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ANNALS

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CAPE TOWN

INSTRUCTIONS TO AUTHORS

1. MATERIAL should be original and not published elsewhere, in whole or in part.

2. LAYOUT should be as follows:

(a) *Centred masthead to consist of*
Title: informative but concise, without abbreviations and not including the names of new genera or species
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Number of illustrations (figures, enumerated maps and tables, in this order)
(b) *Abstract* of not more than 200 words, intelligible to the reader without reference to the text
(c) *Table of contents* giving hierarchy of headings and subheadings
(d) *Introduction*
(e) *Subject-matter* of the paper, divided into sections to correspond with those given in table of contents
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3. MANUSCRIPT, to be submitted in triplicate, should be typewritten and neat, double spaced with 3 cm margins all round. First lines of paragraphs should be indented. Tables and a list of captions for illustrations should be typed separately, their positions indicated in the text. All pages should be numbered consecutively.

Major headings of the paper are centred capitals; first subheadings are shouldered small capitals; second subheadings are shouldered italics; third subheadings are indented, shouldered italics. Further subdivisions should be avoided, as also enumeration (never roman numerals) of headings and abbreviations.

Footnotes should be avoided unless they are short and essential.

Only generic and specific names should be underlined to indicate italics; all other marking up should be left to editor and publisher.

4. ILLUSTRATIONS should be reducible to a size not exceeding 12×18 cm (19 cm including caption); the reduction or enlargement required should be indicated (and preferably uniform); originals larger than 35×47 cm should not be submitted; photographs should be rectangular in shape and final size. A metric scale should appear with all illustrations, otherwise magnification or reduction should be given in the caption; if the latter, then the final reduction or enlargement should be taken into consideration.

All illustrations, whether line drawings or photographs, should be termed figures (plates are not printed; half-tones will appear in their proper place in the text) and numbered in a single series. Items of composite figures should be designated by capital letters; lettering of figures is not set in type and should be in lower-case letters. If Letraset is used authors are requested to use Helvetica-style lettering, if possible.

The number of the figure should be lightly marked in pencil on the back of each illustration.

5. REFERENCES cited in text and synonymies should all be included in the list at the end of the paper, using the Harvard System (*ibid.*, *idem*, *loc. cit.*, *op. cit.* are not acceptable):

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'Smith (1969) describes . . .'
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For books give title in italics, edition, volume number, place of publication, publisher.
For journal article give title of article, title of journal in italics (according to the *World list of scientific periodicals*. 4th ed. London: Butterworths, 1963), series in parentheses, volume number, part number in parentheses, pagination (first and last pages of article).

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FISCHER, P. H., DUVAL, M. & RAFFY, A. 1933. Études sur les échanges respiratoires des littorines. *Archives de zoologie expérimentale et générale* **74** (33): 627–634.

KOHN, A. J. 1960*a*. Ecological notes on *Conus* (Mollusca: Gastropoda) in the Trincomalee region of Ceylon. *Annals and Magazine of Natural History* (13) **2** (17): 309–320.

KOHN, A. J. 1960*b*. Spawning behaviour, egg masses and larval development in *Conus* from the Indian Ocean. *Bulletin of the Bingham Oceanographic Collection, Yale University* **17** (4): 1–51.

THIELE, J. 1910. Mollusca. B. Polyplacophora, Gastropoda marina, Bivalvia. *In:* SCHULTZE, L. *Zoologische und anthropologische Ergebnisse einer Forschungsreise im westlichen und zentralen Süd-Afrika ausgeführt in den Jahren 1903–1905* **4** (15). *Denkschriften der medizinisch-naturwissenschaftlichen Gesellschaft zu Jena* **16**: 269–270.

(continued inside back cover)

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THE 'STRANDLOPER' CONCEPT AND ITS RELEVANCE TO THE STUDY OF THE PAST INHABITANTS OF THE SOUTHERN AFRICAN COASTAL REGION

By
M. L. WILSON

Cape Town Kaapstad

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By

M. L. Wilson

Archaeology Department, South African Museum, Cape Town

(With 1 figure)

[*MS accepted 23 November 1992*]

ABSTRACT

In the seventeenth century, the name 'Strandloper' was given to a small group of people, the Goringhaicona, who lived chiefly on the shores of Table Bay and were said to eke out a miserable existence, subsisting on what they could obtain from the sea-shore. In the late nineteenth century, this name was applied to human skeletons found in the coastal region as well as to archaeological sites there, providing the basis for a concept that in the past there were people who were physically and culturally different from the Hottentots (Khoikhoi) and Bushmen (San).

This study investigates the use of the name and its application. The early claims of physical anthropologists for a separate 'race' of 'Strandlopers' are shown to be unsubstantiated. The archaeological evidence also does not support the suggestion of a culturally distinct people whose technology differed from that of other people in the region, and who subsisted solely by 'strandloping', or collecting and scavenging along the shore. It is shown that sites in the coastal region are the result of the activities of three groups with differing economies: hunter-gatherers, herders and farmers. Most of these sites contain a terrestrial component as well as a marine one, and it is argued that these sites represent only part of these groups' subsistence activities.

The name 'Strandloper' is thus shown to be misleading in its implications and correctly applicable only to the Goringhaicona, who were given that name and used it themselves. Even then, the name misrepresents these people's actual way of life, as does its informal use as a sobriquet.

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INTRODUCTION

> It would be convenient if the people who lived so largely upon shellfish had a distinctive name given to them, for the word strandlopers (beach-rangers), applied to them by some recent writers, causes much confusion (Theal 1918: 4).

A paper on the nomenclature of the Khoisan (Wilson 1986*a*) omitted discussion of one of the names, 'Strandloper'. This was used extensively during the earlier part of this century to denote the people believed to have been responsible for the creation of what are now archaeological deposits, particularly shell middens, in the southern African coastal region. The name is still to be found in more recent scientific publications and is one of those most commonly used in the popular media. 'Strandloper' (literally, beach-walker) generally conjures up a picture of people who lived on marine resources and, in the view of many early writers, eked out a miserable existence, as is shown below. It is argued that the application of this name is based on misconceptions of the identity and life-style of the people so called, and that it thus merits discussion. The names 'Watermen' and 'Vismans' are also discussed, since they were sometimes also applied to the 'Strandlopers' of the early historical period.

Archaeological research during the past two decades has tended to suggest that occupation of the coastal region and the exploitation of marine resources were only a part of the seasonal round of the indigenous hunter-gatherers. More recent research has indicated that this pattern was disrupted after about 2 000 years ago by the incursion of pastoralists and farmers into the region, and again by white settlement and expansion after 1652. The general model of seasonal movement has lately been challenged by isotopic analyses of human bone that appear to show that part of the population studied had a predominantly marine diet and therefore spent most, if not all, of their time at the coast and thus supports the 'Strandloper' theory.

This study investigates a range of aspects in an attempt to determine whether there can be any justification for the 'Strandloper' concept. Research has been mainly

documentary and has concentrated on the Khoisan who occupied the western part of the coastal region. This is because the name 'Strandloper' was first given to some of the Khoisan and later applied to their sites in the coastal region. The documentary records of the Khoisan are also more comprehensive than those of the black people, the ancestors of the Nguni, who moved into the eastern part of southern Africa during the early centuries of the present era.

The first part of this study concentrates on the evidence provided by the records left by early travellers and settlers in the period 1488–1690 and again in 1779–1780. This material is dealt with first as it provided the basis for the assumptions made by later anthropologists. These are examined in the second part, which deals with the introduction of the 'Strandloper' concept in the late nineteenth century and its subsequent use in physical anthropology and archaeology. The evidence of physical anthropology, archaeology, archaeometry, botany and ethnography is then examined. Each section ends with a discussion that partly summarizes the information therein and adds comment on certain aspects. The last part summarizes the evidence and shows that the southern African coastal region was occupied by San hunter-gatherers, Khoikhoi pastoralists and Nguni farmers, and that most of the midden deposits in the coastal region include a terrestrial component as well as a marine one. This indicates that the people responsible for the deposits did not subsist only by 'strandloping'—living on what they could obtain by beachcombing—but that they exploited all the resources of the coastal zone, in some cases including exotic animals and plants. It is therefore concluded that the name 'Strandloper' may be applied validly only to a small Khoisan group, the Goringhaicona, who lived on the Cape Peninsula in the seventeenth century, and then only as an informal sobriquet that was given to them by the Dutch, and which they used themselves.

In this study, the coastal region is divided into an eastern and a western part, with Port Elizabeth as the approximate boundary between the two (Fig. 1). It is not possible to define this region precisely because the topography varies so widely. In the western part, the coastal region may be understood as the area between the coast and the Cape Fold Mountains. East of this, however, the situation is more complex, but it should be noted that none of the sites discussed is more than 20 km from the coast.

This study expands discussion of the same topic in articles published in popular magazines (Wilson 1989*a*, 1991) and is a revised version of an unpublished postgraduate thesis (Wilson 1990).

THE DOCUMENTARY EVIDENCE

EARLY CONTACTS

FIRST MEETINGS

When the first Portuguese explorers under Bartolomeu Dias had rounded the southernmost point of Africa in 1488, they put in at a bay they named *Angra dos Vaqueiros*, 'Bay of the Herders' (now Mossel Bay), because the people seen there had many cattle. These people were terrified by the arrival of the strangers from the sea and fled inland without the Portuguese being able to make contact (Raven-Hart 1967: 1).

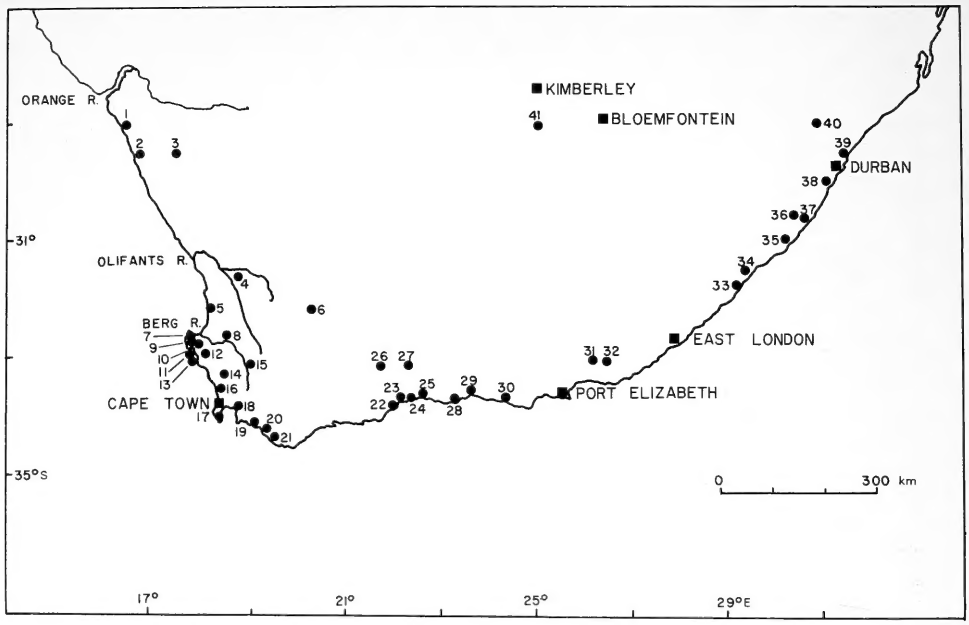

Fig. 1. Map of South Africa showing the location of places and sites mentioned in the text. (1 = Port Nolloth, McDougall's Bay; 2 = Grootmis, Buffels River; 3 = Springbok; 4 = De Hangen; 5 = Elands Bay Cave, Tortoise Cave, Hailstone Midden; 6 = Sutherland; 7 = St Helena Bay (southern end); 8 = Piketberg, Het Kruis; 9 = Paternoster; 10 = Kasteelberg; 11 = Saldanha Bay, Sea Harvest, Hoedjies Punt; 12 = Elandsfontein; 13 = Oudepost I, Stofbergsfontein; 14 = Malmesbury; 15 = Tulbagh; 16 = Duinefontein; 17 = Cape Peninsula: (west) Sandy Bay, Hout Bay, Kommetjie, Bonteberg; Cape Point; (east) Miller's Point, Simon's Town, Kalk Bay; 18 = Gordon's Bay (False Bay); 19 = Hawston; 20 = Die Kelders; 21 = Byneskranskop; 22 = Mossel Bay; 23 = Great Brak River; 24 = Herolds Bay; 25 = Oakhurst; 26 = Buffelskloof; 27 = Boomplaas; 28 = Nelson Bay Cave; 29 = Bloukrans; 30 = Klasies River Mouth; 31 = Melkhoutboom; 32 = Wilton; 33 = Mpame; 34 = Umgazana Cave; 35 = Umlaas; 36 = Borchers Shelter; 37 = Mpambanyoni, Umbeli Belli; 38 = Ingane River; 39 = Mjonzani, Emberton Way; 40 = Collingham Shelter; 41 = Koffiefontein.

In November 1497, however, when a second fleet under the command of Vasco da Gama put in at a bay on the south-western coast that they named *Santa Ellena* (now St Helena), the Portuguese were able to make contact with some of the local inhabitants.

The identity of the men of St Helena Bay is discussed at some length, not because they are particularly important—if they, or their descendants, were encountered later, this cannot be determined from the records—but in order to show the problems inherent in using the often scanty information provided in the early records to try to identify the indigenous people and/or their culture. It also shows the need to consider all the evidence before coming to conclusions.

> In the land the men are swarthy. They eat only sea-wolves and whales and the flesh of gazelles and the roots of plants. They wear sheaths on their members. Their arms are staffs of wild olive trees tipped with fire-hardened horns. They have many dogs (Raven-Hart 1967: 3).

The following day, the Portuguese captured a man, who 'was small of body . . . and was going about gathering honey on the moor'. He was fed and clothed and put ashore

the next day, when 14 or 15 other men visited the ships. They caught a 'sea-wolf' (seal), which they roasted and gave, with 'some of the roots of plants which they eat', to one of the Portuguese crew who accompanied them (Raven-Hart 1967: 3–4).

During the eight days that the fleet spent in the bay, the number of the indigenous visitors, all men, rose to between 40 and 50. There was no evidence of cattle, but the men indicated that their village was at the foot of some hills about two leagues (approximately 12 km) distant, possibly at the Patrysberg, south-west of the Berg River mouth. The Portuguese bartered with the men for the shell ornaments they wore in their ears, also for 'fox-tails, which they carry fastened to sticks, and with which they fan their faces'. One of the men also bartered his 'sheath' for a *çeitil*, a small copper coin: 'From this it seemed to us that they prized copper; and they also wore small beads of it in their ears' (Raven-Hart 1967: 4).

Penis sheaths were not recorded as being part of the apparel of the Khoikhoi, which was a frontal flap or apron of dressed hide or skin (e.g. Kolb 1738: 187–191; Smith & Pheiffer 1988). It was considered that 'sheaths' might have been an incorrect translation or a wrong usage on the part of the original writer, but J. M. F. Morais, of the Centro de Pré-história e Arqueologia, Instituto de Investigação Científica Tropical, Lisbon (1990 *in litt.*), confirmed that this is the correct translation of the Portuguese word *bainhas*. There is, however, evidence in the reports of early travellers (e.g. Moodie *ed.* 1960: 224) that San men south of the river dressed similarly to the Khoikhoi. The Namaqua as seen, described and illustrated in Namaqualand in 1685–1686 (Waterhouse 1932: 161–162, frontispiece; De Wet & Pheiffer *eds* 1979: 145–147, 412–415) did not wear penis sheaths. On the other hand, one of the illustrations accompanying the journals of the late eighteenth-century soldier and explorer Robert Jacob Gordon is of a Khoikhoi man wearing what the editors called a penis sheath (Raper & Boucher *eds* 1988, pl. 57). Unfortunately, however, there is no information as to this man's tribal affiliation or the locality in which the illustration was made. In another illustration (Raper & Boucher *eds* 1988, pl. 50), a man wears a similar piece of apparel, but this is not called a penis sheath. William Somerville, who in 1800 met a party of San on a farm on the Tarka River in the eastern Cape, said that 'the men wear a bag made of Jackal's hide over their private parts' (Bradlow & Bradlow *eds* 1979: 28). It thus seems that temporal and/or spatial differences may be involved as well as the apparently cultural ones.

Some of the information given about the people at St Helena Bay, that 'They eat only sea-wolves and whales and the flesh of gazelles [antelope] and the roots of plants' may, apart from seals and the roots of plants, be discounted as the interpolation of a later editor, since the eating of whales or antelope was not recorded as having been observed at the time; moreover, as mentioned above, the man first seen was said to have been collecting honey.

Metal, especially copper, appears to have been known to the Khoikhoi of the Cape Peninsula and vicinity, since they were eager to barter their livestock for it, but they apparently had none until the arrival of the Europeans (Goodwin 1956). This is surprising because St Helena Bay is only about 140 km from Table Bay as the crow flies and both bays seem to have been included in the annual migration route of the chief tribe of the area, the Cochoqua (Smith 1984). It may be that there was no contact between the people seen by Da Gama and his crew and those who lived to the south. In January 1661, it was recorded that the Namaqua 'were always at variance' with the Cochoqua (Moodie

ed. 1960: 228), and this enmity was perhaps of long standing and thus a barrier to barter or the exchange of gifts. However, the same report stated that the Namaqua 'were Hottentots like themselves [the Cochoqua], also dressed in skins . . . not wearing chains on the arms or neck, nor in the ears, but beads round the waist and copper bracelets'. The comment about chains not being worn in the ears does not preclude the wearing of other ornaments, such as beads. The illustrations of the Namaqua mentioned above show both the man and woman wearing bead necklaces, and the woman has loops of these hanging from her ears. The accompanying text states that the beads were made of gum and copper. Close on a century later, Gordon (or his artist) illustrated a family of Little Namaqua, the branch of the tribe who lived south of the Orange River, all of whom are depicted as wearing bead necklaces and pendant copper earrings (Raper & Boucher *eds* 1988: 377, pl. 79).

In 1657, it was recorded that the Namaqua were the source of all the indigenous copper, although it was not known at the time whether the metal originated in their territory or was obtained from other people further away (Moodie *ed.* 1960: 116). This suggests that the men seen at St Helena Bay in 1497 were not members of the tribes normally seen in the Saldanha Bay–Cape Peninsula region by later voyagers and settlers. In February 1661, travellers on an expedition, of which Pieter van Meerhoff was a member and its recorder, were the first settlers to meet the Namaqua (Moodie *ed.* 1960: 232), at a point somewhere south of present-day Graafwater (Mossop 1927: 141). Meerhoff described the Namaqua as being abundantly adorned with copper in the form of beads, necklaces, some with pendant discs, and armbands. They also wore ornaments of iron and ivory (Moodie *ed.* 1960: 233). In May 1668, a Corporal Bosman at the Company's post at Saldanha Bay reported to Commander van Quaelbergen that a great number of Hottentots, called Namaqua, had stolen the stock of the local people as well as some belonging to the Company. Bosman was instructed to send men with a wagon and merchandise in an attempt to continue bartering with the Namaqua, towards whom they were to show no hostility. The following month Bosman reported that, even though the party had crossed the Olifants River, they had been unable to make contact and had returned to base as they had run out of provisions (Wilson 1986*b*: 33).

The foregoing provides grounds, even if they are somewhat tenuous, for suggesting that the men seen by Da Gama were Namaqua. There is no proof that the stock thieves actually were Namaqua, but that they were identified as such does allow for the possibility that the Namaqua, whose territory lay north of the Olifants River, made excursions to the south. Where the Namaqua were located in 1497 cannot now be known; but it seems more reasonable to assume that they, the only people *known* to have copper, were the people seen by Da Gama and his crew than that the wearers of the copper beads were San or other Khoikhoi. Had it been otherwise, later voyagers would surely have commented on the fact that the people they met, at Saldanha Bay, Table Bay, and eastwards, wore copper beads and/or other ornaments of the same metal.

