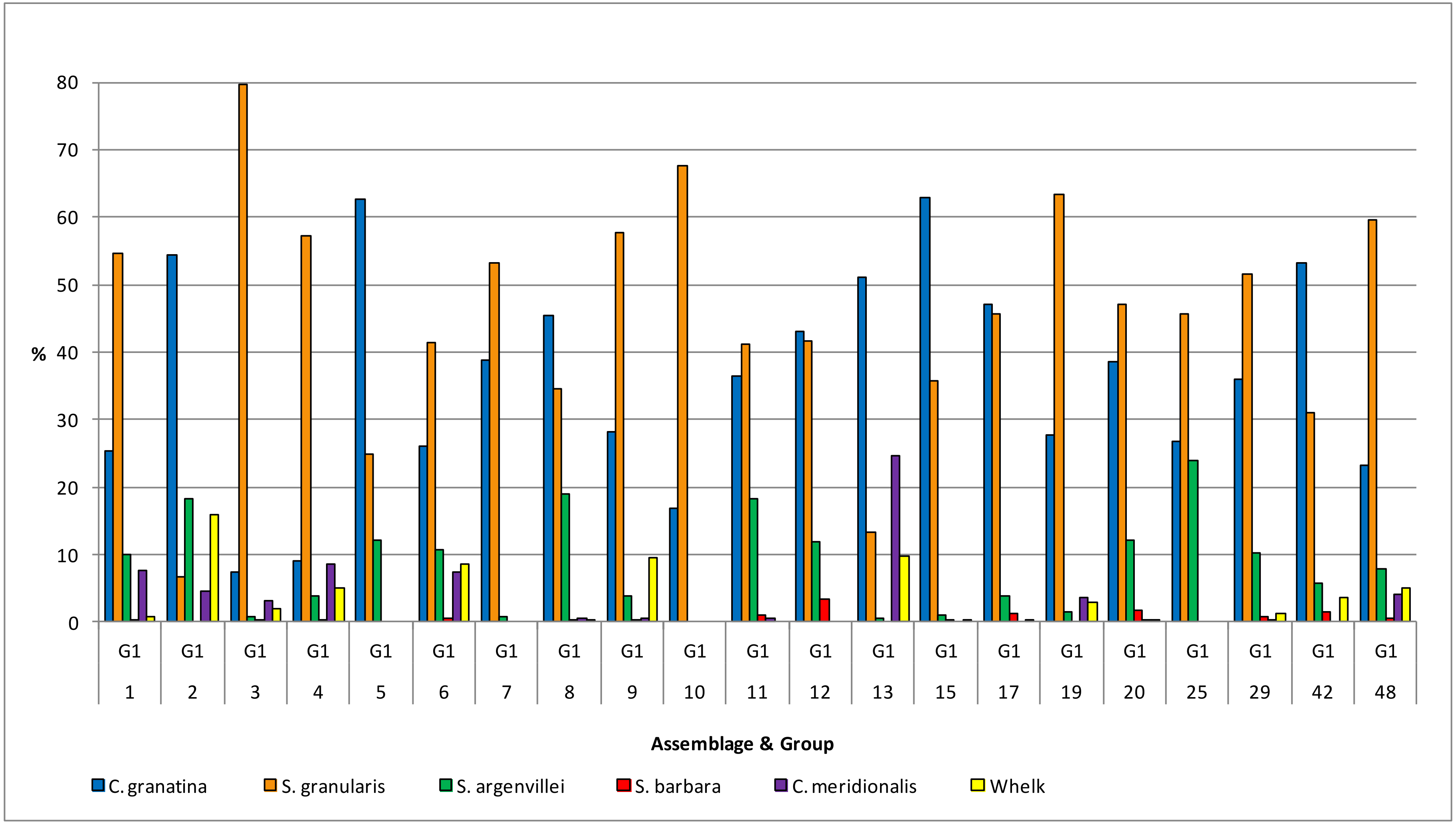

Figure 6.29: Group 1 shellfish species frequencies.

In Groups 1, 2 and 3 the increase in *C. granatina* appears to be a function of the more consistent selection of that species in later assemblages, although substantial variation continues throughout. What is clear is that there are no distinct 'shellfish signatures' associated with the lithic groups. Whether the observed shifts could be related to environmental change is unknown, but this seems unlikely given the strong dependence on *C. meridionalis* in recent sites further to the south (Jerardino 2007a; Jerardino *et al.* 2009a) and their prevalence on the Namaqualand coastline today.

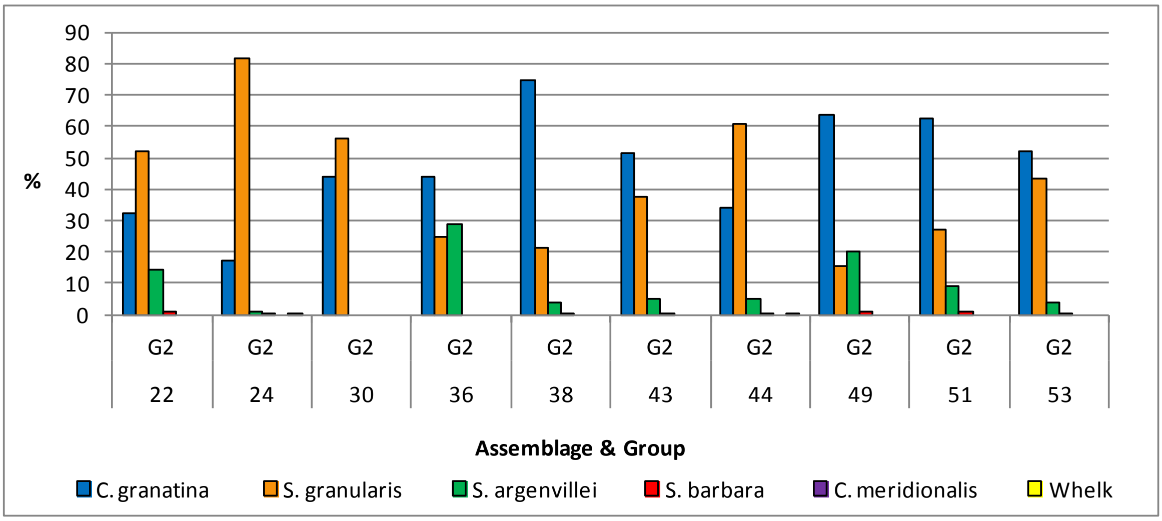

Figure 6.30: Group 2 shellfish species frequencies.

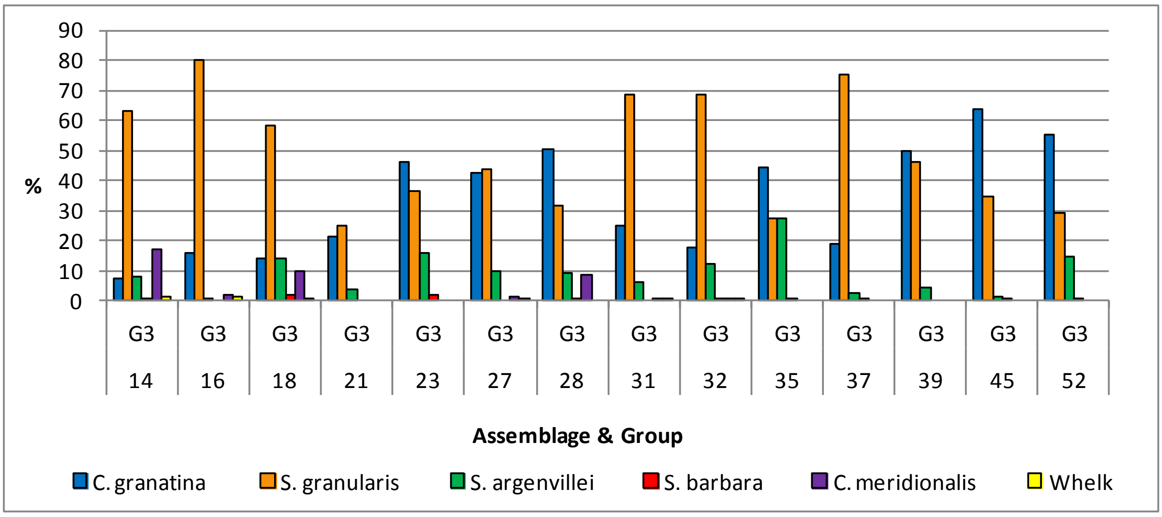

Figure 6.31: Group 3 shellfish species frequencies.

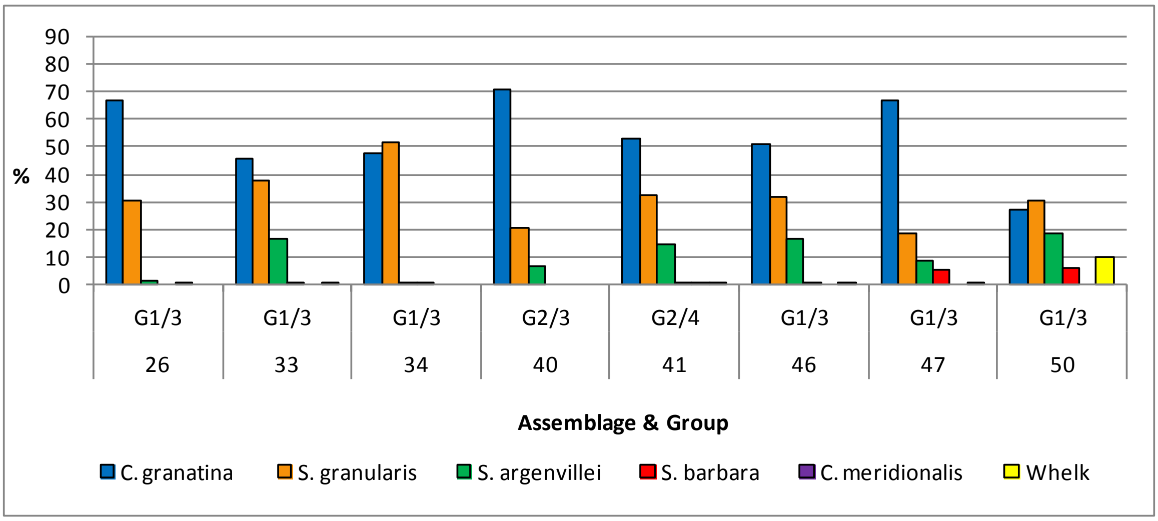

Figure 6.32: Combination groups shellfish species frequencies.

6.8 Summary and discussion

From the preceding discussion it is apparent that the Namaqualand Holocene lithic sequence exhibits considerable variability amongst most characteristics. Two reasons may be advanced for this: (1) the assemblages come largely from single occupation open sites where specific tool kits may have been manufactured for specific and differing purposes and (2) the lithic assemblages separate easily into three groups with strongly variable defining characteristics. Other cultural artefacts exibit less variability and sometimes clearer temporal patterning. Overall, enough patterning is evident to create a partial chronology (the first aim of this chapter) and future research should be able to fill some of the remaining gaps. The identification of socio-economic groupings (the second aim) has been less successful; some clues have arisen and these will be examined from a more theoretical perspective in Chapter 7. This section presents a chronological overview of the analyses above, essentially summarising the sequence and highlighting dominant features. The review is broken into time periods that are created largely through the changes evident in the stone artefact assemblages and the northern and central Sandveld assemblage numbers are provided in the headers for convenience.

6.8.1 Last Glacial Maximum to 4000 BC

Little is known of the pre-mid-Holocene LSA along the Namaqualand coastline with just two assemblages on record. People were present during the late Pleistocene when a bladelet-rich assemblage was left at AK2006/001G (Orton 2008a) and the early Holocene when typically large scrapers were made at Spoeg River Cave (Webley 2002). These isolated occurrences merit no further discussion here except to say that, broadly, they are consistent with observations elsewhere in southern Africa.

6.8.2 4000 BC to 1000 BC (Assemblages 1–8)

This period contains only Group 1 assemblages. CCS is used more frequently than later on, often comprising some 25–30% of the total, and its use for retouch is overwhelmingly dominant. The exception is the oldest site (MB2005/005B), but whether it represents an earlier phase remains unknown. Retouch types are variable but backed tools, most often made on CCS, usually comprise about half of the total. The number of retouched tool classes is generally higher at this time than later. At Spoeg River Cave scrapers appear to be slightly more numerous than backed tools and quartz maintains a consistently high presence. Despite some variation, assemblages from the far north and far south of the study area generally replicate the expected patterns.

During this period, throughout Namaqualand, ostrich eggshell beads are small, although occasional medium sized beads do occur. Engraved ostrich eggshell includes both parallel lines and more complex geometric patterns. This period pre-dates the introduction of domesticates and all assemblages are assumed to be those of hunter-gatherers.

6.8.3 1000 BC to AD 100 (Assemblages 9–19)

Although high incidences of CCS use occur during this period, its overall use drops and towards the end of this period we see the introduction of Group 3 assemblages with their very strong clear quartz dominance. Scrapers dominate now, but in the later centuries of this millennium their frequencies decline below 50%. Interestingly, while later Group 3 assemblages are very strongly focused on the production of backed tools, the two earliest ones still show scrapers at 75% and 33% respectively. Backed scrapers are particularly pertinent since they do not occur in assemblages dating later than about AD 100 and are thus a *fossile directeur* for pre-pottery assemblages. The variability in the number of retouched classes increases with very high and very low values noted. Spoeg River Cave maintains its scraper dominance at this time. Assemblages from this period are absent from the Richtersveld and southern Namaqualand with one exception: at Reception Shelter we find an assemblage little different from those that post-date AD 100.

During this period the ostrich eggshell beads throughout Namaqualand remain in the small-medium range, but one coastal assemblage late in this period includes large beads. Engraved ostrich eggshell continues to have either parallel lines or geometric patterns. Although the earliest dated sheep bone from Spoeg River Cave may predate AD 100, this period generally pre-dates the introduction of domesticates and all assemblages are again assumed to be those of hunter-gatherers.

6.8.4 AD 100 to AD 1700 (Assemblages 20–52)

During the final two millennia we see the greatest variety among stone artefact assemblages. Group 1 assemblages continue to occur, albeit infrequently. Group 2 appears (*c.* AD 500) and Group 3 assemblages proliferate. Overall, and primarily on account of Groups 2 and 3, CCS is far less frequently used with quartz usually comprising more than 85% of the total. The main exceptions occur either as a result of higher quartzite use (*c.* AD 1300-1400) or when CCS undergoes a late resurgence (*c.* AD 1500-1600). Backed tools either dominate strongly or are present in similar numbers to scrapers. In Spoeg River Cave scrapers are rare in the surviving deposits from the early part of this period. Although Group 3 assemblages have the majority of their retouched artefacts made on clear quartz, the Group 1 assemblages continue to have CCS tools present. In general, fewer classes of retouched tools are made during this period with all the larger numbers attributable to Group 3. Sites in the Richtersveld are all Group 2, but the rock shelter assemblages in the south show mixed signatures with Groups 1 and 3 both clearly evident in the Knersvlakte. Group 3 appears to be absent from coastal sites in the south (Halkett *et al.* 1993), but is strongly evident just inland at KK002.

Like the stone artefacts, ostrich eggshell bead size is strongly variable throughout the last 1900 years, but with an overall tendency to increase in size with time. Although one coastal assemblage contains many very large beads at about 1000 years ago, we find a steady increase in the occurrence of this size of bead from about AD 1400 onwards. However, small and medium beads continue to occur, sometimes in large numbers. In the far north we find similar variability, but again with an increase through time. The rock shelters in the south display a somewhat different pattern where, although increasing in mean size with time, beads remain generally small throughout and very large beads fail to appear at all. That very large beads do occur in the area is evidenced by their presence at VR048. Engraved ostrich eggshell seems to occur more rarely during this period, but from the available evidence it seems that geometric patterns disappear between about AD 1000 and 1300 leaving only parallel lines.

Pottery first appears at the start of this period, at or just after 2000 years ago, and is more consistently present after AD 500. Pottery Index remains low until AD 1300 whereafter it generally stays above 5 on sites with pottery. At Spoeg River Cave, however, the index is above 5 from the mid-first millennium AD. Incised decoration occurs with some impressions during the first millennium AD but unfortunately the sample lacks decorated pots between AD 800 and 1300. Impressed decoration clearly proliferates after this time in the absence of incised lines. Lugs are rare, but all those from dated contexts occur after about AD 700 and a few others can be inferred to be relatively late.

The presence of domestic stock, sadly, adds little to the discussion. Although occurring in very few sites overall, sheep and cattle are present throughout the last 2000 years thanks to their early occurrence in Spoeg River Cave (Sealy & Yates 1996) with cattle following a few centuries later at KN2005/041 (Orton *et al.* in press).

Figure 6.33 charts the patterns revealed above, as well as the occurrence of tortoise burials as discussed in Orton (2012). Overall, with the exception of the switch from backed tool- to scraper-dominance, it appears that a fairly fixed pattern was present before AD 1. This pattern can no doubt be ascribed to hunter-gatherers, since it is widely known that no other economy was practised before that date. In the first two centuries AD, however, we see the beginning of a period of change (Figure 6.33). Various aspects of material culture continue to change until about AD 1300 after which stability once more prevails. At some point within this broad period we know that the Khoekhoen arrived on the landscape. What these changes mean relative to their arrival cannot be said at this stage without deeper consideration of the social dynamics at play during the last two millennia. Focusing on this interesting period, I explore these factors below.

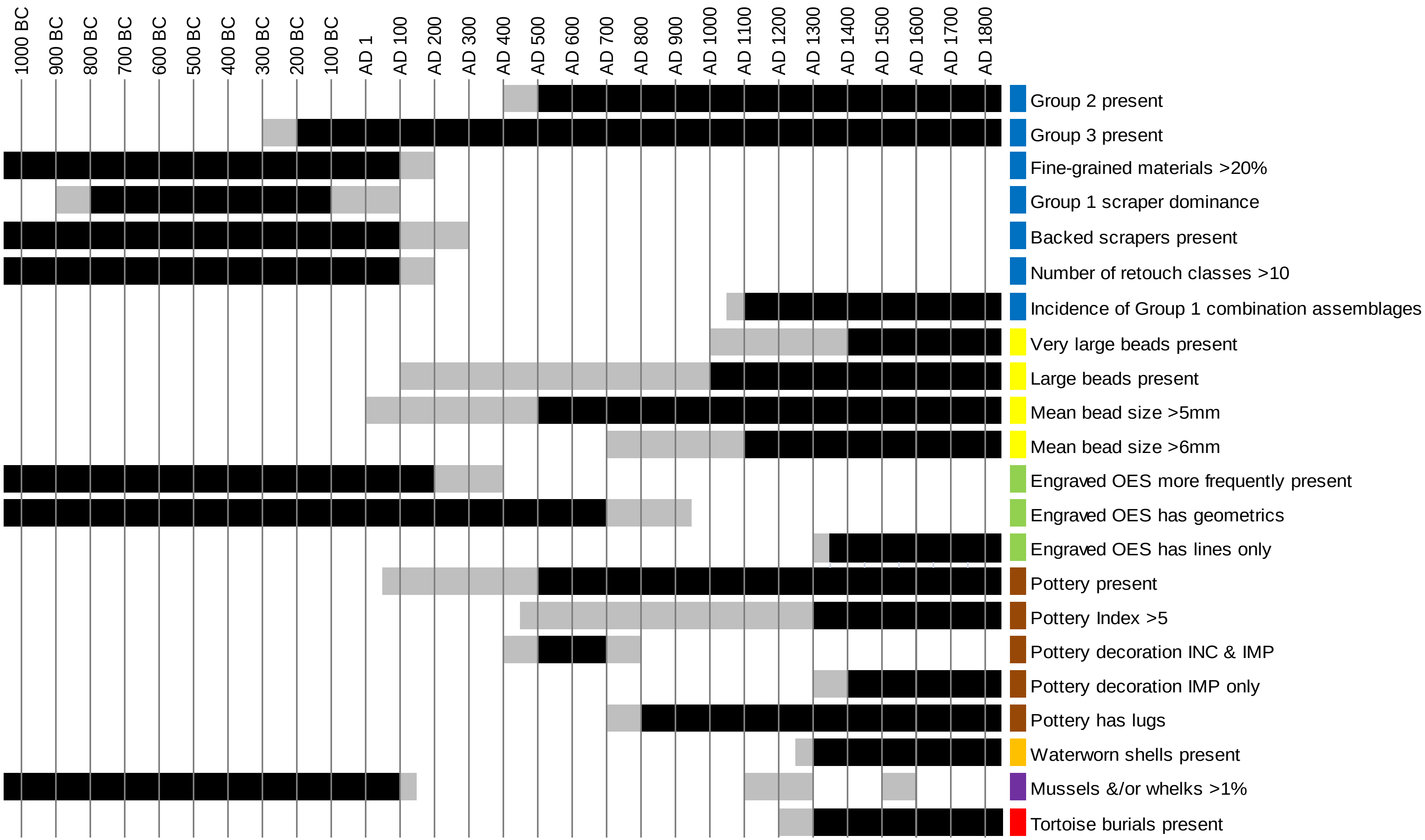

Figure 6.33: Summary chart showing the cultural change evident in Namaqualand. The black bars represent clear patterns, while the grey bars indicate periods of uncertainty, due either to limited observations, lack of clarity of the observations or lack of dating precision.

Chapter 7. Pottery-period hunter-gatherers and herders

While the first aim of this research was met by Chapters 5 and 6, the present chapter explores various themes that include the next three aims: distinguishing hunter-gatherers and herders, examining interactions between them and understanding the clear quartz assemblages with backed artefacts. After several millennia of relative stability in material culture in Namaqualand a period of sustained change began *c.* AD 100, co-incident with or immediately after the first appearance of domestic stock. This period lasted for about 1200 years and included some key changes and introductions. Group 1 assemblages are clearly hunter-gatherer pre-AD 1, and presumably so after that, but it is unclear who made Group 2 and 3 assemblages. The indigenous Bushmen and immigrant Khoekhoen are both possibilities and interaction between ethnic groups may have caused some of the observed overlaps. The lithic groups are clearly differentiated: technological and material differences indicate that Group 2 cannot merely represent sites at which no retouched tools were discarded. These and other issues are explored here through various topics, although ultimately this chapter is about the impact of the introduction of pottery, domesticates and the Khoekhoen on the material culture of Namaqualand, an impact that was variable across southern Africa and is still poorly understood despite the volume of research directed at it. Given the importance of Namaqualand in the various models of pastoralist expansion, the chapter concludes by re-examining this topic, but for the first time with a good base of archaeological data from the region itself.

7.1 Late Holocene occupation history

In coastal Namaqualand, Dewar (2008) postulated a pulsing of Holocene occupation during more favourable climatic periods. Within the last two thousand years her data suggested a gap in occupation during the Medieval Warm Phase (AD 800–1300).

However, with the additional dates now available, we see greater continuity (Figure 7.1). Although 105 dates for the northern and central Sandveld is still a relatively small number, there do not appear to be any particular gaps through the last 5000 years and certainly not within the last 2000 years. However, if one plots the approximate date range for each occupation at open coastal sites alone then a different picture emerges (Figure 7.2). Two significant points arise: firstly, a gap in occupation does appear *c.* AD 600–1000 (slightly earlier than Dewar's (2008) hiatus) and, secondly, three occupations fall squarely within the Medieval Warm Phase. Of the four Sandveld dates on Figure 7.1 falling between AD 600 and 1000, three are from Spoeg River Cave and the fourth has an approximate mid-point only fractionally before AD 1000. This may raise questions of environmental suitability at that time, but with the presumably always relatively dry Richtersveld seemingly well-occupied this gap may yet relate to sampling. There are too few dates from other areas to be able to make similar statements about them, but it is noticeable that lengthy, but not concurrent, gaps in occupation clearly exist in both the deep sequences from the Knersvlakte. Whether these may be filled by occupations at proximate open sites is, and likely will remain, unknown.

The reason for the considerable number of dates between AD 1300 and 1600 may be, as Dewar (2008) suggested, that an ameliorating climate brought more people to the coast. Perhaps a more likely reason, however, is simply that with the vastly superior preservation and visibility of recent sites more of them have been selected for excavation and dating. The dearth of dates after AD 1600 remains puzzling, although we know from a 1907 British military map that indigenous people continued to occupy this coastline into at least the early 20th century (Figure 7.3; Source: Pietermaritzburg Archives) – the glass beads from KK002 in the far south also bear this out.

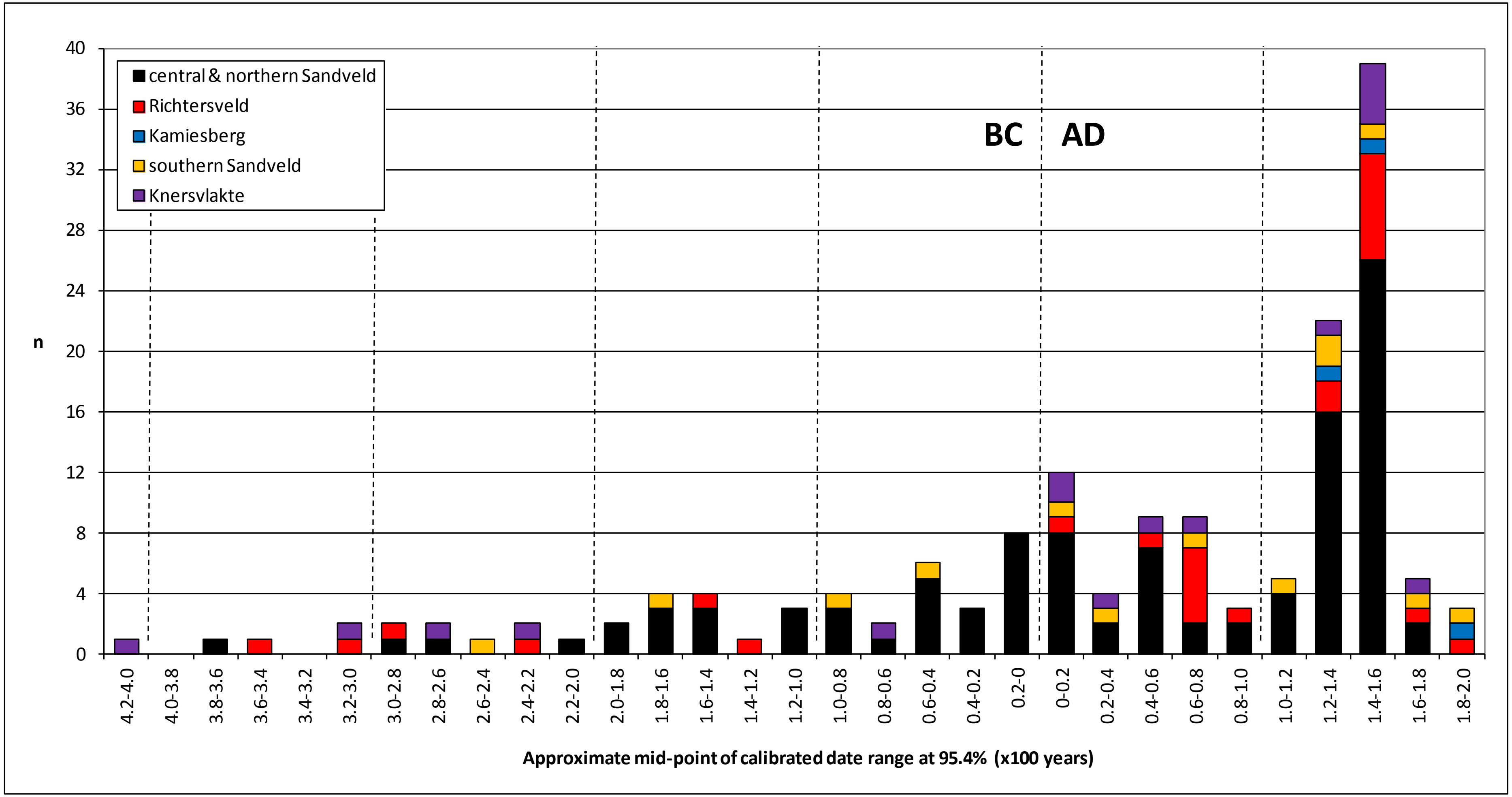

Figure 7.1: Temporal distribution of radiocarbon dates from Namaqualand in 200 year intervals.