Nienaber (1989: 105–116) was unable to reach a firm decision as to whether the 'Amaquas' and the 'Amas' were the same as the Namaqua. *Inter alia*, he cited information in the journal of Van der Stel's expedition to the Copper Mountains in 1685–1686 that, in the vicinity of Piketberg, Van der Stel had effected a reconciliation between the Amaquas and the Sonqua on condition that the latter restored to the former the cattle they had stolen (Valentyn 1971: 244; other sources, e.g. Moodie *ed.* 1960, under

6 September 1685). Nienaber also cited Valentyn's map (Valentyn 1971, facing p. 34) in which the Namaqua were shown as occupying the northern reaches of the Olifants River and land east of the Little Grigriqua tribe. However, this map, particularly with regard to the known distribution of the Khoikhoi tribes (e.g. Maingard 1931), is so defective as to be almost worthless as a source of information. There is also no evidence that the Amaquas were present when Van der Stel effected the reconciliation, the Sonqua being the only people mentioned as involved in his negotiations.

The description of the men of St Helena Bay mentions that 'Their arms are staffs of wild olive trees tipped with fire-hardened horns' and, later, when the Portuguese went to the rescue of one of the crew, the men attacked them with 'assegais' (Raven-Hart 1967: 4). Maingard (1932: 712–713), discussing the historical evidence for the use of the bow and arrow in South Africa, commented that the assegai was the weapon principally used by the Khoikhoi for hunting and war, and suggested that the 'Sonqua ... were the great bow-users as compared with the Hottentots', which could be taken as an indication that the men of St Helena Bay were not San. Nicholas Downton, who was at Table Bay in 1610 and 1613, said of the people there that 'In there hands they carrye a small Launce or Darte, that hath a small Iron head, ... they have also bowes and arrowes, but when they came downe to vs they would leave them in some hole or bush by the way' (Raven-Hart 1967: 47–49). The identity of the people at Table Bay, from whom the English were able to barter cattle and sheep, is uncertain, but it is likely that they were either Khoikhoi herders or their agents, the 'Strandlopers', whose identity is discussed below. On the basis of Maingard's and Downton's observations, the men at St Helena Bay could have been Khoikhoi who brought only their assegais as a means of protection, but this is by no means certain, particularly as both Khoikhoi and San were said to have used both types of weapons (e.g. Thom *ed.* 1954: 211; Moodie *ed.* 1960: 158).

Other than the foregoing, it is only the number of the men, 40–50, that leaves room for speculation as to their identity. From information in the early records, that the Goringhaiqua had 'about 300 men capable of bearing arms' and the Gorachouqua 600 700 (Moodie *ed.* 1960: 247), Elphick (1977: 92) estimated that the total of the tribes in the region of the Cape Peninsula numbered between 4 000 and 8 000 men, women and children. On this basis, 40–50 men would be indicative of a group total of about 150–200 people, including women and children. Whereas this would not have been unusual for a Khoikhoi clan, or part of a larger tribe temporarily broken up, for example, to facilitate grazing their herds and flocks, it would have been unusual for a San hunter-gatherer band. The size of these, as given in the early records, was usually small; for example, when Meerhoff travelled northwards along the inland part of the west-coast region in 1661, the number of men met ranged from one to 12 (Moodie *ed.* 1960: 231). On the return journey, the party met 40 (Moodie *ed.* 1960: 237), but it was not stated whether these were only men, or whether the number included women and children. Also, with regard to the estimates of tribe size given by Elphick, Meerhoff observed that the (Little) Namaqua under Akembie consisted of about 300 men and 400 women and children (Moodie *ed.* 1960: 233). This would give a group size for the people of St Helena Bay greatly different from that based on Elphick's estimates: about 60–80 people in all. This would not have been excessive for one or two San bands camped in the vicinity, whose men were attracted to the bay by the strange visitation.

Smith (1984: 139) considered significant the absence of any mention of cattle, since the Portuguese 'spent eight days careening their ship there and would have been delighted to exchange for fresh beef had it been available'. However, since Da Gama and the crews of his fleet were the first Europeans to call at St Helena Bay, it is not necessary to assume that they considered that the men they met there were culturally the same as the herders seen earlier by Dias at Mossel Bay, several hundred kilometres to the east, and whom they encountered later (Raven-Hart 1967: 5–7). On that occasion, the men soon brought their cattle and sheep to the shore; and the following day they were also accompanied by their women and children, though these 'remained on a hillock near the sea'. The behaviour of the people of Mossel Bay was thus manifestly different from that of the men of St Helena Bay.

Hromník (1990: 29) stated that 'Vasco da Gama had been speared by the /Karihuriqua at St Helena Bay', but did not provide supporting references, although in the sentence preceding his statement he mentioned 'the /Karihuriqua Quena (commonly called "Cariguriqua", "Chariguriqua Hottentots" or "Saldanhars" in the early Dutch records)'. Hromník (1990: 39, footnote 52) cited Dapper as the source of this information: 'The Kochoquas are called Saldanhars ... because they have always dwelt mostly near and in the valleys of Saldanha Bay', which Dapper also gave as the location of 'The Great and Little Karichuriquas [*sic*]', who lived 'close to the Kochoquas or Saldanhars' (Dapper in Schapera *ed.* 1933: 23, 25, 27, translated). In the list of tribes left by Van Riebeeck in 1662 for his successor, the 'Little Chariguriquas' (*sic*) were said to 'chiefly reside between Saldanha Bay and midway between Robben and Dassen Island[s]—about 4 or 5 hours' walk from the sea coast'. These people, having misappropriated the stock entrusted to them by Oedasoa, the Cochoqua chief, 'are not recognized by any of the Hottentoos [*sic*] as a people who have a Choeque or Hunque, that is a hereditary king or chief' (Moodie *ed.* 1960: 248–249). This would place the location of the Little Chariguriqua in 1662 approximately between Moorreesburg and Malmesbury, some 60–80 km south-east of St Helena Bay, but does not, of course, provide evidence of where they may have been located in 1497. Hromník's '/Karihuriqua' seems to be a version of *≠karihuriqua*, cited by Elphick (1977: 134) as the reconstruction by Vedder (1928: 114) of the tribal name of the Chariguriqua, whom Elphick called the 'Guriqua'. Elphick (1977: 134 135) observed that 'The Dutch normally met the Guriqua at Saldanha Bay or along the banks of the Berg or Olifants Rivers.... In the south the Guriqua often overlapped with Cochoqua at Saldanha Bay, and in the north they were often found interspersed with Namaqua'. The identity of the Chariguriqua is discussed again below (see p. 308).

LATER CONTACTS

For the next century and more, almost all the descriptions of the indigenous inhabitants of the Cape coastal region, from present-day Saldanha Bay to Plettenberg Bay, were of the pastoralists (Raven-Hart 1967: 8–41), the people now identified as Khoikhoi. However, John Jourdain, whose ship called at Table Bay (then still called 'Saldanha Bay') in July 1608 (winter), made mention of about 20 people or more in small 'cottages' made of branches, who had no stock of their own, but notified others inland of the coming of the ships, so that cattle and sheep were brought daily. Later in his narrative, Jourdain commented that the people, whom he called 'Saldanians', had feasted

on the flesh of seals from which the English had cut the blubber to make train-oil (Raven-Hart 1967: 41–42).

Augustin de Beaulieu, who visited Table Bay in March 1620 (late summer) and May 1622 (autumn), commented that the people, 'the most miserable savages which have been discovered up to now', knew nothing of agriculture or of fishing. They were, he said, 'of very low stature, especially the women, thin, and seem always to be dying of hunger. They eat certain roots, which are their chief food ... they are pretty tasty. Also they go along the seashore, where they find certain shellfish, or some dead whale or other fish, however putrefied it may be, and this they put on the fire for a little and make a good meal of it'. Their only shelter consisted of branches and skins stretched over two sticks 'under which their wives and children set themselves, buried to the waist in sand' (Raven-Hart 1967: 100–101).

DISCUSSION

These observations, from the first 134 years of contact between the voyagers from Europe and the indigenous inhabitants of the coastal region, provide evidence of at least two groups with apparently differing resource bases. There were the people at Mossel Bay and Table Bay, who were seen to have cattle, and there were those at St Helena Bay and Table Bay, who were not. Although any determination of the identity of the men met by Da Gama and his crew at St Helena Bay in 1497 cannot be other than speculative because of the scantiness of the information, on the basis of what was stated it is clear that the economy of these people was not based solely on marine resources. The identity of the people described by Jourdain and De Beaulieu is also not clear, but these descriptions may be early references to the people later called 'Watermen', who are discussed in the following section. De Beaulieu's observations are typical of the generally prejudiced attitude of the voyagers towards the people they met, but they also provide evidence that the group he saw subsisted, apparently largely, on terrestrial resources in the form of plant foods as well as on marine ones. It is necessary, however, to bear in mind that the observations of the early voyagers were based on only *partial* evidence obtained during relatively short visits: they are descriptions of what was seen in the vicinity of the coast at particular times, not of the people's annual life-style in their whole territory.

STRANDLOPERS AND RELATED NAMES

WATERMEN

Johan Albrecht von Mandelslo, a passenger on the English ship *Mary* which called at Table Bay in May 1639, observed that the inhabitants were of two sorts. The 'Watermen' were so named because they lived by the sea and subsisted on 'herbs, roots and fishes, especially on the dead whales, which must serve as their best food.... The other sort, which live further inland, are called *Solthanimen*, ... [and] live somewhat better than the Watermen. They also do not cultivate the soil, ... But they have lovely cattle, sheep and goats.... Both ... these sorts live in small leaf-huts' (Raven-Hart 1967: 152).

Von Mandelslo's report errs in several respects, of which two are relevant here. The first goat recorded as having been seen at Table Bay was one sent in March 1661 by the Namaqua chief Akembie as a gift to Van Riebeeck (Thom *ed.* 1958:

343). 'Solthanimen' is a variant of 'Saldanhamen', more usually 'Saldanhars', the name first given to the Cochoqua, who were Khoikhoi (Moodie *ed.* 1960: 247). The hemispherical mat-and-wattle huts of the Khoikhoi were often described by the early writers (e.g. Kolb 1738: 220–222), and earlier callers had also seen and described them (Raven-Hart 1967: 30, 46, 60, 66). The shelters described by Von Mandelslo were, however, similar to those described by Jourdain and De Beaulieu some two decades earlier (see above). Despite Von Mandelslo's incorrect ascription of such shelters to the 'Saldanhamen', his observation reinforces those of his predecessors: that there were people whose housing differed from that of the herders and who subsisted on plant and marine foods.

Discussion of the 'Watermen' is continued in the following sections.

STRANDLOPERS—EARLY REFERENCES

According to Elphick (1977: 83, footnote 41—page references in Elphick (1985) are generally identical to those in his earlier publication), the earliest unambiguous references to the 'Strandlopers' are in a letter from the Dutch ship *s'Gravenhage* written in Table Bay on 2 December 1632, followed by the entry for 20 May 1636 in the log-book of the ship *Banda*, both of which are in the Algemeen Rijksarchief in The Hague.

The earliest published use of the name, however, appears to be that in the diary of Leendert Janssen, under-merchant on the *Haerlem*, which was wrecked in Table Bay on 25 March 1647. Janssen recorded that on 29 March, a party of the survivors had set off overland to meet two English long-boats that had been sent ashore, but that some of them had been wounded in an attack by the Strandlopers. Later entries in Janssen's diary show subsequent relations between the two groups to have improved. The Strandlopers were said to number about 50 men, women and children, and one of the men spoke English (Raven-Hart 1967: 168–169).

Raven-Hart (1967: 169) identified the man who spoke English as 'Hadah', who was taken by the English to Bantam (modern Jakarta) in the East Indies in 1630 or 1631 and brought back the following year (Raven-Hart 1967: 127, 136). This man was later to become known to Jan van Riebeeck and the Dutch garrison on the shore of Table Bay as 'Harry' (Thom *ed.* 1952: 71) or 'Herry' (Moodie *ed.* 1960: 14, footnote 1). For the sake of consistency, 'Herry', the name by which this man is locally best known, is used in preference to the less common but probably more correct 'Harry', although his name was actually Autshumao (Moodie *ed.* 1960: 135).

In 1613, Captain Towerson of the *Hector* took two of the local inhabitants of the Table Bay area on board with the intention of taking them to England. One died during the voyage, but the other survived and was returned to the Cape the following year (Raven-Hart 1967: 54, 64). This man, known to the English as 'Cory' or variants thereof, acted for several years as the principal agent in the bartering of livestock with the Khoikhoi, and appears to have been one of them. According to Walter Peyton, who was at the Cape in 1615, Cory's 'village' was eight miles (approximately 13 km) from the bay and consisted of 100 huts; there was another village consisting of 10 huts on the east side of Table Mountain (Raven-Hart 1967: 72). The description of the huts is identical to those of Khoikhoi huts (e.g. Kolb 1738: 220–222) and, although it was not specifically stated, it appears that the sheep and cattle that were bartered came from the inland village.

Cory seems to have disappeared from the scene around 1627 (Raven-Hart 1967: 120), and Herry commenced his duties as 'postman' and intermediary in the bartering by at least 1632 (Raven-Hart 1967: 137 f.). It seems unlikely that Cory was the same man as Choro, the chief of the Gorachouqua, nicknamed 'tobacco thieves' by the Dutch, who met Van Riebeeck in May 1660 (Moodie *ed.* 1960: 207), and whom Nienaber (1989: 682) considered to have been the eponymous ancestor of a branch of the Korana. Choro was last mentioned in the official records in 1662 (Moodie *ed.* 1960: 247), by which time, if he were in fact Cory, he would have been well over 60 years old. The indications are, however, that Cory, unlike Herry, was a member of one of the recognized Khoikhoi tribes, perhaps of the Goringhaiqua, the principal occupants of the Cape Peninsula.

Peter Mundy, whose ship called at Table Bay in May 1634, said of the people: 'Theis that are hereabouts (by report) are of a baser Sort and live in feare of others called Saldania men, whoe are further in the Land.' Herry, meanwhile, with about 60 men, women and children, 'better apparelled than those living on the Maine, though after the same manner', was living on Robben Island, in '7 litle Cottages' (Raven-Hart 1967: 141, 143). This report is ambiguous in that it suggests that there was yet another group besides Herry's people and the 'Saldanhamen', the latter at that time being the Khoikhoi *sensu lato*.

On 13 November 1652, Van Riebeeck questioned Herry about the inhabitants of the area. Herry told him that the Table Valley was annually visited by three tribes of people, 'similar in dress and manner ... namely, themselves, the Strandloopers [*sic*], or as they call themselves in the broken English they have learned, *Waterman*, because they live on muscles [*sic*], which they find on the rocks, and some roots out of the ground, without always having cattle—and who, as far as we have as yet ascertained, are not above 40 or 50 in number' (Moodie *ed.* 1960: 25, footnote). The other two groups were the 'Saldanhaman', later identified as the Cochoqua (Moodie *ed.* 1960: 247), and the 'Vishman', the latter of whom are discussed below.

In a dispatch to the Lords VII (the Council of the Dutch East India Company) dated 5 March 1657, Van Riebeeck referred to 'the Watermans or Strandloopers (a poor tribe with whom Herry used formerly to live ...)' (Moodie *ed.* 1960: 94), which suggests that Herry had severed his connection with the group. However, on 2 July 1658, he was described as 'nothing but a naked beggar and merely the captain or head of the Watermans or Strandloopers hereabouts' (Moodie *ed.* 1960: 131).

Herry and his people were identified in October 1657 as being of the Choeringaina tribe, the name being given the following month as Goeringaina or Goeringaijqua (Thom *ed.* 1954: 172, 184). However, in the list of tribes left by Van Riebeeck in 1662 for his successor, Herry and his people were named as the Goringhaicona, the Goringhaiqua being identified as the larger tribe of 'Caepmans' whose chief was Gogosoa (Moodie *ed.* 1960: 247). In the lists of 1657, but not that of 1662, the Goringhaicona (correcting the original error) were said to comprise Herry, his people, 'and all the Watermen' (Thom *ed.* 1954: 172, 184).

The records continued to be inconsistent in their use of the two names, for example: 'as soon as Herry has been sent to the [Robben] island, peace shall be offered to all his people *and also* the Watermans' (present author's emphasis); 'all the strandloopers [*sic*] and vagabonds of Watermans'; 'Herry's people, called Watermans'; 'the said men, who were all well known, and were accustomed to live at the Fort,

called out to our people that they were Vismans, alias Watermans'; 'as to the Vissers or Watermans, such poor naked creatures dared not go anywhere but must keep under the protection of the Company' (Moodie *ed.* 1960: 136, footnote on 170, 185, 188, 193, 217).

Dapper (1668, *in* Schapera *ed.* 1933: 9, translated) stated that 'The Goringhaicona or Watermen are under a chief, whose native name is Demtäa, but our countrymen call him Klaas Das .... They have a camp of only four or five huts, number about fifty souls with women and children, and are the poorest of all the Hottentots'. Schapera (1933: 8–9, footnote 6) said he had been unable to find any evidence in the official records to support Dapper's statement that Klaas Das was the leader of the Goringhaicona, and mentioned that his native name was Khaik Ana (or Khaikana) Makouka. Moodie (*ed.* 1960, footnote 1 on p. 136, 188) gave his name as both Humthasoankhumma and Kaikana Makoukou. The present author has likewise been unable to find any confirmation that Klaas (or Claes) Das was the leader of the Watermen or the Goringhaicona. He was generally described in the official records as one of the interpreters (Moodie *ed.* 1960: 70–71, 77–78, etc.) and once as 'one of the fishers, or Watermans' (Moodie *ed.* 1960: 198).

VISMANS

The Vismans ('Fishermen' is probably more correct than the literal translation, 'Fishmen') are another source of confusion. In the previously-mentioned journal entry of 13 November 1652, when Herry told Van Riebeeck of the three groups that visited Table Bay annually, he said that, in addition to the Strandlopers/Watermen and Saldanhamen or Cochoqua, '... the third sort was called by them *Vishman*, who after the departure of Saldanhaman come here with cows only, and without sheep, and who subsist by fishing, without boats, by lines from the rocks—who are from 400 to 500 in number; [against] these [*Vishman*, the] Watermans and Saldanhamans ... are at constant war ... he told us that those Vischman always travelled secretly, concealing themselves from Saldanhaman, and not like them lighting fires, for if the Saldaniers, who are of countless numbers, perceived their fires, they always tried to catch them, for which Vischman was much afraid, residing beyond the mountains Eastward of the Cape, towards the bay of Sambras [Mossel Bay], and in that direction' (Moodie *ed.* 1960: 25–27, footnote. The interpolated 'against' is taken from Moodie's footnote 1 on p. 59).

The Cochoqua told Van Riebeeck that the Vismans were 'all robbers, who would come here and try to steal our cattle' (Moodie *ed.* 1960: 26), an accusation supported by Herry, who also called them 'Soaqua' (Moodie *ed.* 1960: 28). In 1654, 'Herry's allies', probably the Goringhaiqua, complained to Van Riebeeck that 'the Vishmans (called by them Soaqua) had robbed them of all their cattle' (Moodie *ed.* 1960: 46). The following year, a party sent into the interior under the command of Jan Wintervogel met 'some Soaquas, called Vischman, and enemies of Waterman and Saldanhaman, who had no cattle'. These were a different group from those described later in Wintervogel's report as 'a certain tribe, very low in stature, and very lean, entirely savage, without any huts, cattle, or any thing in the world, clad in skins like these Hottentoos, and speaking nearly like them' (Moodie *ed.* 1960: 59). The Vismans, other than those mentioned above who were also called Strandlopers or Watermen, were, however, never seen at Table Bay and were last mentioned in 1660 (Moodie *ed.* 1960: 217).

It is evident from the foregoing that the name 'Vismans' was applied to the Goringhaicona, and used by them to identify themselves. It was also applied to the people, 400–500 in number, called cattle thieves and Soaqua by Herry, the Cochoqua and Goringhaiqua. Whether the 'Soaquas, called Vischman' mentioned by Wintervogel were the same as the cattle thieves is not clear. That they had no cattle is perhaps not important; they could have disposed of them, or lost them to another tribe, especially since they were accused of being cattle thieves. On the other hand, they may simply have been a party separated from the main group, which might have gone into hiding so as to conceal their cattle from the Europeans. Their leanness suggests, however, that they were not people who benefited from the regular possession of domestic stock.