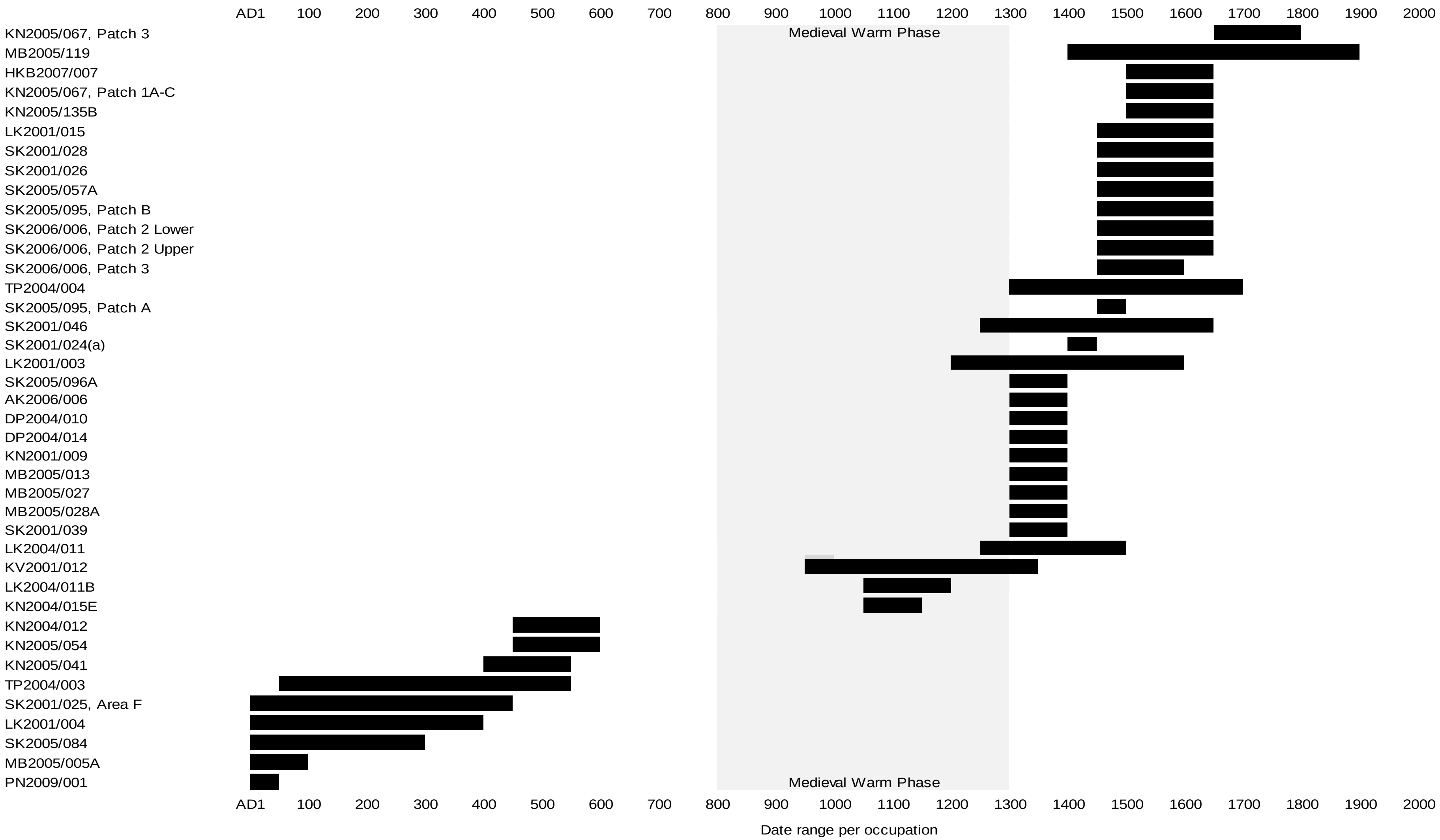

Figure 7.2: Temporal distribution of occupation date ranges from the northern and central Sandveld (rounded off to the nearest 50 years and excluding Spoeg River Cave).

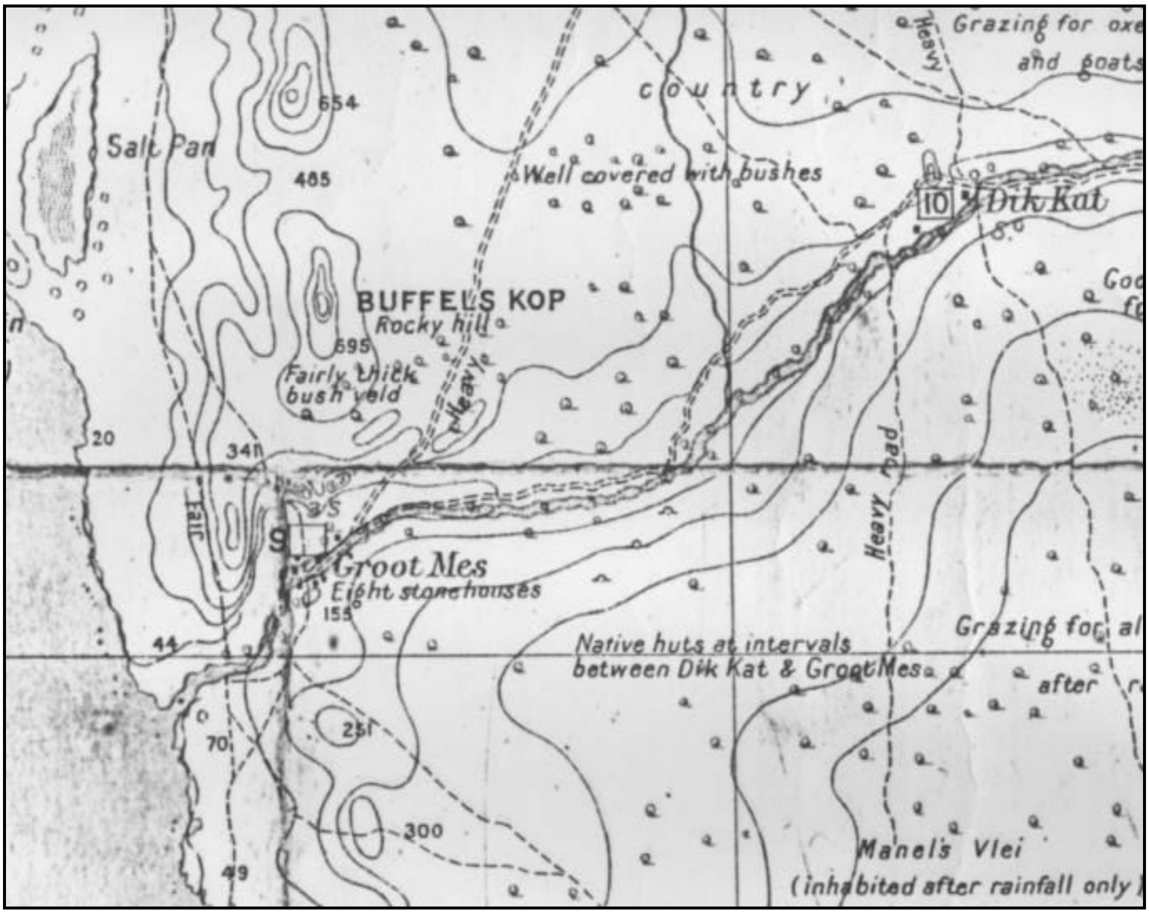

Figure 7.3: Extract from a 1907 British map of northern Namaqualand showing 'Native huts at intervals' inland of the Buffels River Mouth (Source: Pietermaritzburg Archives).

7.2 Group 1: Continuity in retouch

Group 1 assemblages were manufactured by hunter-gatherers and occur throughout the study area – and indeed the subcontinent – before 2000 years ago (Figure 7.3). These stone artefact assemblages are typical of the 'Holocene microlithic'[22] and have been extensively documented (J. Deacon 1984a; Orton 2006). Within the last two millennia other assemblage types were added to the Namaqualand landscape and Group 1 assemblages became generally rare, although this may be an artefact of selective dating. An alternative could see hunter-gatherers retreating to refugia as proposed in the

[22] Such assemblages occur within the technocomplex known as 'Wilton' (Lombard *et al.* 2012). I have argued elsewhere that 'Wilton' should not be applied to stone artefact assemblages alone but rather for the general time period in which such assemblages occur (Orton 2006).

south-western Cape by Parkington *et al.* (1986), but this does not seem defensible on the current, and still limited, body of evidence from Namaqualand, particularly its interior. Given the general continuity in retouched types and other defining characteristics of these late Group 1 assemblages, it seems logical that they too were produced by hunter-gatherers (Table 7.1). Kusimba (2003) noted that both curated and expedient technologies can occur simultaneously. Group 1 displays characteristics of both: locally available milky quartz formed the bulk of the assemblages and was used expediently, while varying quantities of fine-grained materials were used in a manner indicative of curation. The sources of CCS and fine-grained silcrete, and whether they might be termed exotic/non-local, are largely unknown.

Table 7.1: Hunter-gatherer assemblage criteria (A. Smith *et al.* 1991) and their applicability to post-AD1 Namaqualand assemblages. A '?' indicates lack of clarity.

Criteria	**Group 1**	**Group 2**	**Group 3**
High frequency of retouch	√	X	√
High frequency of fine-grained materials	√	X	X
Low density of potsherds	√	X	√
Presence of shell scrapers	(absent from Namaqualand)		
Mean OES bead diameters < 5.5 mm	?	?	?

The only real change evident in Group 1 is the disappearance of backed scrapers and CCS segments from the sequence about 2000 years ago. Perhaps the next most striking shift is in the frequency of thumbnail scrapers which comprise some 8.6% of all scrapers before *c.* AD 100 and 23.3% after this date but were nevertheless manufactured throughout. This contrasts with observations at Elands Bay where thumbnail scrapers disappear completely about 2500 years ago (Orton 2006). Thumbnail scrapers are thus unlikely to offer any insights into the introduction of herding.

It is interesting to note that, despite the existence of Group 3 from the last centuries BC, assemblages combining Groups 1 and 3 only occur during the second millennium AD.

Could this be an indication of ethnic interaction and mixing of material culture? Unfortunately, ostrich eggshell beads – often cited as ethnic indicators – do not help, since Group 1 accompanies all mean sizes during the last 2000 years. Likewise, pottery occurs with all assemblage types, and the impressed decoration common in Group 2 and 3 assemblages appears with Group 1/3 as well. The two Group 1 assemblages with pottery (one very early and one late) have only plain sherds but this may be a function of sampling. Interestingly, Group 1 never appears in combination with Group 2[23].

7.3 Group 2: Informal and expedient assemblages

Group 2 assemblages appear in the northern and central Sandveld during the mid-first millennium AD. All but one post-date AD 1300, although this temporal distribution may yet be due to sampling. The assemblages are almost exclusively of local materials, predominantly milky quartz, and were aimed at the expedient production of flakes as and when needed. The lack of prepared single platform cores supports this. Although no metric study of flake size was undertaken, it is evident from the general impressions one gets just looking at the material that Group 2 artefacts are generally larger and chunkier than those of Group 3. That clear quartz was not employed in the manufacture of Group 2 artefacts is no doubt due to the fracture planes usually included within the material. Why silcrete was almost never flaked remains a mystery: although the quality is at times very poor, it is abundant in the landscape and would have served an expedient industry well. Group 2 undoubtedly falls within Orton's (2006) 'late Holocene assemblages' and, from the description in Beaumont *et al.* (1995), may correlate with the Doornfontein sites of the Northern Cape interior.

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[23] LK2001/015 (Assemblage 41) may reflect all groups but its assemblage is far too small to be conclusive and is best ignored.

The informal nature of the stone artefacts and absence of fine-grained materials makes Group 2 assemblages a prime candidate for equation with A. Smith *et al.*'s (1991) herder assemblages (Table 7.1), although this cannot be satisfactorily confirmed as the bead data do not support a herder designation for Group 2 *sensu* A. Smith *et al.* (1991). Furthermore, they expected many seal and sheep bones to occur on herder sites. This does not occur in coastal Namaqualand, although this may be due to the general scarcity of domesticates as a whole and the likelihood that, in reality, many herder sites did not contain sheep or seal bones in any number, if at all (Table 7.2; Figure 7.4). The scarcity of domesticates might be explained by Penn's (1995) observation that the Namaqua were a small tribe who generally preferred the hills[24]. Perhaps the vast majority of coastal dwellers were hunter-gatherers?

Table 7.2: Relative frequencies of seal, domesticate and small bovid bones from post-AD1 coastal Namaqualand assemblages. Assemblages listed are: all Group 2 assemblages with meaningful faunal collections, all assemblages with domesticates, and all other assemblages with more than 5 seal bones.

Assemblage (number)	Group	Seal	Domesticate	Small bovid	Reference
MB2005/005A (16)	3	489	-	130	Dewar 2008
LK2001/004 (18)	3	297	-	49	Orton *et al.* 2005
KN2005/041 (22)	2/3	3	1	10	
KN2004/012 (24)	2	0	-	11	
LK2004/011B (27)	3	1	1	6	
LK2004/011 (28)	3	4	-	265	Dewar 2008
MB2005/027 (32)	3	9	-	3	
SK2005/096A (33)	1/3	10	-	2	
SK2001/039 (34)	1/3	5	-	2	
TP2004/004 (36)	2	1	-	-	Dewar 2008
SK2001/024 (38)	2	4	-	67	
SK2005/095 (39 & 45)	2/3	-	1	-	
LK2001/015 (41)	1/2/3/4	8	-	7	
SK2001/026 (43)	2	-	-	-	Dewar 2008

[24] Penn (1995) does, however, note a Khoekhoen kraal described near Vanrhynsdorp in AD 1661 with about 700 people, 3000 sheep and 4000 cattle.

Assemblage (number)	Group	Seal	Domesticate	Small bovid	Reference
SK2005/057A (44)	2	-	1	52	
KN2005/067, Patch 1C (49)	2	-	1	7	
HKB2007/007 (50)	1/3	-	22	7	
KN2005/067, Patch 1A (51)	2	-	-	126	
KN2005/067, Patch 1B (52)	3	-	1	183	

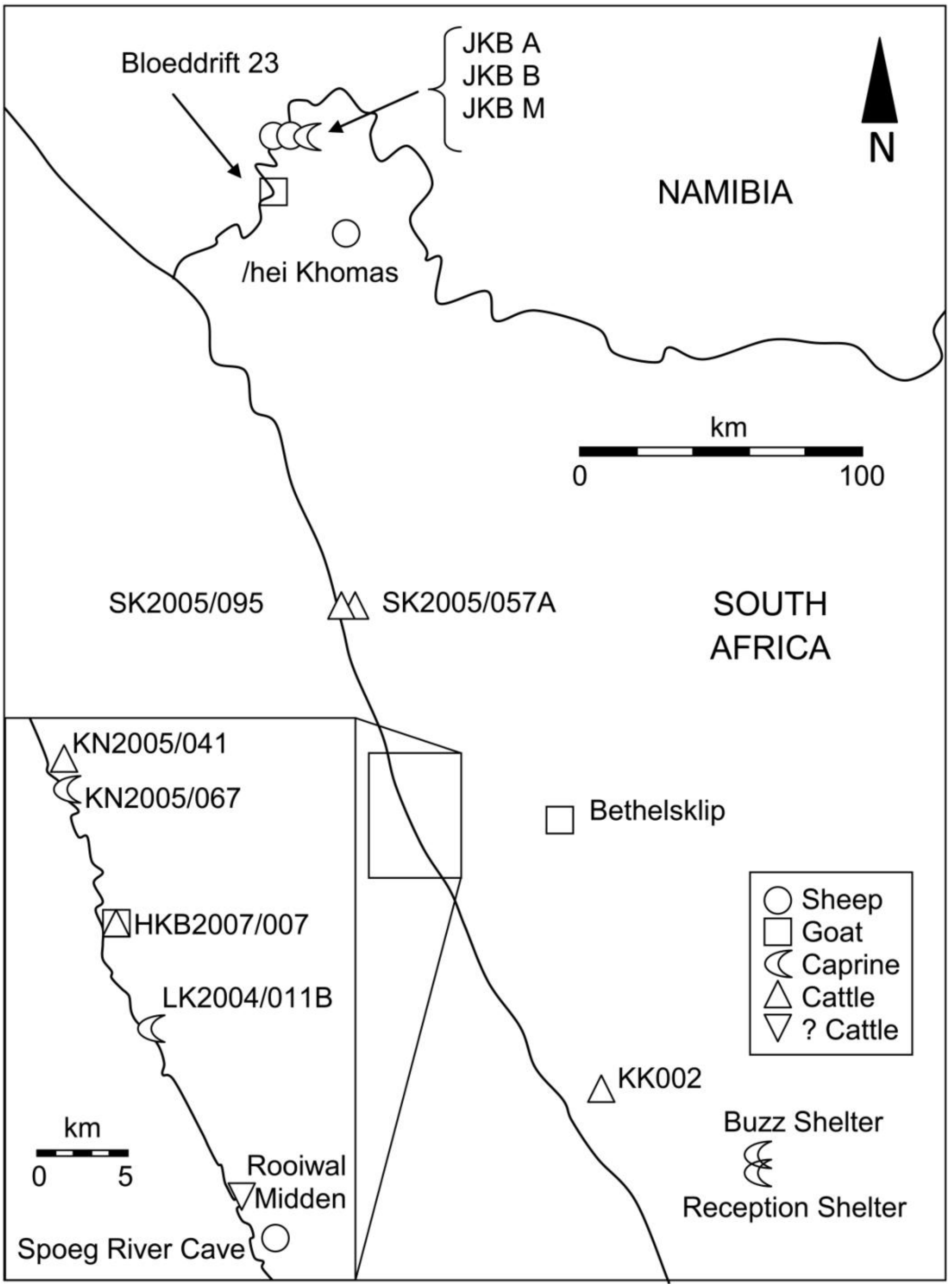

Figure 7.4: Map showing all sites in Namaqualand at which domesticates have been found. Note that most, if not all, sheep are likely to be caprines but I have retained the identifications published.

Supporting Penn's (1995) observation, it is only away from the coast that greater numbers of domestic bones are found. At the Jakkalsberg sites we find domestic stock occurring in conjunction with Group 2 assemblages and pottery, but the beads are again unhelpful. However, a herder assignation seems most likely (see also Webley 1997a). Cave deposits are harder to interpret due to their generally mixed deposits from repeated longer term occupations and at Reception Shelter and Buzz Shelter early caprines accompany mixed assemblages – probably reflecting mainly Groups 2 and 3 – and small beads. Interestingly, the earliest cattle in the Sandveld (KN2005/041), and indeed South Africa, appear with a Group 2/3 combination assemblage and small beads. Group 3 will be further discussed below, but this does raise the possibility that Groups 2 and 3 both reflect herders in one form or another, as does the lack of Group 1 and 2 combination assemblages. That Groups 1 and 3 occur in combination, however, confounds the interpretation.

At various times throughout North America the shift from formalised to expedient core technology was associated with a change to village occupation (Parry & Kelly 1987). Although fully sedentary villages only began in the 1800s in Namaqualand under the influence of European missionaries, the Khoekhoen did have mobile settlements composed of *matjieshuise* at least since the earliest European observers arrived. Unfortunately, there is no way to tell whether some of the sites we find today resulted from such camps or not, although SK2001/024 and LK2001/015 in particular are persuasive. Andrefsky (1994) argues that abundance and quality of stone material are primary determinants of technology with poor materials used expediently and high-quality materials in formal technology. The implication for settled people is that they did not travel in search of high quality material. In Namaqualand, all assemblage types occur in all areas suggesting that material distribution played no role and that people deliberately chose the materials they did – the immediately proximate Group 1 and Group 2 sites at

Jakkalsberg best exemplify this with fine- and course-grained materials abundantly available within a few hundred metres of all the sites.

It is interesting to note that in north-western Namibia Vogelsang *et al.* (2002:120) recorded two contemporaneous stone artefact assemblage types which they referred to as (1) “a continuation of the LSA tradition with a few, extraordinary (*sic*) small microliths” and (2) “an indifferent, unstandardised stone artefact industry with nearly no retouched tools”. These certainly recall Groups 1 and 2 and the authors tentatively link the latter to pastoralists or at least herders.

7.4 Group 3: Quartz-rich assemblages dominated by backed artefacts

Although first noted at Dunefield Midden 1, near Elands Bay (Orton 2002; Parkington *et al.* 1992), Group 3 assemblages were not recognised as a distinct ‘industry’ until reported from the Namaqualand coast (Orton *et al.* 2005), and they remain poorly understood. The earliest examples in Namaqualand just pre-date 2000 years ago – possibly slightly before the earliest dates associated with pottery and domesticates in South Africa. (The clear quartz assemblage from JKB L (Orton & Halkett 2010) is distinguished from Group 3 assemblages on the basis of its significant CCS component and the fact that the many crystal facets indicate that quartz crystals were used as a material rather than typical clear quartz sourced from veins – the crystals would constitute a better quality material.) Five arguments for the origin of Group 3 assemblages are discussed, but, given their earliest dating, this must surely be a primary consideration in any interpretation of these assemblages.

1. Group 3 assemblages could indicate a local hunter-gatherer choice to assert their identity in the face of a herder migration through the implementation of new

technology (c.f. the suggestion by Parkington *et al.* (1986:313) that "the intrusion of pastoralists increased stress on residual hunter-gatherers and stimulated both ecological and social responses, two of the latter being an intensification of ritual and an increase in painting."); or

2. They could be the result of hunters being "forced to modify their lifestyle after the introduction of domestic animals into southern Africa *ca.* 2000 years ago" (A. Smith 1998b:208).

These related arguments imply a strong herder presence on the landscape but, despite the likelihood that herding was introduced via the west coast and the certainty that herders did live there, few sites clearly support their presence and at that early stage (*c.* 2000 years ago) their presence would have been ephemeral. Unfortunately, the geographical extent of Group 3 (and other) assemblages beyond the west coast is unknown so comment on whether stone material sources became restricted with the arrival of a new population cannot be evaluated. The switch to a focus on clear quartz for retouch and the abandonment of milky quartz would, of course, have been conscious choices, but why scrapers, which were so common in the preceding Group 1 assemblages, should be almost entirely dropped from the formal tool inventory cannot be readily explained. Surely, also, if hunter-gatherers wanted to reinforce their identity this would more likely have been through continuity, not change? Whether a shift to clear quartz could have been forced is as yet inexplicable, since material sources are still too poorly understood. Key here is the occurrence of CCS, since it is this material that drops out of general use. In order for herders to cut off stone sources from other groups they would probably have to have had a great deal of power and control within the landscape, but this seems unlikely in the absence of a large population. Group 3 is well represented along the coast and it is probable that herders would have also placed some emphasis on coastal occupation for the marine foods and water sources available to them there.

Social interaction between ethnic groups on the coastal landscape is thus likely (see Section 7.5 below) and the above counter-arguments may therefore be supported.

3. Given the timing of their introduction, Group 3 assemblages could actually represent the incoming herders themselves, reflecting new activities for which tools were required.

Despite the strong evidence of the dating, this argument seems less plausible. If these assemblages belonged to incoming herders, then the backed bladelets would have to reflect activities not carried out by hunter-gatherers. That backed bladelets were previously well established in the local sequence (despite reducing in frequency post-1000 BC) militates against this. Furthermore, A. Smith *et al.* (1991; A. Smith 2006a) are quite adamant that herder assemblages should lack retouched artefacts and, similarly, Parkington *et al.* (1992) ascribed Dunefield Midden 1 to hunter-gatherers.

4. Group 3 assemblages could be a regional (west coast) hunter-gatherer development that evolved spontaneously out of Group 1, which, in turn, persisted.

This argument is more plausible and has been tentatively proposed by Parsons (2006) in Bushmanland. Should such evolution have occurred in Namaqualand then two expectations should be met: Group 1 elements should persist for some time and Group 1/3 combination assemblages should date close to 2000 years ago. While the former expectation is met by the two earliest Group 3 assemblages, relevant combination assemblages all date within the second millennium AD suggesting that other factors – possibly social interaction – were their source. It is acknowledged, however, that sampling could easily account for this lack of earlier combination sites. Should assemblage evolution have occurred, then the almost complete (and rapid) loss of both CCS and scrapers from the assemblages seems difficult to explain.

5. Group 3 assemblages may signify hunter-gatherer groups – possibly Proto-Khoekhoe speaking (Güldemann 2008) – who adopted herding and moved into the area from the north.

Though related to the previous two arguments, this seems the most parsimonious explanation for the introduction of Group 3 assemblages. Their language, of course, cannot be proved, but Güldemann (2008) sees Proto-Khoekhoe as being the result of the southward expansion of early Khoe populations. Table 7.2 shows that domesticates are only associated with Groups 2 and 3 and suggests, in turn, a degree of shared economy between these Groups. What level of herding may have been practised by the makers of either Group remains unknown, but Sadr's (2003) 'hunters-with-sheep' may be the best fit model, at least for Group 3. It may be that full-scale herding (and perhaps cattle) only arrived with the Khoekhoen when Group 2 was introduced. I have already argued against the 'adoption' of backed bladelets within this new technology (point 3 above), but, if the technology was brought into the area from the north by a different population group (i.e. it was not new), then the extensive use of backed bladelets is quite plausible. Similarly, the adoption of clear quartz can be explained by the artefact producers being new to the landscape (i.e. CCS was not summarily discarded from use) and selecting the best local material available to them. It is acknowledged, however, that CCS should still have been available through exchange, although its higher value may have resulted in the makers of Group 1 restricting its dissemination. That the makers of Group 2 did not employ clear quartz is likely due to its unsuitability for larger artefacts. Since the working of skins would not have diminished, the technological adaptation must have included an alternative to the retouched stone scrapers dropped from the toolkit. While backed tools continue to occur, Webley (2002) relates the lack of scrapers in the pottery period at Spoeg River Cave directly to the use of *//khom* stones, which, in turn, she relates to herders (Webley 2005). The only other archaeologically documented *//khom* stone in Namaqualand comes from Buzz Shelter where retouched scrapers are extremely rare and just one overlies the *//khom* stone. Overall, the tremendous rarity of *//khom* stones might argue against Webley's interpretation but her caution that such stones may have been discarded in the past without due examination may be relevant, particularly on open sites where organic residues seldom preserve. If *//khom* stones do represent skin scrapers, then we would probably expect to find them associated with both Groups 2 and 3. With just two known, further discussion is pointless.

Tortoise burials, which represent archaeological traces of ritual activity (Orton 2012), contribute to several of the above arguments. Significantly, they appear in both Group 2 and Group 3 contexts, suggesting that the makers of both Groups adhered to the same ideology, or, at least, had begun doing so by about AD 800. Unfortunately, whether this means that hunter-gatherers with stock effectively became herders, adopting their ideology, or that both Groups were manufactured by herders (one of whom may have originated as Proto-Khoekhoe speakers) cannot yet be stated. If we accept that full-time herders (Group 2) were Khoe-speakers (and the likely ancestors of the historically observed Khoekhoen), then if the makers of Group 3 spoke Proto-Khoekhoe we could be dealing with an early and limited influx of hunter-gatherers who kept limited domestic stock as a 'cash resource' – these could be the first herders who initially acquired domestic stock in the northern Botswana area. This loosely matches the model proposed by Güldemann (2008:123; and see also Barnard 1992) in which the "Pre-Khoekhoe, while maintaining basic subsistence and language, blended even more into the local population profile by relying more on a foraging subsistence component, by adding to their language a strong Tuu substrate, and last but not least by undergoing a greatly increased genetic admixture from local Khoisan."

Another aspect of material culture shared by Groups 2 and 3, is the water worn shells collected from the beaches, presumably as decorative items. That such shells are common in Group 2 and Group 3 assemblages but so rare in Group 1 (Table 6.5) supports a relationship between the former two.