Maingard (1935: 486–487) was of the opinion that the Vismans 'were the same people as the *Ubiquas* who are also called *Sonquas*'. He disputed the etymology given by Theal (1897: 173) as 'murderers, presumably from the Hottentot *//o:*, "to die" ' and stated that 'Since *Ubiqua* is equated with the "Fishmen", it should be derived rather from Hottentot *//au*, "fish" + *ube*, "to take away" + *kwa* (plural suffix)'. This seems somewhat circular reasoning and an implausible contraction of two words to produce the first part of the name. 'Ubiqua', with the meaning 'people who take away', is an apt name for robbers. Although there appears to be some validity in Maingard's equating 'Ubiqua' with 'Sonqua', both having been used with reference to hunter-gatherers without domestic stock, at least one group of 'Vismans' had cattle, but were called only 'Soaqua', not 'Ubiqua', as indicated in the excerpts given above.

Nienaber (1989: 898–901) attempted to identify the Vismans, chiefly from the sources cited above. He pointed out that the people met by Wintervogel were encountered west of the Drakenstein Mountains, in the vicinity of present-day Tulbagh, an unlikely locality in which to find people who were alleged to subsist by fishing, although the possibility that they caught river fish cannot be excluded. Nienaber also drew attention to the absurdity or incongruity (ongerymdheid) of Herry's assertion that the relatively large band of Vismans, 400–500 in number, *subsisted* by fishing when they also had cattle, though he was unable to determine from the scanty information whether these people were only cattle-thieves or whether they were herders.

Nienaber (1989: 901, translated) was of the opinion that 'Ethnonymically, the name *Visman(s)* indicates a necessary connection with fish, [and] in the explanation of this specific reference is made to sea-fish, so that the location always assumes a beach or coast within easy reach'. His conclusion was that 'The identification of [the] *Vismans* remains the great problem. If they did not disappear [after 1660—see above], under what name are they to be found again? The problem is thus more ethnic than ethnonymic.' He found interesting the inference of Goodwin (1952: 142) that the 'Strandlopers and Fishmen ... were Hottentots and Bushmen, herding and hunting people respectively who had turned for part of the year at least to the abundant sea-food to augment their normal sources of subsistence', but considered that Goodwin, too, had not answered the basic question of the *specific* identity of the people called 'Vismans'.

STRANDLOPERS—LATER REFERENCES

Although it seems clear that the Strandlopers, Watermen and at least one group of Vismans were one and the same, Herry's association with, and leadership of them, remains problematic. In 1659, a man called Trosoa was mentioned as chief of the

'Vismans, alias Watermans' (Moodie *ed.* 1960: 188) and, in January of the following year, Herry was said to be living with the Little Chariguriqua in the vicinity of Saldanha Bay (Moodie *ed.* 1960: 199). In a dispatch to the Lords VII dated 16 March 1660, Van Riebeeck reported that during a skirmish with a band of stock-thieves, three were killed, 'one of the killed being the chief of the Strandloopers, named Trosoa' (Moodie *ed.* 1960: 203). As mentioned earlier, Herry's actual name was Autshumao (Moodie *ed.* 1960: 135) and in 1666 it was reported that he had died three years previously, the report adding that he had been 'chief or captain' of the Goringhaicona (Moodie *ed.* 1960: 291).

It seems likely that the Dutch perception of Herry as leader of the Goringhaicona was the view he presented to them. If it is assumed that the Goringhaicona were a proper tribe or band and not the collection of outcasts Theal (1897: 155) and Maingard (1931: 492) assumed them to have been, it is possible that Trosoa was the *de jure* chief of the tribe, while Herry, by virtue of his influence with the Dutch and some of the Khoikhoi tribes, was their *de facto* leader. The Goringhaicona, although they had a Khoikhoi 'tribal' name, seem to have been no more than a loosely-knit group that fluctuated in size (e.g. Moodie *ed.* 1960: 291), and of which the leadership was probably nominal rather than actual (see Elphick 1977: 103–106). Herry's association with, or separation from, them was doubtless related to the changes in his relationships with the Dutch and the (other) Khoikhoi. Theal (1897: 155–156) stated that after Herry's death in 1663, the 'Hottentots residing permanently in Table Valley ... about eighty souls ... were nominally under the government of Jan Cou'. Jan Cou, alias Khamy, Chamy or Khuma, was the third son of Gogosoa, the chief of the Goringhaiqua (Moodie *ed.* 1960: 133, 135, 137, 141), but the present author has been unable to find any support in the official records (e.g. Moodie *ed.* 1960) for Theal's claim.

In October 1652, the bookkeeper Hendrik Verburgh was a passenger on the Company's yacht *Goede Hoope* that called at Saldanha Bay. Here they met on the shore some 'Hottentots', and 'firmly believed them to be Strandlopers, as they had no cattle or sheep or elephants' tusks ... they were all very lean and thin'. They visited the yacht again the following day, but 'these poor people had nothing to barter but tortoises, ostrich egg shells ... and similar trash' (Thom *ed.* 1952: 92–93). Two days later, after finding a kraal containing fresh manure, the Dutch fired a gun, after which some men arrived. 'They were three fat, sleek and robust fellows, quite friendly, and we could understand them better than we could the Strandlopers' (Thom *ed.* 1952: 95). The men promised to bring sheep, but did not, and the Dutch could find no other people in sight when they climbed 'a high mountain' (there is none in the vicinity: the Posberg on the Churchhaven Peninsula has an elevation of 194 m, the Karringberg on the mainland one of 177 m). This report is interesting in that it provides evidence of two different groups in the vicinity of Saldanha Bay: the emaciated people with no domestic stock and little to barter of value to the Dutch; and the well-fed men, who apparently had access to sheep, even if they did not bring them. Whether the comment about the Dutch being able to understand the second group better than they could the first refers to language or mime (see below) is not clear but, in the former case, it may indicate linguistic or dialectal differences between the two groups.

In January 1653, Verburgh was again at Saldanha Bay and again encountered 'some Strandlopers. We asked them whether they would help us kill *hercas* [seals] and have the meat to eat, but understood that they did not want to do any work for it'. A day or two

later, the Dutch bartered 25 hippopotamus tusks from the Strandlopers for some tobacco. Asked, with signs, whether they had any elephant tusks, 'they shook their heads, indicating that these animals were too large and powerful to be attacked by so few of them' (Thom *ed.* 1952: 134–135). This report reinforces the impression gained from the first, that there were people at Saldanha Bay who were not herders and who were few in number. If they were people who would otherwise be classified as hunter-gatherers, it is difficult to understand why they were reluctant to help kill seals, which would have provided them with a good supply of meat more easily than if they had done the trapping themselves. The size of the group was not stated but, as mentioned, there were too few men to engage in the dangerous task of hunting elephants, so that their number was probably small. That they had hippopotamus tusks to barter indicates that, unless they had traded them with people in the interior, these men were not habitually resident at the coast. There is no record of hippopotami living in Langebaan Lagoon in the early historical period: their closest habitat was probably the Berg River (Skead 1980: 399–409), at its nearest point some 35 km to the north-west.

Avery (1976, table 3) listed 10 occasions on which the Strandlopers were recorded as having been seen elsewhere than at Table Bay, three of which were those at Saldanha Bay mentioned above. In January 1655, Jan Sijmonssen, captain of the galiot *Roode Vos*, reported from Saldanha Bay that he had been there for 10 days, waiting for the natives, presumably to barter stock, but they had been visited daily only by the Strandlopers, who had brought them 'one beast . . . , but there were no sheep to be obtained from them' (Thom *ed.* 1952: 283). The following month, Verburgh reported that 'he had traded only 2 head of cattle and 10 sheep from Strandlopers who, he thought, had stolen . . . [them] from other natives' (Thom *ed.* 1952: 297). In October 1655, Corporal Muller, who was on a bartering expedition east of the Table Bay settlement, reported that, at their camp on the False Bay coast (identified by Avery (1976, table 3) as near Gordon's Bay), Herry had been visited by eight 'strange Hottentoos', who were later identified as being 'the Strandloopers who were formerly at the Fort bartering cattle' (Moodie *ed.* 1960: 73). There are apparently only three other records of Strandlopers being seen elsewhere than on the Cape Peninsula. Again, these were at Saldanha Bay (Moodie *ed.* 1960: 195, 202, 212), but the reports are inconclusive. The first, in November 1659, reported that the Strandlopers had informed the Dutch that the Cochoqua had retired inland. The second, in March 1660, merely referred to 'naked Strandloopers' and the last, in July of the same year, stated that there was nobody but Strandlopers there at that time. An earlier report, in August 1659, mentioned 'shore people, who lived by fishing', also at Saldanha Bay (Moodie *ed.* 1960: 190). The Dutch text of the official journal (Bosman & Thom *eds* 1957: 131) uses the term *strantluyden*, which in the English version (Thom *ed.* 1958: 129) is translated as 'beach rangers'. The use of 'Strandlopers' in these references may be a precursor of the way in which 'Hottentots'—those with domestic stock—and 'Bushmen' those without—were identified in later periods. In the cases mentioned above, people who were at the coast, for whatever reason, and had no stock, seem to have been *de facto* Strandlopers as far as the Dutch were concerned. That those seen by Verburgh at Saldanha Bay in 1655 had some few cattle and sheep gave rise to the suspicion that these had been stolen, presumably because of the general belief that the only natives who could legitimately possess domestic stock were the 'real' Khoikhoi: people who were recognizably herders, such as the 'fat, sleek and robust fellows'

Verburgh had seen at the bay in 1652. On the other hand, the Strandlopers met by Corporal Muller later the same year had previously been seen at the fort bartering cattle. This suggests that at least some of the Strandlopers were considered to be in legitimate possession of livestock, but they were more likely to have been recognized as intermediaries rather than as owners.

Elphick (1977: 134–135) considered plausible the reconstruction by Vedder (1928: 114) of the tribal name Chariguriqua as *≠kari-huri-qua*, meaning 'Lesser Sea People' and cited a personal communication from S. Marks 'that the original Guriqua may have been a Strandloper group which acquired livestock: this theory would explain their name (Sea People), their comparative poverty, their political decentralization, and the fact that other Khoikhoi occasionally referred to them as "San" '. That the name Guriqua/*huriqua* means 'Sea People' receives some support from the name of one of the branches of the Nama ≠Aonin, 'Hurìnin', which has the same meaning (Budack 1977: 12) (see below). However, Nienaber (1989: 437) commented with regard to the foregoing that, although he understood Marks's and Elphick's positions, the Chariguriqua did not really live so close to the sea, compared with, for example, the Saldanhars (Cochoqua) or Kaapmans (Goringhaiqua), that this afforded them a distinctive name. Nienaber preferred rather to consider the measure of resemblance between the *Guri-* of the name and the *Huri* (i.e. the Hurìnin) as a coincidence, pointing out, however, that the *g-* and the *h-* of the various words are in some cases dialectally interchanged.

There is no evidence in the early records that the Chariguriqua were not considered Khoikhoi, although they were once called 'Soanquas' (= San). Early in 1658, Jan van Harwarden was sent with a party into the interior to see if they could ascertain whether fires in the distant mountains signalled the seasonal approach of the Khoikhoi from the north-west (Moodie *ed.* 1960: 119, footnote 2). On 10 March, apparently somewhere in the vicinity of present-day Malmesbury, they saw some cattle and asked the natives who had accompanied them who were the owners of these. They were told that the people were Soanquas, but when they went to their kraal 'found that they were the same Hottentoos with whom the Fiscal [Abraham Gabbema] had formerly been, named Charingurinas' (the -na suffix has the same meaning as -qua, people), and that the small group of five huts was merely an advance party of the main group, which was still some distance away (Moodie *ed.* 1960: 122). Whether or not this incorrect identification of the Chariguriqua as San was deliberate cannot now be determined, although it could have been expected that the people who accompanied the Europeans would recognize the Chariguriqua as being Khoikhoi. 'Sonqua' may, however, have been used intentionally as a term of contempt, especially if Van Harwarden's guides were Cochoqua or their allies. As mentioned above, the Chariguriqua were formerly stock-keepers for Oedasoa, the Cochoqua chief, but had taken his cattle for themselves and were therefore considered outcasts by the other Khoikhoi.

On the basis of the claim that the Little Chariguriqua were formerly herdsmen for the Cochoqua, it is possible to suggest that they were San (i.e. hunter-gatherers, rather than necessarily Strandlopers, as suggested by Marks) who had improperly acquired stock and thus became herders in their own right. On the other hand, given their relatively small numbers – Van Riebeeck estimated the tribe to be 'a people about as numerous as the Goringhaiqua', who had 'exclusive of women and children, about 300 men capable of bearing arms' (Moodie *ed.* 1960: 247) – it is also possible that they

had earlier lost their stock to one or other of the Khoikhoi tribes and had been forced into a subservient position with the Cochoqua. The suggestion that they might have been robbed previously receives some support from the record of the first meeting in 1657 between the settlers and the 'Charigrina', as they were then called: 'that tribe had all fled, out of fear that they would be robbed' (Moodie *ed.* 1960: 109). Their flight could, of course, have been prompted by guilty consciences if the stock they feared to lose was actually the property of the Cochoqua.

The uncertainty of the Dutch with regard to the identities of the various groups of people in the area is exemplified by the entry for 21 March 1658 in the Company's journal dealing with Harwarden's journey, in which it was recorded that the party had 'met 3 or 4 small parties of natives (*Negryen*) and also the Swarte Captain, being all of the Chariguriquas' (Moodie *ed.* 1960: 120). The 'Swarte (Black) Captain' was Ngonomoa (or Gonnema), one of the two chiefs of the Cochoqua (Moodie *ed.* 1960: 148, 182, 199, 214).

The name 'Strandloper' was last used in the official records on 1 March 1681 (Moodie *ed.* 1960: 376, footnote 2), and it is likely that by that time most of them would either have gone into the service of the settlers or have joined other tribes. Kolb, who was at the Cape from 1708 to 1713 and published one of the most extensive early treatises on the indigenous peoples, did not mention either the Strandlopers or the Goringhaicona in his description of the Khoikhoi tribes (Kolb 1738: 62–83). However, Valentyn, who spent a total of about six months at the Cape between 1685 and 1714 (Serton *in* Valentyn 1971: 9), listed among the tribes 'the *Goringhaicona* or Watermen' (Valentyn 1973: 61). Elsewhere, he observed that 'Those who have no herds, and especially the Kaapmans and the Strandloopers who live near the Castle', were accustomed, before the smallpox epidemic of 1713, to assist the burghers on their farms and their wives in the houses. By the time of his last visit, these people had all but disappeared, 'although in 1714 I still saw Hottentot men and women here and there, the latter often busying themselves with the digging out of . . . little roots' (Valentyn 1973: 75).

Valentyn's mention of the 'Kaapmans' (Goringhaiqua) not having cattle at that time, and his vague use of 'Hottentots'—by then often applied to the Khoisan in general—suggests that by that time the name 'Strandloper' was just a catch-all used to describe the various impoverished Khoikhoi (and possibly San) who lived in and around the Table Bay settlement.

The 'tribal' identity of the Goringhaicona is discussed in the following section.

THE GORINGHAICONA: KHOIKHOI OR SAN?

According to Maingard (1931: 492), the Goringhaicona were originally part of the Goringhaiqua but had been 'for some reason, unknown, but not inconsistent with Herry's scoundrelism, outlawed from the larger tribe'. There was, none the less, constant interaction between the two groups, the Goringhaiqua often being called 'Herry's allies' by the Dutch (Moodie *ed.* 1960 *passim*: see Index: v, under 'Caepmans'). Nienaber (1989: 409) commented that Herry acknowledged the overlordship of Gogosoa, the Goringhaiqua chief (see Moodie *ed.* 1960: 115).

Stow (1905: 245) considered that the description by Oedasoa, the senior chief of the Cochoqua, of the Goringhaicona as murderers and stock-thieves who preyed on the other tribes when they were at their weakest, was 'so at variance with the more indolent mode of life in which the normal Hottentot was so prone to indulge, that one feels almost

forced to the conclusion that these marauders must have belonged to the more energetic Bushman race, who harboured a feeling of revenge against the pastoral intruders into their ancient territories'.

There is, however, evidence that the Khoikhoi also murdered one another and stole each other's stock when they could (e.g. Thom *ed.* 1952: 127; Elphick 1977: 53–57; see also the reference above to the Chariguriqua having stolen the stock of the Cochoqua). These qualities were thus not restricted to the San, as Stow suggested, and consequently do not serve to support his identification of the Goringhaicona as San on these grounds.

Elphick (1977: 94, text and footnote 13) dismissed as misleading Stow's suggestion that the Strandlopers were, or had been, Bushmen, observing instead that 'The Goringhaicona belong to that group of peoples ... which are Khoikhoi rather than aboriginal in language and culture'. 'Aboriginal' is one of the terms that Elphick (1977: xxi–xxii) used in preference to 'San'.

Elphick (1977: xxi–xxii) considered 'a Khoikhoi to be *any person accepted as a full* (i.e. not a subordinate) *member of a Khoikhoi community*. A Khoikhoi community was *one where a dialect of the Khoikhoi language was spoken and where pastoralism was the preferred mode of economic life*' (his emphases). He also commented that 'Goringhaicona is usually construed as "children of the Goringhaiqua", since */kona* means "children" ' (Elphick 1977: 94, footnote 13). Nienaber (1989: 409 410, 419, translated) gave the meaning of the name as 'children of the high kraal' and commented ' "children" has here a special connotation for those "who are like children, immature, humble in status, and live down there on the beach, not here, up high" ', that is, on the higher ground away from the shore where the Goringhaiqua, the 'people of the high kraal', lived.

G. Klinghardt of the Department of African Studies and Anthropology at the South African Museum (1988 pers. comm.) pointed out that when tribes split, the breakaway group retains the tribal name and is still recognized as part of the main tribe. However, such groups were always referred to as 'little', for example, Little Chariguriqua, Little Namaqua, not as 'children'. This suggests that a special circumstance applied to the Goringhaicona and that they were not considered as a group normally separated from the Goringhaiqua and enjoying junior status within the whole tribal body.

That Herry's niece Eva (Krotoa) had a sister who was a wife of Oedasoa, one of the chiefs of the Cochoqua (Moodie *ed.* 1960: 145), is also no certain indicator of the Goringhaicona being Khoikhoi. Oedasoa's wife was a 'prize of war', having been taken from Goeboe, son of Sousoa the Chainouqua chief (Moodie *ed.* 1960: 217). Elphick (1977: 107) may have been correct in suggesting that the terms 'niece' and 'sister' were classificatory rather than actual, although he supposed that Eva's 'mother', who lived with the Goringhaiqua (Moodie *ed.* 1960: 145), was her biological parent; but this does not prove that Herry or any of the women were Khoikhoi. There is no evidence that the Khoikhoi considered themselves too superior to take San women as wives: the Korana accepted former 'Bushmen' into their tribe (Engelbrecht 1936: 17, but see below), although such a practice need not necessarily have been the case in earlier times. However, since Elphick (1977: 11) considered that 'one or several hunting bands—consisting of Central "Bush" speakers in or near northern Botswana—acquired stock and became by that act the first Khoikhoi', it is arguable that the Khoikhoi were biologically the same as the San (see also Wilson 1986*c*; Morris 1990: 12). Any reason for their not mixing would, in the later period at least, have been social rather than

biological: status-related, that is, rather than arising out of a distaste for what might have been perceived as miscegenation not, as far as is known, that the latter has ever been suggested.

Morris (1990: 12) commented that intermarriage between the Khoikhoi of the Orange River area and their Tswana neighbours, the Thlaping, was acceptable because both were pastoralists, therefore equals. These two groups 'had a similar concept of bridewealth', a notion that was alien to the San and would thus have been an impediment to intermarriage. Although it may be accepted that the San had no concept of bridewealth in the sense that this was to be paid in livestock, of which they were not normally owners, there is little doubt that they had a very good idea of the value of cattle, even if this was not precisely the same as that of the Khoikhoi. Moreover, it would have benefited a Khoikhoi man who had few cattle to take a San wife since the brideprice, if any, would have been less than that asked for a Khoikhoi wife.

The Hessequa, Cochoqua, Namaqua and Inqua are among the tribes mentioned in the early records as having from time to time used the services of people they called 'Sonqua' or 'Obiqua' or variants thereof (Moodie *ed.* 1960: 324, 342, 410, 436). These people appear to have been hunter-gatherers rather than pastoralists, and there seems no good reason why the Goringhaicona were not also in this category. In this connection, the observation by Jourdain (see above), that the people he met on the shore of Table Bay in 1608 had no domestic stock of their own, but notified those inland of the arrival of the ships, who then brought the animals, tends to support the suggestion that the Goringhaicona were subservient to, and possibly had a clientary relationship with, the Goringhaiqua.

That the Goringhaicona had a Khoikhoi 'tribal' name (Elphick 1977: 94) and were not called 'Sonqua' or 'Obiqua' is, although an apparently unusual circumstance, also not necessarily an indication that they were Khoikhoi. Because of their location close to the Dutch settlement and their interaction with the settlers, the Goringhaicona were the best-described non-herder group; but it does not follow from this that the people called 'Sonqua' or 'Obiqua' did not also have other names. Isak Schryver, who journeyed to the Inqua in 1689, recorded meeting 'a party of Hottentots called *Hougliquas*, and *Sonquas* or *Thonuny*' (Moodie *ed.* 1960: 437), so that it is likely that other individual bands did have specific names. As Elphick (1977: 24) observed, the names 'Sonqua' and 'Obiqua' referred 'not to specific bands but to a *category* of people scattered all over southern Africa' (present author's emphasis).

That the Goringhaicona spoke a Khoikhoi dialect is also no sure criterion of their being Khoikhoi: any group in a subordinate position will—*must*—learn the language of its superiors, as is evidenced by the fact that Herry learned English, and probably also Dutch. The Dama of Namibia, a people of Negro origin who long had a servile relationship with the Nama, speak the language of their former overlords (Schapera 1930: 3; Hiernaux 1974: 110; also various authors cited by Nienaber 1989: 290–307).

That pastoralism was 'the preferred mode of economic life' is not disputed. In 1653, Herry and some of his band were implicated in the murder of one of the Company's herd-boys and the theft of all the Company's small herd of cattle (Moodie *ed.* 1960: 35–38); the early records provide abundant evidence that the Goringhaicona had associated with herders long enough for them to have appreciated that ownership of domestic stock was

an indicator of status, and thus desirable, especially for people of evidently low station like themselves.

However, apart from the language they spoke and their desire to own cattle, there is no evidence in the early records that the culture of the Goringhaicona was specifically Khoikhoi. Indeed, Elphick (1977: 94, footnote 13) himself stated that 'They belong to the category "hunter-gatherers" .... The term *Strandloper* usefully denotes a subgroup of hunter-gatherers, namely those with a predominantly scavenging and gathering economy' (his emphasis). In this context, however, calling people who were said to be 'predominantly scavengers' *hunter*-gatherers is questionable, although opportunistic provisioning, by whatever means, is probably acceptable in any economy. As mentioned previously, Elphick (1977: xxi–xxii) preferred not to use the name 'San', but this, or its variants, was the name generally applied by the Khoikhoi to hunter-gatherers or those without domestic stock (see Wilson 1986*a*: 254–256) and it is thus arguable, on the basis of the foregoing, that the Goringhaicona should be identified as San rather than as Khoikhoi. The processes whereby herders lost their stock and had to revert to being hunter-gatherers (and scavenging seems to have been part of their economy), and former hunter-gatherers acquired stock and thus became pastoralists, have been discussed by a number of writers (e.g. Wilson 1969; Marks 1972; Elphick 1977, 1985; Schrire 1980). Thus, although it is generally necessary to avoid a rigid application of the Khoikhoi = herder, San = hunter-gatherer dichotomy (Wilson 1986*a*: 261–264), it is on occasions legitimate to use these equivalences when dealing with the peoples of the early historical period, and probably also some of those in the prehistoric period.

The foregoing tends to show that Elphick's assertion that the Goringhaicona were Khoikhoi is not supported by the evidence of the early records or, for that matter, by the arguments he adduced in support of his claim. In July 1656, the Goringhaiqua said of Herry that he was 'a good-for-nothing and was already conspiring with the robbers, named Sonqua, with a view to enlarging his own following' (Thom *ed.* 1954: 50). Neither Herry nor the Goringhaicona were recorded as having been called 'Sonqua' by the Khoikhoi, and this seems to be the strongest, perhaps *only*, argument in favour of their having been Khoikhoi. It must be remembered, however, that it was the Goringhaicona interpreters, Herry and Eva, who were the chief communicators between the Dutch and the Khoikhoi, and they would have been unlikely to pass on to the Dutch anything said to their own discredit. On the other hand, the third interpreter, Doman (alias Anthony), who seems not to have been one of the Goringhaicona, would have welcomed the opportunity to further his own interests at Herry's expense (e.g. Moodie *ed.* 1960: 78, 129). The accusation that Herry was attempting to recruit Sonqua into his band is interesting in that it suggests that, even at that time, there were San bands close enough to the Cape Peninsula for him to be able to do so. Regrettably, however, this matter was not elaborated in the official records.

DISCUSSION

The way of life of the Goringhaicona, the 'Strandlopers' of the early Dutch records, was clearly not typical of that of either the Khoikhoi herders or the San hunter-gatherers. Unlike Cory, his predecessor as 'postman' and intermediary in the bartering of livestock, Herry was — if only by default — not a herder, nor did he and his people live as a matter of course in a kraal of their own, as did Cory and the other Khoikhoi. Whether the

Goringhaicona were outcasts from other Khoikhoi tribes, as suggested by Maingard (1931), and possibly augmented by San, or whether they were San 'clients' of the Goringhaiqua is something that, on the basis of the documentary evidence available, cannot be established with certainty.

As was mentioned at the end of the first section, although it is probable that observations such as those of Von Mandelslo—that the people lived on shellfish and the flesh of beached marine mammals—were correct, this evidence is only *partial*: it was not based on daily and round-the-clock observation. None the less, even the sparse information provided by the travellers and settlers of the time shows that the Goringhaicona included plant foods in their diet and that they had access to the flesh of sheep and cattle. They, therefore, did not live solely by 'strandloping'.

It may be suggested that the Goringhaicona, whatever their tribal identity, were a group that, under Herry's leadership, saw the advantages of living close to the shores of Table Bay, where they could be the first to avail themselves of the benefits to be derived from contact with the passengers and crews of the ships that called there. At first, this may have caused an occasional change in their usual way of life (whatever that may have been) when ships called but, after the establishment of the Dutch settlement in 1652, they took up more or less permanent residence in the vicinity. There, when Herry's conduct did not alienate the Dutch, they made themselves useful to the settlers, who provided them with protection against the Khoikhoi when Herry's behaviour had turned the latter against him and, consequently, the rest of his band. Through the agency of Herry and Eva as interpreters and facilitators in the trading between the Khoikhoi and the Dutch, the Goringhaicona reaped the benefits of their association with both groups. (According to Sealy & Van der Merwe (1986*a*: 142), similar suggestions were made by Parkington (1976*b*) and Robertshaw (1979), in their unpublished doctoral theses, to which the present author has not had access.)

There is no evidence in the early records that the 'Strandlopers' seen at Saldanha Bay were Goringhaicona. The name seems to have been applied by the Dutch to people met there who, except in two instances, had no domestic stock and were probably hunter-gatherers. Had they been encountered away from the coast, they would probably have been called 'Sonqua'.

Etienne de Flacourt, who visited Saldanha Bay in October 1648, commented, 'All those who come to these coasts are merely the poor slaves of others, who are the masters and possess cattle, which they have in great numbers' (Raven-Hart 1967: 174). This is a good indication of the low esteem in which the Goringhaicona and other people without domestic stock were held.

'STRANDLOPERS' IN THE LATE EIGHTEENTH CENTURY: GORDON AND PATERSON IN THE NORTH-WESTERN COASTAL REGION

The preceding sections have dealt almost exclusively with the documentary evidence for the life-style of people in the south-western coastal region, the area where, until the latter part of the seventeenth century, most contacts between the voyagers and settlers from Europe took place. During the eighteenth century, the settlers and visitors travelled further afield and information was obtained about more distant peoples. From a research point of view, it is unfortunate that Part II of Moodie's *The Record*, which covered the

period 1691–1769, was never published, since the parts that were published (Moodie *ed.* 1960) are a valuable, if somewhat limited, source of information.

The late eighteenth-century soldier and explorer Robert Jacob Gordon was probably the first European to realize that some of the shell deposits on the southern African littoral were of human rather than of natural origin. In August 1779, he found, in the hills near the mouth of the Buffels River in northern Namaqualand, 'many sea shells and although there were signs of marine erosion, many of these shells seemed to have been brought here by people or baboons, since I have heard that beach-Hottentots lived here, who fed themselves on whale meat and shellfish. In addition, whole heaps of shells were too new to have been at this spot since the sea was here' (Raper & Boucher *eds* 1988: 256; see their footnotes 79–80 re the identification of Gordon's 'Gouwsi' or 'Sand' River).

Further north, near the present Grootmis, Gordon and his party found 'seven huts standing together which these wild Bushmen had made of whale bones, all protected towards the NW. At these huts were found large amounts of the shells mentioned above.... We found sea shells everywhere, apparently brought by the Hottentots' (Raper & Boucher *eds* 1988: 258; see footnote 83 on p. 257 re locality). It should be noted, however, that it was not Gordon who used the term 'wild Bushmen', but his editors. Gordon's term was simply *'wilden'*: 'wild people' (Wilson & Klinghardt 1989: 50) —possibly in contrast to the 'tame' ones who were taken into service by the farmers (e.g. Burchell 1967: 227).

An interesting observation, made still further north, probably in the vicinity of McDougall's Bay, was that there were 'many large heaps of shells all of the abovementioned [sorts] and never mussels, although these are very good here' (Raper & Boucher *eds* 1988: 264—their interpolation; see their footnote 87 on p. 260 re locality). Quite what were the previously-mentioned sorts of shells is not clear, since the only specific prior mention of shellfish types was 'rock-suckers' (Raper & Boucher *eds* 1988: 261), presumably limpets *Patella* spp.

Gordon provided a comprehensive description of a camp of the 'wild people' that he found on the north bank at the mouth of the Orange River, which also gives information on the resources exploited by these people. There were the skins of 'rock rabbits' (hyraxes *Procavia capensis*), jackals and seals, drying whale-meat, ostrich eggshells, some filled with water, *canna* (*Sceletium* sp.), eland horns filled with buchu (*Agathosma* spp., also other aromatic species of herbs) and fat (Raper & Boucher *eds* 1988: 269). The illustration of the camp (Raper & Boucher *eds* 1988, pl. 52) shows whale vertebrae and a rib, as well as what are probably limpet shells.

William Paterson (1790: 115–116), who accompanied Gordon, said it was 'several species of fish' that were drying on the branches, rather than whale-meat. He also mentioned that 'Their dress is composed of the skins of Jackals and Seals, the flesh of which they also eat. When it happens that a Grampus [whale] is cast ashore, they remove their huts to the place, and subsist upon it as long as any part of it remains; and in this manner it sometimes affords them sustenance for half a year, though in a great measure decayed by the sun.... They carry their water in the shells of Ostrich eggs and the bladders of Seals, which they shoot with bows. Their arrows are the same as those of all the other Hottentots'.

It is of some interest that, although Gordon and Paterson visited this camp towards the end of winter (20 August 1779), the only plant material found, other than the grass

and branches of trees used in the hut structures, etc., was *canna*, much sought after by the Khoisan because of its narcotic qualities (Smith 1966: 276, under kanna) and buchu, used medicinally and—as evidently in the present case—mixed with fat for use on the person because of its pleasant aromatic quality (Smith 1966: 135–141, under boegoe). However, the people later informed Gordon that their children were almost always away from the camp 'to collect veld roots, bulbs, etc.' (Raper & Boucher *eds* 1988: 274), so that the lack of mention of these and other plant foods in their camp cannot be accorded undue significance.

Gordon was told that the people on that side of the river had all died out, except two women who were now with them. They denied that this had been caused by eating poisoned fish, although one of their women had died after eating one cast up on the shore (Raper & Boucher *eds* 1988: 272). There is no information as to what prompted this statement: Gordon made no mention of having heard elsewhere of this sort of thing, which may possibly be a reference to the killing of marine life as a result of a 'red tide' or phytoplankton bloom.

It should be noted that the claim (Raper & Boucher *eds* 1988: 256, footnote 81) that 'The Strandlopers, or "beach walkers" as they were called, were neither Khoi nor San but a closely related negroid group', attributed to Nienaber (1988: 867—correctly 1989: 866) was not that author's opinion but part of an extract from Van der Horst *et al.* (1978: 10). Nienaber's own view was considerably different (Wilson 1989*c*). Paterson (1790: 117) commented that 'Those that remain are distinguished by the name of the Shore Boshmen [*sic*]'.

DISCUSSION

The evidence of Gordon and Paterson makes it quite clear that the people they saw were not herders but hunter-gatherers whose subsistence included the flesh and fat of seals, whales and fish, and, if the illustration of their camp has been interpreted correctly, shellfish. Terrestrial food resources included ostrich eggs and plant foods, probably also hyraxes and eland, and the first sentence of the above quotation from Paterson could be taken as indicating that the flesh of jackals was also eaten. Although the visit by these two travellers was only a short one during a specific season—winter—Paterson's evidence is that the 'shore Bushmen' moved along the coast, since they would otherwise have been unlikely to find the stranded whales he mentioned. This does not, of course, preclude the possibility that they also went into the interior, but what is clear is that these people exploited both the marine and terrestrial resources of the coastal region.

THE EVIDENCE OF ARCHAEOLOGY AND OTHER DISCIPLINES

PHYSICAL ANTHROPOLOGY

THE REVIVAL OF THE 'STRANDLOPERS'

The name 'Strandloper' appears to have been revived during the latter part of the last century, probably as a result of the publication of *The Record* by Donald Moodie. Part I, first published in 1838, deals with the period 1649–1690, during which the Goringhaicona were in evidence (Moodie *ed.* 1960 *passim*).

In 1871, a correspondent to *The Cape Monthly Magazine*, identified only by initials, continuing the debate on the origin of shell deposits in the cliff-top caves at Cape Point

that had been carried on sporadically in the magazine since 1858, observed 'The tribes of Hottentots who peopled that part of the country on the arrival of the Dutch were called the Goringhaicona; to this branch belonged the Strandloopers, Watermen, or Vismans, so often referred to in the early records. They frequented the coast extending on the west from Hout Bay, and from Kalk Bay on the east, to Cape Point. They subsisted on fish and shell-fish; and it is but natural that they should, in the course of ages, have left large deposits of shells by their kitchen middens' ('S. T.' 1871: 174–175).

It is not clear why the writer should have restricted the Strandlopers to the southern part of the Cape Peninsula when the most frequent references to them in the early records show them to have been in the vicinity of Table Bay, at the northern end (Moodie *ed.* 1960 *passim*; see also above).

In the same magazine the following year, Martin (1872: 55), having mentioned the presence of shell middens at Kommetjie, Simon's Town and Miller's Point, reported that 'There has lately been sent to the South African Museum a very perfect skull of probably one of the early Strandloopers, who roamed the beach at Cape Point ages ago'. This skull (accession no. SAM–AP24), along with many of the other early acquisitions of human remains from the coastal region, is described in the Museum's physical anthropology catalogue as 'Strandlooper'.

Part of the comment by the historian Theal (1918: 4) on the nomenclature and identity of the 'strandlopers' was given at the beginning of this study. In the continuing part, Theal drew a distinction between 'an impoverished people of mixed Hottentot and Bushman blood, speaking the Hottentot language and wherever possible following Hottentot customs, who from dire necessity were reduced at times to eke out a miserable existence', who were observed by the first Dutch settlers, and 'The Ancient Shellmound Men', who were 'beachrangers, it is true, but that was their normal mode of existence'.

Theal's opinion of the identity and economy of these later 'strandlopers' appears more substantiable than that of Elphick discussed above, although his suggestion that they were biologically, rather than culturally, hybrids must be disputed, as must his claim that it was 'dire necessity' that forced them to 'eke out a miserable existence' by exploiting marine resources. Fortunately, however, the name he chose for the earlier creators of the shell middens did not find favour. It would have been as confusing—and as misleading—as the one he sought to replace. The ascription of shell middens to the 'Strandlopers' of the early records and the application of their name to human remains found in the coastal region set a precedent that was followed when physical anthropological and archaeological research began, as is shown below.

CRANIOLOGY

In an early study of the crania of African 'Bush races', Shrubsall (1898: 264) referred to the crania of three 'Strandloopers or coast Bushmen' and included the craniometric data for these with those of his 'Bush' sample. In a later study, he observed 'The earliest remains of the Bushmen peoples of South Africa would appear to be those of the Strandloopers found in the caves along the south-eastern seaboard. On cultural grounds these are said to be of a somewhat different type to the inland Bushmen of the present day. It therefore becomes a matter of some interest to compare the features of the two' (Shrubsall 1907: 227).

In this later study, Shrubsall kept his measurements and indices for the 'Strandlooper' crania separate from those for the 'Bush' crania, and concluded that 'The Strandloopers appear in all respects to be a purer group than the Bushmen, and to be distinct from the Hottentots' (Shrubsall 1907: 249). The study was based on 21 crania (not 24 as stated) from the collections of the South African Museum, 'some of which were in a fragmentary condition' (Shrubsall 1907: 228), as well as from those of a Dr Duckworth, the Anatomical Museum at Cambridge and the Royal College of Surgeons (Shrubsall 1907: 250–251). The 'Strandlooper' crania in the South African Museum's collection that Shrubsall used in his study (9 male, 1 ?Strandlooper and 1 ?male, and 3 female) are from coastal contexts that range from as far afield as Port Nolloth in the north-western Cape to Bloukrans in the southern Cape, not the 'south-eastern seaboard' mentioned above. The seven 'Bush' crania (3 male, 2 ?male and 2 female) are from inland localities or have no locality recorded (Shrubsall 1907: 250 251; South African Museum Physical Anthropology Register: 1, 3).

Shrubsall treated his small sample as if all the individuals were contemporary (none has been dated subsequently). Moreover, in assigning all the skulls from coastal contexts to a specific Strandloper category, he ignored the evidence of the early records, which show that by the early historical period, the Khoikhoi ('Hottentots' in his terminology) occupied the greater part of the coastal region, so that many of them must have died and been buried there.

The results of Shrubsall's study are not acceptable by modern standards. His samples were too small: 14 Strandloper males, 1 ?male, 1 ?Strandloper, and 7 females (not 6 as stated on p. 240), as well as 5 Bushman males (including 2 ?male) and 2 females (Shrubsall 1907: 250–251). Most of the crania were incomplete, only six of the male skulls (five if the ?Strandloper is excluded) providing all nine of the measurements he used in his comparisons (p. 240), the others yielding from one to eight depending on the measurement. In the case of the female crania, these nine measurements were provided in the table on pages 250–251 for six of the seven, but in the table on page 240 Shrubsall used pooled data for only between three and six crania.

The summary statistics for the Strandloper male and female skulls in Shrubsall's table on page 240 do not accord with those obtainable from his table on pages 250–251 (see Wilson 1990: 46). The statistics for the total Bushman sample are based on more information than is included in the table on pages 250–251, and individual measurements were not provided for the Hottentot sample.

Shrubsall (1907: 242) provided a table giving the results of his tests of statistical significance for the pairs of measurements used in his table on page 240. Where the male crania are concerned, the Strandloper : Bushman samples show a significant difference in only one of the nine measurements. In the Strandloper : Hottentot samples, there are significant differences in five measurements, whereas in the Bushman : Hottentot samples, there are differences in seven measurements.

The results of these tests show the problems inherent in using Shrubsall's data and of applying tests of statistical significance to small samples, especially when these are a series of individual measurements derived from pooled data. They also show that the Strandloper sample differs very little from the Bushman sample, which calls into question Shrubsall's assertion quoted above, that 'The Strandloopers appear *in all respects* to be a purer group than the Bushmen' (present author's emphasis) when their measurements are

statistically significantly different in only one of nine measurements. Moreover, because there are no significant differences between the means of five of the nine measurements in the Strandloper : Hottentot samples, this suggests that the Strandloper sample is closer to the Hottentot sample than the Bushman sample is, since the latter differs significantly from the Hottentot sample in seven of the nine measurements.