Group 3 assemblages were largely curated: the backed artefacts were almost certainly part of complex, multi-purpose tools and may well have been manufactured as arrow inserts in anticipation of future need. Keeley (1982) suggested that unhafted tools would be more likely disposed of at or near the place where they were used, but the Group 3 backed bladelets described here were probably being replaced on the sites where they were found. Although bipolar cores usually indicate expedience, in the Group 3 (and Group 1) context they more likely relate to recycling of worked out cores to maximise the available material.

While Group 3 assemblages are plentiful along the coast (Orton & Halkett 2005, 2006; Orton *et al.* 2005), possible, very ephemeral examples occur on low dune tops further inland where stone artefacts are generally rare but always in clear quartz (Orton & Webley 2012a). I would argue that these sites could represent the one night camps of highly mobile Group 3 people with domestic stock.

Group 3 technology was certainly persistent. That it continued until recent times is demonstrated archaeologically at Reception Shelter and particularly at KK002. In all cases the clear quartz is assumed to be local. Rudner (1979) reviewed several eighteenth and nineteenth century accounts of the use of stone tipped arrows in Namaqualand by both the Bushmen and Khoekhoen, noting in particular the use of clear quartz. Whether these accounts actually reflect Group 3 technology is unknown, although if they did the fact that both ethnicities are referred to does not help in the identification of the Group 3 makers.

7.5 Social interaction

I have often mentioned the possibility of social interaction, but evidence for its occurrence remains limited. Based on historical accounts, A. Smith (1998) describes the domination and marginalisation of indigenous hunter-gatherers by the intruding Khoekhoen herders in the south-western Cape as seen by the first European observers from the late 15th century AD onwards. The nature of the relationship between the two groups varied greatly from hostility, where captured individuals of the other group might even be killed, to clientship, where the hunter-gatherers were employed by the herders to perform various functions within their society. A. Smith (1998) suggests that these 'jobs' might have included being lookouts, hunting wild animals, collecting honey or perhaps even herding. The last is puzzling given the time and energy Smith has devoted to arguing for the inability of hunter-gatherers to herd stock! In any case, archaeological evidence is lacking and he relies only on historical records which might, of course, reflect a society very different from that which pertained during the first millennium AD when the first interactions must have occurred.

What archaeological possibilities for social interaction occur in Namaqualand? The combination lithic groups are one. However, if herders are represented by Group 2 and indigenous hunter-gatherers by Group 1, then surely we should be finding Group 1/2 combination assemblages? This potential interaction does not occur. Group 3 might then represent the indigenous hunter-gatherers but I have already discounted this possibility above. Seeing Group 3 as made by immigrant hunter-gatherers with stock would, however, potentially allow this interaction to occur as these two groups would be more likely to associate in a way that might leave two signatures on the same sites. Either way, whether interaction could even have manifested itself as combination assemblages is open to debate. Although the excavations are generally fairly small, it is frequently the case that both artefact signatures occur within the same middens arguing for close physical and social contact between their makers. The type of relationships described by Smith would probably have resulted in the development of a ‘we/they’ dichotomy aimed at “keeping people on the periphery” (A. Smith 1998:201).

The sharing of ritual in the form of tortoise burials argues for a stronger relationship than clientship and suggests that the makers of Group 2 had far more in common with the makers of Group 3 than with those of Group 1. If Group 3 represents the kind of hunters-with-sheep I have suggested them to represent (i.e. a Proto-Khoekhoe-speaking population), then Group 2/3 combination sites may reflect the idea that Namaqualand herders employed only those groups that were ideologically closer to them rather than the Bushmen who were substantially different. It is possible that, through inter-marriage and frequent interaction, the historical records failed to distinguish between the makers of Groups 2 and 3 but could more easily isolate the Bushman hunter-gatherers.

A third aspect of social interaction in Namaqualand may be demonstrated by the sharing of material culture. Although this clearly did not apply to stone artefact assemblages, which maintained very distinctive signatures throughout the last two thousand years, ostrich eggshell beads and pottery are different. Ostrich eggshell beads of all sizes occur in association with all three lithic groups, and pottery is similarly shared. It might be that these elements of culture were important as exchange items and therefore permeated all social barriers.

7.6 Mobility, settlement and exchange

The study of mobility in Namaqualand is hampered by our inability to determine the number of people living at any particular site, whether sites were reoccupied during subsequent visits to the area, and whether they may have functioned as aggregation or dispersal sites. In general, though, most if not all groups living in the Sandveld would have been highly mobile; even the largest discrete shell middens probably do not reflect occupations spanning more than a few weeks and very small, often ephemeral shell scatters are abundant, particularly slightly further away from the coast (Orton 2007d; Orton & Webley 2012a, 2012c). Binford (1980) described 'residential mobility' by foragers, where settlement location is determined by resource location, and 'logistical mobility' by collectors, where resources are collected by small task groups and brought back to residential camps. In coastal Namaqualand a combination of these strategies was likely at play with marine resources driving the first strategy and other resources (including grazing) the second. Dewar (2008) considers most sites to be short term processing camps focused on subsistence activities, with ready access to water not critical in the choice of campsite location; this describes residential mobility, perhaps focused on ensuring that coastal resources were never over-utilised. Logistical forays are apparent from the lack of domestic debris at the many quarried quartz outcrops in the coastal Sandveld. This pattern would have applied to both hunter-gatherers and herders, since, with the exception of meat and milk from domestic stock, both groups would have been subjected to similar environmental constraints through their reliance on the same set of wild resources. Although more activities would likely have occurred at longer term camps, preservation in coastal Namaqualand is poor and the commercial excavations have very seldom, if ever, covered areas large enough to determine the various uses of space that might have occurred on site.

Exotic items can be seen as evidence of either mobility or exchange. What constitutes exotic? Higgs and Vita-Finzi (1972:30) considered a 'site territory' in mobile economies to be "the area habitually exploited from a single site" and proposed a radius of about 10 km, while a 'site catchment' was larger, including all land occasionally exploited by Binford's (1980) task groups. While local materials should be available within the site territory, exotic materials are perhaps best considered as originating outside the site catchment. Whether people acquired exotic items directly or through exchange cannot be proved (Hodder 1984) and common items traditionally thought to have been used in *hxaro* (gift exchange) like beads and bone points may not have actually moved anywhere at all (Mitchell 2002a) and cannot be sourced; they are unhelpful here. However, as intimated above, that pottery and different sized beads appear to have been used by everyone in the Sandveld does suggest that these items may have been locally exchanged.

Two clearer indicators of mobility and/or exchange are exotic stone materials and marine shells. Presumably greater distance from source would suggest a greater likelihood of exchange. Just how mobile the Namaqua were in pre-colonial times is unknown. Stow (1905) notes that in the late seventeenth century the Namaqua frequently travelled to within about 100 km of Cape Town but later states that "it was rarely that a Namaqua left his own country even on a temporary visit to another" (Stow 1905:254). Group 1 assemblages in the northern and central Sandveld include CCS in reasonable quantities. Although some may have been sourced from nearby or at least within the site catchment, the majority probably came from much further afield. That so few CCS artefacts have either pebble or calcrete cortex on them suggests long distance transport; any original cortex would, in such cases, have been removed as cortical flakes closer to the material source, leaving well developed and perhaps steadily reducing cores to travel on into the Sandveld. A regional study of cortical flake frequency may be revealing in this regard, since the two obvious sources of cobble CCS in Namaqualand are the present Orange River gravels and the palaeo-Orange terraces on the Knersvlakte. Andrefsky (1994) has argued that when local materials are poor in quality the majority of formal tools will be made on non-local materials; I previously illustrated this for the Elands Bay area via the raw material retouch index[25] (RMRI; Orton 2008b). Figure 7.5 graphs the indices for the northern and central Sandveld sites reported here and shows that quartz, being a local material, is always low, while CCS and sometimes silcrete command far higher values. Figure 7.6 shows the material abundance and quality relationship (Andrefsky 1994). The makers of Group 1 treated their materials differently with high quality but rare materials being the focus for retouch. For Group 3 it can be argued that the clear quartz is less abundant than milky quartz and of somewhat lesser quality than CCS – the intermediate RMRI values in Figure 7.5 illustrate this. Group 2 obviously focused on the use of the most easily available material, regardless of quality. Since clear quartz was obviously available to Group 2 makers, they must have consciously avoided it for some reason.

[25] RMRI = frequency of stone material among all retouched artefacts divided by frequency of same stone material among all stone artefacts.

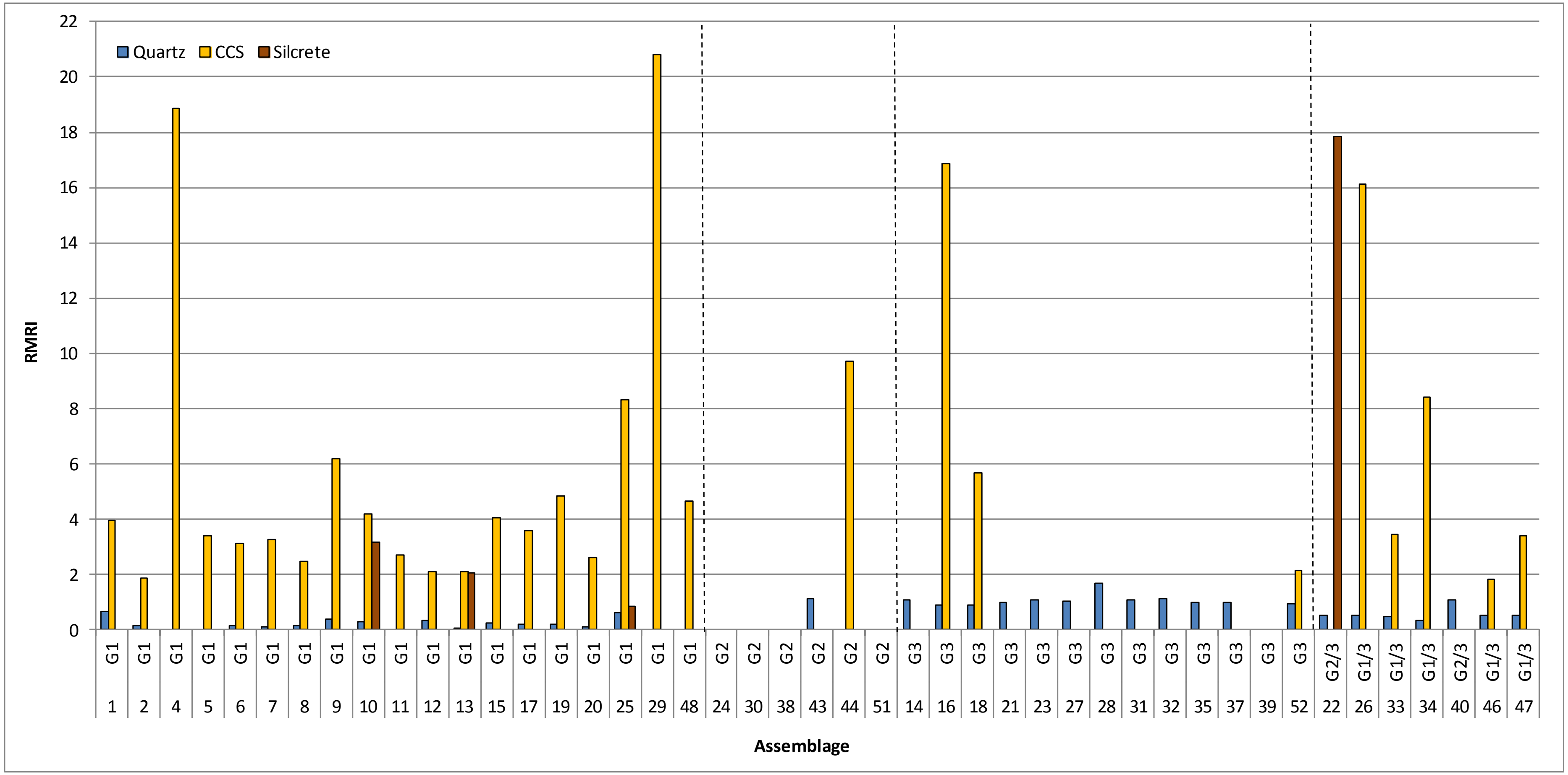

Figure 7.5: RMRI for primary stone materials by assigned group.

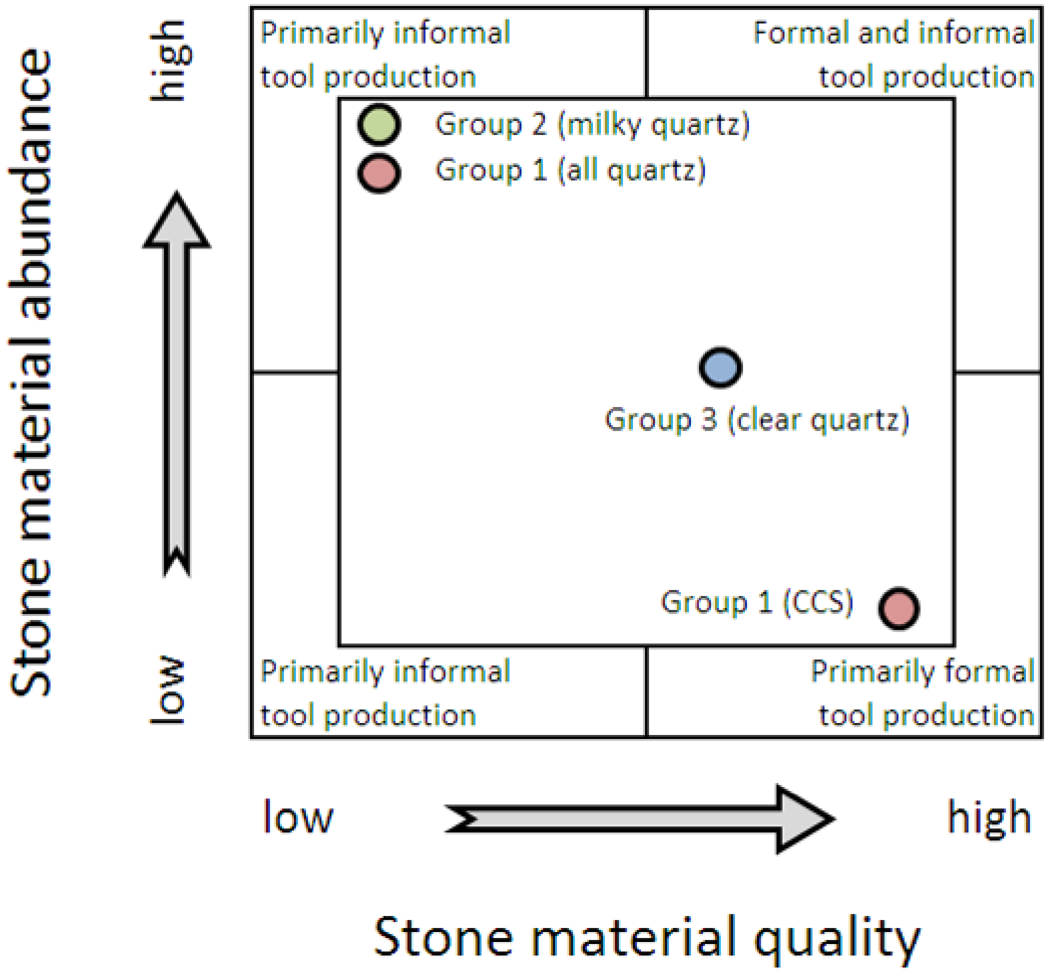

Figure 7.6: Relationship of stone material abundance and quality and its effect on northern and central Sandveld assemblages (modified from Andrefsky 1994: fig. 2).

Marine shells were frequently used as decorative items and shells collected for this purpose are often found far from their ultimate origins (Hudson 2006; Mitchell 1996). Namaqualand examples occur in the Richtersveld, more than 60 km inland (Orton & Halkett 2010; Webley *et al.* 1993) and particularly at Bethelsklip (Webley 1984) and Buzz Shelter (Orton *et al.* 2011) where pendants were found made from shells sourced at least 280 km and 200 km from their natural habitats respectively. Although the Namaqua may well have sourced the shells themselves, exchange seems a more likely means of acquisition.

7.7 Rock art in the arid west

Although not studied in any detail in this thesis, a discussion of rock art and its implications for the spread of herding is warranted owing to (1) the description of what is assumed to be 'Khoekhoen art' from the Central Limpopo Basin (CLB) in northern South Africa (Eastwood 2003; Eastwood & Smith 2005; Smith & Ouzman 2004), (2) its occurrence in Namaqualand, and (3) the presence of domesticated animals in fine-line hunter-gatherer art.

Three types of art are distinguished in the CLB: brush-painted San art in various colours, daubed art in white made by the ancestors of the present North Sotho, and red and white geometric finger-painted art (Eastwood and Smith 2005; S. Hall & Smith 2000). Through a process of elimination, the latter is confidently ascribed by B. Smith and Ouzman (2004) to the Khoekhoen and, despite the reservations of some researchers (Parkington *et al.* 2008; and see comments following B. Smith & Ouzman 2004), I refer to it as 'herder art' for the sake of simplicity. Various features distinguish this art from that of hunter-gatherers (Table 7.3). (Note that other 'geometric' art in the Western Cape may represent entoptics (images 'seen'/experienced while in trance; Lewis-Williams & Dowson 1988, 1999) or other abstract forms (Maggs & Sealy 1983) and is not part of the herder tradition.) The typical 'herder art' features are very strongly evident in the Komkans (KK003) example described in Chapter 5 and it is undoubtedly part of the same tradition.

Can we be sure that this art is indeed 'herder art'? Ultimately, no. Space precludes a full investigation and the reader is directed to B. Smith and Ouzman (2004) for further exploration over and above the discussion below. In the arid west of South Africa, the Bushmen and Khoekhoen are the only potential authors. This reinforces the likelihood that the CLB interpretation, where more potential authors existed, is correct. That no subsurface archaeology can be ascribed to the Khoekhoen in the CLB is concerning, but the presence of sheep in the hunter-gatherer art (S. Hall & Smith 2000) and the residual traces of Khoekhoen in local languages (Ehret 1982; Westphal 1963; Eastwood *et al.* 2010) may confirm a herder presence on the landscape. Mitchell (2004a) also notes the similarities between motifs known from Khoekhoe ethnography (Webley 1997b) and those in the art as further support for Khoekhoe authorship. If it is the work of herders, this art may be the only currently identifiable and unambiguously Khoekhoe material culture in Namaqualand – and perhaps in all of southern Africa. Whether it should be associated with early or late groups remains unknown.

Table 7.3: Comparison between the characteristics of typical 'herder' and hunter-gatherer rock art. Sources: Eastwood 2003; Eastwood & Smith 2005; S. Hall & Smith 2000; B. Smith & Ouzman 2004).

Characteristic	Herder	Hunter-gatherer
Sites	Enclosed, uninhabitable, elevated shelters with low inner recesses, often along water courses. However, many occur in the same shelters as hunter-gatherer art, sometimes deliberately on open walls.	Easily habitable shelters or open walls in various locations.
Canvas	Smooth and rough surfaces.	Smooth surfaces strongly favoured.
Application	Broad, often thickly applied finger-painted lines.	Fine, thinly applied brush-painted lines.
Colours	Mostly red, but also white, red, orange & black.	Mostly red of varying shades but also yellow, black & white.
Subjects	Geometric shapes: circles, divided circles, concentric circles, rayed shapes, grids, lines, crosses, finger dots, finger strokes & handprints (see Eastwood & Smith 2005: fig. 2).	Naturalistic images, humans, animals, therianthropes, trance scenes & entoptic phenomena.

Two issues need highlighting. Although B. Smith and Ouzman (2004) addressed the overlaps between entoptic imagery and geometric art, specifically noting their different application styles and that the latter are not integrated with representational imagery, Parkington *et al.* (2008:76) still found the fuzzy boundary between the two to be problematic and commented that many of the images were “rather basic shapes, common in many demonstrably different contexts”. The problem, they surmised, stems from a lack of good terminology to describe non-animal and non-human imagery. The other, perhaps partly related, issue is that of hand prints. In the CLB they are confidently ascribed to the ‘herder art’ tradition (Eastwood & Smith 2005; B. Smith & Ouzman 2004), but noted to be “oddly absent” from the central interior of South Africa (B. Smith & Ouzman 2004:509). In the Western Cape hand prints are common – unlike ‘herder art’ – and sometimes include the nested-U shapes (Manhire 1998; Parkington *et al.* 2008) admitted to be entoptic by B. Smith and Ouzman (2004). Lewis-Williams and Dowson (1989) associate hand prints with San shamans, but Manhire (1998), through length measurements, considers them far more likely to have been made by young people, perhaps during initiation rites. Although Manhire (1998) considers all Western Cape hand prints to post-date the introduction of domestic stock, he considers plain prints to be more likely those of hunter-gatherers and decorated prints, which are absent from the mountains, to be those of herders. He notes the world-wide distribution of hand prints which shows that they could easily have been made independently by both herders and hunter-gatherers in South Africa. Two factors support differing interpretations of hand prints in the two regions: (1) most CLB examples are in white or yellow (Eastwood & Smith 2005), while the vast majority of Western Cape examples are in red, and (2) decorated prints are entirely absent from the CLB (B. Smith, pers. comm. 2012).

‘Herder art’ occurs along water courses in the interior of South Africa and B. Smith and Ouzman (2004) see it continuing seamlessly westwards in the many pecked geometric engravings at sites like Driekopseiland. Engraved geometrics, too, are strongly focused on river valleys and D. Morris (1988) recognises differences in the content of fine line and pecked engravings: fine lines lack ‘sun-bursts’, have far fewer curvilinear motifs, and are generally much smaller. Although he did not understand the geometrics in the same way they are understood today, Willcox (1963) did note the significance of rayed circular motifs ('sun-bursts') which, he said, occurred at all pecked geometric engraving sites. Although this distinction may offer support for the 'herder art' theory, that pecked engravings have diverse subject matter – including domestic animals – may also be problematic (D. Morris 1988; Wallis 2004). That very typical 'herder art' occurs well away from water courses in western Bushmanland (Orton & Webley 2012b; Rudner & Rudner 1968; Webley 1991) shows that the artists also camped alongside pans far away from rivers.

Pecked engravings in southern Namibia (Rudner & Rudner 1959) and at Twyfelfontein in the north (Viereck & Rudner 1957) contain motifs clearly reminiscent of the CLB 'herder art', while Willcox (1963; see also Teixeira 1952) juxtaposes rayed circular engravings from south-western Angola with examples from Driekopseiland showing the unquestionably 'herder' character of both. However, another style of art from northern Namibia is tentatively linked to herders by Lenssen-Erz & Vogelsang (2005: fig. 4 & 5) but seems, from the illustrated examples, quite different. Nevertheless, B. Smith (2006) sees the maximum northwards extent of 'herder art' as being southern Angola/western Zambia. The distribution is thus widespread, but from Cooke *et al.*'s (1959) illustrations of geometric art from Zimbabwe and Zambia it is clear that, although the style seems similar, there are differences in subject matter.

Moving south, rock art is rare in Namaqualand (Figure 7.7) but includes both representational and geometric motifs in a variety of styles, some of which clearly resemble 'herder art'. Aside from KK003 reported above, known painted sites are as follows:

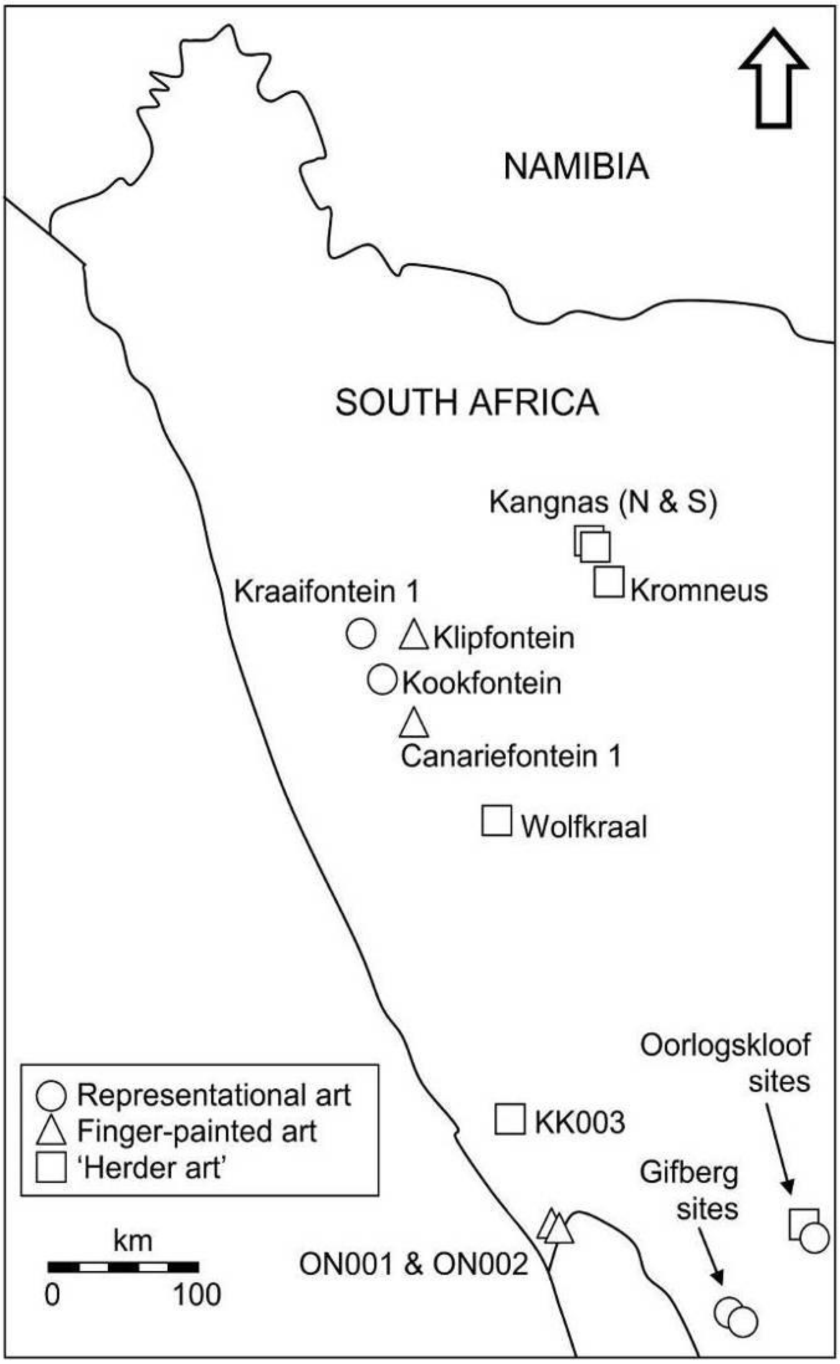

Figure 7.7: Map showing the distribution of known rock art sites in Namaqualand. Typical hunter-gatherer art, 'herder art' and other finger-painted geometrics are distinguished. Sites known to the author in the sandstone mountains fringing Namaqualand to the southeast are also indicated.

- Kraaifontein 1 has four red elephants painted on a granite boulder (D. Morris & Webley 2004);
- Kookfontein 6 has poorly preserved red paintings likely including human figures in a large granite cave (D. Morris & Webley 2004);

- Wolfkraal[26] contains seven dark red geometric motifs in a granite rock shelter (Figure 7.8; personal observation);
- Canariesfontein 1 contains white crosses painted in an obscure corner of a granite cave with a sloping floor and located in a river valley (D. Morris & Webley 2004);
- Klipfontein contains crude white finger-painted crosses and animals in a granite rock shelter (Rudner & Rudner 1968);
- ON001, on the banks of the Olifants River, is a large sandstone cave with its deposit destroyed. Its ceiling contains a myriad of finger dots and smears along with a few circular images (Figures 7.9 to 7.11; personal observation); and
- ON002, just 200 m north of ON001, is a small sandstone overhang containing a few finger dots (personal observation).