Shrubsall's criterion for assigning the Strandloper skulls to this category was probably their origin in coastal contexts, but his criteria for distinguishing between Bushman and Hottentot skulls were not stated. That there is a greater number of significant differences between the measurements of the crania of the Bushman and Hottentot samples than there is between the Strandloper : Bushman and Strandloper : Hottentot samples suggests that Shrubsall assigned skulls to Bushman or Hottentot categories on the basis of criteria derived from studies of previous samples that had already been assigned to their respective 'races'. It also suggests that the Strandloper sample would, on metrical, rather than geographical, grounds, be found to contain both Bushman and Hottentot crania.

Shrubsall's identification of the 'Strandlopers' as distinct from both Khoikhoi and San found its way into the pioneering monograph on the Stone Ages of South Africa by Péringuey (1911: 189–201; Shrubsall 1911), and thence into the archaeological and anthropological literature, both technical and popular. It has proved extremely difficult to dislodge this concept.

Schapera (1930: 29, footnote 1) commented 'The term "Strandlooper" (coast ranger), applied by several writers on the prehistory of S. Africa to the people associated with the kitchen middens found along the south and west coasts of the Cape, should be abandoned, as the latent implication that these people form a distinct racial group is not justified. For the most part they were merely Bushmen who took to the seashore, so that we have to do with a particular mode of life rather than with a particular people'.

He accepted, however, that the Strandloper remains from the Tsitsikama (southern Cape) coast referred to in a series of papers by Dart, Laing, and Gear (references cited by Schapera) 'represent a mixture of these coast-dwelling Bushmen and people of the Boskop type'. Singer investigated the evidence for the existence of a 'Boskop race' and concluded that 'It is now obvious that what was justifiable speculation (because of paucity of data) in 1923, and was apparent as speculation in 1947, is inexcusable to maintain in 1958' (Singer 1958: 177).

Schultze (1928) showed that the modern Khoikhoi and San are physically sufficiently like each other, and sufficiently unlike the other peoples of Africa, to warrant their being classified as a separate race, now known as the Khoisan (Schapera 1930: 5; but see Wilson 1986*a*: 259–260; 1986*c*: 17; Morris 1990, 1992). Recent studies of the cranial and postcranial morphology of human remains in museum and medical school collections (e.g. Hausman 1980, 1984; De Villiers & Wilson 1982; Morris *et al.* 1987) have tended to show that most, if not all, fall within the normal range of variation of the Khoisan. Hausman (1980: 161–162; 1984: 270), however, concluded that the crania she identified as being of 'coastal San' differed morphologically from those inland, and that there was thus a possibility of a biologically distinct population living at the coast during the later Holocene.

Morris (1986: 5) questioned the accuracy of Hausman's identifications, and showed (Morris 1986, 1987) that the validity of the identifications of most early acquisitions of human remains in museum and medical school collections cannot be supported, apart

from those of five San and nine Khoikhoi individuals who were known during their lifetimes (Morris 1986: 6). This is a mere fraction of the collections and he concluded that 'all that can be assumed is that the known-in-life reference samples provide a range of variation of Khoisan morphology which cannot be reliably separated into Khoi[khoi] and San categories' (Morris 1986: 9).

A major problem with biometric studies such as those of Shrubsall and Hausman is that, although the geographic location of the skeletal remains is known, sometimes precisely, in most cases there is little or no information regarding their archaeological context. This lack of information is aggravated by the fact that very few of these remains have been radio-carbon dated, so that the samples, or 'populations', studied are treated as if they were all contemporaneous. This ignores the possibility of changes through time in the genetic make-up of peoples and their consequent physical characteristics.

A further problem is that the early studies appear to have determined, on whatever basis, the cranial characteristics of the 'pure' or 'typical' Hottentot and Bushman, so that any intermediate individuals were classified as 'Bush-Hottentot hybrids', as, for example, in Keen's craniometric survey of skulls in the South African Museum's collection. Keen (1952: 223–224) mentioned that there were two opposing schools of thought regarding the physical anthropology of the Hottentots and Bushmen, one holding that the two are so alike as not to be separable into different races, the other maintaining that they can be distinguished apart. Keen held the latter view, and stated that 'The characteristic, or "typical" Bushman crania are easily separated from characteristic Hottentot skulls, as they show very opposing tendencies', some of which he mentioned. 'The "typical" Hottentot cranium is large ..., narrow in the forehead region and markedly dolichocephalic ...; while the "typical" Bushman cranium is small ..., relatively wide in the forehead region and with a tendency to brachycephaly' (Keen 1952: 216).

Of the 178 crania Keen studied, he classified 43 (24,2%) as Bushman, 21 (17,4%) as Hottentot and 104 (58,4%) as Bush-Hottentot hybrid (Keen 1952, table 2). Since the present study is concerned with the inhabitants of the coastal region, it is worth mentioning that 44 of the crania were from the 'southern coastal area and near Cape Town', but of these only 4 (9,0%) were identified as Hottentot, whereas 17 (39,0%) were Bushman and 23 (52,0%) Bush-Hottentot hybrid.

Shrubsall's measurements were used (Wilson 1990, table 2) to calculate the cranial indices for his Strandloper and Bushman samples, together with cephalic indices for living Khoikhoi males from Schultze (1928, table 1) and Bushman males and females from Dart (1937, appendix). The Khoikhoi males were mostly (75,7%) dolichocephalic and the rest mesocephalic, whereas the Bush males and females were mostly (75,0% and 61,9%) mesocephalic rather than brachycephalic, the tendency Keen suggested. However, although none of the Khoikhoi males was brachycephalic, dolichocephaly was present in the Bush males and females, showing that the latter is not an absolute criterion for distinguishing between the two groups. On this basis, it may be suggested that mesocrany was probably one of Keen's criteria for evidence of hybridization.

Most of Shrubsall's skulls were mesocranial but, whereas dolichocrany was not present in only the Strandloper female sample, brachycrany was restricted to the Strandlopers. On the basis of these criteria, three of the Strandloper males and one of the Bushman males would have been classified by Keen as Hottentots, another three of the Strandloper males and one of the females as Bushman, but none of the Bushman

males and only one of the females; the bulk of the sample (65,4%) would have been classified as Bush-Hottentot hybrids. Clearly, simple 'rules of thumb' such as those given by Keen are invalid.

DISCUSSION

Analysis of Shrubsall's (1907) craniological study has shown that there is no justification, on the basis of the statistics he provided, for his claim that the sample of Strandloper skulls was markedly different from that of his Bushman sample. Although there is no information as to the criteria by which he separated his Bushman and Hottentot samples, it may be suggested that their separation was on the basis of metrically determined morphological differences derived from crania attributed to one or other of the 'races', rather than from crania that came from known-in-life individuals. Later studies, such as that of Keen (1952), seem to have been based on 'rule of thumb' concepts of what cranial characters should be found in Hottentot and Bushman skulls, so that any that did not conform to the 'ideal type' were automatically classified as 'hybrid'. Keen's data indicate that the skulls cover the whole range from dolichocrany to brachycrany, with mesocrany the most common. In other words, the 'hybrids' are the norm, whereas the 'Hottentots' and 'Bushmen' mark the extremes of the range. In this regard, it is unfortunate that Shrubsall did not provide complete metrical data for his Bush and Hottentot samples so that the ranges could be determined. Had this been possible, it would probably have been found that the ranges overlap to such an extent as to indicate that they are part of a continuum that contains the 'typical' Hottentot at one end and the 'typical' Bushman at the other.

Keen (1952: 224) commented that 'Crania which in the past have been called *Strandlooper*, on account of their being found in association with coastal middens and rock shelters, are proving to be Hottentots or Bush-Hottentot hybrid types .... For this reason the term Strandlooper should no longer be used in a racial sense, as denoting a distinct population group. The Strandloopers are a subdivision of the Hottentot group with a propensity for living along the seashore'.

Although it is agreed that the term should not be used 'as denoting a distinct population group', it cannot be accepted that, biologically, they 'are a subdivision of the Hottentot group' as distinct from the Bushman group, or that they had 'a propensity for living along the seashore'. Keen classified more of the skulls from the coastal region as Bushman than as Hottentot, which contradicts his statement quoted above. The bulk of the skulls were 'hybrids' and could thus have been the skulls of members of either group. The evidence suggests that all these people—Hottentots, Bushmen and Strandlopers—were part of the same biological group, the Khoisan, and that all three lived in the coastal region. Aspects of culture and subsistence are discussed in the following sections.

ARCHAEOLOGY

SITES AND ARTEFACTS

Discussing midden sites, Goodwin (1929: 265 267) suggested that 'they seem to represent an inland people, who have taken to a coastal type of subsistence. The term "Strandloper" has been badly applied to these folk, and it would be better to use the term

as a verb, implying a strandloping type of subsistence. . . . The midden sites often show a full range of Wilton implements . . . and a number of rough instruments, apparently water-worn boulders, hacked into shape by use (not *for* use, so far as can be judged) in removing shells and breaking them open for eating purposes. . . . flesh foods seem to have been replaced largely by fish [*sic*], and the bulkiness of the shells compared with their contents gives an immediate impression of a vast population or a long continued residence. The populational density most certainly was greater than that of the inland folk, owing to the higher rainfall of the southern and eastern coastal belts . . . and to the increased supply of vegetable foods directly resulting from this, together with the abundant shell-fish supplies along the coast. But even with this increase of density, only a comparatively small number of people could have subsisted in a given area'.

Goodwin then mentioned the evidence of Drury (the South African Museum's taxidermist) and Hewitt (Curator of the Albany Museum, Grahamstown and amateur archaeologist), who had found sea-shells and 'nacre pendants of marine origin' in cave deposits in the interior, suggesting that 'inland peoples trekked periodically to the coast'. He seems to have considered that these people from the interior were bearers of the Wilton artefactual tradition, for he continued:

> There is, on the other hand, the fact that many of the midden deposits fail to reveal Wilton or Smithfield "C" implements, the only stone objects appearing being the bored stone and the formless unconventionalised stones typical of the midden folk. . . . Pottery of the usual type is often associated. . . . I have in several instances discovered Wilton implements in middens previously regarded as sterile, while, on the other hand, I have failed to obtain any small implements at all from other middens. It is thus possible that many middens are refuse heaps from an evolved or deteriorated Wilton, which has discarded the microlithic side of the industry as unnecessary.
>
> One further subject is of extreme importance, but has not hitherto been sufficiently studied: the possibility of the middens either being of different ages, or having been made in some instances by peoples of mixed cultures.

Goodwin was perceptive, at that early stage of his archaeological career, in recognizing that the middens might be of different ages and that they might have resulted from the activities of different peoples. He did not, however, put his ethnological training to use, in that he seems to have failed to recognize that the people responsible for at least some of these middens could have been the Khoikhoi and, in the eastern parts, the Nguni—people known since the earliest European contacts to have occupied the coastal region. It is also not clear why he should have restricted what he saw as a population increase, relative to that in the interior, to the eastern and southern parts of the country. Based as he was in Cape Town, he must have been well aware of the abundance of shell middens, in caves and in the open, on the south-western and western seaboard. His comments on the variable nature of the artefactual content of middens are a part of a problem that has been addressed subsequently by a number of researchers but has not yet been satisfactorily resolved.

As mentioned above in the section on the 'Vismans', Goodwin (1952: 142) suggested that the 'Strandlopers and Fishmen . . . were Hottentots and Bushmen, herding and hunting people respectively who had turned for part of the year at least to the abundant

sea-food to augment their normal sources of subsistence'. This represents a certain change from his earlier view mentioned above, that the middens 'seem to represent an inland people who have taken to a coastal type of subsistence' (Goodwin 1929: 265), although he seems not to have taken cognizance of the elusive 'Vismans' who had cattle, yet were said to subsist by fishing. However, he still did not address the problem of whether sites with Wilton or 'non-Wilton' artefacts could be related to the two different cultural groups. He also did not discuss why people who had access to terrestrial resources on a year-round basis, and certainly during the period of their residence at the coast, as is shown by the presence of the bones of land animals in many middens, should have found it necessary, or desirable, to collect shellfish. This matter is discussed in the following section.

Schoute-Vanneck & Walsh (1961) discussed what they termed 'the Umlaas variant of the Smithfield C culture', which they observed from 22 sites to the north-east and south-west of Durban. Terrestrial fauna were said to have been sparse and represented by isolated bones: 'In no case did the collection of bones represent a whole animal.' Fish were also sparse in some sites and absent from others, whereas shellfish, principally the brown mussel *Perna perna*, were abundant (Schoute-Vanneck & Walsh 1961: 137, 139). The authors considered that the people responsible for these sites 'were not predominantly hunters or fishermen', and that the pebble tools commonly found in these sites were related to shellfish collecting. 'If the close association between the pebble implement and the adoption of a shell-fish diet is accepted, then the Umlaas variant of Smithfield C is a stone age [*sic*] illustration of the modification of a culture to suit a changed environment. . . . The Umlaas variant of Smithfield C is regarded as an industry in the process of changing from what is primarily a hunting culture to a "beach-comber culture" ' (Schoute-Vanneck & Walsh 1961: 143).

Although these authors were probably correct in associating the pebble tools with the exploitation of marine resources, their suggestion that the artefacts indicate a *permanent* change from one type of economy to another must be questioned. Artefacts not related to shellfish collecting and preparation are also present, as are the remains of terrestrial animals, albeit both in relatively small numbers. The artefact collections are merely a reflection of the activities carried out at the sites and the inventories should not be expected to be the same as those at inland sites, where there was a greater emphasis on hunting and plant-food gathering, and none on shellfish collecting.

In recent years, relatively little research has been carried out on Late Stone Age sites in the eastern part of the coastal region, chiefly because interest has been more focused on the Iron Age. Most of the earlier excavations (see Cable 1984, table 8) were carried out before the application of the analytic methods now used, particularly where quantification is concerned, so that the excavation reports are not particularly useful by today's standards.

Horwitz *et al.* (1991) reported on a salvage excavation in an Iron Age shell midden at Emberton Way, some 40 km north-north-east of Durban. Charcoal from the deposits was radio-carbon dated to between 1050 ± 60 B.P. (Pta 2879) and 1270 ± 60 B.P. (Pta–2880) (Horwitz *et al.* 1991, table 1). The ceramics consisted mostly of sherds from four Early Iron Age phases, but Late Iron Age pots and bowls could also be reconstructed (Horwitz *et al.* 1991: 13, table 3). The stone from the site consisted mostly of unmodified beach cobbles, some of which appear to have been used in hearths. Four pebbles showed use as

hammerstones, and an upper grindstone and part of a lower comprised the rest of the stone assemblage. The paucity of grindstones suggested that 'activities involving grinding, probably associated with the processing of agricultural foods, were not practised at this site' (Horwitz *et al.* 1991: 16). The authors considered that the hearths and grindstones, as well as the considerable quantities of pottery 'are probably related to shellfish processing activities' such as baking, steaming or boiling (Horwitz *et al.* 1991: 23).

Cable (1984) reported on excavations in a site near the Natal south coast and one on the edge of the coastal plain, as well as on a surface collection from a third.

Umbeli Belli Shelter is 7 km from the coast near Scottburgh, south-west of Durban. Three Late Stone Age stratigraphic units were recognized, with a maximum depth not exceeding 200 mm. These overlay deposits containing Middle Stone Age artefacts, on which Cable did not report. Two radio-carbon dates were obtained: 200 ± 50 B.P. (Pta–2894) and 1140 ± 50 B.P. (Pta–2825) (Cable 1984: 86). These dates, together with the shallowness of the deposit, suggest that the shelter was not continuously occupied, but they cover the period from the latter part of the Early Iron Age until about a century before European settlement commenced in Natal. Cable (1984: 86) commented that these dates 'are of general interest in that they suggest continued San exploitation of the coastal belt at a time when occupation of the area by Iron Age communities are [*sic*] established'.

Borchers Shelter and the adjacent Borchers Shelter Annexe are on the plateau at the inland edge of the coastal plain, some 17 km from the sea at Port Shepstone, which is south-west of Scottburgh. Four stratigraphic units were recognized in Borchers Shelter, of which the lowest contained few artefacts and little charcoal or faunal material. Radio-carbon dates for the three upper layers range from 100 ± 50 B.P. (Pta–3107) to 3360 ± 110 B.P. (Pta–3110) (Cable 1984: 110). A surface collection of artefacts was made in Borchers Shelter Annexe, for which a radio-carbon date was not obtainable.

Frequencies of retouched artefacts from all three sites, consisting chiefly of convex scrapers, were low, ranging from 1,2 per cent of the lithic total at Umbeli Belli to 2,2 per cent at Borchers Shelter Annexe. Umbeli Belli yielded a much higher frequency of convex scrapers (92,0% of the total retouched) than either of the inland sites (24,8% and 59,2%), whereas frequencies of notched scrapers, backed blades and segments were relatively low at all three sites. Where raw material usage is concerned, there was a fairly even distribution of quartz, hornfels and CCS (crypto-crystalline silicates, such as agate and chalcedony) in the retouched artefacts from Umbeli Belli, whereas CCS is the most common from the two inland sites. Because of the differences in the ranges of the dates for Umbeli Belli and Borchers Shelter, it is difficult to determine to what extent the differences in the frequencies of the various retouched artefacts reflect temporal, spatial or activity differences. It must be borne in mind, however, that the activities carried out at the two sites differed according to the environments in which they are situated and the resources available for processing. Bone artefacts were found at Borchers Shelter Annexe (Cable 1984, table 21) but not at Umbeli Belli, and Cable (1984: 97) suggested that their absence, 'highly unusual as it is among Natal Late Stone Age sites', made it possible 'to speculate that hunting techniques in Umbeli Belli's heavily bushed territory may have differed from those at sites with more grassland around them in such a way as to make the use of bone points less common'.

Sampson (1974: 403–438) used the term 'Strandloper' to refer to the post- or non-Wilton sites on the South African littoral and commented that 'Only a few excavations

reflect any awareness that the "Strandloper" concept is based on an ill-defined name that poses more problems than it answers'. He also pointed out that the term had been applied to Wilton (i.e. microlithic) as well as non-Wilton (non-microlithic) artefact assemblages from coastal sites. Sampson accordingly used it as a provisional term to cover the sites he discussed, observing that 'If there is a "Strandloper complex" with regional industries, insufficient data exist to support such a concept' (Sampson 1974: 404–405).

With regard to sites on the south-western Cape coast, Sampson (1974: 420) commented: 'The presence of stock-herding "Hottentots" as revealed by Van Riebeeck and others further complicates the picture, and it is distressing to note that no definite "Hottentot" sites can be identified in the archaeological record, so that their origins, technology, and contribution to late coastal culture remain to be investigated.... An archaeology of the "Hottentots" has not yet developed.'

Nearly 20 years later, in the western part of the coastal region only the Kasteelberg sites can at present be accepted with reasonable certainty as resulting from herder occupation, on account of the high frequencies of the remains of domestic stock (Klein & Cruz-Uribe 1989) and the great quantities of potsherds recovered (Sadr & Smith 1991). There can be little doubt, however, that many of the other sites in the western coastal region are attributable to the Khoikhoi. The reason for this is that people who inhabited the area for more than 1 500 years before white settlement began must have left other traces of their occupation. The problem is not so much of the existence of this evidence, but of correctly identifying it.

Rudner (1968) attributed to the 'Strandlopers' all the pottery he studied from the coastal region between southern Namibia and the south-eastern Cape. The reason for this appears to have been that 'the vast majority of "Hottentot" pots have been found on Strandloper sites' (Rudner 1968: 594). These sites are chiefly shell-midden deposits, in the open or in caves and shelters in the coastal region (Rudner 1968: 591 594). He conceded, however, that 'It has not been possible to differentiate between the pottery of the Strandlopers and the pastoral Hottentots, who also sometimes camped along the coast or were themselves forced to become Strandlopers' (Rudner 1968: 611). It may be suggested that the reason for Rudner's inability to distinguish between the pots of the Khoikhoi and those of the 'Strandlopers' is that there *is* no difference between them: the Khoikhoi were the potters. Potsherds found in sites that cannot be attributed to herders are possibly the remains of vessels obtained from them by either barter or theft. On the other hand, since it is only rarely that whole vessels can be reconstructed from the sherds found in a site, they may be the remains of broken pots collected by the hunter-gatherers for purposes that are unknown. Kinahan (1991: 44), discussing potsherds from sites in Namibia, commented that 'When pottery arrived in the Hungorob it seems to have been distributed among neighbouring sites, even as broken sherds. Pottery was introduced well in advance of domestic stock, and was therefore subject to the hunters' ethic of sharing'.

Kinahan's archaeological research in two discrete areas of Namibia led him to conclude that, although pottery was used by pastoralists, it was used for purposes unrelated to herding. In the Hungorob Ravine in the Dâures Mountains or Brandberg, pottery was used for storing honey and grass seeds obtained from the nests of harvester ants, and later also for cooking (Kinahan 1991: 76). An increase in the exploitation of mussels at sites in the vicinity of Sandwich Harbour, south of Walvis Bay, was attributed to the introduction of pottery into the area during the fourth and fifth centuries of the

present era (Kinahan 1991: 94). Kinahan (1991: 96) considered that this pottery, which showed no signs of soot from cooking fires, was probably used for storage. Pottery in the !Khuiseb River delta in the vicinity of Walvis Bay, from sites dated to within the present millennium, was described as 'more robust and functional' than the earlier ware, and often thickly encrusted with soot. Kinahan (1991: 96) concluded that, although this pottery was associated with the remains of domestic stock, it was probably used for cooking the *!nara* melon, *Acanthosicyos horridus*. Kinahan's conclusions have important implications for southern African archaeology, particularly with regard to the generally-held view that pottery is directly associated with pastoralism.

Mazel recovered potsherds from Collingham Shelter in the central Natal interior, from deposits dated to between 1770 B.P. and 1880 B.P., and commented that, although the pottery is very fragmented and difficult to define, 'it is quite unlike the Matola pottery of Natal's early farming communities', the earliest dates for whose sites are about 1650 B.P. (Mazel 1992*a*: 26–27). This led him to question his earlier tentativeness in accepting even earlier dates from other sites in the area and to propose that 'pottery occurred in the Thukela Basin region before 2000 B.P. and perhaps even some time between 2200 and 2300 B.P. It wou d also seem that this early pottery not only occurs in the Thukela Basin, but also appears more or less simultaneously in the eastern part of the subcontinent, from Swaziland to the northeastern Cape' (Mazel 1992*a*: 49).

The first Holocene occupation deposit at Die Kelders, layer 12, yielded 85 per cent of the 1 118 sherds recovered, but remains of domestic stock were absent (Schweitzer 1979, tables 11, 27). The absence of sheep or cattle remains from this layer has been confirmed by the further excavations in the cave during 1992 by G. Avery (pers. comm.). The pottery from this layer is, with the exception of one vessel (probably the result of using unsuitable clay), finely made and all of it differs in style from the reconstructable vessel from layer 2. It also shows no signs of having been used for cooking, whereas some of the sherds from layer 2 have carbonized material adhering (Schweitzer 1979: 158–168, fig. 3). Layer 10, from which the earliest sheep remains were recovered, was not dated, but the date for layers 7/9, 1960 ± 95 B.P. (GX 1687), is virtually identical to that for layer 12, 1960 ± 85 B.P. (GX–1688) (Schweitzer 1979, table 1). The dates thus suggest that sheep may have been in the area at the time that layer 12 was deposited, but that the people either did not have access to them or did not bring them to the cave. The case for the prior introduction of pottery rests on the stratigraphy rather than on the dating and it is to be hoped that the dates to be obtained for the new excavations will clarify the matter.

The present author is of the opinion that the identification by Sadr & Smith (1991) of ceramic 'styles', such as those attributed to Kasteelberg and De Hangen, is the result of an unfamiliarity with the wider context of Khoikhoi ceramics, as discussed by Rudner (1968). The use of parochial names for these 'styles' is also to be questioned, particularly when the 'styles' are derived from individual aspects of vessels, such as rim profiles and decorative patterns, instead of from whole vessels with a number of attributes. In the case of Kasteelberg, Sadr & Smith (1991, fig. 3) have shown that there was not a single style but an evolving *sequence* of styles, which makes questionable their use of the term 'Kasteelberg style'. The choice of De Hangen as the 'type site' for a particular 'style' is singularly inappropriate, since this hunter-gatherer site yielded only 55 rim-sherds and decorated sherds (Sadr & Smith 1991: 112). Comparison of the sherds illustrated (Sadr & Smith 1991, figs 5, 6) shows, moreover, that a number of the rim shapes and decorative

patterns are common to both sites. Sadr & Smith (1991: 114) considered that 'The distribution of the De Hangen style pots suggest [*sic*] that their users were exceptionally widespread' since 'Ceramics with the De Hangen style design were collected by Rudner from as far afield as the Port Elizabeth area'. The range of rim shapes and decorative patterns in Cape coastal pottery is limited and widely distributed (Rudner 1968, tables 1, 5). It is the distribution of these attributes that is indicated, not the mobility of the potters.

On the basis of comparison with the artefacts from the Kasteelberg sites with those from a few other sites in the south-western Cape, Smith *et al.* (1991) suggested that it is possible to distinguish between hunter-gatherer and herder sites in the post-2000 B.P. period. The former are said to contain more retouched stone artefacts, generally on fine-grained raw materials such as silcrete, and relatively few potsherds and remains of domestic stock by comparison with sites attributed to herders. The latter sites, as well as having relatively more potsherds and remains of domestic stock, yielded few retouched stone artefacts, the majority of the stone being quartzite and/or shale flakes and chunks.

The validity of these identifications was questioned by Schrire on the basis of three main criteria: the invariability of the 'signatures' of hunter and herder groups and whether the sites studied by Smith *et al.* (1991) 'fell neatly into one or other group'; the plausibility of the criteria they used in their reinterpretation of her site of Oudepost I (see below); and how it could be determined that 'these characteristics encode cultural status, and not some other feature such as time or site type' (Schrire 1992: 62–63). In her table 1, Schrire summarized the appropriate data from Smith *et al.*'s sites and showed that there is a considerable degree of overlap in the contents of the sites identified by them as hunter or herder. There is also internal variability in the content of sites assigned to one or other group.

Where the comparison with Oudepost I was concerned, Schrire (1992: 63) pointed out that this had been carried out on the basis of only one of Smith *et al.*'s sites, Vlaeberg 3. Although the frequencies of formal tools and silcrete were similar, Schrire drew attention to the great internal (i.e. stratigraphic) variability of the frequency of silcrete in the Vlaeberg 3 sample. Schrire also contended that comparison of a single aspect of the fauna from the two sites, the fish, was invalid because the bulk of the food debris at Oudepost I had been generated by the (Dutch) colonists who had occupied the outpost.

With regard to her final point, Schrire (1992: 63) raised the possibility that when herding was introduced to the Cape, it might have been adopted by local hunters. She mentioned that none of the sites studied by Smith *et al.* showed 'alternate or even sequential occupation by herders and hunters' and commented that 'If this absence proves widespread, it implies that an amazingly rigid territorial system prevailed in the south-western Cape for the past 2000 years, with everyone sticking to their own sites', even if some were in close proximity. This led her to ask why, if such had been the case, there had been tension between the two groups.

Schrire & Deacon (1989: 112) concluded from an analysis of the indigenous artefacts at the former Dutch East India Company outpost on the Churchhaven Peninsula near Saldanha Bay, called Oudepost I by the authors, that these artefacts were to be attributed to the Khoikhoi, who were historically recorded as having been in contact with the Dutch at the outpost. This attribution was questioned by Wilson *et al.* (1990: 123) who, amongst other things, drew attention to the admission by Schrire & Deacon (1989: 110) that there

was 'well-attested redistribution of material due to dune mole activity'. Wilson *et al.* (1990: 123) pointed out that, apart from the potsherds, which they conceded were of Khoikhoi origin, none of the artefacts illustrated was any different from those recovered from deposits dated to before the advent of pastoralism in the western and southern Cape, and that there was nothing to show that even the potsherds found at the site resulted from the activities of the Khoikhoi. They therefore concluded that the evidence for the attribution of the indigenous artefacts to the Khoikhoi was circumstantial and could not be supported.

In their reply to Wilson *et al.*, Schrire & Deacon (1990: 124) cited 'an extensive analysis of the taphonomy of Oudepost I' in a paper that had not been available to the other authors at the time that they submitted their comments for publication. Study of this paper (Schrire *et al.* 1990) confirms, rather than refutes, the contention by Wilson *et al.* (1990: 123) that 'the indigenous artefacts were not found in their primary depositional context'. In the abstract of their paper, Schrire *et al.* (1990: 269) mentioned that 'The site revealed very little stratigraphy and a complex taphonomic history'; and six times in the paper they referred to the disturbance of artefacts at the site, both horizontally and vertically, 'by mole rats, people and weather' (Schrire *et al.* 1990: 270, 271 (twice), 274, 276, 298). In an attempt to determine whether the indigenous artefacts were, in fact, contemporary with the exotic ones, Schrire *et al.* (1990: 276) excavated 34 metre-square test pits over an area of some 2 500 m^2, in which they found 'no trace of an indigenous midden'. This, they considered, 'helped us to reject the hypothesis of unwitting intermixture, by confirming the integrity of the association of colonial and indigenous artefacts. A far more elegant contribution to this problem may be found in the highly similar distribution of indigenous and colonial artefacts. Both concentrate markedly in and around the lodge and fort, suggesting strongly that both parties visited and used the site at the same time'.

The absence of an indigenous midden does not satisfactorily demonstrate that there were no indigenous artefacts scattered about—the result of previous or subsequent visits by hunter-gatherers or herders—that became incorporated with the 'colonial' artefacts as a result of the Dutch occupation of the outpost and their various activities there. That these indigenous artefacts 'concentrate markedly' in and around the buildings is likewise no guarantee of their contemporaneity with the 'colonial' ones. On the contrary, it can be argued that their presence *in* the buildings indicates that they relate to occupation of the site by the indigenous inhabitants, whether hunters or herders, after the Dutch had abandoned it. Excluding the 21 'chunky, bruised' pieces that Schrire & Deacon (1989: 108) considered were probably attempts by the Dutch to make gunflints out of local stone, only 314 indigenous stone artefacts were recovered, of which the bulk (79,9%) was debris (Schrire & Deacon 1989, table 1). It seems unlikely that the indigenous visitors to the outpost would have engaged in artefact manufacture while there, and highly improbable that they would have done so inside the buildings while these were still occupied by the Dutch. Most importantly, Schrire & Deacon (1990) provided no new support for the claim in their earlier paper that the artefacts were to be attributed to the Khoikhoi who visited the outpost. Thus, until Schrire and her colleagues provide substantive evidence that the indigenous artefacts from Oudepost I are indisputably attributable to the Khoikhoi, this matter must remain in doubt.

Sampson (1974: 437) considered that 'there is some reason to suspect that the Strandlopers represented [by cultural and human skeletal material from coastal sites] are an extremely ancient and isolated Stone Age group, briefly influenced by Wilton ideas (and the genes of the "Wilton population")'. He did not, however, explain from whom this group had been isolated, nor why they should have been influenced only briefly by 'Wilton ideas' and genes. *Pace* Shrubsall (1907) and others, there is no skeletal evidence to support the existence of more than one biologically, or genetically, distinct Stone Age population in the western part of the coastal region. There is also no evidence to support the suggestion that the culture of people in the coastal region was any different from that of people in the interior, making due allowance for temporal and regional differences such as, for example, between the pre-Wilton, Wilton and post-Wilton lithic industries on the temporal level, and the Wilton of the coastal region and the Smithfield C of the Central Plateau on the regional level. All the available evidence points to people with a common hunting and gathering economy prior to about 2000 B.P. and to the addition after that time of pastoralism, which was practised by only some of the population. As was shown above, the herders shared a broadly similar biological relationship with the hunter-gatherers into whose territory they moved; and here it must be stressed that the assumption that pastoralism was introduced into the coastal region by people other than the aboriginal inhabitants of the area, and not as the result of acculturation, has yet to be verified (Wilson 1989*b*; Schrire 1992; etc.).

A suggestion similar to Sampson's (1974) was also made by Inskeep (1987: 303). In an attempt to explain the apparently abrupt introduction of the Wilton industry at Nelson Bay Cave (NBC), Inskeep proposed that 'The NBC Albany people were year-round residents at the coast, and the "Wilton" occupation (quartz and chalcedony, segments and small scrapers) represents inland dwellers induced by environmental constraints in the interior ... to begin a pattern of seasonal movement to the coast around 6000 B.P., where, for perhaps as little as two months a year, they shared the resources with indigenous "Albany" populations until 4500 B.P. when, as a result of environmental amelioration in the interior, the need for seasonal transhumance (to the coast, at least) was reduced and their visits became less frequent, eventually ceasing altogether at around 3300 B.P., leaving the coast for the sole (year-round) occupancy of the descendants of the original "Albany" population'.

It may be suggested that the introduction of the Wilton at Nelson Bay Cave was not as abrupt as Inskeep considered. The retouched artefact or 'formal tool' component of the deposits underlying Inskeep's excavations (Deacon 1984, table 13) shows small but increasing numbers of 'backed microliths' as well as segments and borers to be present from at least layer RA onwards. Charcoal from this layer was dated to 6070 ± 125 B.P. (UW-222) and from the underlying RB to 8070 ± 240 B.P. (UW–181) (Klein 1972: 202). Deacon (1984: 62, 68) suggested that, because the interface between RA and RB had not been dated, the 'break' between these layers 'should be considered more apparent than real'.

Similarly low but increasing frequencies of retouched artefacts were also recorded from layers 13 10 of Byneskranskop 1 (Schweitzer & Wilson 1982, fig. 14, table 7). Layer 13 was not dated but layer 14 was dated to 9760 ± 85 B.P. (Pta–1587) and layer 12 to 7750 ± 90 B.P. (Pta–2347) (Schweitzer & Wilson 1982, table 1). Deacon (1976, tables 3, 10) recorded a similar transition at Melkhoutboom at much the same time as

at Nelson Bay Cave and Byneskranskop 1. It is thus arguable that these deposits, like layers RA–IC of Nelson Bay Cave, contained what Sampson (1974: 298) called the 'Early Wilton', and that Inskeep was misled by the low frequency of retouched artefacts in the lower layers of Nelson Bay Cave into thinking that the Wilton 'arrived' at that site only at about 6000 B.P., when the 'Classic Wilton', as Sampson (1974: 298) called it, became evident.

Inskeep's suggestion that an independent Albany population co-existed in the cave with Wilton visitors appears to be based on the superficial resemblance between the pre-Wilton Albany industries and those of the 'post-climax Wilton', both of which are notable, in contrast to the intervening Wilton, for their relative lack of retouched stone artefacts other than scrapers and, in some cases, a relative abundance of bone artefacts. Also common to the pre-Wilton assemblages and some of the post-Wilton ones is an apparent preference for quartzite in place of the more siliceous materials like silcrete and chalcedony. This non-microlithic quartzite element is also present in Wilton assemblages, which presumably gave rise to the suggestion by Inskeep that the resident 'Albany' population co-existed with the 'Wilton' people at the time that the latter were at the coast. It is highly improbable, though, that two populations with distinct norms of artefact manufacture could co-exist so closely as to share the same cave for several thousand years without some degree of cross-culturation. It must also be asked why, if the Albany tool-kit was adequate for the tasks for which the tools were made, it was necessary for the more elaborate and extensive Wilton tool-kit to be manufactured while these people were at the coast.

An equally important question that must be answered before Sampson's and Inskeep's hypotheses can be accepted, is from where in the interior did the Wilton people, who lived at the coast between about 6000 and 3300 B.P., come. Sites in the eastern and southern Cape interior such as Wilton (Deacon 1972), Melkhoutboom (Deacon 1976), Boomplaas (Deacon *et al.* 1978; Deacon 1984) and Buffelskloof (Opperman 1978), to mention some of the better known, all have the same Albany : Wilton : 'post-climax Wilton' sequence as Nelson Bay Cave.

Though there may be no ready explanation for the development of the Wilton from the Albany and its replacement by an Albany-like industry, it should be remembered that there was a similarly 'atypical' development in the Middle Stone Age: the Howiesons Poort industry (see Sampson 1974: 231–242), which saw the addition of a range of artefact types not presaged by anything in earlier assemblages and which subsequently disappeared. Some of these types, such as segments, trapezoids and obliquely backed pieces, were only 'reinvented' in the Wilton, albeit in microlithic form.

Another question that needs to be answered is why, if conditions in the interior were so unfavourable as to constrain the populations of that region to move to the coast, they needed to do so for only as little as two months a year, as suggested by Inskeep (1987). Such a scenario would help explain the continued occupation of the interior sites mentioned above, but evidence for a major *seasonal* deterioration in the environment, which is what Inskeep's scenario suggested, is wanting. Cockroft *et al.* (1987: 172, fig. 6) suggested that, during the period 9000–4000 B.P., most of southern Africa was moist, that the southern Cape coastal region was wetter than at present, and that 'Regional variations in climate do not appear to have been marked', although the south-western Cape was drier than at present. The period mentioned covers the Albany : Wilton

transition and most of the time of Inskeep's scenario. More specifically, Cockroft *et al.* (1987: 172) quoted the observation of Street & Grove (1976) that 'The climates of most of Africa at 6000 B.P. were a great deal moister than they are today'; and, according to Zubakov & Borzenkova (1990: 295), the period 6200–5300 B.P. was that of the 'most considerable Holocene warming'. Increased temperature and precipitation would have had an effect on the vegetation, both in the interior and at the coast, and changes in the vegetation would also have affected animal life and, consequently, the lives of the people who depended on these. Schweitzer & Wilson (1982: 175–183, table 26) showed that, in the case of Byneskranskop 1, 'technological change is not concomitant with economic change' and this must be true of other sites. It has yet to be demonstrated, however, to what extent environmental change in the Holocene was responsible for the changes observable in the Albany and Wilton economies, or whether these were not, wholly or in part, due to cultural change such as that, for example, resulting from the introduction of the bow and arrow, the time of which has yet to be determined (see Noli 1993).

At Byneskranskop 1 the introduction of the Wilton, at about 8000 B.P., was accompanied by an increase in the use of marine resources, particularly shellfish, that was even more marked some 1 500 years later. During this period, but not simultaneously, there was a change in the overall size range of the land mammals brought back to the site, from a predominance of large medium animals over 100 kg adult weight to a range below this (Schweitzer & Wilson 1982, tables 17, 26). The period from about 10000–6000 B.P. was one of rising sea-levels and a marine transgression (Flemming 1977: iii, 81, 143–145; Mörner 1978: 5–6; Yates *et al.* 1986) and the reaching of what Mörner termed the 'climatic optimum'.

On the basis of micromammalian fauna recovered from the deposits, Avery (1982, table 45) interpreted the climate of the Byneskranskop area as becoming generally warmer during this period, though with an episode of harsh climatic conditions around 6000 B.P. The topography of the coast near Byneskranskop is such that a maximum rise of 3 m in sea-level would have extended the area of the estuary of the Uilkraals River, but would not have brought the shore that much closer to the cave to allow for the suggestion that it was this factor that persuaded the cave's occupants to go to the trouble of bringing fairly considerable quantities of shellfish back to the cave. It is possible that, prior to about 6000 B.P., the coast in the vicinity of the site did not consist of sufficient rocky shore to provide adequate supplies of shellfish, although it is evident from the inventory (Schweitzer & Wilson 1982, table 18) that all the species present from that time on were also available previously.