Much rock art occurs in the Western Cape but few sites can be ascribed to the herder tradition. In the Sandveld, near Elands Bay, Manhire (1981) found boldly finger-painted geometric images that included some of the motifs described by Eastwood and Smith (2005) but excluded rayed motifs. Certain others were very rare. These might be 'herder' paintings. They are by far in the minority and, although certainly not typical of CLB 'herder art', Van Rijssen (1984, 1994) did consider this body of art to have been produced by herders. B. Smith (2006:93) explains the Western and Northern Cape finger-painted art as a fusion of San and Khoekhoen art that resulted from "a two-thousand year history of interaction", but he fails to reveal why this fusion should not have occurred elsewhere and the reasoning thus seems weak.

[26] Rudner and Rudner (1968) called the site Twee Rivieren after the nearby village but Webley (1984) found it referred to as Wolfkraal by local herders.

The distribution of domestic species in rock art has been addressed in some detail by Manhire *et al.* (1986), who found them to be widespread but generally rare in comparison to other subjects. Comparison of their distribution maps reveals interesting inconsistencies, particularly in the Western Cape. There, sheep paintings are frequently encountered in the Cederberg but, with one exception (Steenbokfontein Cave; Jerardino & Yates 1996), are absent from the coastal Sandveld, while cattle fail to appear anywhere in either area. Fine-line painting disappeared from the Western Cape within the last 2000 years but whether this occurred during the first few centuries AD between the introductions of sheep and cattle is unknown. Both species occur in the Drakensberg art which may have meant that cattle were accorded greater significance there.

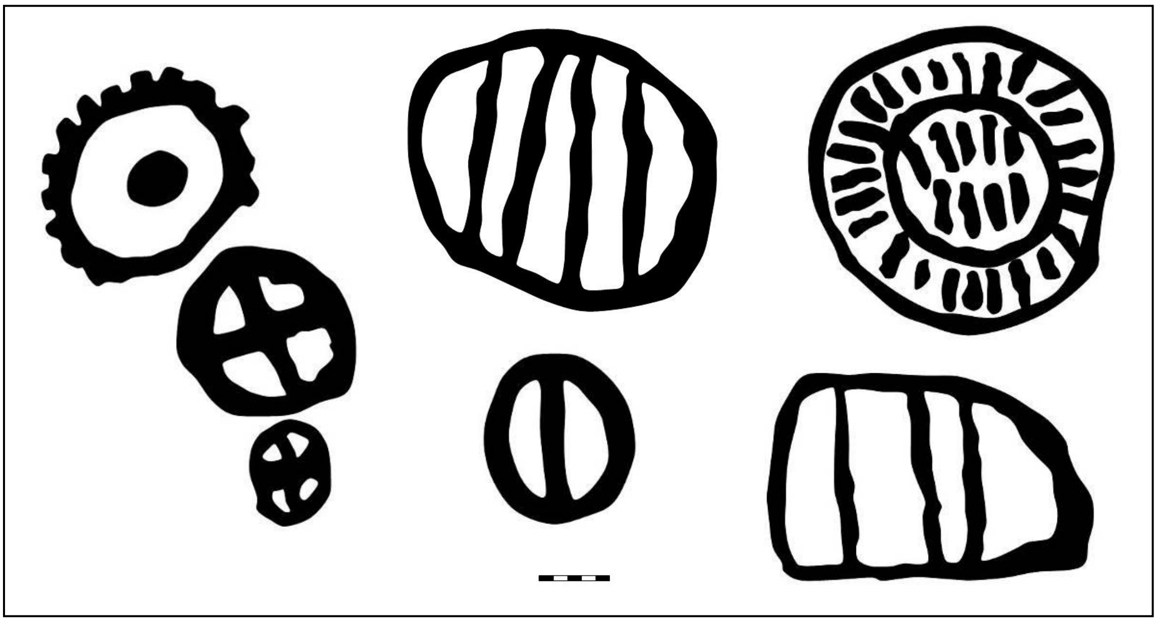

Figure 7.8: Dark red geometric motifs from Wolfkraal. The left three are shown in true association. Scale bar in 10 mm intervals. Note that the rock surface is exfoliating and the original images may have differed slightly.

That clear occurrences of 'herder art' occur in the arid west shows that the tradition does extend to this area. Its apparent rarity, however, may be ascribed to the immensity of Namaqualand, the sparsity of research therein, and the generally concealed nature of the paintings. It is absolutely impossible, given present knowledge, to associate 'herder art' with the makers of either Group 2 or Group 3.

Figure 7.9: Finger-painted rock art at ON001. Colour saturation and contrast adjusted to emphasize the art. Scale in 10 mm intervals.

Figure 7.10: Finger-painted rock art at ON001. Colour saturation and contrast adjusted to emphasize the art. Scale in 10 mm intervals.

Figure 7.11: Finger-painted rock art at ON001. Colour saturation and contrast adjusted to emphasize the art. Scale in 10 mm intervals.

7.8 The southward spread of pastoralism: what, where, when and how?

This topic has been explored extensively over the years but, as Chapter 2 shows, few significant questions have been answered. Here I review and discuss the key debates in light of the Namaqualand data presented above.

7.8.1 Archaeological signatures

The identification by A. Smith *et al.* (1991) of distinct archaeological signatures that they ascribed to hunter-gatherers and herders marked a watershed moment in southern African archaeological research. However, the validity of their ascriptions was soon questioned (Schrire 1992). In a later study, Sadr *et al.* (2003) considered the two archaeological signatures to represent mobile herder-foragers focused on inland resources and more sedentary herder-foragers focused on coastal resources. Like Schrire, they too questioned the degree of overlap between the two signatures. Table 2.2 listed Western Cape sites falling into the two groups but most sites are hard to classify, seemingly reinforcing the difficulty of keeping these signatures clearly separate.

For various reasons, as contemplated in Tables 7.1 and 7.2, these signatures are poorly reflected in Namaqualand and several factors argue for a local reinterpretation:

- The presence of three, rather than two, distinct lithic industries;
- The sudden appearance of Group 3 assemblages, which are linked to Group 2 – and thus herding – through tortoise burials (and perhaps collected ornamental shells) and by virtue of their date of first appearance;
- The fact that ostrich eggshell bead size does not behave as predicted in the A. Smith *et al.* (1991) model; and

- The fact that the Namaqualand pottery sequence does not follow that recorded further south and/or in the Karoo.

The most obvious indicator of the presence of herding on any archaeological landscape is surely the bones of domesticates. Sadr (2003) noted a disjunction whereby sites either have less than 10% or more than 30% domesticates among their mammal bones. He suggested that the former reflect 'hunters-with-sheep' (or -stock), and the latter herders. Following Sadr then, are there no herder sites in coastal Namaqualand? (HKB2007/007 has the most domesticates – 24.4% – among its identifiable bones.) A. Smith (2008b, 2009) would argue that they have to be there as a source of domestic animals for the hunters. I do not believe that herders were absent from the Namaqualand Sandveld and have suggested above, based primarily on lithics and pottery, that they are represented archaeologically by the Group 2 assemblages. From the Richtersveld, JKB A and JKB B offer support with their high frequencies of domestic bones (41.8% and 57.7% respectively; Brink & Webley 1996: tables 1 & 2). Marshall and Hildebrand (2002:119) commented that "the earliest [southern African] pastoralists may have been so mobile and patchily distributed as to be archaeologically invisible in some places". In coastal Namaqualand herders may well be represented by some of the small shell scatters with minimal stone that are so commonly encountered (Orton 2007d) but which, sadly, remain undated. Only a large-scale radiocarbon dating program would be able to reveal when such sites were deposited. While herding may be invisible, the herders certainly are not – they may just at times be unrecognisable (Arthur 2008). Sufficient evidence exists to ascribe Group 1 to hunter-gatherers, but what of Group 3?

This peculiar industry occurs throughout the Namaqualand Sandveld and appears to extend along the Western Cape coast as well. I suggested above that Group 3 assemblages might represent Proto-Khoekhoe-speaking 'hunters-with-sheep. This, of course, cannot be proved. That Group 3 appears around 2000 years ago does, however, argue strongly that it is linked to the introduction of sheep and pottery to southern Africa at that time. Either way, we potentially see three 'artefact-producing populations' on the landscape which is clearly different to the situation on the Vredenburg Peninsula to the south (A. Smith *et al.* 1991) and in Bushmanland to the east (Beaumont *et al.* 1995). Parsons (2006) tentatively noted the possibility that overlapping characteristics between the two Bushmanland signatures might relate to the one (Doornfontein) arising from the other (Swartkop) as hunter-gatherers who had adopted stock through diffusion modified their toolkits accordingly. That Group 2 in Namaqualand is so different to Groups 1 and 3 precludes a similar interpretation for its origin, but the presence of scrapers in the earlier Group 3 assemblages could support its development from Group 1. As noted before (point 4, Section 7.4), however, the abandonment of CCS would be hard to explain. More likely is that Group 3 was made by newcomers who had existing technology but had to find new sources of stone for its manufacture and settled on clear quartz. They chose clear quartz for its fine flaking properties and the fact that it was far more suited to their technology than milky quartz. One assumes CCS would have been even better, but, for whatever reason, they were content to use the best of what was readily available locally.

Ostrich eggshell beads were seen by A. Smith (2006a; A. Smith *et al.* 1991) as a major cultural marker distinguishing hunter-gatherers (small beads) from herders (large beads). As elsewhere (Yates *et al.* 1994), that the mean size of beads from all Namaqualand sites predating AD 1 is consistently small does suggest a common cultural affinity. That these people were hunter-gatherers is beyond doubt, so the implication is that the large beads were those of herders. Yates *et al.* (1994) saw an increase in mean bead size in the early centuries AD, a situation likely reflected in Namaqualand by Assemblage 19 (*c.* 196 BC-AD 325; UGAMS-6608), the only one with beads >6 mm until the end of the first millennium AD. Yates *et al.* (1994) also saw a further size increase in coastal sites compared to inland sites between *c.* AD 650 and AD 1000. This latter shift may well be manifested in the present Namaqualand sample *c.* AD 1000-1200, whereafter beads

>6 mm are consistently present. The lack of clarity during the first millennium AD in Namaqualand is likely a direct result of the limited number of assemblages dating to that period but the overall pattern is broadly consistent with that seen further south. Certain details, however, differ.

A. Smith *et al.* (1991) postulated a one-way exchange of material culture, exemplified by beads, from herders to hunter-gatherers and that this exchange became more prevalent from about AD 1500. The evidence from Namaqualand is contradictory: herder (Group 2) lithics are sometimes accompanied by small-medium beads, and large beads already occurred with a hunter-gatherer (Group 1) lithic assemblage *c.* AD 960-1282 (Assemblage 25; UGAMS-9707 & OxA-22934). Insufficient evidence exists to merit much discussion of the possibility of material culture being shared both ways, but this surely must have been very likely. The identification of one-way exchange or acceptance of material culture may be spurious, since, with the earliest herders having been hunter-gatherers anyway (Boonzaier *et al.* 1996:25), they would have already possessed hunter-gatherer material culture and had little or nothing new to acquire. Although enigmatic, A. Smith and Pheiffer's (1993:32) translation of a seventeenth century Dutch text implies that the Khoekhoen wore both small and large beads. This suggests either that they made and used both sizes themselves or that material culture was indeed exchanged both ways.

Changing aperture size was also seen as a cultural trait by Yates *et al.* (1994), since they saw the apertures of both small and large beads increasing from about AD 650-1000. This does not appear to occur in Namaqualand where large beads consistently have larger apertures and small beads smaller apertures. The Namaqualand sample more likely reflects natural wear and tear with the heavier (larger and stronger) beads wearing more and breaking later in life. That aperture sizes of finished beads are consistently larger than those of unfinished beads supports this (Orton 2008d: tables 3 & 4).

The degree to which ethnicity drove ostrich eggshell bead size change is unclear, but bead size does generally increase with time. Correspondingly, large beads in Namaqualand do not appear to denote a herder occupation – some Group 2 sites have a clear small-to-medium bead focus. Overall, the increasing size of beads could be seen as an indication of general diversification of material culture within the last 2000 years, perhaps through ethnic interaction. A. Smith *et al.*'s (1991) addition of large (herder) beads to the small hunter-gatherer beads is not apparent in Namaqualand, since bead assemblages there are inevitably dominated by either small-medium beads or large-very large ones, irrespective of lithic group.

Pottery is unfortunately rather uninformative due to the fact that the collections are small and generally well fragmented. Pottery was widely available and certainly used by both herders and hunter-gatherers. Decoration is not present in Group 1 assemblages but, with such a small sample, one cannot consider that a defining feature of regional hunter-gatherer pottery, or, rather, pottery used (but not necessarily made) by them. The only clear pattern is a temporal one: first millennium AD assemblages contain both incised and impressed decoration, while only the latter occur during the following millennium.

7.8.2 Routes and timing of introduction

The route(s) of entry of sheep and pottery into southernmost Africa has long been debated and, while evidence for a central route remains poor, the western route finds increasing support. Until recently, the lack of early domesticates in the Karoo and the presence of early sheep and pottery at Spoeg River Cave were the main pointers towards the west coast route (Sadr 1998). The dating of both has been well established at around 2000 years ago and is reinforced by a further early pottery date from Namaqualand (196 BC–AD 325 at SK2005/084; UGAMS-6608) and the 388-180 BC (Beta-270164) sheep at Leopard Cave, Namibia (Pleurdeau *et al.* 2012). Note, however, that very early pottery is present in the interior of South Africa (Sadr & Sampson 2006). A new early cattle date may now rule out their introduction from the east via Iron Age farmers (Orton *et al.* in press). Cattle too, then, must have moved south via Namaqualand. Overall, pottery and sheep seem to have been introduced to the south-western Cape via the west coast within the first two centuries AD with cattle following a few hundred years later, but the limits of radiocarbon dating do not allow a tighter chronology. How they reached northern Namaqualand remains unclear, but a route along the Orange River is perhaps most likely with Namibian evidence possibly relating to west- and southwards diffusion via the Caprivi Strip.

When the Khoekhoen arrived in Namaqualand is still debateable, but domesticates and pottery, at least, were certainly present *c.* 2000 years ago. A. Smith (2006a) vigorously supports a herder arrival some 2000 years ago, but if, following Jacobson (1987), the Khoekhoen were represented by ostrich eggshell beads >7.5 mm in diameter, then they would have only arrived in Namaqualand *c.* AD 1000. This date coincides with Sadr's (2003) suggestion of an approximately AD 900-1200 arrival but the event may actually have been earlier in Namaqualand. I have ascribed Group 2 technology to Khoekhoen herders and thus implied that they first appeared in Namaqualand around AD 500. Sadly Namaqualand pottery contributes little here, since the only temporal change one sees – in decoration – lacks resolution; it occurs sometime between AD 800 and AD 1300. Although lugs post-date AD 700, we cannot be certain that earlier lugs will not still be found.

Occasional rock paintings attributable to herders occur in Bushmanland and Namaqualand, well removed from the only other area – in north-eastern South Africa – where stylistically similar art has been documented (B. Smith & Ouzman 2004). Other sites conforming less well may nevertheless be similarly ascribable. Should more such paintings be located in Namaqualand they would no doubt add additional weight to the west coast route, especially given Parkington *et al.*'s (2008:76) doubt over whether the "superficially similar images across the subcontinent are really the concrete trace of a swathe of herding people moving inexorably from northeast to southwest". The paintings in the Limpopo region would then more likely have been produced by an independent branch of migrating herders. Dating of rock art is debilitatingly difficult, but B. Smith and Ouzman (2004) have assigned the Limpopo herder art an early first millennium AD age, since Iron Age farmer occupation was minimal then and there would not have been strong competition for grazing resources. This seems logical, but does not necessarily imply that the migration continued all the way to the south-western Cape at that time. Furthermore, the Limpopo area may have been an end-point of migration rather than being part of an onward route.

7.8.3 The nature of introduction: migration or diffusion?

This is the most debated aspect of early pastoralism in South Africa and it is likely to remain difficult to clarify, especially since it is hampered by the lack of any independent measure of the speed with which innovations can spread through either mechanism (Mitchell 2002b). Parsons (2006) reviewed the introduction of agriculture and stock-keeping to various parts of the world reaching the following conclusions:

- Migration and indigenous adoption (diffusion) are the two principal mechanisms cited for the introductions;
- Most researchers agree that "the main evidence in support of migration is change (and homogeneity) in material culture, whilst continuity (and diversity) is often taken to indicate indigenous adoption"; and
- "The adoption of selected features of a farming economy without making an immediate and complete transition to the lifestyle as a whole is often ascribed to the effectiveness of existing subsistence strategies" (Parsons 2006:24-25).

A. Smith (2006a:68) notes that the migration hypothesis is based on two assumptions: "that only a long-term relationship with food producers can pass on the skills of animal husbandry, and that the Khoe-speakers living between the Zambesi (*sic*) and the Caprivi Strip had just such a relationship." Here, "assumption is built on assumption" (Hodder 1984:27) and, although Smith brings in other observations, largely from recent ethnography, it would appear that a great leap of faith has been made (Hodder 1984:28). A. Smith (2006a) argues passionately that local hunter-gatherers could not have taken up herding due to the ideological difficulties of doing so. However, that he assumes that this in fact did happen in northern Botswana surely allows for it to happen again? He suggests the need for several generations of contact but this cannot be proved, particularly given that modern radiocarbon dates *c.* 2000 BP with an error of just 25 years have two sigma calibrated ranges of about 160 years, or as many as eight generations. Also, with the landscape learning required by new groups (Meltzer 2003; Rockman 2003), interaction would have been a key factor. As a result, diffusion among a pre-existing knowledgeable population or migration of a Proto-Khoekhoe-speaking hunter-gatherer people with stock (as I suggest) may have more easily occurred around 2000 years ago than a full Khoekhoe migration. A. Smith (2008b:57) admits that the "archaeological evidence for the passage of early herders from the Kalahari to the Cape is weak" but yet he assumes the presence of sheep and pottery to imply the presence of herders. In the light of similar economic changes being ascribed to a combination of migration and diffusion in both East Africa (Marshall 1986, 2000) and Europe (Bogucki 2000; Price 2000), his 'evidence' is surely similarly weak. In East Africa the diffusion of herding through indigenous groups was seen as a way of increasing the predictability of food supply in marginal environments, rather than the yield (Marshall & Hildebrand 2002), and this was likely forced by a combination of social, cultural, economic and environmental pressures (Marshall 1986). An uptake in such circumstances seems likely in northern Botswana and theoretically possible among the Bushmen in Namaqualand but, again, neither can be proved.

Given the importance of exchange in hunter-gatherer culture (Mitchell 2002a), the adoption of stock and pottery may have been beneficial to hunter-gatherer groups (both originally in northern Botswana and later in other areas) by providing readily exchangeable animals. Such exchange could also have facilitated a rapid spread of stock as people were only too pleased to pass on items/ideas that would benefit their new and/or existing trading partners as well. Also, without knowing just how big any one group's site catchment area is, we cannot tell how quickly items and ideas were passed on, but the potential for rapid movement via a combination of migration and diffusion surely exists when groups may travel some distance within a calendar year.

With the inherent unreliability of ethnographic projection (see Section 2.4), the assumptions required when arguing from theory (Sadr 1998), and the limited resolution of radiocarbon dating, we are left with little option but to return to hard archaeological data. In arguing for diffusion, that is exactly what Sadr (1998) did. He showed that the earliest pottery from the northern and southern parts of the subcontinent shared functional and technological features but yet differed stylistically. He ascribed this regional diversity in pottery style to an independent adoption of pot-making in different areas. This implies diffusion of the knowledge of pottery, because if the Khoekhoen had migrated through the subcontinent – particularly as fast as A. Smith (2006a, 2008b) suggested – then they would have left a trail of pots decorated in their favoured style. The Namaqualand data contribute a further stylistic province in that the sequence there appears different to those recorded elsewhere (see Sadr 1998; Sadr & Sampson 1999; Sadr & Smith 1991). In common with other areas however, the earliest pottery is also the thinnest. The limited Namaqualand data unfortunately do not allow further comment on the functional features of pottery – such as lugs, spouts and changing pot shapes – that

Sadr (1998) also considered meaningful. While A. Smith (2006a:69) considers problematic the existence of “simple designs of similar nature” at all three sites discussed by Sadr (1998), I contend that such designs would, by their very nature, be very likely to occur throughout the region and that only more complex designs would be regionally specific. Indeed, in Namaqualand most designs appear simple, yet the timing of their appearance is very different to elsewhere.

Ostrich eggshell beads are unfortunately enigmatic, seemingly relating more to time than ethnicity. The stone artefact assemblages, however, are more helpful, and Parsons’ (2006) second point above is strongly relevant. Although assemblage continuity has been widely documented in southern Africa (see Table 2.4), the introduction of Group 3 and particularly the later Group 2 assemblages to Namaqualand and their subsequent homogeneity seem to argue for migration of the makers of both. Diffusion of pottery and stock probably occurred in tandem as a result of social contact during and after both migration phases. Two factors would have facilitated diffusion: (1) the first herders to enter Namaqualand were also hunter-gatherers and would have been able to interact relatively easily with other hunter-gatherers who likely had a similar ideology to themselves, and (2) the newcomers would have desired positive interaction as they sought to learn the new landscape (Rockman & Steele 2003) from those already familiar with it.

The evidence of rock art is probably not yet comprehensive enough to be informative here. Too much doubt exists (Parkington *et al.* 2008) and too little is known of Namaqualand’s rock art.

Owing to broad similarities with the introduction of herding to East Africa, some comparison is merited. Bower (1991) noted that, as in Namaqualand, cultural connections to the north were lacking in both lithic and pottery assemblages of the early

Pastoral Neolithic. Cultural change was archaeologically invisible; although it must have been introduced, along with livestock. He suggests a model, with which Marshall (2000) agrees, whereby “the first food-producing societies of East Africa may have been indigenous foragers who acquired domestic livestock from small groups of herders escaping dessication in areas to the north” (Bower 1991:74). Later, new economic practices were introduced and discontinuities in lithic and pottery assemblages appear; these, he argued, were more consistent with the entry of more substantial herding groups. This ‘trickle-and-splash’ model as proposed by Bower (1991) fits the Namaqualand data in many respects with the trickle being represented by the makers of Group 3 assemblages and the splash by those of Group 2.

Robbins *et al.* (1998) showed that Lake Ngami in western Botswana dried significantly during the first millennium BC, and it is towards the end of that millennium that herders must have begun leaving the area for the earliest sheep bones to have been deposited at Spoeg River Cave *c.* 350 BC–AD 115 (OxA-3862; Sealy & Yates 1994). This and the very early sheep at Leopard Cave in central Namibia (Pleardeau *et al.* 2012) argue for an even earlier introduction to Botswana than that shown by Robbins *et al.* (2005). While Lake Ngami appears to have subsequently refilled, a further dessication phase occurred in the second half of the first millennium AD (Robbins *et al.* 2008). Depending on the exact timing of the start of this phase, it could have provided the impetus for the main migration of full-time herders out of the area. As a result, these herders would have appeared on the South African landscape from the mid-first millennium AD, perhaps represented by the Group 2 assemblages. Unfortunately too little is known of the earliest herding in the northern parts of the subcontinent, but the association between Bambata pottery and domesticates at Bambata Cave and a possible date of 368 BC–AD 80 (SR-75; Walker 1983) for Bambata ware at Tshangula Cave are very suggestive of an early herding phase there. In the substantial body of literature on the colonisation of unfamiliar landscapes (e.g. Gamble 1994; M. Smith 2005; Rockman & Steele 2003) the need for a pioneer/dispersal phase prior to colonisation is commonly noted. A ‘trickle’ of Proto-Khoekhoe-speaking hunter-gatherers with stock could well have fulfilled this role prior to the arrival of the fully fledged Khoekhoe herder society that must have developed during the early first millennium AD, perhaps in Botswana.

7.8.4 The ‘pastoralist package’: fact or fiction?

Whether sheep and pottery arrived in South Africa together has been much debated, but Mitchell (2002b) points out that their variable first occurrence in sites across the subcontinent argues against this, while Sadr and Sampson (2006) propose an independent invention of pottery by hunter-gatherers in the central interior. Nevertheless, within the practical limits of radiocarbon dating, the Namaqualand data overwhelmingly support an approximately simultaneous arrival there about 2000 years ago, but there too we do not see them in the same sites at the same times. This is no doubt due to the very light imprint that the earliest herders would have had on the landscape. Cattle probably did arrive a little later but at least by AD 421-559, as testified by the KN2005/041 evidence (OxA-22933; Orton *et al.* in press). The dated cow from Toteng 1 in Botswana, however, remains the oldest southern African example at 162 BC–75 AD (Beta-190488; Robbins *et al.* 2005). Goats and dogs are seldom found in archaeological sites and the oldest securely dated examples of each are many centuries younger than pottery, sheep and cattle – they may have arrived far later.

Whether something akin to the historically observed Khoekhoen ‘pastoralist package’ appeared in southernmost Africa 2000 years ago now seems highly unlikely, with the earliest herding probably not carried out by ‘pastoralists’ in the strict sense of the word, but by hunter-gatherers with stock. The possibility that the Khoekhoen arrived at a later date, perhaps around AD 500, with all four animals (and perhaps some new features to their pottery) certainly exists, although it is impossible to make any further pronouncements on this from the currently available information. We have no way of proving exactly when they did first arrive and it could be that we have simply not yet found the sites we need to link the mid-first millennium AD signatures of Namaqualand with the late first millennium AD signatures at Kasteelberg. A time lapse of a few hundred years between the appearance of the Khoekhoen in Namaqualand and on the Vredenburg Peninsula is almost certainly untenable.

7.8.5 Ecological considerations

Water, grazing and predators are factors that may have limited pre-colonial herding in Namaqualand. Although disease would have been a constraint to the southward spread of domesticates from East Africa, this factor does not come into play when considering their dissemination within South Africa as the relevant diseases do not occur in the majority of the country (Gifford-Gonzalez 2000).

Although Namaqualand has few natural springs and the rivers seldom flow, water is inevitably available from coastal springs and seeps (Orton *et al.* in press). Mists are almost daily occurrences along the coastline and sometimes extend all the way to the foot of the Kamiesberg Mountains. These mists and the accompanying dewfalls leave moisture on the plants which is available to both them and grazing animals. That small stock can go without water for up to six months, given reasonable grazing on succulent vegetation (Cornell 1920; Webley 1982), would have allowed significant movement through the Sandveld, so long as the people could carry water for themselves which, we know from their flasks, they did. Cattle cannot obtain sufficient water by grazing, but Cornell (1920) noted that local pack oxen could go for three to four days without drinking. The climatic data summarised above (Section 3.4.3) indicate that just prior to 2000 years ago south-western Africa may have been wetter. Such a wet spell could well have been part of the impetus behind the spread of herding through that area. In the south-western

Cape, Sadr (2002) has argued that there were two periods of more intense pastoralism; these he correlates with cooler, wetter climatic periods. This kind of detail is not yet possible in Namaqualand, although JKB A and JKB B do coincide with Sadr's earlier period.

The Sandveld was also good for grazing, particularly so before the pressure of fenced commercial stock farms. One Sandveld farmer shared how the plants there are slow growing because of the low rainfall, but due to the deep soil they grow larger and provide good grazing. This contrasts with the Hardeveld where higher rainfall means faster growth but the shallower soils result in smaller plants that support stock for shorter periods. Furthermore, the numerous heuweltjies (ancient termitaria) that occur in some parts of Namaqualand below *c.* 400 m elevation have better quality soils and are favoured for grazing by small to medium mammals (Desmet 2007; Palmer *et al.* 1999). Micromammal evidence from Spoeg River Cave shows that the area was even more favourable around 2000 years ago with greater grass cover (D. Avery 1992).

Modern-day stock farmers generally have access to land in both the summer and winter rainfall zones, Bushmanland and the Sandveld respectively, trucking their stock from one to the other as required. Such seasonal transhumance also occurred during pre-colonial times as testified by historical literature. Webley (2007) describes how the winter months, during which the mountains were too cold, were spent in the warmer Sandveld where streams would occasionally flow. This allowed the vegetation around the mountain water holes to recover for the following summer's occupation. Occasional forays into Bushmanland to take advantage of good grazing resulting from summer thunder showers were also documented and must therefore have been feasible in earlier times.

Focusing on the availability of fodder and water, Skead (1980) summarised historical descriptions of the environment from travel diaries dating from the 1680s to early 1800s.

His description emphasises the fickle nature of the environment. Although mid-summer grazing occurred south of the Olifants River, the Knersvlakte was very arid and had salty rivers. Other rivers, although usually dry, revealed water through digging in their beds; some contained pools at times. The Buffels River seemed most reliable with pasture and either surface or subsurface water reported; some parts were tree-lined. Inland, water was harder to find but a good spring was found near present-day Springbok. Along the Orange River abundant trees and grass occurred, while southern Namibia had wide grassy plains.

Predators would naturally have been an issue with lions, leopards, hyaenas and jackals the main culprits. The indigenous animal population in pre-colonial times may have been quite small (Hoffman & Rhode 2007), which in turn would have precluded significant numbers of predators. Small stock are naturally more vulnerable to predation, but it would have likely been easier to guard against this in the flat and more open Sandveld than in the mountains. (Of course dogs would aid in this, but how early they were present in Khoekhoe society remains unknown.) Together, all these factors suggest that the Sandveld, and particularly the immediate coastal strip, would have acted as a good conduit for domesticates, with marine resources providing ready food for their keepers.

7.9 The introduction of herding: a summary from Namaqualand

For many years a Khoekhoen migration into southern Africa was accepted as the mechanism by which pottery and sheep were introduced to south-western Cape archaeological sites about 2000 years ago. Sadr (1998, 2003) countered that a Khoekhoen migration only occurred around the start of the second millennium AD based on changes in the archaeology, with diffusion of pottery and stock into the region during the preceding millennium. Interestingly, Sealy (2010) concluded that cattle-based pastoralism only began around the same time.

In a study of pastoralism in Namaqualand completed shortly before the commencement of the present research, Webley (2007:637) concluded that “the archaeology does not support a migration of a separate pastoralist group into the area and we must assume that livestock and pottery were introduced to the resident hunter-gatherer populations, perhaps by Khoe-speaking hunter-gatherers with stock.” The expanded Namaqualand sequence as presented in the foregoing chapters supports this. The new arrivals were familiar with retouched artefacts, obtained the vast majority of their food by hunting and gathering, and kept limited numbers of domestic stock as a ‘cash resource’ for food in times of need or for fulfilling *hxaro* requirements, both with their existing trading partners and with new ones who they met. They probably spoke Proto-Khoekhoe (cf. Güldemann 2008) and made Group 3 assemblages. The assemblages were focused on locally available clear quartz which was well suited to the manufacture of tiny backed artefacts. The function of these tools remains unknown for the time being and why these people would have focused so heavily on them is puzzling given that 1000 years earlier similar artefacts, usually made in CCS, had been dropped from the local stone artefact assemblages.

Owing to small sample size, early pottery style in the Sandveld remains unknown but the pots may have been undecorated. The ostrich eggshell bead signature is also unfortunately compromised by small sample size. Between the five Group 3 assemblages that fall before the mid-first millennium AD, when Group 2 was introduced, there are a total of fifteen beads. Five are medium in size and all the rest small supporting the idea that these earliest hunter-gatherers with stock shared bead size with those already living in Namaqualand. Although other aspects of material culture were shared between Groups 2 and 3, this only occurred later with tortoise burials and collected ornamental shells only known to occur from *c.* AD 800 and AD 1300 respectively.

The spread of herding was likely boosted at this time through exchange and diffusion amongst locals who knew the environment well and recognised the advantage of 'storing' live meat. The incoming hunter-gatherers with stock would have relied on local knowledge to learn the landscape and this, in turn, would have facilitated their relatively rapid spread through western South Africa. Given this, it seems odd that CCS would have been shunned, since it should have continued to be available to the locals through existing exchange networks. However, they may have deliberately chosen to focus on the clear quartz as a means of maintaining social identity.

The set of changes evident in Namaqualand through the middle and later centuries of the first millennium AD, and specifically including the advent of Group 2 technology around AD 500, is more likely to reflect the migration and subsequent establishment of fully-fledged herders in the area – these are presumably the ancestors of the Khoekhoe herders encountered at the Cape during historical times. The similar pattern of introduction proposed for East Africa by Bower (1991) fits the Namaqualand data well. The migration is, of course, earlier than the timing proposed by Sadr (1998), but further research may yet fill some temporal gaps, either within Namaqualand or to the south. While Sealy's (2010) isotopic data support the emergence of a cattle-based economy around 1000 years ago, Sadr (1998: footnote 5) believes specialised pastoralism as observed in historical times may have only developed once the possibilities of trade with European explorers became known. With the Namaqualand data suggesting a full Khoekhoe incursion around AD 500, it would be interesting to see Sealy's (2010) first millennium AD isotopic data presented in finer time slices – they may yet reveal subtler changes than those presently realised.

The above model seems a best-fit for the Namaqualand data. The traditional view of the pre-colonial landscape being shared only by Bushman hunter-gatherers and Khoekhoe herders cannot easily be entertained when we find three so strongly distinctive assemblage types. The model was inspired partly by the linguistic work of Tom Güldemann (2008) who proposed a southward expansion of an early Khoe (Proto-Khoekhoe-speaking) population and finds the linguistic homogeneity of the Khoekhoe language to be irreconcilable with a 2000 year antiquity in South Africa.

Every model has its challenges and those identified here include:

- Why should such specifically focused assemblages as Group 3 be needed by part-time herders when full-time hunter-gatherers and full-time herders have such different stone artefacts?
- Why did the Group 3 signature persist so purely and until so recently alongside hunter-gatherers and full-time herders without being obliterated by the others through nearly two millennia of contact? The likelihood of a third population group (in the loosest possible socio-economic terms) surviving intact alongside the others for so long surely seems slim (cf Schrire 1992:63); and
- How do the combination assemblages fit in? While ethnic interaction must have occurred, it seems unlikely that it would have manifested itself within individual sites in this way.

These short-comings will need further investigation along with a number of other points as discussed in Section 8.2 below. In addition, it will be important to see if a similar model could be found to fit archaeological data from other regions.

Chapter 8. Conclusions

8.1 Discussion: Namaqualand and the Neolithic

Prior to commencement of this research, the cultural sequence in Namaqualand was unclear. The value of a regional study incorporating a large number of assemblages has been highlighted here through the improved archaeological sequence obtained for the Sandveld (cf Dewar 2008; Webley 2007). Although gaps, both temporal and in knowledge, still remain, the mid- to late Holocene sequence is now far better understood. Sites dating before this time remain rare. They may well lie deeply buried as a result of repeated cycles of dune formation and deflation, but the early Holocene material from Spoeg River Cave certainly betrays at least some presence of people along this coast at that time.

From the fourth millennium BC until about 2000 years ago Bushman hunter-gatherers were the sole occupants of coastal Namaqualand. They produced a diverse array of flaked stone artefacts ascribable to a single cultural entity. They also made small ostrich eggshell beads. With the exception of a shift of emphasis from backed tools to scrapers about 3000 years ago, little else changed; it was a period of general cultural stability. The first millennium AD, by contrast, was a time of great cultural and social transformation, due no doubt to the revolution – some might argue Neolithic revolution (Sadr 2003) – that took hold of the region. I return to this topic shortly.

Meanwhile, the present research has made significant contributions to our understanding of the late Holocene archaeological sequence in Namaqualand. The four main points are discussed in turn below.

Firstly, with numerous additional analysed assemblages, the flaked stone artefact sequence from the Sandveld is now described in far greater detail than before. A key finding is that broadly co-incidental with the introduction of domesticates and pottery to Namaqualand 2000 years ago we see the beginning of a completely new stone artefact-making tradition. This contrasts strongly with the continuity documented in many other areas at this time. Shortly afterwards, yet another tradition appears on the landscape such that three distinctive flaked stone artefact signatures co-occur during the last 1500 years.

Secondly, a large suite of observations on bead size change that incorporates Dewar's (2008) samples is now available to compliment Webley's (2002) work at Spoeg River Cave. The gradual increase evident in the cave is mirrored on open sites, but the finer details show that the way this increase was effected differs from that suggested to the south. Specifically, evidence for larger beads strongly dominating herder sites and forming an increasingly larger component on hunter-gatherer sites is lacking. Rather, we see a mix of all sizes in different assemblages at different times but with a general mean size increase through time. This suggests widespread sharing of material culture across ethnic boundaries.

The third contribution relates to pottery. Although many pots from coastal Namaqualand were described in isolation by Rudner (1968), we now have some sense of sequence, admittedly, and due to the fragmented nature of the assemblages, based only on decoration. First millennium AD pots had incised lines, sometimes in combination with small impressions, while the second millennium saw only impressions applied to pots. One large and unfortunate temporal gap prevents us knowing when the first style switched to the second, but what we have is sufficient to demonstrate a different sequence to those documented in other regions (e.g. Sadr & Smith 1991; Sampson *et al.* 1989).

Finally, with several new identifications of domesticates we now have a far improved understanding of their spatial distribution across the Sandveld. Though there are still massive spatial gaps on the map, we can postulate that domesticates were widely distributed throughout the region, particularly along its coastline. It should be noted that the spread of dates from the Sandveld is not ideal with most of the early dates coming from rock shelters (Figure 8.1); whether anything should be read into this is moot. No doubt the imprint of early herding on pre-colonial society was very light and it is partly for this reason that, throughout southern Africa, so few early dates for domesticates are on record. In Namaqualand, the majority of open sites with domesticates are dated within the last 600 years and this likely relates simply to the increasing number of animals on the landscape. Whether the end of the Medieval Warm Phase played a significant role in this increase is uncertain, but this does seem very likely given the limited evidence for occupation of the region during that time. The quality of the grazing in Namaqualand may also have slightly improved with the milder climate.

Chapter 2 discussed the major themes commonly explored by any work on the origins and identification of herding in South Africa. Many questions remain unanswered and may always remain so. Debates will no doubt rage on. Nevertheless, that the keeping of livestock – however defined – occurred in Namaqualand from some 2000 years ago is beyond doubt. That Namaqualand is critical to the study of the beginnings of herding in South Africa is equally certain; it has yielded the earliest South African direct dates on both sheep (Sealy & Yates 1994) and cattle (Orton *et al.* in press). Taken with the even earlier caprines from Namibia (Pleurdeau *et al.* 2012), these dates have increased the likelihood that the Namaqualand coastline was the primary route by which herding was introduced to southernmost Africa. Whether it proceeded southwards through Namibia or westwards along the Orange River to reach the mouth of the latter is beyond the geographical remit of the present work.

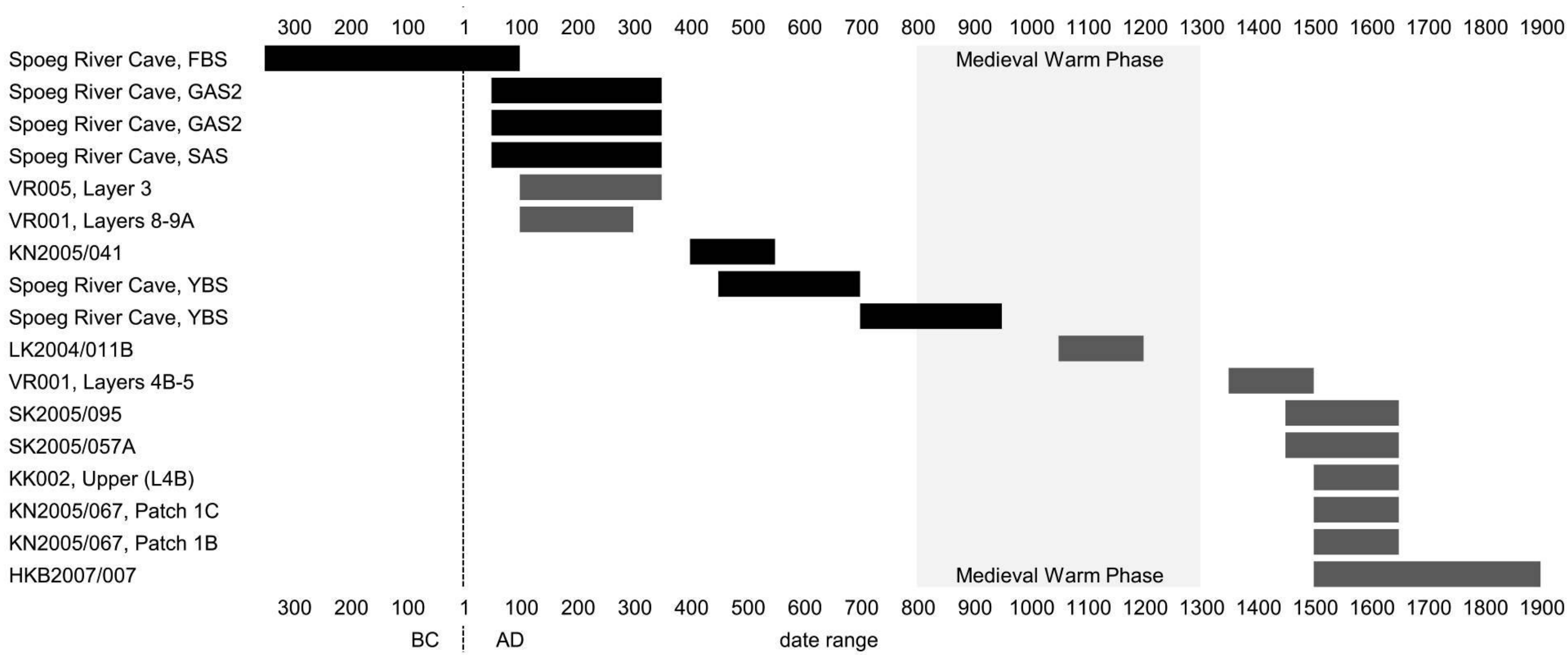

Figure 8.1: Ages of domestic animal bones from the Sandveld. Black bars indicate directly dated bones and grey bars are those dates associated with domestic bones. The '?' indicates an estimate from an undated layer.

As reviewed in Section 2.4, most recent discussion on the manner of introduction of domesticates and pottery has been focused on proving either cultural or demic diffusion as the relevant mechanism. The former is suggested to have involved the exchange of domesticates and pottery among indigenous hunter-gatherer groups, while the latter is argued to be represented by a migration of Khoekhoe herders into southernmost Africa. Without trying to find an easy way out, I have proposed that both mechanisms had a role to play, and that not one, but two population migrations took place. An initial migration by Proto-Khoekhoe-speaking hunter-gatherers with domestic animals and pottery likely occurred around 2000 years ago. These people would have had much in common with the local hunter-gatherer population, and would have been the descendents of those hunter-gatherers that originally adopted the herding way of life in the region of northern Botswana. These shared features would no doubt have helped the newcomers learn the landscape and become established in it, thus facilitating their southwards spread. Meanwhile, to the north, the Khoekhoen 'package' (language, economy, social customs, etc.) was forming as herding intensified, perhaps even to the point that we might refer to it as pastoralism. Subsequently, these people followed the 'trail' blazed by their predecessors as they too began expanding throughout the region to eventually become the historically documented herders living in the south-western Cape and elsewhere. We might even tentatively postulate that Proto-Khoekhoe-speaking groups moved into the eastern part of South Africa and left the early LSA pottery found by Mazel (1992). By the time the Khoekhoen began their expansion several hundred years later, the eastern parts of southern Africa were already well settled by Bantu-speaking Iron Age people and it may well be that the Khoekhoen never moved into those parts at all. Whether the 'herder art' of the Limpopo area (or anywhere else) might be shown to be that of early-Khoe people rather than the Khoekhoen is another question worth considering.

The primary role of cultural diffusion in the process would have been the dissemination of domestic stock and particularly pottery among the general population. To what degree the indigenous hunter-gatherers actively herded stock remains unknown for lack of evidence, and, although no Group 1 assemblages were found to contain domestic stock bones, this could be due to sampling and the possibility should be kept open for debate.

Practical issues around herding have also been explored in this thesis. For many years questions were asked as to whether herders could even be identified in the archaeological landscape and the signatures proposed by A. Smith *et al.* (1991) remained hard to find. While some aspects of material culture were no doubt shared, others seem to have differed. It seems likely that fully-fledged Khoekhoe herders employed simple, expedient stone artefact assemblages (Group 2), while both their predecessors (Group 3) and the indigenous inhabitants of the region (Group 1) made strikingly different tools. Interestingly, these lithic differences were maintained, but the pottery and large ostrich eggshell beads brought into southernmost Africa were soon diffused among the local population such that the changes we see in their patterning in the archaeological record are only time-related and do not appear to reflect ethnicity or socio-economy. From beads and pottery in AD contexts it is thus not possible to differentiate between hunter-gatherers and herders.

So, given all the change documented in Namaqualand, particularly during the first millennium AD, do we have a Neolithic revolution? Sadr (2003) has argued for a reintroduction of the term ‘Neolithic’ to southern African archaeology so as to better encompass the great variety and flexibility of economies that seem to have been present during the last 2000 years. He does not refer to the set of changes that took place as a revolution as has been done in other parts of the world, but, given the far reaching effects these changes had on pre-colonial society, revolution may not be the wrong word. The changes and introductions comprising this revolution in pottery-period Namaqualand would have had far-reaching consequences and certainly encompassed most aspects of daily life. They include the following:

- Two new stone artefact making traditions were introduced;
- The introduction of pottery allowed storage and cooking of liquids;
- The introduction of domestic stock allowed 'storage' of live meat, thereby increasing the predictability of food supply;
- The arrival of new ethnic groups would have increased the complexity of the social landscape, perhaps adding political tension;
- As a result, landscape use would likely have been reorganised with access to certain areas perhaps becoming curtailed for some groups; and
- The range of decorative material culture increased and that which was already there (small ostrich eggshell beads) changed.

Sadr (1998:197) reviewed the various definitions of the term 'Neolithic' that have been applied through the years and settled on using it for "a period in a region's history when food production was known but metals were not widely used: simply put, Stone Age with food production". He stressed that cultivation and herding, at any intensity and in any proportion with hunting and gathering should all be included. Although evidence for pre-colonial agriculture is lacking in western South Africa, and cultivation of tropical African cereals such as sorghum (*Sorghum bicolor*) and pearl millet (*Pennisetum glaucum*) is impossible there for climatic reasons, there is no doubt that stock-raising has occurred for two millennia. I, for one, would support the application of the term Neolithic in southern Africa and would argue that referring to this period of prehistory as a revolution is probably not unjustified.

Interpretation of the cultural data outlined above relating to the introduction of herding to Namaqualand has been challenging and the outcome was not always expected. It appears as though the situation, at least in Namaqualand (but probably also elsewhere), may be far more complicated than has hitherto been suggested for other regions. Stone artefacts seem strongly related to ethnicity but beads and pottery are clearly temporally patterned. Yet, at the same time, the differences between pottery decoration in Namaqualand and areas to its north, east and south could suggest that the variety is more cultural and regional than temporal in nature. Indeed, Sadr and Sampson (2006:245) noted that "half a dozen regional styles may be distinguished". Perhaps the different ways in which bead size changed in the south-western Cape and Namaqualand is also due to regionality? The stone artefact sequence along the south-western Cape coast seems different in many ways to that documented in Namaqualand with less evidence for a clear separation of Groups 1 and 2 – Group 3 seems reasonably clearly represented in a few sites near Elands Bay, particularly Dunefield Midden 1 (Jerardino 2007b; Orton 2002). The observed differences between the two areas may well be largely the result of the different shorelines – the south-western Cape is dominated by sandy beaches and rocky points, while Namaqualand has a continuously rocky coast. This means that most sites to the south are focused around rocky shores and were occupied repeatedly; their assemblages are therefore perhaps largely mixed, as occurs in rock shelters. This again underscores the value of studying single occupation open sites.

Looking east into Bushmanland, Beaumont *et al.* (1995; see also Parsons 2007) found typical hunter-gatherer assemblages which they called Springbokoog. Those dating less than 2000 years old and with pottery added to them they named Swartkop. These, presumably, would correlate with Group 1. A second type of pottery-period assemblage, with markedly less retouched items and a preponderance of 'coarse irregular flakes', was termed Doornfontein. Significantly, the pottery from Swartkop sites – and from many central Karoo sites (Sampson 1988; Sampson *et al.* 1989) – was grass-tempered, while that from Doornfontein sites was mostly mineral-tempered. Grass-tempered pottery is almost unheard of in westernmost South Africa and, here again, we see a regional pattern that failed to spread more widely than the central and western interior.

The south coast is well beyond the geographical scope of this research but it is worth noting that there, too, the cultural sequence is very different. Although an assemblage type dominated by large quartzite flakes and that might be expected to correlate with Group 2 exists, it begins more than 1500 years too early (e.g. H. Deacon 1976; Inskeep 1987; Robertshaw 1984) and obviously has a different origin. Decorative items, in particular those deliberately shaped from marine shell, are substantially more common than on the west coast. Looking inland, Boomplaas, with its good evidence for stock-keeping, shows 'herder' assemblages more similar to Group 1 than to Group 2, although retouch is considerably less frequent than in 'pre-herder' levels (H. Deacon *et al.* 1978).

This brief review of other regions shows that in order to truly understand the mechanisms behind the introduction of herding to southern Africa we will need to first study the process in many areas. Only once we have a grasp of each, both from the point of view of archaeology and other related disciplines, can we begin to pull together a truly regional picture of the last 2000 years of prehistory.

8.2 Where to now? Problems and opportunities

Namaqualand has yet to reveal anything remotely approaching the 'pastoralist' sites at Kasteelberg and, with the limited information to hand, I, like others before me, have had to build upon assumptions and make leaps of faith. Nevertheless, the above seems the best working hypothesis with which to move forward. I have already noted some of the problems associated with the model developed in this thesis but these can also be seen as opportunities for further research. Such research needs to target proving or disproving the various arguments of my hypothesis, as well as examining several key topics that emerged during its construction as follows:

- There is a great need for more first millennium AD open sites to be studied in order to better understand the earlier part of the pottery-period sequence. Sites suspected to fall within that period should be targeted for dating and excavation;
- Linked to the above point is the need to better understand the introduction of Group 2 technology, both in Namaqualand and elsewhere should it prove to be found in other areas. Vogelsang *et al.*'s (2002) examples from northern Namibia may well be a case in point;
- Group 3 assemblages would very strongly benefit from use-wear and residue analyses of the kind already undertaken elsewhere in southern African LSA and MSA contexts by Binneman (1982, 1984), Lombard (2008, 2011) and Williamson (1997) to help elucidate their function and thus better understand some of the unanswered questions concerning these assemblages;
- The combination Groups are unsatisfactorily explained and certainly require further detailed examination;
- As has been done with sheep and cattle bones, the direct dating of potsherds needs to be explored more consistently in LSA sites. Potsherds can be dated by optically stimulated luminescence dating (OSL) as has been done recently in Lesotho (Collis 2010; Hobart 2004) or, in the central interior with its grass-tempered sherds, radiocarbon (Sadr & Sampson 2006). Small potsherds can easily migrate within deposits or be mis-associated, as has been shown to have occurred with sheep bones (Sealy & Yates 1994, 1996), and direct dating will help better resolve the timing of the introduction of pottery to southern Africa. Sealy and Yates (1996) considered pottery and domestic animals to have been introduced at different times but the evidence to me seems inconclusive;
- Many potsherds from Namaqualand have relatively thick residues caked onto one surface. These would likely lend themselves to residue analysis to determine the uses to which pots were put in Namaqualand;

- The present study has yielded a good number of domestic animal bones but, owing to the dating being largely completed prior to commencement of the faunal analyses, many could not be dated. This needs to be rectified, particularly for the sheep remains from Buzz Shelter which are potentially close to 2000 years old. This would build on the success of the early cattle date processed during the course of the present research (Orton *et al.* in press);
- Now that a regional sequence has been built from excavations that aimed primarily to capture representative samples of site contents, there is a need to conduct spatially extensive excavations in order to explore the use of space on individual sites. Two such excavations have come close but both these sites (AK2006/006 and KN2005/067) could benefit from further work to be truly useful in this regard;
- There is a need for further rock art research in the relatively unknown Kamiesberg Mountains and surrounding granite hills, since too few sites are on record to be able to identify regional patterns; and
- Further palaeoenvironmental studies targeting Namaqualand may isolate environmental changes that helped shape the region's prehistoric settlement patterns. An archaeozoological example would be to study fish bone assemblages from Namaqualand sites in order to gain further insights into sea level change as was successfully done at Elands Bay (Poggenpoel 1987). Although most assemblages are small, a fair number are present, notably from sites close to the Buffels River estuary.

8.3 Last words

This research has been based largely on grey literature produced for commercial clients. The lack of publication of such literature is a perennial problem among academic researchers and it can hide important information (Ford 2010). Until a few years ago, much of the prehistory of Namaqualand was safely stored in a few computers and filing cabinets (and a large store room) but the present work and that of Dewar (2008) have demonstrated the great value in revisiting both the excavated evidence and the commercial reports. Too few contract archaeologists publish their commercial research, usually for lack of time. However, if we all assume responsibility for the discipline we love and engage in publication, even if only as brief field reports or broad-brush summaries, we will greatly enrich the state of knowledge of archaeology as a whole. We might reduce the need for assumption and, just possibly, also the size of our leaps of faith.

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Appendix 1: Pottery data.

Here some basic attributes of the pottery collections are tabulated. Only sites with pottery present in them are listed. Temper is not listed, since all have quartz and the various additional minerals were not always identifiable.

Note:

- The following abbreviations are used: PLAIN: no decoration (for rims only), IMP: impressed, INC: incised, RED: red slip present. ? indicates uncertainty.
- Mean thickness is calculated by averaging the mean thicknesses of all individual measureable sherds.
- Decoration style: impression/incisions are recorded on body and/or rim sherds, plain only recorded for rims.
- Rim orientation and lip form explained in Chapter 4.