Although the evidence provided by Inskeep's (1987) excavations at Nelson Bay Cave allowed him to suggest that the environment was suitable for year-round occupation from at least 10000 B.P., and shellfish were exploited well before that time (Klein 1972, fig. 5), this was not the case at all sites in the coastal region. At Byneskranskop 1 shellfish were a relatively late addition to the diet, and Elands Bay Cave was abandoned between about 7800 and 3800 B.P. (Parkington 1987*a*: 7) and again between about 2900 and 1500 B.P. (Parkington *et al.* 1988, fig. 3.5). Although it is not necessary to invoke 'environmental determinism' as the sole reason for the differences mentioned above, environmental change certainly seems to have played a part in the changes observable in the hunter-gatherer economy during the Holocene. It is to be hoped that future

archaeological and palaeoclimatic research will help to fill the gaps in our knowledge that exist at present, and help solve the overall problem.

Sampson (1974: 435) concluded that 'Because the term "Strandloper" refers to a highly developed set of littoral exploitation strategies, it obviously has too broad a meaning to be applied to a related group of lithic assemblages. Strandloper strategies were employed by the makers of the Oakhurst [= Albany], Coastal Wilton, and later sites. Certainly there is no single "Strandloper industry" and a terminology for later non-Wilton assemblages is needed'.

Pointing out that 'a relatively simple Oakhurst-like flaking technology was practised on several middens during the Wilton period', Sampson (1974: 435–436) could not agree with the view of other researchers, such as Deacon (1970, cited by Sampson as 1969*c*), Inskeep (1967), Maggs & Speed (1967) and others, that 'such sites must represent a specialized or seasonal activity of the local population'. According to this view, 'adjacent middens and inland caves containing Wilton assemblages . . . would represent yet another aspect of the same population's activities'. Sampson disagreed, observing that 'The range of faunal material from Wilton and non-Wilton middens is identical: shellfish collecting is invariably supplemented by fishing and hunting of all available game animals. The same range of subsistence activities took place on both kinds of midden. Thus, the differences in artifact content are more likely to reflect two distinct stone-flaking traditions that represent two independent populations. Obviously, they exploited the littoral by using every available food source'.

It is not clear what evidence there is in the Holocene assemblages from the southern and south-western Cape coastal region for the 'two distinct stone-flaking traditions' mentioned by Sampson and suggested by Inskeep. Clearly, different flaking *techniques* would have been used in the manufacture of the retouched microliths that are characteristic of the Wilton and the crude flakes and flaked cobbles or 'heavy edge-flaked pieces' (Deacon 1984: 378) that are a common feature of shell middens but are also found in Wilton deposits (e.g. Schweitzer & Wilson 1982, table 6, fig. 12; Deacon 1984, table 12). These need not, however, imply distinct flaking *traditions*, and certainly not 'independent populations'.

The tools needed for shellfish collecting and processing need not be as complex as those required for other activities, such as hunting, the manufacture of clothing, ornaments and implements and, perhaps, plant food collecting and processing. A cobble, or perhaps a bone spatula, would suffice for the removal of limpets *Patella* spp., and a spatula for perlemoen (abalone) *Haliotis midae*, Venus ears or siffies *H. spadicea*, and chitons *Dinoplax* spp. and other genera of Polyplacophora. Mussels and other bivalves, as well as gastropods other than those mentioned above, can be collected individually by hand or, in the case of colonial bivalves such as the ribbed, black and brown mussels *Aulacomaya ater*, *Choromytilus meridionalis* and *Perna perna*, in bulk by the use of an implement such as a digging stick. Cooking opens the shells of bivalves, or weakens the ligaments that hold the valves together, so that they are easily opened; most gastropods are also easily removed from their shells after cooking. Perlemoen flesh could be removed by using a sharp stone or bone flake to cut the adductor muscle and the flesh tenderized by pounding it with a cobble. These, then, would represent the basic tools needed for shellfish collecting. Any other artefacts found in midden deposits would relate to the other activities mentioned above.

Rudner & Rudner described 'a local Late Stone Age development' in which the common factor, or 'type implement', was an artefact they said Goodwin called a 'slug' (Rudner & Rudner 1954: 103). Of the 10 sites included in their paper only one, Het Kruis near Piketberg, is not coastal. Rudner & Rudner (1954: 106–107) considered these 'Sandy Bay industry' assemblages to be similar to 'Smithfield N' assemblages from Natal, although the artefacts in the former were generally smaller than those in the latter. They considered that the people concerned were perhaps from inland who, 'at certain seasons or during drought periods', came to the coast to live on shellfish and that end-scrapers, 'mainly used for scraping the skins of game, now mainly substituted for by shellfish', disappeared from the tool-kits. They also suggested the possibility that 'Sandy Bay was the end of a migration from the south coast, during which the industry became more and more specialized, to reach its most developed form at Sandy Bay. There are no traces of this industry among the middens along the coast to Saldanha Bay (which is a focus for the Wilton Culture) or beyond'.

The suggestion that end-scrapers disappeared from the assemblages because they were not needed is not borne out by the inventories (Rudner & Rudner 1954: 106), which show these to be present in all the collections, albeit in small numbers, from the sites from Hangklip West to Het Kruis. They are absent only from the collections from Hangklip East, Hawston and Arniston, the three sites to the east of the others. Moreover, Rudner & Rudner (1954: 103) reported that Keen (1952) had mentioned that 'bones of seal, antelope, buffalo, hyena and baboon' had been found in the Sandy Bay 1 midden.

Sampson (1974: 414), reviewing the 'Sandy Bay industry', described these artefacts as 'worked-out adzes' and commented 'Whereas these forms are certainly present in Wilton samples, they are not recorded as a dominant form'. However, as the inventories (Rudner & Rudner 1954: 106; Sampson 1974, table 69) confirm, adzes outnumber scrapers at seven of the 10 sites, only Hawston, Arniston and Het Kruis having more scrapers than adzes.

Mazel & Parkington (1978) reviewed the conclusions reached by Rudner & Rudner (1954) and Sampson (1974) and then reported on the artefact assemblages from excavations in the Andriesgrond rock-shelter in the Olifants River Valley, a surface collection from in front of the site and another from Warmhoek, across the valley. Mazel & Parkington (1978: 382, table 2) pointed out that, in the excavated sample, 'adzes outnumbered scrapers quite markedly' and that the surface collections 'showed the same picture of adze domination'. There are, however, differences in the relative frequencies of these artefacts in the three samples. In the Andriesgrond excavated sample, there are 46.9 per cent more adzes than scrapers, whereas in the other two samples there are only 10.5 per cent and 6.7 per cent more. None the less, these frequencies are in marked contrast with those from the surface collection at Vensterklipkop in the coastal plain between the mountains and the sea and those from the excavations in the coastal Elands Bay Cave. In the Vensterklipkop sample, scrapers outnumber adzes by more than 5 : 1, and in the Elands Bay Cave sample by almost 12 : 1. That large quantities of wood shavings and underground plant debris, as well as a 'fairly extensive' set of wooden artefacts were also found in the Andriesgrond excavations, made it 'tempting to conclude that whilst at Andriesgrond prehistoric populations took the opportunity to manufacture and maintain wooden tools from the woody plants that abound in the local fynbos vegetation'. The authors also considered that 'it appears that there is some correlation in

this region between high adze frequency, plant food gathering, woody plant resources and wood-shavings'.

At Byneskranskop 1, one of the few long-sequence Late Stone Age sites in the coastal region with adzes, these were rare in the Albany levels (layers 18/17–13: 1,2% of the site total), uncommon in the first half of the Wilton (layers 12–6: 14,5%) but abundant thereafter (Schweitzer & Wilson 1982, fig. 14, table 7). In layer 5, dated to 3900 ± 60 B.P. (Pta–1571) (Schweitzer & Wilson 1982, table 1), adzes accounted for 42,3 per cent of the layer total of retouched pieces, and in layer 4 for 38,1 per cent. In layers 3–1, when there was a marked decline in the frequencies of other retouched pieces relative to the underlying layers, adzes outnumbered scrapers by a factor of between 1,7 : 1 in layer 3 and 1,2 : 1 in layer 1. The indication is thus that adzes were in greater use from the 'climax Wilton' onwards, but do not appear to have been affected by the apparent general decline in the frequency of other retouched artefacts that occurred at the site in the post-Wilton period.

The Late Stone Age deposits in the nearby coastal cave site of Die Kelders yielded 62 retouched pieces, of which only six were scrapers, and there were no adzes (Schweitzer 1979, table 15). Adzes were not found in Klein's excavation at Nelson Bay Cave (Deacon 1984, table 13), and Inskeep (1987: 140) recorded only two from his excavations, commenting that they did not look like those illustrated by other researchers and, 'in the sense that most workers currently use the term in South Africa, adzes may be said not to occur in Nelson Bay Cave in the deposits under discussion'.

None of the 'Sandy Bay industry' sites described by Rudner & Rudner (1954) and discussed by Sampson (1974) has been dated and the limited artefact inventories suggest that sampling was selective. The sites were not systematically excavated according to modern criteria: Rudner & Rudner (1954: 105) stated that they had been collecting material from the Gordon's Bay midden for years. What they do indicate, however, is the degree of inter-site variability and the need for caution in considering undated sites as comparable on the basis of shared artefact types, such as the adzes that were used to define the 'Sandy Bay industry'. The Byneskranskop 1 evidence (Schweitzer & Wilson 1982, table 7) is that there is a temporal factor involved in the changes in the frequencies of adzes relative to scrapers and/or other retouched artefacts, but whether this has to do with changes in environment making certain artefact types redundant, or with cultural changes in the traditions of artefact manufacture, cannot be determined from a single site.

Almost a whole issue of the *South African Archaeological Bulletin* was devoted to discussion of spatial and temporal variability in the Late Stone Age of southern Africa, with a paper by Parkington (1980) as the basis for discussion. The 14 papers commenting on Parkington's, and his reply, are too diverse to be summarized here, but they serve to highlight the variability of approaches to, and consequent interpretation of, archaeological assemblages.

Jacobson (1987*a*) studied the sizes of ostrich eggshell beads from 18 sites in Namibia. Only seven of these, Wortel and the Kuiseb (= !Khuiseb) sites, are in the coastal region, but since the rest are south of the areas occupied (at present) by black farmers and pastoralists, all the sites may reasonably be attributed to the Khoisan, although the presence of the Dama, originally a biologically Negro people who are today largely assimilated into the Nama, should not be overlooked. Jacobson (1987*a*: 56) divided the assemblages into three types. Type I assemblages contain Wilton

artefacts but no pottery. Type II have artefacts similar to those of Type I, but generally include small potsherds. Type III, which include all those from the coastal sites and were attributed by Jacobson to herders, 'are characterized by a lack of formal stone artefacts except, perhaps, for scrapers, but with abundant pottery'. Jacobson (1987*a*, table 1) provided statistics for the diameters of the beads from these sites that show that, with one exception (Kuiseb site K24), the mean and maximum diameters of the beads from the Type III sites are greater than those from the Type I sites. The two Type II sites are problematic and Jacobson was unable to assign the Geduld site to any of his types, so that these are excluded from the present discussion. Although Jacobson (1987*b*) later provided data for beads from 'the lower herder component' of the Geduld site, which contained potsherds, he still did not assign it to any of his three assemblage types.

Beads from Type I sites have diameters that range from minima of 3,0–4,0 mm to maxima of 5,5–7,5 mm, with means of 4,6–5,2 mm. Beads from Type III sites have minima of 4,0–5,0 mm, maxima of 6,5–13,5 mm and means of 5,4–8,5 mm. Sample sizes are generally small, ranging from 4 to 170, and are mostly too small for meaningful testing of the significance of the difference of the means of the paired samples. However, application of the Student's *t* test by the present author (unpublished data) showed that, at $p = 0,5$, the means of the paired Type I samples are not significantly different. Type III samples with means of 6,0 mm or less are significantly different from those with means of 8,0 or 8,5 mm. There is thus less internal consistency in the Type III samples than in the Type I samples. Although size distributions (e.g. histograms) were not provided for the samples, Jacobson's table 1 shows that at least the minimum diameters of the Type III samples are within the range of the Type I samples. It seems from Jacobson's figure 2 that only about a third of the Type III K26 sample (mean 6,8 mm) are larger than those of the Type I sample from LNC spit 6 (mean 4,9 mm). Thus, although the beads from Type III sites are *generally* larger than those from Type I sites, their ranges overlap, to an extent that needs to be determined before it can be fully accepted that these differences are really significant.

Using the analogy of modern Kalahari San women, who made larger beads for other people than they would make for themselves, Jacobson (1987*a*: 58) suggested that the size distributions observed in Types I and III beads 'could provide a stylistic marker documenting the appearance of Khoe [= Khoikhoi] pastoralist society as known historically'. The implication of this, that in the past the Khoikhoi did not make beads for themselves but obtained them from the San, is one that will be extremely difficult to substantiate. Even if beads that are larger than those in pre-pottery assemblages are found exclusively in assemblages with pottery, the only valid assumption that can be made is that the people responsible for the pottery assemblages had a preference for larger beads than did the people of the pre-pottery assemblages; and here it must be borne in mind that assemblages containing potsherds are not *de facto* attributable to the Khoikhoi (see also Smith *et al.* 1991; Kinahan 1991: 44).

Concluding a discussion on the age and use of tidal fish-traps, Avery (1975: 113) suggested that 'fish-traps within the [south-western coastal] area represented at least initially a new concept introduced and utilized by pastoralist groups'. Avery's suggestion was based on the dating of the introduction of pastoralism, at that time considered to be between 3000 B.P. and 1500 B.P., and information regarding Cenozoic sea-levels (Tankard

1975) that has since been superseded (e.g. Flemming 1977; Mörner 1978; Yates *et al.* 1986).

As mentioned above, there is evidence for a post-Pleistocene rise in sea-level causing a marine transgression that reached its maximum at about 6000 B.P., with a return to present sea-level by about 2000 B.P. If fish-traps existed before 2000 B.P., as suggested by Goodwin (1946), they would have been built in the then intertidal zone, but would have been moved or abandoned as the sea-level rose or fell. All extant fish-traps must therefore date to after 2000 B.P. Given this, it may be suggested that the association of fish-traps with the similarly-dated introduction of pastoralism is fortuitous. Wikar in 1779 reported that the Khoikhoi of the Orange River knew how to fish with hooks, 'but usually they catch fish with cages made of withes of karee-wood' (Mossop *ed.* 1935: 115). (According to Coates Palgrave (1977: 491), karee wood *Rhus viminalis* is still used in the area for this purpose.) Thompson (1827: 290) said that those lower down the river, near its mouth, used rush mats in place of nets. However, Somerville, who was at the Orange River in November 1801, observed that 'To catch fish the Bosjiesmen enclose part of the river with heavy stones in the dry season, that the fish may be ensnared and left by the water when it swells and ebbs the subsequent season'. In addition, he mentioned that they also used wicker baskets for the same purpose, or by making large fires on the river bank that attracted fish, which were then speared with barbed assegais (Bradlow & Bradlow *eds* 1979: 79). There is, of course, no evidence of the antiquity of these practices; and if the Khoikhoi were immigrants from the interior, unless they had previous experience of building weirs such as those described by Somerville that were used by the San, they would have had to develop and learn to use an entirely new technique for trapping fish. It seems more reasonable, however, to assume that, if the Khoikhoi did make and use tidal fish-traps, they would have learned to do so from the indigenous San of the areas into which they moved.

DISCUSSION

The foregoing serves to highlight the lack of consensus among archaeologists when dealing with sites in the coastal region. It seems that too little attention has been paid to temporal and regional variation and that the 'Strandloper concept' of people subsisting solely on marine resources dies hard in the minds of some researchers. It also seems that too little consideration has been given to the probability that shell middens represent but one facet of the people's subsistence strategies, whether these people were hunter-gatherers, herders or farmers.

Where the artefact industries found in coastal sites are concerned, as yet too little is known about the precise nature and distribution of the pre- and post-Wilton industries for hypotheses such as those of Sampson (1974) and Inskeep (1987) to be acceptable. Moreover, the differences in these industries –between those of the pre-Wilton and the post-Wilton, as well as between those within each group—need to be examined in greater detail, since it seems that the 'continued existence' of an Albany tradition during and after the Wilton is based only on a number of similarities.

Late Stone Age lithic assemblages from the eastern part of the coastal region, such as those described by Cable and discussed above, appear to differ from those of the western part mainly in that the former contain notched scrapers, which the latter lack; and adzes were reported only from Borchers Shelter Annexe (Cable 1984, table 5). Apart from the

notched scrapers, the artefacts from these eastern sites would not seem to be out of place in Wilton assemblages, both in morphology and in the low frequencies of retouched and utilized pieces relative to total counts. In addition, bone artefacts appear to be less common in eastern coastal assemblages than in western ones.

A matter that needs to be considered is whether, if the earliest pastoralists had only sheep, they had the mat-and-wattle huts that were such a commonly-described part of their impedimenta in the historical period. According to the records (e.g. Kolb 1738: 181), the frames and mats of which these huts were made were transported, along with pots and other baggage, on the backs of oxen. Clearly, sheep would have been unsuitable for this purpose, and it must therefore be asked what sort of shelter the sheep-herders used prior to the introduction of cattle into the region. Although there is no incontestable evidence for the use of caves and rock-shelters by pastoralists, the apparent lack of transport animals in the early period of pastoralism provides a good argument in favour of the use of such places.

A problem that needs to be addressed in the whole context of herder : hunter-gatherer interaction is how, if the herders were alien immigrants into the territories of the hunter-gatherers, they were able to establish themselves there. One possibility is that the herders arrived in such numbers that the relatively few hunter-gatherers were no match for them. There seems to be, however, no archaeological evidence, in the form of a great number of Kasteelberg-type sites, to support such a suggestion, although it must be accepted that many, if not most of these have been destroyed by agriculture and other changes in land-use. An alternative possibility is that if the numbers of the first herders were only small, the hunter-gatherers did not perceive them as constituting a threat and perhaps even saw their arrival as a potential benefit, in that they could obtain sheep from them, and perhaps pots as well, if the hunter-gatherers had not already learned how to make them. It may have been only later, when the herders and their livestock — possibly by then also including cattle — became so numerous as to threaten the traditional livelihood of the hunter-gatherers, that they realized what had happened, but by then it was too late. The Goringhaiqua suffered a similar experience with the Dutch at Table Bay, and this was increasingly the fate of Khoikhoi further afield as Dutch settlement expanded. (See also Smith (1986: 38–40) for discussion of relationships between hunters and herders.)

Another problem is that, no matter how well archaeological deposits are excavated or how many radio-carbon dates are obtained, present techniques are incapable of detecting other than major breaks in occupation. Noli (1989: 96), discussing sites in the Koichab River region of Namibia, suggested that sporadic occupation of sites is not detectable and that 'The scenario which the archaeological record is likely to suggest is one of continuous occupation during an extended period of favourable conditions'. It seems that further refinements in excavation techniques are needed, as well as detailed analyses of greater numbers of dated artefact assemblages from sites in the coastal region. The greatest lack, however, is in sites that can unquestionably be ascribed to the Khoikhoi.

The early records are lamentably inadequate as sources of information regarding the artefacts of the Khoikhoi and San. It is insufficient for archaeological purposes to know that they used bows and arrows, assegais, digging sticks and so forth. These were, as far as the evidence goes, common to both groups; the same is probably true of all the

artefacts found in midden deposits, even pottery, though this was possibly less available to the San than to the Khoikhoi. Prior to the arrival of the voyagers and settlers from Europe, very little metal seems to have been available to the Khoikhoi and, presumably, even less to the San; and what there was was used for ornaments. The Khoikhoi would thus have been obliged to use the same raw materials as the San: stone, bone, wood and plant fibres, though they may possibly have had less use for ostrich egg-shells as containers since they were able to make, and transport, clay pots. That the Khoikhoi herders had the same basic needs for food and clothing as the San hunter-gatherers calls into question the suggestion by Smith *et al.* (1991), discussed above, that the differences in the artefactual content of the sites whose contents they studied are indicative of two different cultural groups. Discussion of this matter will, however, have to wait until all the artefacts from the Kasteelberg sites have been analysed and published. Then, too, perhaps the stone artefacts from Oudepost I can be assessed.