Site	Layer / Patch	n	Weight (g)	Mean thickness	Decoration style (n)	Rim orientations	Lip forms	Other features present in the assemblage (i.e. not necessarily on same pot) & notes
DP2004/010	A	4	25.1	5.51 ± 0.34	RED			Possible spout, coil manufacture
	B	11	36.8	5.09 ± 0.18				
KN2004/012		2	2.2	4.79 ± 0.82	IMP & IMP/Broad-INC	Vertical	Simple round	Two patterns present, one with IMP & INC on same sherd
KN2004/015E		9	29.4	5.76 ± 0.46	PLAIN	Vertical	Tapered, simple round	
KN2005/054		2	17.1	7.08 ± 0.45	Fine-INC	?Vertical	Simple round	

Site	Layer / Patch	n	Weight (g)	Mean thickness	Decoration style (n)	Rim orientations	Lip forms	Other features present in the assemblage (i.e. not necessarily on same pot) & notes
KN2005/067	1A	37	273.9	6.72 ± 0.96				Thickly caked residue inside
	1B	35	154.0	5.58 ± 1.04	IMP (4)	Vertical	Flat, Simple round	Mouths *c.* 100, 120 & 140 mm, smoothed breaks
	1C	2	3.1	4.43 ± 0.39				
	3	2	15.9	7.35 ± 0.09				
LK2001/015	F	2	8.1	4.07 ± 0.25				Reused sherd with smoothed break
MB2005/013		10	38.5	5.36 ± 1.02	PLAIN (1)	-	Simple round	
MB2005/059		32	196.5	5.69 ± 0.61	RED (25)			Maximum diameter ?280 mm, neck ?140 mm
MV2007/005		1	3.6	5.94	IMP (1)	Vertical	Simple round	
MV2007/009	1A	43	428.5	n/a				Lug; large vessel with nippled base; not all sherd thicknesses measured
SK2001/024	M	3	73.5	5.90 ± 0.22	PLAIN (2)	Vertical	?Everted	Lip form may be convergent
SK2001/039		29	174	5.71 ± 0.61	IMP (4)	Flared	Tapered, simple round	'Scratched' surface, coil manufacture
SK2005/057A		86	317.1	6.32 ± 1.12	IMP (1) PLAIN (1)	Vertical, flared	Simple round	Includes slump, mouth *c.* 100 mm
SK2005/074A		1	3.30	4.20				
SK2005/084		6	6.0	3.56 ± 0.45	PLAIN (3)	Vertical, flared	Tapered	
SK2005/095		3	18.7	5.95 ± 0.37				
SK2005/096A		10	73.6	5.92 ± 0.47				

Site	Layer / Patch	n	Weight (g)	Mean thickness	Decoration style (n)	Rim orientations	Lip forms	Other features present in the assemblage (i.e. not necessarily on same pot) & notes
SK2006/006	Patch 1	1	1.5	5.61				
	Patch 2 Upper	12	68.9	6.12 ± 0.37				Horizontally pierced lug
	Patch 2 Lower	-						
	Patch 3	8	26.4	5.34 ± 0.31				
KK002	Upper	15	52.0	5.59 ± 0.71		-	Flat top	
	Lower	1	1.6	5.96				
KK003		1	-	5.85				
VR001	Layers 1–4A	2	16.3	8.24 ± 2.64				
	Layers 4B-5	13	133.6	7.59 ± 1.45		-	Simple round	Mouth *c.* 140 mm, coil manufacture
	Layer 6	11	50.3	6.01 ± 1.63	RED	-	Everted	Quartz temper includes smashed quartz, internal reinforcing suggests lug or spout, coil manufacture
	Layer 7	-						
	Layers 8-9A	38	99.5	5.21 ± 0.71		Vertical	Thickened flat	Coil manufacture
	Layer 9B	4	10.6	4.72 0.59				Possible grog temper

Site	Layer / Patch	n	Weight (g)	Mean thickness	Decoration style (n)	Rim orientations	Lip forms	Other features present in the assemblage (i.e. not necessarily on same pot) & notes
VR005	Layer 2	1	20.1	4.69				Residue inside
	Layer 3	1	3.4	5.6				
VR048		264	760.3	5.97 ± 1.37	INC RED (114)	Vertical	Simple round	Lugs (horizontally-pierced), red slip occasionally inside, occasional sherds have quartz chips and limestone temper with sand
JKB K		412	982.6	5.22 ± 0.94	RED (x1)	Flared Flared - - Flared	Half round Tapered Thickened flat Simple round Simple round	*In situ* sherds only, probable spout, mouth *c.* 80–100 mm, mouth *c.* 140 mm (x3), mouth 140–160 mm, mouth *c.* 200 mm, mending holes, horizontally pierced lugs, some mineral/fibre temper
JKB M		201	393.4	5.38 ± 1.04	INC & RED (115)	?Flared Thickened	Everted Round	Lugs, coil manufacture, some mineral/fibre temper (likely incidental), rounded edges (reused pots/sherds)

Appendix 2: Subsistence data.

Data on ostrich eggshell, shellfish, rock lobster and fauna are presented here. Unless otherwise referenced, subsistence data are from my own analyses.

Table A2.1: Ostrich eggshell frequencies and weights. Note that some of these data predate this research and are variable and/or incomplete. Since OES is not germane to the research, the analyses were not repeated. Missing/non-calculable data are indicated by '-'. Density is provided for single occupation open sites only.

Site	Layer / Patch	n (unburnt)	n (burnt)	n flask (unburnt)	n flask (burnt)	n engraved (unburnt)	n engraved (burnt)	n 'retouched' (unburnt)	n painted (unburnt)	Weight (g)	g / m^2	Comment
DP2004/010	Patch A	206	2	5						182.9	12.19	
	Patch B	3								0.4	0.08	
HKB2007/007		1								-	-	
KN2001/009		529	14	4						602.0	17.20	
KN2004/012		1								1.6	0.13	
KN2004/015E		143		3						118.9	11.89	
KN2005/040		50								-	-	
KN2005/041		8								-	-	
KN2005/050		146		1						-	-	
KN2005/054		3								-	-	

Site	Layer / Patch	n (unburnt)	n (burnt)	n flask (unburnt)	n flask (burnt)	n engraved (unburnt)	n engraved (burnt)	n 'retouched' (unburnt)	n painted (unburnt)	Weight (g)	g / m^2	Comment
KN2005/067	Patch 1A	1323	6	14						642.2	16.06	
	Patch 1B	452	5	8		2				275.6	10.21	
	Patch 1C	11	3							27.3	1.95	
	Patch 2										0	
	Patch 3	2								5.4	0.90	
	Patch 4	2								1.6	0.40	
	Patch 5	14								4.2	1.05	
KN2005/135A		4								-	-	
KN2005/135B		65								-	-	
KV2001/012	Area A	1444	305	9						1212.3*	27.56	* flasks unweighed
	Area B	455	64	2						509*	9.25	* flasks unweighed
	Area C	18								12.6	0.74	
LK2001/015	Patch A	1								0.3	0.15	
	Patch B										0	
	Patch Ci										0	
	Patch Cii	57	1							39.0	3.25	
	Patch D	5								3.5	0.50	
	Patch E	1								0.2	0.05	
	Patch F	21	2							25	12.50	
	Patch G	3								3.3	1.65	
	Patch H	3								2.5	2.50	
	Patch I	36								29.5	2.95	

Site	Layer / Patch	n (unburnt)	n (burnt)	n flask (unburnt)	n flask (burnt)	n engraved (unburnt)	n engraved (burnt)	n 'retouched' (unburnt)	n painted (unburnt)	Weight (g)	g / m^2	Comment
LK2004/011B	*In situ*	12								-	-	
	Slump	-		2						-	-	
MB2005/001E (north)	Layer 1	20		1						25.0	-	
	Layer 2	6								9.9	-	
	Layer 3	18	4	4						-	-	
	Layer 4	9	1							-	-	
MB2005/013		335	4	5						406.6	20.33	
MB2005/027		217	4							206.4	18.76	
MB2005/028A		118	2							106.2	26.55	
MB2005/059	Patch A	36		2						49.8	3.32	
	Patch B										0	
MV2007/005		6								6.8	-	Surface collection
MV2007/009	Area 1	24								18.7	-	Surface collection
	Area 2	2								1.2	-	Surface collection
	Area 3										-	Surface collection
	Area 4	24								15.7	-	Surface collection
PN2009/001		460	10	3		17				471.6	4.29	
SK2001/024	Patch A	32		1						54.7	18.23	

Site	Layer / Patch	n (unburnt)	n (burnt)	n flask (unburnt)	n flask (burnt)	n engraved (unburnt)	n engraved (burnt)	n 'retouched' (unburnt)	n painted (unburnt)	Weight (g)	g / m^2	Comment
SK2001/025	Area A	5								-	-	
	Area B	19	1							-	-	
	Area C	30	1			1				-	-	
	Area D	8								-	-	
	Area E	5								-	-	
	Area F	98		1						-	-	
SK2001/039		287	6	2						361.6	45.20	
SK2005/057A		183	9	2						76.5*	1.42	* flasks unweighed
SK2005/074A	Layer 1	75	4							55.1	3.24	
	Layer 2	70	12	2						103.7	10.37	
	Layer 3										0	
	Layer 4										0	
SK2005/084		18				1				-	-	
SK2005/095	Patch A	130								22.9	3.27	
	Patch B, M25										0	
	Patch B, U23										0	
	Patch B, S19/20	59	1	1						67.0	33.50	
	Patch B, S16										0	
	Patch B, N16	58		1						8.4	8.40	
SK2005/096A		21		1						-	-	
SK2005/096B		24								-	-	

Site	Layer / Patch	n (unburnt)	n (burnt)	n flask (unburnt)	n flask (burnt)	n engraved (unburnt)	n engraved (burnt)	n ‘retouched’ (unburnt)	n painted (unburnt)	Weight (g)	g / m^2	Comment
SK2006/006	Patch 1	24								12.8	1.28	Includes fresh and weathered fragments
	Patch 2 Upper	39				1				31.6	2.43	
	Patch 2 Lower	86								85.1	17.02	
	Patch 3	30		1						30.3	3.79	
TP2004/003		3				2				4.9	0.54	
TP2004/014		11								4.9	0.82	
KK002	Upper	2495	471					2		1295.6	n/a	
	Lower	125	99							79.2	n/a	
KK003												
VR001	Layers 1–4A	1116	55			1			1	565.8	-	
	Layers 4B-5	1563	1109	1				1	2	1836.2	-	
	Layer 6	1180	397	2				3	12	1512.7		
	Layer 7	337	31					1		448.2	-	
	Layers 8-9A	1725	1792	15						3201.4	-	
	Layer 9B	281	137	1						415.3	-	

Site	Layer / Patch	n (unburnt)	n (burnt)	n flask (unburnt)	n flask (burnt)	n engraved (unburnt)	n engraved (burnt)	n 'retouched' (unburnt)	n painted (unburnt)	Weight (g)	g / m^2	Comment
VR005	Layer 1	257	22							216.2	-	
	Layer 2	282	38						2	507.6	-	
	Layer 3	903	526	1	2	2	1	4	17	1294.1	-	
	Layer 4	1017	868*	3	1		3	2	2	1311.5	-	*Includes a disc (possible pendant blank)
	Layer 5	318	164							251.7	-	
	Layer 6	643	848			3				994.9	-	
	Layer 7	58	72							94.0	-	
VR048		4677	111	2		?3				1935.6	3.00	
JKB K		173	303	2						217.7	3.25	*In situ* material only
JKB M		212								78.5	3.78	

Table A2.2: Marine shellfish. Frequencies of occasional unidentifiable limpets and minor species probably introduced incidentally are not provided, but their numbers are included in the overall MNI. Figures are percent of overall MNI of the counted samples. Rare shells assumed to be deliberately collected for decorative purposes are excluded. All own data except PN2009/001: Webley & Orton (2010).

Site	Layer / Patch	*C. granatina*	*S. granularis*	*S. argenvillei*	*S. barbara*	*C. meridionalis*	Whelk	Sample MNI
DP2004/010	Patch A	43.24	56.68					1161
	Patch B	46.30	53.70					324
HKB2007/007		26.90	30.70	18.62	5.86		10.00	290
KN2001/009		44.49	27.27	27.27	0.64			627
KN2004/012		17.33	81.54	0.72	0.09		0.02	4594
KN2004/015E		67.04	30.74	1.48		0.37		270
KN2005/040		28.27	57.71	3.97	0.12	0.47	9.46	856
KN2005/041		32.26	52.20	14.53	1.01			592
KN2005/050		45.35	34.49	18.90	0.16	0.63	0.31	635
KN2005/054		45.87	36.13	15.70	1.76			739
KN2005/067	Patch 1A (N)	61.81	30.31	7.34	0.32			927
	Patch 1A (SE)	69.66	9.14	18.62	1.98	0.17		1160
	Patch 1A (S)	70.18	24.15	3.24	1.94			617
	Patch 1A (SW)	57.31	35.22	6.57	0.90			335
	Patch 1B (N)	46.50	43.75	9.25	0.5			400
	Patch 1B (S)	48.92	48.41	2.54		0.13		787
	Patch 1C	63.81	15.16	20.29	0.73			409
	Patch 2	49.61	42.68	7.48	0.23			1284
	Patch 3	52.01	43.23	3.83	0.47			1071
	Patch 4	33.19	50.33	14.10	1.95			461
	Patch 5	54.76	16.48	28.39				546
KN2005/135A		36.55	41.19	18.33	1.07	0.60		840
KN2005/135B		23.11	59.56	7.78	0.52	4.07	4.96	1350
KV2001/012	Area A	62.61	24.77	12.16				231
	Area B	26.80	45.70	24.00				1000
	Area C	40.43	54.64	0.29				699

Site	**Layer / Patch**	***C. granatina***	***S. granularis***	***S. argenvillei***	***S. barbara***	***C. meridionalis***	**Whelk**	**Sample MNI**
LK2001/015	Patch A	64.29	12.66	21.10	1.94			308
	Patch B	60.17	29.56	10.06	0.21			477
	Patch Ci	50.95	11.84	37.20				422
	Patch Cii	44.26	40.10	14.98	0.61		0.06	6270
	Patch D	71.95	15.03	12.64	0.05	0.05	0.26	1929
	Patch E	68.82	18.31	12.44			0.43	1174
	Patch F	39.69	52.63	7.25			0.44	1600
	Patch G	58.83	14.57	25.87	0.55	0.18		549
	Patch H	42.68	50.00	3.66	3.66			82
	Patch I	56.07	27.58	15.90	0.27		0.18	2183
LK2004/011B	*In situ*	42.48	43.79	9.80		1.31	0.65	459
	Slump							-
MB2005/001E (north)	Layer 1	10.17	58.51	8.59		12.08	5.88	629
	Layer 2	10.21	65.25	2.41	0.14	15.18	5.25	705
	Layer 3	10.84	72.51	3.46	0.11	6.15	6.48	895
	Layer 4	7.60	82.65	0.72	0.10	5.54	2.98	974
	Layer 5	7.39	87.39	1.08		3.24	0.90	555
	Layer 6	10.56	82.61	0.62		3.73	1.86	161
MB2005/001E (south)	Surface	4.57	66.40	1.70	0.30	20.88	2.09	1006
	2nd Layer	10.46	69.61	4.25	0.33	11.77	0.98	306
	3rd Layer	9.82	52.68	26.49	1.19	8.33		336
	4th Layer	15.53	56.71	17.48		8.74	0.97	103
	5th Layer	6.67	73.33	13.33		6.67		15
	6th Layer							-
	7th Layer	7.75	86.05	0.78		3.88	0.78	129
	8th Layer	6.24	92.81	0.53		0.42		946
MB2005/013		35.90	51.52	10.14	0.84	0.41	1.18	1184
MB2005/027		17.38	68.67	11.98	0.68	0.06	0.12	1628
MB2005/028A		24.74	68.5	5.95		0.24	0.08	2542
MB2005/059	Patch A	5.72	88.31	3.41	0.49	1.83	0.24	821
	Patch B	8.82	80.51	1.47		9.01	0.18	544
MV2007/005								0
MV2007/009								0

Site	Layer / Patch	*C. granatina*	*S. granularis*	*S. argenvillei*	*S. barbara*	*C. meridionalis*	Whelk	Sample MNI
PN2009/001	North (J70)	66.0	19.6	1.8		1.8	10.7	112
	North (W87)	62.8	11.4	2.8		11.4	11.4	35
	Centre (I64)	21.7	8.6	1.8		45.9	21.7	161
	Centre (F64)	21.3	6.3	0.4		60.2	11.8	560
	South (ZY36 & ZY37)	45.4	18.4			0.7	34.8	141
	South (F48 L1)	84.5	15.0	0.2		0.2		538
	South (F48 L2)	68.6	31.3					134
SK2001/024	Patch A, G10	74.90	21.19	3.70	0.21			486
SK2001/025	Area A	55.11	37.19	6.31	0.68	x	0.65	3377
	Area B	44.86	43.01	9.70	2.37	x	0.07	1351
	Area C	62.91	35.63	1.08	0.25	x	0.07	6837
	Area D	46.00	33.73	18.00	2.09	x	x	1100
	Area E	37.66	48.05	11.04	3.25		x	154
	Area F	38.49	47.04	12.17	1.64	0.33	0.33	304
SK2001/039		47.55	51.53	0.78	0.14	x		1039
SK2005/057A		33.79	60.74	4.86	0.46	x	0.09	4564
SK2005/074A	Layer 1	39.64	48.99	6.06	1.77		0.51	396
	Layer 2	51.15	43.98	2.84	0.95	x	0.41	739
	Layer 3							-
	Layer 4	56.21	41.34	1.23	1.09	0.14		733
SK2005/084		27.70	63.31	1.44		3.60	2.88	278
SK2005/095	Patch A	49.61	46.01	4.38				776
	Patch B, M25	61.72	36.90	0.34	1.03			290
	Patch B, U23	45.07	53.52	1.41				142
	Patch B, S20	71.74	28.26					1472
	Patch B, S16	67.46	24.60	7.94				126
	Patch B, N16	35.83	58.63	5.21	0.33			307
SK2005/096A		45.57	37.52	16.30	0.34		0.20	1466
SK2005/096B		43.06	41.63	11.96	3.35			209
SK2006/006	Patch 1	48.13	43.45	3.93	0.92		2.05	3029
	Patch 2 Upper	66.67	18.62	8.33	5.50		0.71	564
	Patch 2 Lower	50.89	31.81	16.70	0.20		0.40	558
	Patch 3	53.30	31.10	5.81	1.50		3.61	1135
TP2004/003*		21.52	25.06	3.54				395
TP2004/014		38.80	53.22	0.89	x			902

Site	Layer / Patch	*C. granatina*	*S. granularis*	*S. argenvillei*	*S. barbara*	*C. meridionalis*	Whelk	Sample MNI
KK002	Upper	16	13	1		x	2	41
	Lower	x	x	x		x	x	-
KK003**		x	x	x		x	x	-
VR001**	Layers 1–4A	x						-
	Layers 4B-5	x						-
	Layer 6					x		-
	Layer 7					x		-
	Layers 8-9A					x		-
	Layer 9B							-
VR005**	Layer 1					x		-
	Layer 2					x		-
	Layer 3					x		-
	Layer 4					x		-
	Layer 5							-
	Layer 6		x					-
	Layer 7							-
VR048**		x		x		x		-
JKB K								-
JKB M								-

* Frequencies unreliable due to poor preservation; remainder all indeterminate limpets

** Very few countable shells, only species recorded

Table A2.3: Rock lobster. Mean lengths in mm.

Site	Layer/Area	Broken left	Broken right	Fragments	Left (n)	Left (mean)	Right (n)	Right (mean)	MNI
DP2004/010	Patch A	28	24	24	50	11.57 ± 2.50	65	12.21 ± 2.91	79
	Patch B	2			1	9.02	1	9.03	3
HKB2007/007		6	4	1	5	not meas.	0	-	11
KN2001/009		33	43	9	44	12.15 ±2.50	46	12.84 ±2.78	89
KN2004/012		64	53	15	66	12.26 ± 3.05	75	12.82 ± 3.23	128
KN2004/015E		17	20	3	23	11.28 ± 1.16	13	12.08 ± 2.83	33
KN2005/040		33	29	15	40	12.69 ± 2.88	42	13.62 ± 3.02	73
KN2005/041		81	86	113	145	13.43 ± 3.14	152	13.63 ± 3.03	238
KN2005/050		36	47	56	84	15.63 ± 3.99	82	16.98 ± 4.18	129
KN2005/054		6	9	3	154	13.11 ± 3.12	129	14.09 ± 3.34	160
KN2005/067	Patch 1A	77	101	162	154	15.04 ± 3.48	152	15.81 ± 3.75	253
	Patch 1B	35	41	24	36	11.81 ± 3.41	35	12.78 ± 3.24	76
	Patch 1C	14	26	29	16	12.93 ± 4.53	20	13.79 ± 4.39	46
	Patch 2	3	3	4	5	14.09 ± 3.87	4	12.74 ± 3.25	8
	Patch 3	2	5	19	18	14.30 ± 4.41	10	14.05 ± 4.39	20
	Patch 4	3	6	4	4	11.00 ± 1.53	6	13.24 ± 4.32	12
	Patch 5	3	2	5	2	16.22 ± 2.56	5	14.31 ± 2.98	7
KN2005/135A		70	59	74	80	12.47 ± 2.39	96	12.75 ± 2.77	155
KN2005/135B		61	67	59	47	12.20 ± 2.22	47	12.22 ± 2.18	108
KV2001/012	Area A	3	1			-		-	3
	Area B	55	51	9	10	13.92 ± 2.69	15	14.14 ± 2.65	66
	Area C	23	17	13	3	13.00 ± 2.67	5	12.93 ± 4.08	26

Site	Layer/Area	Broken left	Broken right	Fragments	Left (n)	Left (mean)	Right (n)	Right (mean)	MNI
LK2001/015	Patch A	7	5	16		-		-	7
	Patch B		3	2		-		-	3
	Patch Ci	3	4			-		-	4
	Patch Cii	70	91	61	97	11.86 ± 3.00	92	12.26 ± 2.54	183
	Patch D	5	2	4	9	15.83 ± 3.83	7	15.88 ± 3.51	14
	Patch E	1		1		-	1	8.61	1
	Patch F	7	11	9	1	11.52	1	14.66	12
	Patch G	1	1		1	12.91			2
	Patch H	3	2	4		-		-	3
	Patch I	8	28	17	9	11.05 ± 1.80	5	14.11 ± 4.14	33
LK2004/011B	*In situ*	2	6	6	9	14.70 ± 3.00	9	13.77 ± 4.09	15
	Slump	22	29	16	15	14.50 ± 3.09	19	15.80 ± 2.75	48
MB2005/001E (North)	Layer 1	52	94	46	132	10.91 ± 2.63	133	11.30 ± 2.57	227
	Layer 2	1	1	1	11	13.90 ± 4.18	13	15.84 ± 4.36	14
	Layer 3	11	15	7	41	12.24 ± 2.54	53	11.58 ± 3.35	68
	Layer 4	2	1		13	10.40 ± 1.27	4	12.64 ± 0.95	15
MB2005/013		45	40	33	20	12.43 ± 2.43	13	13.16 ± 2.15	65
MB2005/027		36	52	28	19	12.08 ± 3.02	24	12.53 ± 2.26	76
MB2005/028A		28	30	52	42	12.34 ± 2.67	33	13.73 ± 3.41	70
MB2005/059	Patch A	3	4	7	8	11.73 ± 2.62	2	12.19 ± 1.01	11
	Patch B		1	2	1	11.42		-	1
MV2007/005						-		-	0
MV2007/009						-		-	0
PN2009/001		663	1059	605	1109	11.19 ± 1.84	824	11.82 ± 1.98	1883

Site	Layer/Area	Broken left	Broken right	Fragments	Left (n)	Left (mean)	Right (n)	Right (mean)	MNI
SK2001/024	Patch A	2	10	3	5	11.83 ± 3.21	6	13.11 ± 2.25	16
	Patch B					-		-	0
	Patch C	1	1		2	12.21 ± 0.73	1	11.18	2
	Patch M		4	2	3	18.25 ± 4.14		-	4
SK2001/025	Area A	95	112	64	103	11.98 ± 2.16	67	12.76 ± 2.40	198
	Area B	97	127	33	71	10.90 ± 2.05	58	11.65 ± 1.44	185
	Area C	89	121	36	164	11.77 ± 1.78	150	12.38 ± 1.95	271
	Area D	88	118	36	68	10.79 ± 1.36	49	12.09 ± 2.08	167
	Area E	4	5	1	6	11.21 ± 2.12	7	11.4 ± 2.38	12
	Area F	117	176	21	73	11.69 ± 1.76	45	12.48 ± 2.50	221
SK2001/039		52	83	30	48	11.10 ± 1.89	51	12.68 ± 2.26	134
SK2005/057A		293	300	423	251	13.92 ± 3.80	227	15.20 ± 3.59	544
SK2005/074A	Surf	88	113	95	50	11.11 ± 1.87	35	11.86 ± 2.21	139
	M1/ L1	80	102	96	114	11.37 ± 2.07	97	12.42 ± 2.59	199
	L2	3	1	8	11	10.53 ± 1.03	5	11.24 ± 2.10	14
	M2					-		-	0
SK2005/084		12	33	14	16	11.69 ± 2.46	16	11.79 ± 2.08	51
SK2005/095	Patch A	11	20	28	21	14.24 ± 2.48	18	15.89 ± 2.54	38
	Patch B	16	14	16	13	13.45 ± 3.42	14	15.50 ± 3.00	29
SK2005/096A		90	187	79	203	11.73 ± 2.30	189	12.53 ± 2.29	376
SK2005/096B		13	9	3	33	11.41 ± 2.09	15	13.58 ± 3.72	46

Site	Layer/Area	Broken left	Broken right	Fragments	Left (n)	Left (mean)	Right (n)	Right (mean)	MNI
SK2006/006	Patch 1	10	19	6	17	12.53 ± 2.69	17	14.72 ± 3.25	36
	Patch 2 Upper	68	95	71	105	12.33 ± 2.78	90	13.02 ± 3.06	185
	Patch 2 Lower	51	74	57	104	12.44 ± 3.15	93	13.53 ± 3.56	167
	Patch 3	18	24	22	25	11.51 ± 2.79	13	12.09 ± 3.03	43
TP2004/003		25	23	14	8	13.84 ± 1.91	5	14.29 ± 3.44	33
TP2004/014		54	51	67	58	11.73 ± 2.26	64	12.40 ± 2.61	115
KK002	Upper	24	25	28	35	12.36 ± 2.40	42	13.47 ± 3.06	67
	Lower	1	2	1	1	13.75	0	-	2
KK003						-		-	
VR001						-		-	
VR005						-		-	
VR048						-		-	
JKB K						-		-	
JKB M						-		-	

Table A2.4.1: Fauna (part 1). NISP/MNI listed where available, otherwise presence is marked by an 'x'. Please see A2.4.3 for references and notes.

Site	Layer / Area	*Bathyergus suillus* (Dune molerat)	Micromammal	*Hystrix africaeaustralis* (porcupine)	Leporidae gen. *et* sp. indet. (Hare)	*Procavia capensis* (Rock hyrax)	*Panthera pardus* (leopard)	*Panthera leo* (lion)	*Felis caracal* (caracal)	*Felis libyca* (Wild cat)	*Felis caracal aut serval (caracal or serval)*	*Canis* sp. (dog or jackal)	*Otocyon megalotis* (Bat-eared fox)	*Otocyon/Vulpes (fox)*	*Arctocephalus pusillus* (Seal)	Small-medium canid	*Mellivora capensis* (Honey badger)	*Ictonyx striatus* (Striped polecat)	*Cynictis penicillata* (Yellow mongoose)	Medium carnivore	Small carnivore	*Papio ursinus* (Chacma baboon)	*Orycteropus afer* (aardvark)	Cetacea (whale)
DP2004/010	Patch A														x									x
	Patch B																							
HKB2007/007												1/1												
KN2001/009			x		1/1							3/1							2/1					
KN2004/012			x		2/1																			
KN2004/015E			x																					
KN2005/040			x																					
KN2005/041						3/1									3/1					1/1	3/1			
KN2005/041					10/2					1/1					3/1		1/1							
KN2005/50			2/1																		21/2			
KN2005/054			x																					
KN2005/067	Patch 1A		x		3/1					1/1														
	Patch 1B				2/1		3/1			4/1														
	Patch 1C						2/1																	

Site	Layer / Area	*Bathyergus suillus* (Dune molerat)	Micromammal	*Hystrix africaeaustralis* (porcupine)	Leporidae gen. et sp. indet. (Hare)	*Procavia capensis* (Rock hyrax)	*Panthera pardus* (leopard)	*Panthera leo* (lion)	*Felis caracal* (caracal)	*Felis libyca* (Wild cat)	*Felis caracul aut serval (caracal or serval)*	*Canis* sp. (dog or jackal)	*Otocyon megalotis* (Bat-eared fox)	*Otocyon/Vulpes (fox)*	*Arctocephalus pusillus* (Seal)	Small-medium canid	*Mellivora capensis* (Honey badger)	*Ictonyx striatus* (Striped polecat)	*Cynictis penicillata* (Yellow mongoose)	Medium carnivore	Small carnivore	*Papio ursinus* (Chacma baboon)	*Orycteropus afer* (aardvark)	Cetacea (whale)
KN2005/067	Patch 1				5/1		5/1			5/1														
	Patch 2																							
	Patch 3																							
	Patch 4																							
KN2005/135A			x																					
KN2005/135B																								
KV2001/012	Area A		x																					
	Area B																							
	Area C																							
LK2001/015	Patch A																							
	Patch B																							
	Patch Ci														1/1						1/1			
	Patch Cii																				1/1			
	Patch D														8/1									
	Patch E																							
	Patch F														2/1									
	Patch G																							

Site	Layer / Area	*Bathyergus suillus* (Dune molerat)	Micromammal	*Hystrix africaeaustralis* (porcupine)	Leporidae gen. et sp. indet. (Hare)	*Procavia capensis* (Rock hyrax)	*Panthera pardus* (leopard)	*Panthera leo* (lion)	*Felis caracal* (caracal)	*Felis libyca* (Wild cat)	*Felis caracal aut serval (caracal or serval)*	*Canis* sp. (dog or jackal)	*Otocyon megalotis* (Bat-eared fox)	*Otocyon/Vulpes (fox)*	*Arctocephalus pusillus* (Seal)	Small-medium canid	*Mellivora capensis* (Honey badger)	*Ictonyx striatus* (Striped polecat)	*Cynictis penicillata* (Yellow mongoose)	Medium carnivore	Small carnivore	*Papio ursinus* (Chacma baboon)	*Orycteropus afer* (aardvark)	Cetacea (whale)
LK2001/015	Patch H																							
	Patch I																							
LK2004/011B	Slump		3/2												2/1									
	In situ		8/2																		1/1			
LK2004/011B	Slump		x												1/1									
	In situ		x									3/1												
MB2005/001E	Layer 1		x												x									
MB2005/001E	Layer 2		x																					
MB2005/001E	Layer 3		x												x									
MB2005/001E	Layer 4		x																					
MB2005/013		x	x																		x			
MB2005/027			8/2												9/2						2/1			
MB205/028A																								
MB2005/059			x																					
MV2007/005																								
MV2007/009																								
PN2009/001			x		12/1					1/1														

Site	**Layer / Area**	***Bathyergus suillus* (Dune molerat)**	**Micromammal**	***Hystrix africaeaustralis* (porcupine)**	**Leporidae gen. et sp. indet. (Hare)**	***Procavia capensis* (Rock hyrax)**	***Panthera pardus* (leopard)**	***Panthera leo* (lion)**	***Felis caracal* (caracal)**	***Felis libyca* (Wild cat)**	***Felis caracal aut serval (caracal or serval)***	***Canis* sp. (dog or jackal)**	***Otocyon megalotis* (Bat-eared fox)**	***Otocyon/Vulpes (fox)***	***Arctocephalus pusillus* (Seal)**	**Small-medium canid**	***Mellivora capensis* (Honey badger)**	***Ictonyx striatus* (Striped polecat)**	***Cynictis penicillata* (Yellow mongoose)**	**Medium carnivore**	**Small carnivore**	***Papio ursinus* (Chacma baboon)**	***Orycteropus afer* (aardvark)**	**Cetacea (whale)**
SK2001/024	Patch A									1/1					4/1				1/1		x			
	Patch B																							
	Patch C																							
	Patch M														?									
SK2001/025	Area A																							
	Area B																							
	Area C		2/1												1/1									
	Area D																							
	Area F		38/-																					
SK2001/039			x												5/1									
SK2005/057A			x							2/1		12/2						4/1	8/3					
SK2005/074A	Surf																							
	M1/ L1		X																					
	L2		x																					
	M2																							
SK2005/084																								
SK2005/095												1/1												

Site	Layer / Area	*Bathyergus suillus* (Dune molerat)	Micromammal	*Hystrix africaeaustralis* (porcupine)	Leporidae gen. et sp. indet. (Hare)	*Procavia capensis* (Rock hyrax)	*Panthera pardus* (leopard)	*Panthera leo* (lion)	*Felis caracal* (caracal)	*Felis libyca* (Wild cat)	*Felis caracal aut serval (caracal or serval)*	*Canis* sp. (dog or jackal)	*Otocyon megalotis* (Bat-eared fox)	*Otocyon/Vulpes (fox)*	*Arctocephalus pusillus* (Seal)	Small-medium canid	*Mellivora capensis* (Honey badger)	*Ictonyx striatus* (Striped polecat)	*Cynictis penicillata* (Yellow mongoose)	Medium carnivore	Small carnivore	*Papio ursinus* (Chacma baboon)	*Orycteropus afer* (aardvark)	Cetacea (whale)
SK2005/096A			5/1												10/1						1/1			
SK2005/096B			x																					
SK2006/006	Patch 1																							
	Patch 2 Upper		x																					
	Patch 2 Lower		x																					
	Patch 3														x									
TP2004/003																								
TP2004/014			x																					
KK002	Upper	1/1		1/1	5/1	37/4			1/1	17/2		5/1					2/1					1/1	1/1	
	Lower				5/1	8/2				3/1								1/1						
KK003						x																		

Site	**Layer / Area**	***Bathyergus suillus* (Dune molerat)**	**Micromammal**	***Hystrix africaeaustralis* (porcupine)**	**Leporidae gen. *et* sp. indet. (Hare)**	***Procavia capensis* (Rock hyrax)**	***Panthera pardus* (leopard)**	***Panthera leo* (lion)**	***Felis caracal* (caracal)**	***Felis libyca* (Wild cat)**	***Felis caracal aut serval (caracal or serval)***	***Canis* sp. (dog or jackal)**	***Otocyon megalotis* (Bat-eared fox)**	***Otocyon/Vulpes (fox)***	***Arctocephalus pusillus* (Seal)**	**Small-medium canid**	***Mellivora capensis* (Honey badger)**	***Ictonyx striatus* (Striped polecat)**	***Cynictis penicillata* (Yellow mongoose)**	**Medium carnivore**	**Small carnivore**	***Papio ursinus* (Chacma baboon)**	***Orycteropus afer* (aardvark)**	**Cetacea (whale)**
VR001	Layers 1–4A	3/1			4/1	5/2				3/1		4/1												
	Layers 4B-5	2/1			5/1	8/1	1/1	1/1	1/1	9/1														
	Layer 6				1/1							1/1										1/1		
	Layer 7				1/1	2/1						1/1												
	Layers 8-9A				7/1	3/1				7/2		1/1												
	Layer 9B				5/1					2/1		1/1												
VR005	Layer 1	4/1		2/1	21/1	6/1				13/2	1/1	4/1		1/1										
	Layer 2	6/2		5/1	6/1	15/3				21/3	1/1	2/1	1/1	2/1				1/1			2/1			
	Layer 3	6/1		1/1	6/2	6/1				16/2	1/1	7/2												
	Layer 4	5/2			16/2	6/1						2/1												
	Layer 5				7/1																			
	Layer 6					2/1				1/1														
	Layer 7																							
VR048			x																					
JKB K						x																		
JKB M					x																			

Table A2.4.2: Fauna (part 2). NISP/MNI listed where available, otherwise presence is marked by an 'x'. Please see A2.4.3 for references and notes.

Site	**Layer / Area**	***Equus* sp. (indet. equid)**	***Bos taurus* (Cow)**	**Alcelaphini**	***Oryx gazella* (gemsbok)**	***Antidorcas marsupialis* (springbok)**	***Ovis aries* (Sheep)**	***Capra hircus* (Goat)**	**Sheep/goat**	***Oreotragus oreotragus* (klipspringer)**	***Raphicerus campestris* (steenbok)**	***Raphicerus* sp. (steenbok or grysbok)**	***Sylvicapra grimmia* (Grey Duiker)**	**Large bovid**	**Large-medium bovid**	**Medium bovid**	**Small-medium bovid**	**Small bovid**
DP2004/010	Patch A																	x
	Patch B																	
HKB2007/007			1/1					1/1	20/3					3/1			52/2	7/1
KN2001/009												2/1						13/1
KN2004/012																		11/2
KN2004/015E																		?
KN2005/040																		x
KN2005/041											2/1			1/1				
KN2005/041			1/1								1/1			3/1	1/1			9/1
KN2005/50											77/2			1/1				5/1
KN2005/054																		x
KN2005/067	Patch 1A										6/3	15/4		5/1	5/1		2/1	105/4
	Patch 1B						1/1				7/3	34/7		2/1			1/1	142/6
	Patch 1C						1/1										1/1	7/2

Site	Layer / Area	*Equus* sp. (indet. equid)	*Bos taurus* (Cow)	Alcelaphini	*Oryx gazella* (gemsbok)	*Antidorcas marsupialis* (springbok)	*Ovis aries* (Sheep)	*Capra hircus* (Goat)	Sheep/goat	*Oreotragus oreotragus* (klipspringer)	*Raphicerus campestris* (steenbok)	*Raphicerus* sp. (steenbok or grysbok)	*Sylvicapra grimmia* (Grey Duiker)	Large bovid	Large-medium bovid	Medium bovid	Small-medium bovid	Small bovid
KN2005/067	Patch 1						2/1				13/5	49/8		7/1	5/1		4/1	256/8
	Patch 2																	
	Patch 3																	
	Patch 4																	7/1
KN2005/135A																		x
KN2005/135B																		x
KV2001/012	Area A																	
	Area B																?	x
	Area C																	x
LK2001/015	Patch A																	
	Patch B																	
	Patch Ci																7/1	
	Patch Cii																1/1	8/1
	Patch D													1/1				7/1
	Patch E																	
	Patch F																	
	Patch G																	

Site	Layer / Area	*Equus* sp. (indet. equid)	*Bos taurus* (Cow)	Alcelaphini	*Oryx gazella* (gemsbok)	*Antidorcas marsupialis* (springbok)	*Ovis aries* (Sheep)	*Capra hircus* (Goat)	Sheep/goat	*Oreotragus oreotragus* (klipspringer)	*Raphicerus campestris* (steenbok)	*Raphicerus* sp. (steenbok or grysbok)	*Sylvicapra grimmia* (Grey Duiker)	Large bovid	Large-medium bovid	Medium bovid	Small-medium bovid	Small bovid
LK2001/015	Patch H																	
	Patch I																	2/1
LK2004/011B	Slump										2/1		1/1	1/1				1/-
	In situ										4/2							
LK2004/011B	Slump													6/1				
	In situ						1/1				1/2	1/1	1/1				2/1	4/2
MB2005/001E	Layer 1																	?
	Layer 2																	
	Layer 3																	
	Layer 4																	
MB2005/013																		x
MB2005/027											3/1			1/1				
MB205/028A																		x
MB2005/059																		
MV2007/005																		
MV2007/009																		1/1
PN2009/001														1/1	1/1		4/1	1/1

Site	**Layer / Area**	***Equus* sp. (indet. equid)**	***Bos taurus* (Cow)**	**Alcelaphini**	***Oryx gazella* (gemsbok)**	***Antidorcas marsupialis* (springbok)**	***Ovis aries* (Sheep)**	***Capra hircus* (Goat)**	**Sheep/goat**	***Oreotragus oreotragus* (klipspringer)**	***Raphicerus campestris* (steenbok)**	***Raphicerus* sp. (steenbok or grysbok)**	***Sylvicapra grimmia* (Grey Duiker)**	**Large bovid**	**Large-medium bovid**	**Medium bovid**	**Small-medium bovid**	**Small bovid**
SK2001/024	Patch A										1/1	6/4					1/1	60/4
	Patch B																	
	Patch C																	
	Patch M																	
SK2001/025	Area A																	
	Area B																	
	Area C										15/2							1/1
	Area D																	
	Area F																	
SK2001/039												1/1					2/1	1/1
SK2005/057A			1/1								1/1	9/2		1/1			1/1	42/2
SK2005/074A	Surf															x		
	M1/ L1																	x
	L2																	
	M2																	
SK2005/084																		
SK2005/095			1/1											1/1	1/1			

Site	**Layer / Area**	***Equus* sp. (indet. equid)**	***Bos taurus* (Cow)**	**Alcelaphini**	***Oryx gazella* (gemsbok)**	***Antidorcas marsupialis* (springbok)**	***Ovis aries* (Sheep)**	***Capra hircus* (Goat)**	**Sheep/goat**	***Oreotragus oreotragus* (klipspringer)**	***Raphicerus campestris* (steenbok)**	***Raphicerus* sp. (steenbok or grysbok)**	***Sylvicapra grimmia* (Grey Duiker)**	**Large bovid**	**Large-medium bovid**	**Medium bovid**	**Small-medium bovid**	**Small bovid**
SK2005/096A											2/1							
SK2005/096B																		
SK2006/006	Patch 1																	
	Patch 2 Upper																	?
	Patch 2 Lower																	
	Patch 3																?	x
TP2004/003																		
TP2004/014																		
KK002	Upper		1/1								1/1	17/2	1/1	3/1	7/1		12/1	78/3
	Lower	1/1									7/2	9/3		1/1				27/3
KK003																		

Site	Layer / Area	*Equus* sp. (indet. equid)	*Bos taurus* (Cow)	Alcelaphini	*Oryx gazella* (gemsbok)	*Antidorcas marsupialis* (springbok)	*Ovis aries* (Sheep)	*Capra hircus* (Goat)	Sheep/goat	*Oreotragus oreotragus* (klipspringer)	*Raphicerus campestris* (steenbok)	*Raphicerus* sp. (steenbok or grysbok)	*Sylvicapra grimmia* (Grey Duiker)	Large bovid	Large-medium bovid	Medium bovid	Small-medium bovid	Small bovid
VR001	Layers 1–4A			1/1							2/1	2/1		2/1	3/1		3/1	12/2
	Layers 4B-5								1/1		12/3	6/2	1/1	4/1			10/1	70/3
	Layer 6										1/1	1/1			1/1		1/1	19/2
	Layer 7	1/1			2/1										2/1		1/1	8/1
	Layers 8-9A	2/1			3/1				1/1	1/1	3/2	3/2	1/1	17/1	30/2		15/1	35/2
	Layer 9B	1/1									1/1			2/1	1/1			15/2
VR005	Layer 1											1/1		5/1	2/1		12/1	21/2
	Layer 2										2/1	8/2		7/1	9/1		23/1	90/3
	Layer 3	2/1				1/1	2/1				1/1	2/1		3/1	4/1		20/2	36/2
	Layer 4											4/1		3/1	2/1		8/1	26/1
	Layer 5											2/1						4/1
	Layer 6																1/1	8/1
	Layer 7																	
VR048																		x
JKB K		x															x	x
JKB M							x										x	x

Table A2.4.3: Fauna (part 3). NISP/MNI listed where available, otherwise presence is marked by an ‘x’. Where tortoise has an ‘h’ this refers to the number of distal humeri present. References denote formal analyses done by specialists.

Site	**Layer / Area**	**Large mammal**	**Medium mammal**	**Small mammal**	**Mammal**	***Spheniscus demersus* (Penguin)**	**Bird**	***Pelomedusa subrufa* (Helmeted turtle)**	**Tortoise**	**Snake**	**Lizard**	**Fish**	**Fragments**	**References & Notes**
DP2004/010	Patch A											x		
	Patch B												x	
HKB2007/007										1/1				R. Klein & T. Steele, pers. comm. 2009
KN2001/009									x	x				R. Klein & T. Steele, pers. comm. 2011
KN2004/012					x				x/4			x		R. Klein, pers. comm. 2012
KN2004/015E									x			x		
KN2005/040									x	x				
KN2005/041		2/1	1/1		1698/-	1/1	1/-		15/1		1/1	4/1		G. Dewar, pers. comm. 2010
KN2005/041						x	x		x		x	x		R. Klein & T. Steele, pers. comm. 2011
KN2005/50				8/-	2036/-		6/1		61/2	1/1				G. Dewar, pers. comm. 2010
KN2005/054									x			x		
KN2005/067	Patch 1A									x				R. Klein & T. Steele, pers. comm. 2011
	Patch 1B									x				
	Patch 1C									x				

Site	**Layer / Area**	**Large mammal**	**Medium mammal**	**Small mammal**	**Mammal**	***Spheniscus demersus* (Penguin)**	**Bird**	***Pelomedusa subrufa* (Helmeted turtle)**	**Tortoise**	**Snake**	**Lizard**	**Fish**	**Fragments**	**References & Notes**
KN2005/067	Patch 1									x				R. Klein & T. Steele, pers. comm. 2011 Patch 1 = 1A, 1B & 1C combined
	Patch 2													
	Patch 3									x				
	Patch 4													
KN2005/135A									x					
KN2005/135B					x				x					
KV2001/012	Area A													
	Area B								x					
	Area C								x					
LK2001/015	Patch A												x	G. Dewar, pers. comm. 2010
	Patch B				6/1				7/1					
	Patch Ci				7/-				4/1					
	Patch Cii				10/-				117/4	5/1				
	Patch D	2/-		2/1	71/-				4/1					
	Patch E				4/1									
	Patch F			1/1	3/-				1/1					
	Patch G				1/1									

Site	Layer / Area	Large mammal	Medium mammal	Small mammal	Mammal	*Spheniscus demersus* (Penguin)	Bird	*Pelomedusa subrufa* (Helmeted turtle)	Tortoise	Snake	Lizard	Fish	Fragments	References & Notes
LK2001/015	Patch H												x	G. Dewar, pers. comm. 2010
	Patch I				55/-				7/1					
LK2004/011B	Slump				203/-		1/1		1/1					G. Dewar, pers. comm. 2010
	In situ			2/1	187/-						1/1			
LK2004/011B	Slump													R. Klein & T. Steele, pers. comm. 2011
	In situ													
MB2005/001E	Layer 1				x		x		x	x		x	x	
	Layer 2				x				x				x	
	Layer 3				x		x		x			x	x	
	Layer 4				x							x	x	
MB2005/013									x					
MB2005/027				3/1	487/-				11/1	2/-				G. Dewar, pers. comm. 2010
MB205/028A									x	x				
MB2005/059									x				x	
MV2007/005														
MV2007/009														?recent
PN2009/001						x			x			x		R. Klein, pers. comm. 2011

Site	Layer / Area	Large mammal	Medium mammal	Small mammal	Mammal	*Spheniscus demersus* (Penguin)	Bird	*Pelomedusa subrufa* (Helmeted turtle)	Tortoise	Snake	Lizard	Fish	Fragments	References & Notes
SK2001/024	Patch A								x	x				R. Klein & T. Steele, pers. comm. 2011
	Patch B												x	
	Patch C												x	
	Patch M													
SK2001/025	Area A			1/1	10/-						1/1			G. Dewar, pers. comm. 2010
	Area B			1/1	19/1				1/1		1/1			
	Area C			1/1	252/1				2/1	12/1				
	Area D				5/-				1/1					
	Area F										1/1			
SK2001/039									x	x		x		R. Klein & T. Steele, pers. comm. 2011
SK2005/057A									x	x		x		R. Klein & T. Steele, pers. comm. 2011
SK2005/074A	Surf								x			x		
	M1/ L1								x	x		x		
	L2								x			x		
	M2													
SK2005/084									x				x	
SK2005/095									x			x		R. Klein & T. Steele, pers. comm. 2011

Site	Layer / Area	Large mammal	Medium mammal	Small mammal	Mammal	*Spheniscus demersus* (Penguin)	Bird	*Pelomedusa subrufa* (Helmeted turtle)	Tortoise	Snake	Lizard	Fish	Fragments	References & Notes
SK2005/096A				2/1	395/-				1/1					G. Dewar, pers. comm. 2010
SK2005/096B									x			x		
SK2006/006	Patch 1												x	
	Patch 2 Upper						x		x			x		
	Patch 2 Lower						x		x			x		
	Patch 3											x		
TP2004/003														
TP2004/014										x				
KK002	Upper								63h	123/-		4/-		R. Klein & T. Steele, pers. comm. 2011 Geometric tortoise carapace noted in Upper (NISP=5) and Lower (NISP=1).
	Lower								22h	58/-		1/-		
KK003					x				x				x	

Site	Layer / Area	Large mammal	Medium mammal	Small mammal	Mammal	*Spheniscus demersus* (Penguin)	Bird	*Pelomedusa subrufa* (Helmeted turtle)	Tortoise	Snake	Lizard	Fish	Fragments	References & Notes
VR001	Layers 1–4A						1/-		15h	171/-				Updated from Orton *et al.* (in press) by R. Klein & T. Steele, pers. comm. 2012 and data reorganised into present layers by T. Steele (pers. comm. 2012). Helmeted turtle identified from humeri.
	Layers 4B-5						2/-	1/-	39h	1135/-		2/-		
	Layer 6							1/-	8h	94/-		1/-		
	Layer 7								3h	10/-				
	Layers 8-9A						8/-		39h	140/-		17/-		
	Layer 9B								2h	60/-		2/-		
VR005	Layer 1							1/-	26h	245/-		1/-		R. Klein & T. Steele, pers. comm. 2012. Tented tortoise carapace noted in Layer 1 (NISP=1) and Layer 2 (NISP=2). Helmeted turtle identified from humeri.
	Layer 2								26h	384/-		3/-		
	Layer 3						2/-		24h	328/-		5/-		
	Layer 4								15h	52/-		28/-		
	Layer 5								2h	1/-		1/-		
	Layer 6								5h	13/-		1/-		
	Layer 7									2/-				
VR048					x				x	x			x	
JKB K														R. Klein & T. Steele, pers. comm. 2006
JKB M														R. Klein & T. Steele, pers. comm. 2006

Appendix 3: Radiocarbon dates.

Table A3.1: Complete archaeological radiocarbon database for Namaqualand (sorted alpha-numerically by site name within each area, except the central Sandveld which is further split into farms, north to south). Not all 13C values were published and in such cases they were obtained directly from the authors or original radiocarbon laboratory reports where possible. Note that dates in Dewar *et al.* 2012 were only published after completion of the body of this thesis.

Site	**Laboratory Number**	**^{14}C age**	**δ^{13}C**	**Material**	**Calibrated at 2 sigma (95.4%)**	**Provenience**	**References**
				Richtersveld			
Bloeddrift 23	Pta-7942	355 ± 15	Unknown	Charcoal	AD 1501–1636	Hearth 3B	A. Smith *et al.* 2001
Bloeddrift 32	Pta-8498	370 ± 35	-24.8	Charcoal	AD 1464–1636	lens 1 (72 cm)	Gray 2009
Bloeddrift 32	Pta-8497	350 ± 30	-24.4	Charcoal	AD 1490–1645	lens in column 1 (102 cm)	Gray 2009
Die Toon	Pta-5963	3110 ± 60	-12.5	Charcoal	1451–1121 BC	Unit 3, 16-18 cm, A5, ThF	Webley *et al.* 1993
Die Toon	Pta-5960	3840 ± 60	-23.6	Charcoal	2457–2034 BC	Unit 2, hearth, square B6, PDA	Webley *et al.* 1993
/hei-/khomas	Pta-5458	420 ± 50	-22.3	Charcoal	AD 1443–1629	Area 1, N33, Layer BL, 5 cm depth	Webley 1992b
/hei-/khomas	Pta-5452	330 ± 45	-19.7	Charcoal	AD 1464–1667	Area 2, P32, Layer SLS2, 16 cm depth	Webley 1992b
/hei-/khomas	Pta-5444	106.1 ± 0.6	-23.2	Charcoal	AD 1816–1916	Area 3, Y21, Layer Unit 2, 7 cm depth	Webley 1992b
/hei-/khomas	Pta-5530	1980 ± 80	-19.7	Charred bone	159 BC–AD 317	Area 3, Y21, Layer LBS3, 18 cm depth	Webley 1992b
Jakkalsberg A	Pta-5958	1330 ± 60	-23.2	Charcoal	AD 653–886	Hearth 1	Webley 1997
Jakkalsberg A	Pta-6100	1300 ± 25	-23.5	Charcoal	AD 684–869	Hearth 2	Webley 1997
Jakkalsberg A	Pta-8494	1250 ± 50	-23.5	Charcoal	AD 688–970	Lens A (20 cm)	Gray 2009
Jakkalsberg B	Pta-6122	1420 ± 25	-23.8	Charcoal	AD 612–762	K11 Hearth 1	Webley 1997
Jakkalsberg B	Pta-6101	1380 ± 50	-23.3	Charcoal	AD 610–855	J13-J14 Hearth 2	Webley 1997
Jakkalsberg L	GX-32065	3330 ± 70	-24.6	Charcoal	1737–1415 BC	F16	Orton & Halkett 2010
Jakkalsberg N	Pta-8496	4500 ± 50	-6.8	Ostrich eggshell	3490–2458 BC	random collection	Orton & Halkett 2010
Jakkalsberg N	GX-32754 (AMS)	4960 ± 40	0	Marine shell	3437–2880 BC	J259	Orton & Halkett 2010
Jakkalsberg N	GX-32755 (AMS)	4860 ± 40	-5.3	Engraved ostrich eggshell	3962–3105 BC	X256	Orton & Halkett 2010
Jakkalsberg M	GX-32760	1740 ± 75	-6.1	Ostrich eggshell	AD 83–943	L32, L33, M33	Orton & Halkett 2010
Jakkalsberg K	GX-32761	660 ± 100	-24.4	Charcoal	AD 1212–1459	Alongside Hearth A1	Orton & Halkett 2010
Jakkalsberg K	OxA-24528	358 ± 26	-13.72	Bone (*R. campestris*)	AD 1488–1640	K60	Present thesis
Jakkalsberg O	Pta-8492	310 ± 15	-21.4	Organic soil (dung-rich)	AD 1510–1655	La 2 (70 cm)	Gray 2009
Jakkalsberg O	Pta-8500	720 ± 50	-25.3	Organic soil (dung-rich)	AD 1235–1398	La 4 (120 cm)	Gray 2009
Jakkalsberg O	Pta-8493	303 ± 50	-26.1	Organic soil	AD 1483–1800	Ash Lens 2	Gray 2009
Jakkalsberg O	Pta-8495	1340 ± 50	-25.5	Organic soil	AD 654–869	Ash Lens 3	Gray 2009
Boegoeberg 1	GX-21191	37,220 +5010/ -3060	-7.9	Ostrich eggshell	(out of range)	Hyena den - GBS, sq H15/8	Klein *et al.* 1999
Boegoeberg 1	GX-21189	33,230 +2,630/ -1,980	-6.9	Ostrich eggshell	(out of range)	Hyena den - Schist Chips, sq H16/7	Klein *et al.* 1999

Site	Laboratory Number	^{14}C age	$\delta^{13}C$	Material	Calibrated at 2 sigma (95.4%)	Context	References
Boegoeberg 1	GX-21190	34,990 +3,110/ -2,240	-6.7	Ostrich eggshell	(out of range)	Hyena den - Brown Powdery, sq G15/8	Klein *et al.* 1999
Boegoeberg 2	Pta-6956	44,200 ± 1200	-7.2	Ostrich eggshell	(out of range)	Unknown	Klein *et al.* 1999
Northern Sandveld: Port Nolloth							
PN2009/001	UGAMS-6607	2670 ± 30	-0.3	Marine shell	504 BC–AD 28	I64	Webley & Orton 2010
Northern Sandveld: Tweepad							
TP2004/003	UGAMS-8424	2230 ± 25	-2.1	Marine shell	AD 52–539	S20	Present thesis
TP2004/004	GX-32058	990 ± 60	1.2	Marine shell	AD 1300–1680	Unknown	Dewar 2008
TP2004/014	UGAMS-8425	3430 ± 25	0.1	Marine shell	1417–908 BC	H44 Lower	Present thesis
Northern Sandveld: Kareedoringvlei							
KV2001/011	Pta-9306	2940 ± 45	1.04	Marine shell	826–339 BC	Unknown	Dewar 2008
KV2001/012	UGAMS-8870	3760 ± 25	-2.5	Marine shell	1857–1360 BC	F14 Surface, Area A	Present thesis
KV2001/012	OxA-22934	1219 ± 23	-7.25	Ostrich eggshell bead	AD 717–1282	G24 Surface, Area B	Present thesis
KV2001/012	UGAMS-9707	1380 ± 20	1.5	Marine shell	AD 960–1331	N26 & M27, Area B	Present thesis
Northern Sandveld: Dreyer's Pan							
DP2004/010	OxA-24078	712 ± 24	-25.59	Charcoal	AD 1282–1388	H16	Present thesis
DP2004/014	GX-32060	1020 ± 60	1.6	Marine shell	AD 1287–1666	Unknown	Dewar 2008
DP2004/014	UBA-9943	665 ± 21	-17.4	Bone (terrestrial mammal)	AD 1300–1396	M16 Top	Dewar *et al.* 2012
Northern Sandveld: Annex Kleinzee							
AK2006/006	UBA-9946	1189 ± 24	3.5	Marine shell	AD 1140–1480	J21 Midden	Dewar *et al.* 2012
AK2006/006	UBA-9945	649 ± 20	-17.3	Charcoal	AD 1309–1401	J21 Midden	Dewar *et al.* 2012
Northern Sandveld: Sandkop							
SK2001/024(a)	OxA-24523	570 ± 25	-19.54	Bone (*C. angulata*)	AD 1393–1440	F10	Present thesis
SK2001/025	Pta-9310	2640 ± 60	1.29	Marine shell	497 BC–AD 84	Area C	G. Dewar (pers. com. 2006)
SK2001/025	OxA-22976	2172 ± 25	-16.81	Bone (*R. campestris*)	346 BC–47 BC	P197 Midden, Area C	Present thesis
SK2001/025	UGAMS-9708	2320 ± 25	0.8	Marine shell	65 BC–AD 428	YC/YD 119/120, Area F	Present thesis
SK2001/028	Pta-9124	370 ± 45	-16.6	Bone (*A. marsupialis*)	AD 1460–1640	Square unknown, Surface	Dewar *et al.* 2006 (but site reported wrongly)
SK2001/026	Pta-9099	430 ± 45	-15.8	Bone (*A. marsupialis*)	AD 1438–1627	Square unknown, Surface	Dewar *et al.* 2006
SK2001/026	Pta-9105	420 ± 45	-16.3	Bone (*A. marsupialis*)	AD 1445–1627	Square unknown, Lower	Dewar *et al.* 2006
SK2001/039	OxA-24524	606 ± 25	-18.98	Bone (*C. angulata*)	AD 1319–1425	J33	Present thesis
SK2001/039	OxA-24525	609 ± 25	-19.03	Bone (*C. angulata*)	AD 1319–1422	J33	Present thesis
SK2001/046	Beta-201929	1050 ± 60	-1.5	Marine shell	AD 1266–1652	N25, Surface	R.G. Klein (pers. comm. 2005)
SK2005/057A	OxA-22981	400 ± 22	-21.34	Charcoal	AD 1455–1625	Y22, Hearth	Present thesis

Site	Laboratory Number	^{14}C age	δ^{13}C	Material	Calibrated at 2 sigma (95.4%)	Context	References
SK2005/074	OxA-24526	2132 ± 27	-14.86	Bone (*R. campestris*)	185 BC–AD 1	N24, Surface	Present thesis
SK2005/074	OxA-24527	2052 ± 34	-18.57	Bone (*C. angulata*)	107 BC–AD 85	M24, Layer 1	Present thesis
SK2005/084	UGAMS-6608	2420 ± 30	-1.0	Marine shell	196 BC–AD 325	S3	Present thesis
SK2005/095	OxA-24550	389 ± 24	-15.52	Bone (bovid)	AD 1459–1626	S20 L2, Patch B	Present thesis
SK2005/095	OxA-24551	468 ± 25	-18.38	Bone (*C. angulata*)	AD 1429–1497	F29 Midden, Patch A	Orton 2012
SK2005/096A	OxA-22974	611 ± 23	-18.22	Bone (*C. angulata*)	AD 1319–1420	G28, Surface	Present thesis
SK2005/096A	OxA-22975	654 ± 23	-18.23	Bone (*C. angulata*)	AD 1301–1401	G28, Surface	Present thesis
SK2005/096B	UGAMS-8871	2740 ± 25	0.6	Marine shell	648–60 BC	F15	Present thesis
SK2006/006	OxA-24077	377 ± 24	-18.53	Charcoal	AD 1465–1630	Patch 2, S39 Lower 2	Present thesis
SK2006/006	OxA-25329	401 ± 25	-23.44	Charcoal	AD1455–1625	Patch 2, S39 Lower 2A	Present thesis
SK2006/006	OxA-24076	425 ± 24	-22.29	Charcoal	AD 1446–1621	Patch 3, B53	Present thesis
Northern Sandveld: Elands Klip							
ELK 4	GX-32061	4820 ± 60	1.9	Marine shell	3318–2675 BC	Collected from surface	ACO, unpublished
ELK 14	GX-32056	3410 ± 70	1.7	Marine shell	1428–846 BC	Collected from surface	ACO, unpublished
Central Sandveld: Koingnaas							
KN2001/008C	Pta-9335	3720 ± 45	-0.42	Marine shell	1813–1272 BC	M18, SMU	Dewar 2007 (but location reported wrongly)
KN2001/008C	Pta-9325	3740 ± 60	-0.43	Marine shell	1862–1293 BC	M18, Surf 1	Dewar 2007
KN2001/008C	Pta-9316	4630 ± 70	1.74	Marine shell	3036–2401 BC	M18, Surf 3	Dewar 2007
KN2001/008C	OxA-22970	3355 ± 28	-17.65	Bone (*C. angulata*)	1681–1498 BC	G16, Surface	Present thesis
KN2001/009	OxA-24516	607 ± 24	-15.01	Bone (*R. campestris*.)	AD 1320–1423	E11, Surface	Present thesis
KN2004/012	OxA-22977	1579 ± 24	-7.25	Charcoal	AD 432–606	H16, Midden	Present thesis
KN2004/015E	OxA-22930	973 ± 24	-18.41	Bone (*C. angulata*)	AD1035–1174	WW73, Surface	Present thesis
KN2005/040	OxA-22971	2695 ± 26	-18.05	Bone (*C. angulata*)	895–772 BC	K12, Surface	Present thesis
KN2005/041	OxA-22933	1625 ± 25	-15.75	Bone (*Bos taurus*)	AD 421–559	E6, Midden, directly dated cow	Orton *et al.* in press
KN2005/041	OxA-22979	1631 ± 23	-14.15	Charcoal	AD 418–552	H6, Midden	Orton *et al.* in press
KN2005/050	OxA-22972	2993 ± 27	-17.36	Bone (*C. angulata*)	1263–1065 BC	L26	Present thesis
KN2005/054	OxA-22932	1598 ± 25	-16.56	Bone (*C. angulata*)	AD 429–584	D13, MS1	Present thesis
KN2005/067	OxA-24517	262 ± 23	-17.96	Bone (*C. angulata*)	AD 1637–1799	X-11, P3	Present thesis
KN2005/067	OxA-24518	321 ± 23	-18.89	Bone (*C. angulata*)	AD 1505–1652	H-5, Midden, Patch 1B	Orton 2012
KN2005/067	OxA-24522	355 ± 24	-19.9	Bone (*C. angulata*)	AD 1496–1640	R-10, Patch 1C	Orton 2012
KN2005/067	OxA-24519	891 ± 23	-18.34	Bone (*C. angulata*)	AD 1155–1261	L1, Tort. 3, Patch 1A	Orton 2012
KN2005/067	OxA-24521	354 ± 23	-19.25	Bone (*C. angulata*)	AD 1497–1640	O5, Midden/SAM, Patch 1A	Orton 2012
KN2005/067	OxA-24520	339 ± 24	-17.89	Bone (*C. angulata*)	AD 1501–1646	O5, Tortoise Burial, Patch 1A	Orton 2012
KN2005/135A	OxA-22973	2523 ± 27	-17.12	Bone (*C. angulata*)	761–414 BC	K23, Top	Present thesis
KN2005/135B	OxA-22931	368 ± 23	-17.52	Bone (*C. angulata*)	AD 1482–1634	D30, Surface	Present thesis

Site	Laboratory Number	^{14}C age	δ^{13}C	Material	Calibrated at 2 sigma (95.4%)	Context	References
				Central Sandveld: Hondeklipbaai			
HKB2007/007	UGAMS-5252	340 ± 30	-16.2	Charcoal	AD 1497–1648	Q7 & Q8, L2	Orton 2009a
HKB2007/035	UGAMS-5153	3590 ± 30	-13.4	Charcoal	1962–1748 BC	G15, L4	Orton 2009a
				Central Sandveld: Langklip			
LK2001/003	Pta-8910	1110 ± 50	-0.1	Marine shell	AD 1196–1581	G7a	Orton *et al.* 2005
LK2001/004	Pta-8909	2360 ± 60	0.5	Marine shell	156 BC–AD 410	Area D, R35	Orton *et al.* 2005
LK2001/004	Pta-8915	2505 ± 20	-0.3	Marine shell	331 BC–AD 180	Area A, H14	Orton *et al.* 2005
LK2001/013	Pta-9326	2180 ± 50	1.5	Marine shell	AD 85–595	Square unknown, Top	Dewar 2008
LK2001/013	UBA-9941	1524 ± 22	-20.4	Bone (*C. angulata*)	AD 550–645	Square unknown, Top	Dewar *et al.* 2012
LK2001/013	Pta-9312	2870 ± 60	0.87	Marine shell	777–218 BC	Square unknown, Top	Dewar 2008
LK2001/013	UBA-9942	932 ± 45	-16.5	Bone (*Raphicerus* sp.)	AD 1034–1225	Square unknown, Top	G. Dewar, pers. comm. 2011
LK2001/015	OxA-24557	394 ± 24	-18.07	Bone (*Raphicerus* sp.)	AD 1457–1626	Patch Ci, J29 Lower	Present thesis
LK2001/015	OxA-24558	420 ± 24	-18.81	Bone (*C. angulata*)	AD 1448–1622	Patch Cii, N32 Hearth/Ash	Present thesis
LK2001/015	OxA-24560	401 ± 22	-19.7	Bone (*C. angulata*)	AD 1455–1625	Patch D, ZA35	Present thesis
LK2001/015	OxA-24561	442 ± 24	-19.79	Bone (*C. angulata*)	AD 1442–1615	Patch D, ZA35	Present thesis
LK2001/015	OxA-24562	398 ± 25	-18.92	Bone (?*Raphicerus* sp.)	AD 1456–1626	Patch F, ZE32	Present thesis
LK2001/015	OxA-24559	403 ± 24	-14.31	Bone (*Raphicerus* sp.)	AD 1454–1625	Patch I, J6 Lower	Present thesis
LK2004/011	GX-32057	1200 ± 60	-0.8	Marine shell	AD 1084–1481	Square unknown, Midden 1	Dewar 2008
LK2004/011	UBA-9940	707 ± 37	-16.8	Bone (*Oryx gazella*)	AD 1280–1392	P46, Midden 2	Dewar *et al.* 2012
LK2004/011	GX-32059	1080 ± 50	0	Marine shell	AD 1241–1624	Square unknown, Midden 3	Dewar 2008
LK2004/011B	GX-32064	1250 ± 60	-1	Marine shell	AD 1055–1447	Q28d	ACO, unpublished
LK2004/011B	OxA-22980	924 ± 22	-15.45	Charcoal	AD 1050–1218	R27b	Present thesis
				Central Sandveld: Mitchell's Bay			
MB2005/001E	OxA-24552	2190 ± 27	-19.6	Bone (*C. angulata*)	353–52 BC	Layer 1 (A39, 2nd Layer)	Present thesis
MB2005/001E	OxA-24553	2176 ± 27	-18.86	Bone (*C. angulata*)	349–46 BC	Layer 1 (A39, 4th Layer)	Present thesis
MB2005/001E	OxA-24554	2796 ± 27	-17.45	Bone (*C. angulata*)	975–812 BC	Layer 2 (A39, 8th Layer)	Present thesis
MB2005/001E	GX-32756	3810 ± 145	0.7	Marine shell	2121–1226 BC	Layer 3 (H43, TOP)	Orton 2007c
MB2005/001E	GX-32757	4180 ± 90	1.8	Marine shell	2470–1751 BC	Layer 4 (H43, Layer 6)	Orton 2007c
MB2005/005A	GX-32524	2560 ± 60	0.9	Marine shell	383 BC–AD 154	Square unknown, L2a	Dewar 2007
MB2005/005A	UBA-9939	2202 ± 32	-13.4	Bovid/tortoise	357–54 BC	L12, L2b	Dewar *et al.* 2012
MB2005/005A	GX-32525	2620 ± 70	1.2	Marine shell	482 BC–AD 118	Square unknown, L2c	Dewar 2007
MB2005/005B	GX-32526	5390 ± 70	-0.9	Marine shell	3932–3383 BC	G14, BSM	Dewar 2007
MB2005/013	OxA-24555	717 ± 25	-19.05	Bone (*C. angulata*)	AD 1281–1387	I24, Lower	Present thesis
MB2005/016	GX-32534	2860 ± 60	0.1	Marine shell	770–205 BC	J17, Layer 2	Orton 2007c
MB2005/016	GX-32535	3140 ± 60	1.1	Marine shell	1132–499 BC	J18, Layer 12	Orton 2007c

Site	Laboratory Number	^{14}C age	δ^{13}C	Material	Calibrated at 2 sigma (95.4%)	Context	References
MB2005/027	OxA-22978	650 ± 22	-15.77	Charcoal	AD 1304–1402	G13, Hearth 1	Present thesis
MB2005/028A	OxA-24626	680 ± 25	-18.5	Bone (*C. angulata*)	AD 1296–1392	C11, Lower	Present thesis
MB2005/059	OxA-24556	2641 ± 29	-18.5	Bone (*C. angulata*)	821–557 BC	Patch A, L45	Present thesis
MB2005/119	GX-32521	850 ± 60	-2.2	Marine shell	AD 1416–1879	I17, Lower Midden	Dewar 2008
Spoeg River Cave	Pta-4753	1390 ± 50	-23.2	Charcoal	AD 603–806	C9, Hearth 3 in Twiggy, 20 cm	Vogel *et al.* 1997; Webley 1992b
Spoeg River Cave	Pta-4745	1920 ± 40	-21.0	Charcoal	AD 54–248	Hearth 12, above FBS & Shelly Patch, 91 cm	Vogel *et al.* 1997; Webley 1992b
Spoeg River Cave	OxA-3862	2105 ± 65	-14.1	Bone (O*vis aries*)	350 BC–AD 115	FBS (? Layers 7–12 of 1994 excavation)	Sealy & Yates 1994
Spoeg River Cave	Pta-6334	2020 ± 60	-17.5	Crayfish carapace (*J. lalandii)*	AD 430–752	C9, Patella, 45 cm	Vogel *et al.* 1997; Webley 2002
Spoeg River Cave	Pta-6750	1450 ± 50	-17.0	Charcoal	AD 554–766	Layer 4, CST, Sq C6, 12–15 cm	Vogel *et al.* 1997; Webley 2002
Spoeg River Cave	Pta-6749	1930 ± 50	-17.9	Charcoal	AD 6–313	Layer 6b, Twiggy 6, Sq C6, 40–50 cm	Vogel *et al.* 1997; Webley 2002
Spoeg River Cave	GrA-9027	1260 ± 50	Unknown	Bone (O*vis aries*)	AD 685–961	Layer 7, YBS, Sq C5	Webley 2002
Spoeg River Cave	GrA-9030	1490 ± 50	Unknown	Bone (O*vis aries*)	AD 469–680	Layer 7, YBS, Sq D6	Webley 2002
Spoeg River Cave	GrA-9029	1890 ± 50	Unknown	Bone (O*vis aries*)	AD 62–333	Layer 9, GAS 2, Sq C4	Webley 2002
Spoeg River Cave	GrA-9032	1900 ± 50	Unknown	Bone (O*vis aries*)	AD 55–325	Layer 9, GAS 2, Sq C6	Webley 2002
Spoeg River Cave	Pta-7200	2400 ± 25	-16.9	Charcoal	518–366 BC	Layer 10, SAS, Sq C6, 60–67 cm	Vogel *et al.* 1997; Webley 2002
Spoeg River Cave	GrA-9028	1900 ± 50	Unknown	Bone (O*vis aries*)	AD 55–325	Layer 10, SAS, Sq C6	Webley 2002
Spoeg River Cave	Pta-6987	3580 ± 60	-15.4	Charcoal	2026–1691 BC	Layer 12, BSB2, Sq D5, 50 cm	Webley 2002 (date reported incorrectly in Vogel *et al.* 1997.
Spoeg River Cave	Pta-6754	3520 ± 50	-16.0	Charcoal	1921–1636 BC	Layer 13, Hearth 34, Sq D5, 50 cm / 60–100 cm	Vogel *et al.* 1997; Webley 2002
Central Hardeveld							
Bethelsklip	Pta-3512	800 ± 50	-21.7	Charcoal	AD 1182–1381	K14, BLL2, stone hearth, 59 cm depth	Webley 1984
Bethelsklip	Pta-4741	360 ± 40	-22.9	Charcoal	AD 1464–1643	K14, BL, Hearth AF4, 10 cm depth	Webley 1992b
Southern Sandveld							
BSB2	Pta-6050	860 ± 50	-0.8	Marine shell	AD 1503–1863	Layer 2 (LBS)	Halkett *et al.* 1993
BSB2	Pta-6053	4510 ± 30	-0.6	Marine shell	2622–2272 BC	Layer 5 (BBRL)	Halkett *et al.* 1993
BSB3	Pta-6051	2930 ± 50	-0.1	Marine shell	828–323 BC	Layer 9 (THL)	Halkett *et al.* 1993
BSB4	Pta-6049	2430 ± 40	0.2	Marine shell	221 BC–326 AD	Layer 3 (BDO)	Halkett *et al.* 1993
BSB6	Pta-6052	2170 ± 50	0	Marine shell	AD 96–601	PSS1	Halkett *et al.* 1993
MS1	GX-32063	3870 ± 70	-0.1	Marine shell	1842–1407 BC	Unknown	ACO, unpublished
MS3	GX-32062	3160 ± 70	1.6	Marine shell	966–492 BC	Unknown	ACO, unpublished

Site	Laboratory Number	^{14}C age	$\delta^{13}C$	Material	Calibrated at 2 sigma (95.4%)	Context	References
Southern Hardeveld							
Komkans 2	OxA-25346	701 ± 23	-18.69	Bone (*C. angulata*)	AD 1285–1390	I11 NW L2/4 interface	Present thesis
Komkans 2	OxA-25347	334 ± 23	-20.05	Bone (*C. angulata*)	AD 1503–1647	I11 NW L4B	Present thesis
Komkans 2	OxA-25348	175 ± 23	-18.99	Bone (*C. angulata*)	AD 1671–1954	G10 NE L6	Present thesis
Komkans 2	OxA-25349	1462 ± 24	-18.65	Bone (*C. angulata*)	AD 597–666	I12 SE L5B	Present thesis
Komkans 2	OxA-25350	932 ± 24	-18.3	Bone (*C. angulata*)	AD 1046–1218	I8 NE L3	Present thesis
Komkans 2	OxA-25351	644 ± 23	-18.71	Bone (*C. angulata*)	AD 1305–1404	I8 NE L3C	Present thesis
Knersvlakte							
Reception Shelter (VR001)	AA-89907	679 ± 44	-10.1	Ostrich eggshell	AD 1220–1951	P43 NW L1 (5 cm bel surf)	Orton *et al.* 2011
Reception Shelter (VR001)	AA-89908	21900 ± 120	-8.7	Ostrich eggshell	(out of range)	Q43 SW L6 (105 cm bel surf)	Orton *et al.* 2011
Reception Shelter (VR001)	OxA-24513	589 ± 23	-22.16	Bone (*C. angulata*)	AD 1326–1422	X40 SW L6	Present thesis
Reception Shelter (VR001)	OxA-22876	622 ± 21	-19.86	Small sticks from bedding	AD 1318–1411	Y40 L7	Orton 2012 (but material reported wrongly)
Reception Shelter (VR001)	OxA-22982	474 ± 22	-22.91	Charcoal (?*A. karoo*)	AD 1429–1483	Y40 L11	Orton 2012 (but material reported wrongly)
Reception Shelter (VR001)	AA-89909	828 ± 44	-22.2	Bone (*C. angulata*)	AD 1177–1293	X40 NW L15a	Orton *et al.* 2011
Reception Shelter (VR001)	OxA-22983	2578 ± 25	-22.93	Charcoal (?*A. karoo*)	794–539 BC	Y40 L18	Present thesis
Reception Shelter (VR001)	OxA-25353	1897 ± 25	-19.38	Bone (*C. angulata*)	AD 85–292	X40 SW L22	Orton *et al.* 2012
Reception Shelter (VR001)	OxA-25354	1840 ± 26	-16.08	Bone (*Oryx gazella*)	AD 133–336	X40 SE L24B	Orton *et al.* 2012
Reception Shelter (VR001)	AA-89910	2560 ± 49	-19.2	Bone (*C. angulata*)	793–416 BC	Y40 SW L25	Orton *et al.* 2011
Reception Shelter (VR001)	OxA-24514	394 ± 23	-20.9	Bone (*C. angulata*)	AD 1457–1626	U47 SW Spit 2	Present thesis
VR003	UGAMS-11684	220 ± 20	-22	Small stick	AD 1653–1804	Hole III, Layer 1	T. Steele, pers. comm. 2012
VR003	UGAMS-11685	1410 ± 20	-21.4	Bone (*C. angulata*)	AD 639–763	Hole III, Layer 8	T. Steele, pers. comm. 2012
Buzz Shelter (VR005)	OxA-22984	3327 ± 26	-20.45	Charcoal (?A. karoo)	1627–1455 BC	M11 NE L3	Present thesis
Buzz Shelter (VR005)	OxA-25352	1646 ± 25	-20.91	Bone (*C. angulata*)	AD 410–543	O11 SW L3a	Present thesis
Buzz Shelter (VR005)	OxA-24515	1921 ± 25	-20.71	Bone (*C. angulata*)	AD 76–232	O11 SW L4a	Present thesis
Buzz Shelter (VR005)	OxA-22985	12770 ± 50	-23.11	Charcoal (?A. karoo)	(out of range)	N11 NW L5	Present thesis
Buzz Shelter (VR005)	OxA-24722	12955 ± 60	-23.34	Charcoal (?A. karoo)	(out of range)	N11 NW L5	Present thesis
Buzz Shelter (VR005)	OxA-22877	324 ± 22	-27.84	Grass	AD 1505–1650	N11NW L7	Present thesis
Buzz Shelter (VR005)	AA-89911	4551 ± 54	-17.6	Bone (terrestrial mammal)	3366–2945 BC	M11 NE/NW L9a	Orton *et al.* 2011
Buzz Shelter (VR005)	UGAMS-11683	3890 ± 20	-22	Grass	2458–2155 BC	N11 SE L10	Present thesis
Buzz Shelter (VR005)	OxA-22986	4185 ± 31	-24.57	Charcoal (?A. karoo)	2872–2580 BC	M11 NE L12	Present thesis
Buzz Shelter (VR005)	AA-89912	5452 ± 54	-19.3	Bone (terrestrial mammal)	4347–4053 BC	M11 SE/SW L15c	Orton *et al.* 2011

Table A3.2: Complete burial radiocarbon database for Namaqualand (sorted alpha-numerically). Some $\delta^{13}C$ readings are unknown and because calibration follows the method of Dewar and Pheiffer (2010), only those with $\delta^{13}C$ values are calibrated. Two burials are dated twice. The calibrated dates were calculated on Calib 6.0 (Stuiver *et al.* 2012) by Genevieve Dewar pers. comm. 2012). Note that many other burials have been found, but only those below are dated.

Burial	**Accession number (where exists)**	**Dating Laboratory Number**	**^{14}C age**	**Material**	**Archaeometry Laboratory Number**	**$\delta^{13}C$**	**Calibrated at 2 sigma (95.4%)**	**References**
Port Nolloth	SAM-AP-1446	Pta-9085	740 ± 30	Collagen	-	unknown	-	Stynder *et al.* 2007
AK2006/006		UBA-9944	750 ± 20	Collagen	UBA-9944	-14.03	AD 1404–1561	Dewar & Orton, in prep.
Near LK2004/011B		GX-32523	800 ± 70	Collagen	UCT12775	-16.4	AD 1267–1444	Dewar 2008
Noup		GX-32522	850 ± 70	Collagen	UCT 10 982	-13.1	AD 1306–1570	Dewar 2008
Lutzville	UCT227	Pta-4405	1000 ± 50	Collagen	-	unknown	-	Hausman 1980; Morris 1992; Stynder *et al.* 2007
Somnaas	UCT579	GX-32527	1250 ± 70	Collagen	UCT 12 756	-12.8	AD 982–1293	Dewar 2008
Kleinsee	UCT172	GX-32537	2100 ± 50	Collagen	UCT 620	-12.3	AD 90–475	Dewar 2008
Kleinsee	UCT164	GX-32542	2240 ± 50	Collagen	UCT 624	-12.6	64 BC–AD327	Dewar 2008
	UCT 164	Pta-8750	2360 ± 30	Collagen	-	unknown	-	Stynder *et al.* 2007
SK rehab adult skull		GX-32539	2500 ± 50	Collagen	UCT 12 758	-12.4	375 BC–AD 1	Dewar 2008
Kleinsee	SAM-AP-4932	GX-32541	2660 ± 60	Collagen	UCT 425	-14.8	755–383 BC	Dewar 2008;
GRM5	UCT445	Pta-5617	2720 ± 60	Collagen	UCT 4447	-14.8	772–407 BC	Dewar 2008; Jerardino *et al.* 1992; Morris 1992; Stynder *et al.* 2007
SK300 burial		GX-32538	2750 ± 50	Collagen	UCT 12 776	-13.6	759–399 BC	Dewar 2008
SK rehab humerus		GX-32536	2750 ± 50	Collagen	UCT 12 755	-14.0	765–407 BC	Dewar 2008
Somnaas		GX-32528	3490 ± 70	Collagen	UCT 12 757	-18.4	1914–1508 BC	Dewar 2008
Kleinsee	SAM 4931	Pta-2267	3750 ± 60	Collagen	-	Unknown	-	Morris 1992
	SAM-AP 4931	Pta-4827	3750 ± 60	Collagen	-	Unknown	-	Stynder *et al.* 2007 (Lab number assumed to be an error)
	SAM-AP-4931	GX-32540	3820 ± 50	Collagen	UCT 591	-13.0	2042–1608 BC	Dewar 2008

Key to Chapter 6 tables. Please fold out when required.

Assemblage Number & Name	Age (95.4%)
1 MB2005/005B	3932–3383 BC
2 KN2001/008C, Lower	3036–2401 BC
3 MB2005/001E, Layer 4	2470–1751 BC
4 MB2005/001E, Layer 3	2121–1226 BC
5 KV2001/012, Area A	1857–1360 BC
6 KN2001/008C, Upper	1862–1272 BC
7 TP2004/014	1417–908 BC
8 KN2005/050	1263–1065 BC
9 KN2005/040	895–772 BC
10 KV2001/011	826–339 BC
11 KN2005/135A	761–414 BC
12 SK2005/096, Patch B	648–60 BC
13 PN2009/001, all areas	504 BC–AD 28
14 MB2005/001E, Layer 1	349–46 BC
15 SK2001/025, Area C	346 BC–47 BC
16 MB2005/005A	383 BC–AD 118
17 SK2005/074A, Layers 1–3	107 BC–AD 1
18 LK2001/004	331 BC–AD410
19 SK2005/084	196 BC–AD 325
20 SK2001/025, Area F	65 BC–AD 428
21 TP2004/003	AD 52–539
22 KN2005/041	AD 421–552
23 KN2005/054	AD 429–584
24 KN2004/012	AD 432–606
25 KV2001/012, Area B	AD 960–1282
26 KN2004/015E	AD 1035–1174

Assemblage Number & Name	Age (95.4%)
27 LK2004/011B	AD 1010–1218
28 LK2004/011	AD 1241–1481
29 MB2005/013	AD 1281–1387
30 DP2004/010, Patch A & B	AD 1282–1388
31 MB2005/028A	AD 1296–1392
32 MB2005/027	AD 1304–1402
33 SK2005/096, Patch A	AD 1319–1401
34 SK2001/039	AD 1319–1422
35 KN2001/009	AD 1320–1423
36 TP2004/004	AD 1300–1680
37 LK2001/003	AD 1196–1581
38 SK2001/024, All Patches	AD 1393–1440
39 SK2005/095, Patch A	AD 1429–1497
40 DP2004/014	AD 1287–1666
41 LK2001/015, all patches	AD 1442–1626
42 SK2006/006, Patch 3	AD 1446–1621
43 SK2001/026	AD 1438–1627
44 SK2005/057A	AD 1455–1625
45 SK2005/095, Patch B	AD 1459–1626
46 SK2006/006, Patch 2 Lower	AD 1455–1625
47 SK2006/006, Patch 2 Upper	AD 1465–1630
48 KN2005/135B	AD 1482–1634
49 KN2005/067, Patch 1C	AD 1496–1640
50 HKB2007/007	AD 1497–1648
51 KN2005/067, Patch 1A	AD 1501–1640
52 KN2005/067, Patch 1B	AD 1505–1652
53 KN2005/067, Patch 3	AD 1637–1799

GREY = Group 1 **BLUE** = Group 3
RED = Group 2 **WHITE** = Mixed Groups