It was observed above that there is no incontestable evidence that the early pastoralists of the coastal region were not local hunter-gatherers who became acculturated through contact with pastoralists in the interior. This is effectively the method that Elphick (1977: 11–12) proposed for the evolution of the Khoikhoi in their north-eastern 'homeland', from which he claimed they migrated into the Cape coastal region and elsewhere. The chief archaeological evidence in favour of the coastal pastoralists having been immigrants from elsewhere has been that, wherever the earliest pottery is found, it is well-made. However, Kinahan's (1991) evidence from Namibia and Mazel's (1992*a*) from Natal is that well-made pottery is found in deposits that antedate the evidence for pastoralism or agriculture. There is no evidence of tentative attempts to reproduce an unfamiliar technique, which suggests the arrival in the coastal region of hunter-gatherers from elsewhere who were already familiar with the potter's craft. Further research is needed in this regard, especially including attempts to find deposits that will enable the route(s) by which pottery and pastoralism were introduced into the coastal region, and by whom.

SUBSISTENCE IN THE COASTAL REGION

Introduction

According to Waselkov (1987, table 3.6), South Africa has the world's oldest record of shellfish collecting in any quantity, dating back some 130 000 years at Klasies River Mouth. Yet, on 29 October 1653, some 18 months after the establishment of the Dutch settlement on the shore of Table Bay and at least 1 500 years after the introduction of pastoralism into the coastal region, a party of soldiers who had returned from Saldanha Bay reported that 'They had met many elephants, rhinoceros, elands, harts, hinds, and other game' (Moodie *ed.* 1960: 39). It must thus be asked why, in a land until recently so abundant in large terrestrial mammals (Skead 1980), people chose to collect shellfish, an occupation that seems more labour-intensive than the hunting of, say, a large antelope. Even if it is assumed that the collecting was done by women, their energies would have been better spent in collecting plant foods in order to offset the potential danger of protein poisoning (see below). The archaeological evidence is, none the less, that people did collect and consume considerable quantities of shellfish, and it is thus pertinent to discuss the matter of subsistence needs and strategies.

Prior to the advent of the European settlers, the southern African coastal region was occupied by three groups with differing resource bases: hunter-gatherers, who subsisted, initially at least, solely on indigenous resources; pastoralists, who had access to imported domestic stock as well as to indigenous resources; and farmers, who initially cultivated exotic crops and exploited indigenous terrestrial and marine resources, later adding domestic stock to these. It is therefore appropriate to consider the archaeological evidence for the subsistence of each of these three groups.

Hunter-gatherers

In common with the rest of the world, hunting and gathering was the basic subsistence mode of the peoples of the southern African coastal region for most of the existence of humankind. Very little evidence, however, has survived for the subsistence activities of the people who lived in the region for most of the million years or so of its human prehistory and whose existence is attested to chiefly by the stone tools they made and used.

Where the Early Stone Age is concerned, Sampson (1974: 127–134) observed that: 'All the evidence suggests that the Acheulian economy was based on the hunting of available game near permanent water supplies such as river banks, lake shore or swamp.... There is clearly no evidence to suggest specialized hunting of a few selected animals. It appears that any available meat supply was exploited, and the Acheulian hunting ability apparently extended to the largest and most dangerous animals among the African fauna.... Whereas the bones of lesser game could be obtained by scavenging from carnivores, the presence of the very large animals (presumed to be beyond the hunting capacity of carnivores) must reflect organized hunting and probably trapping by man.... If the faster antelope species were hunted rather than scavenged from carnivore kills, it must be assumed that stalking and the use of the throwing spear had become developed skills by this stage.' Sampson also commented that there was 'some hint' that plant foods were also collected during this period, and that fire was used 'for warmth and possibly cooking meat'.

The scanty evidence on which Sampson based his observations comes mainly from the interior, with the coastal region represented only by the artefacts and fossil bone assemblages from Elandsfontein, south-east of Saldanha Bay. Sampson (1974: 127) remarked that 'these were surface finds open to all the usual criticisms, including the possibility that they are artificial clusters caused by sand-dune deflation'. However, after studying the fauna excavated from the 'Cutting 10' site at Elandsfontein, Klein (1978: 82) concluded that 'the sum of the evidence suggests that people were involved in the Cutting 10 occurrence as butchers of ungulates that died or were killed as they came to drink at a nearby waterhole. Some of the ungulates were perhaps killed by large carnivores, and people and other predators may well have scavenged each other's kills. The scatter of artifacts and bones probably reflects not only carcass dismemberment from hominid butchering and carnivore feeding, but also the kicking of objects across the surface of the site by later ungulates coming to the waterhole to drink'.

Klein's conclusions thus generally support Sampson's, although he was more sanguine than Sampson about the association of the artefacts and faunal remains. The faunal list (Klein 1978, table 1) does not include any marine species and it is not clear whether, at the time the material was deposited, Elandsfontein was within the coastal

region as it exists today, or whether the sea was more distant. Klein (1978: 71) commented that the fauna indicated wetter conditions and a much larger grass component than is present in the modern fynbos vegetation.

Hendey (1974, table 6) published a list of the mammalian fauna that includes remains from the whole site and is thus more comprehensive than Klein's. The list also does not include any marine mammals, and there was no mention of any other marine fauna such as shellfish. Hendey did not comment on the relationship of the site to the present coastline, nor did Butzer (1973) in his geological re-evaluation of the site; but on the basis of Klein's comments given above, it is possible that the coast was at least as far away during the Acheulian as it is now (about 20 km). Whatever the case, Elandsfontein is to be interpreted as relating to specialized activities on the coastal plain, namely the hunting and scavenging of terrestrial mammals, rather than as one or more campsites to which food was brought from elsewhere.

Klein & Cruz-Uribe studied the bovids from the Elandsfontein main site. Their conclusion was that this is not an archaeological site in the strict sense, but a natural occurrence 'where many agents probably contributed to the bone accumulation and where their effects are difficult or impossible to separate' (Klein & Cruz-Uribe 1991: 74). They considered, however, that an attritional mortality profile as poor in juveniles as that at Elandsfontein would, in an archaeological context, probably reflect human scavenging, 'but there is nothing to indicate that people were important in shaping the bone assemblage'.

Avery (1988) reported on other sites at Elandsfontein that can be identified as the remains of hyaena nursery dens, with circular concentrations of bone and numerous coprolites, as well as others that he considered to be places where large mammals had died, probably from natural causes rather than as a result of being killed by predators, including humans.

As mentioned above, the Middle Stone Age (MSA) deposits at Klasies River Mouth (Singer & Wymer 1982; Voigt 1982) yielded the oldest record of the exploitation of shellfish in any quantity. Waselkov (1987: 123–124) distinguished between the 'small quantities' of shell found at Terra Amata in France (*c.* 300000 B.P.) and the 'shell middens' of the South African coastal region (*c.* 130000–30000 B.P.). Marine shell from the Klasies River Mouth excavations was only selectively retained: G. Avery (1990 pers. comm.) said that only whole shells were kept, which vitiates any discussion of the role of shellfish in the diet of the caves' occupants. Thackeray (1988) published details of the marine shell recovered from H. J. Deacon's 1984–1987 excavations at the site, a sample total of 13 532 that is considerably higher than those published by Voigt (1982, tables 13.3–13.7). Thackeray did not provide frequencies for the various species, but it is evident from his figure 1 that the brown mussel *Perna perna* was dominant in all but MSA III, with frequencies generally exceeding 50 per cent of the unit total, whereas in Voigt's table 13.4 this species never reached that figure. In passing, it must be pointed out that Thackeray's table 2, which lists the taxa 'in descending order of relative abundance', omitted both *P. perna* and *Turbo sarmaticus*, the latter generally being third in order of relative abundance according to his figure 1. In the circumstances, discussion of the contribution of shellfish to the diet of the occupants of the Klasies River Mouth caves is better left until publication of full information on the fauna from H. J. Deacon's excavations.

Brink & Deacon (1982) published information on an MSA shell midden at Herolds Bay near George in the southern Cape. Their list of mammalian fauna (table 1) is small: 9 (or 11) individuals, of which 6 (or 7) were bovids and one a Cape fur seal *Arctocephalus pusillus*. The only information provided on shellfish was a comment (p. 32) that *Perna perna* was the dominant species 'but a number of other taxa are represented'. The report on this salvage excavation thus contributes little information on the subsistence activities of the 'Middle Stone Age strandlopers' (p. 38) who occupied this site, beyond showing that they exploited both terrestrial and marine resources.

Marine shell and fish remains were not found in the MSA deposits of Die Kelders cave excavated by Schweitzer (1970: 138). However, G. Avery (1993 pers. comm.) has advised that small quantities of at least three species of marine shell were recovered during the 1993 excavations, some of it associated with ash features that are probably hearths. The mammalian fauna from the earlier excavation (Klein 1975, table 1) includes 26 *Arctocephalus pusillus* and four Cetaceae (whales and/or dolphins). This shows that the cave was relatively close to the sea at some time(s) during the 30 000 years or so of its sporadic human occupation in the Pleistocene (Volman 1981: 199). Klein (1975: 266) considered that the absence of the remains of fish and flying sea-birds from the Klasies River Mouth and Die Kelders MSA deposits and their presence in the Late Stone Age (LSA) deposits of these sites suggested that 'active fishing and fowling may have been beyond the technological capabilities of MSA peoples' and that 'MSA peoples exploited coastal resources less effectively than LSA peoples in the same habitat'.

Klein (1976) reported on the faunal remains from the Duinefontein 2 MSA site, about 4 km north of the village of Melkbosstrand. The fauna in Klein's table 1 is exclusively terrestrial, although G. Avery (1990 pers. comm.) advised that there was at least one bone of a jackass penguin *Spheniscus demersus*. Surface-collected material from the vicinity of the site included the remains of a probable *Arctocephalus pusillus*. Klein (1976: 19) concluded that the fauna, which includes a number of extinct species, is 'probably earlier Upper Pleistocene at youngest (older than 40 000 years) and may even be later Middle Pleistocene (older than 125 000 years) in age'. It is thus possible that the Duinefontein site indicates some exploitation of marine resources by MSA people.

Volman (1978) excavated MSA shell-midden deposits at the Hoedjies Punt and Sea Harvest sites at Saldanha Bay. The faunal sample from the latter (Volman 1978, table 2) was small, but included the remains of an *A. pusillus*, the vertebra of an unidentified fish, a bank cormorant *Phalacrocorax neglectus* and shellfish, mostly limpets *Patella* spp. (88,3% of the sample total of 212). Thus, despite Klein's comments cited above, the Sea Harvest site may provide the earliest evidence in southern Africa for fishing and fowling, some 60 000 to 70 000 years ago (Volman 1978: 911), although it is also possible that the fish and bird bones were picked up on the shore.

Evidence for the exploitation of the resources of the coastal region during the late Pleistocene and Holocene (LSA) is more abundant than for the preceding periods. However, as far as can be ascertained, the shellfish from almost every site has been sampled in such a way that only a relatively small proportion of the total amount excavated was retained, and the sampling methods differed from excavator to excavator. For example, Schweitzer (1979: 187) reported that in the excavation of the LSA deposits at Die Kelders 'all the shell from parts of selected grid squares and natural stratigraphic units that remained after sieving on a 3-mm-mesh sieve' was retained. In contrast, in his

excavation of the Stofbergsfontein shell midden near Saldanha Bay, Robertshaw (1978: 143) passed all the excavated material through sieves with meshes of 12 mm and 3 mm 'and the shell from the 12 mm mesh sieve [was retained] from approximately every third bucket. The shell in the 3 mm mesh sieve was sampled only occasionally'.

Sampling shell, understandable though it may be because of its large numbers in shell middens, militates against any attempt to determine with any accuracy the relative contribution of shellfish to the diet of the people responsible for the deposits (e.g. Buchanan 1988). At best, it serves only to characterize the shellfish component; at worst, particularly when the bulk of the sample is retained from only a large-mesh sieve, it introduces a bias in favour of the more robust shell types, such as those of the gastropods, and against those of the more fragile ones, particularly the colonial mussels. Tests on two samples of excavated mussel hinges or umbones, the part used for counts, that had been kept separate after sorting, according to whether they were from the 12-mm or 3-mm mesh sieve, showed that close on 93 per cent of the black mussel *Choromytilus meridionalis* hinges passed through the 12-mm mesh sieve, and 84 per cent of the brown mussel *Patella perna* (Wilson 1990: 175). The bias resulting from selective sampling is evident in the differences between Voigt's (1982) and Thackeray's (1988) shell samples from Klasies River Mouth mentioned above. Klein (1972: 185–186) reported that shell samples from his excavation at Nelson Bay Cave were taken only from the fraction remaining on the half-inch (12,5 mm), or larger, mesh sieve, which led to 'systematic under-representation of molluscs with more friable shells, especially of the mussels'. He also commented that analysis of unsorted shell samples had shown that 'a small, but significant' proportion of the mussel fragments with umbones was smaller than 12,5 mm. Klein considered that although the resultant bias allowed the results of the shell analysis to be used only 'in a gross way, to establish the relative importance of mussels vs. other molluscs ... since the same bias was introduced into samples from all the middens, comparisons of samples as among middens are still meaningful'. In view of the high percentage of umbones that passed through the 12-mm sieve in the examples given above, Klein's conclusion must be questioned. Although it is true that the two samples tested may not be representative of all middens, it is not necessarily true that preservation of shell in all the units of a deposit is identical, so that the bias resulting from excluding the fraction that passes through the 12-mm sieve is not a constant. Given these problems, it is inappropriate to comment in any detail on the shellfish samples from the coastal sites, particularly where they appear to provide evidence of changes in the proportions of species represented.

Global warming in the late Pleistocene resulted in rising sea-levels and the flooding of the previously-exposed continental shelf (Dingle & Rogers 1972). This must have caused the retreat of the terrestrial fauna, including people, and the drowning of the latter's campsites. It also brought about changes in the environment of sites that were previously in the interior but, by about 11 000 years ago, were within reach of the coast and its resources. Klein (1989 pers. comm.) advised that there was minimal marine shell in the Brown Shelly Loam deposits at Nelson Bay Cave, which are dated to 11950 ± 110 B.P. (UW–177), but that from the Crushed Shell Midden layer, dated to 11540 ± 110 B.P. (UW–162), shell was relatively abundant (dates from Klein 1972: 202). Apart from a doubtfully identified individual in the basal LSA layer, *Arctocephalus pusillus* made its first appearance in the Crushed Shell Midden layer (Klein 1972, table 1).

At Elands Bay Cave, which was sporadically occupied for about 30 000 years, the first marine shell lenses also appear at about 11000 B.P., with fish and *A. pusillus* remains somewhat earlier (Parkington 1981: 344, fig. 12.4, table 12.3). The evidence from these two sites suggests that the exploitation of marine resources was probably the continuation of a practice developed long before, and that the appearance of the remains of these resources in the cave deposits reflects their greater accessibility, resulting from the increased proximity of the sea. Occupation of Nelson Bay Cave continued into the Holocene (Klein 1972; Inskeep 1987), whereas Elands Bay Cave was abandoned between about 7800 B.P. and 3800 B.P. (Parkington 1987*a*: 7), probably as a result of the Holocene marine transgression (Flemming 1977; Yates *et al.* 1986) having made the cave, or the marine resources of the area, inaccessible; the same happened at the nearby Tortoise Cave (Robey 1987: 310, table 1).

Summarizing the evidence from the Oakhurst Shelter in the George district of the southern Cape, Goodwin (1937: 321–323) mentioned that the 'Smithfield B' midden deposits consisted 'mainly of Oyster and Razor (*Solen* sp.) shells' and that, although fishbones had not survived, two burned fish otoliths 'suggest that fish were eaten, though the means of catching them were inadequate'. In the lower levels of the 'Smithfield C' deposits, there were 'regular piles' of the white mussel *Donax serra* but still few fishbones. In the upper levels, the black mussel *Choromytilus meridionalis* was the more common species, but 'There is no reason to presume a change in the sea fauna, as all these shells are common today. The cave-dwellers more probably changed their source of supply'. In the 'Developed Wilton', the basis of subsistence is 'mainly shell-fish, fish and animals.... At the Wilton level begins a marked increase in fish-bone, suggesting that efficient means of catching fish had been evolved'. The shelter is some 10 km from the coast and charcoal from the 'carbon floor' separating the 'Smithfield B' and 'Smithfield C' deposits was dated to 7910 ± 70 B.P. (Pta–377) (Deacon 1979: 31). On the basis of similar dates from Melkhoutboom, Nelson Bay Cave and Byneskranskop 1 (see above), the 'carbon floor' may be taken as marking the Albany : Wilton transition. The change within the 'Smithfield C', from the solitary, sand-dwelling white mussel *Donax serra* to the colonial, rock-dwelling black mussel *Choromytilus meridionalis*, is interesting and may be evidence of the populating by the latter of rocky shores accessible to the cave occupants consequent on the post-Pleistocene marine transgression. It is unfortunate that, in keeping with the practice of the time, there was no quantification of the faunal data so that the apparently increasing contribution of shellfish and fish could be assessed.

Byneskranskop 1, which is situated about halfway between Nelson Bay Cave and Elands Bay Cave – but, unlike them, not directly on the coast (Schweitzer & Wilson 1982, figs 1, 5) – provided evidence of a temporal pattern of marine resource exploitation different from those of the other two sites. Although the site was initially occupied during the terminal Pleistocene (12730 ± 185 B.P., I–7948) and was probably never more than 10 km from the sea (Schweitzer & Wilson 1982: 10, table 1), the evidence for the exploitation of marine resources before about 8000 B.P. is sparse. Less than 0,5 per cent of the marine shell (all of which was retained) came from the earlier deposits in layers 19–13, only a third of the 15 seals, and 3 per cent of the relatively few fish (Schweitzer & Wilson 1982, tables 15, 18, 20; see also summary in table 26). Although the radio-carbon dates for layer 1 suggest that the lowest sub-unit of this layer should probably have been kept separate from those overlying, the wide range of dates, from 3220 ± 45 B.P. (Pta–1631) to

255 ± 50 B.P. (Pta–1864), indicates that the cave was occupied relatively little after about 3000 B.P. The period of major occupation of the cave, and of the exploitation of marine resources, thus coincides more or less with the first period that Elands Bay Cave and Tortoise Cave were abandoned. The topography of the coastal plain in the vicinity of Byneskranskop is such that the Holocene transgression would not have brought the sea appreciably closer to the cave, although changes in the vegetation may have occurred (Avery 1982, table 45). The time when shellfish began to play a more important role in the lives of the people of Byneskranskop 1 is roughly coincident with the transition from a predominance of large-medium mammals (> 100 kg live mass) being brought to the site to a predominance of very small (< 10 kg) and small (10–25 kg) ones (Schweitzer & Wilson 1982, tables 17, 26). This phenomenon, the evidence for which was summarized by Schweitzer & Wilson (1982: 153–163) and Klein (1983), appears to have been common to most sites in the south-western and southern coastal belt and in the interior of the Cape Fold Mountains region, and to have been approximately coincident with the development of the Wilton artefact tradition. Schweitzer & Wilson (1982: 163) commented that 'The reason for the general similarity of procurement patterns in the later Holocene cannot, however, be ascribed to climatic change inducing a general homogeneity in the ecology of the regions in which the various sites are located. It seems that there must be an overriding factor that is probably cultural, possibly demographic, but such an assumption cannot be tested until a greater body of information is available, from more than single-site observations, on patterns of human distribution and land-use'.

The change in technology after about 3500 B.P., marked by a reduction in the number and range of retouched stone artefacts and the apparent reversion to an 'Albany-like' tool-kit, which was discussed in the previous section, does not appear to have been accompanied by a change in the subsistence base. The evidence for this period is much the same as that for the preceding 'Wilton', as indicated by the faunal lists for sites like Nelson Bay Cave (Inskeep 1987, tables 56–58 and 61), Byneskranskop 1 (Schweitzer & Wilson 1982, tables 15, 18 and 20) and Elands Bay Cave (Klein & Cruz-Uribe 1987, table 2, fig. 2; Poggenpoel 1987, table 1). This is not to say that there was no change at all, but rather that there was no *major* change, such as that observable between the faunal lists of the earlier and later Holocene. Parkington (1987*a*: 11) stated, however, that the 'megamiddens' of the west coast fall into the 3000–2000 B.P. period (see also his fig. 2). Unless this is indicative of a major population increase in this part of the coast, for which there is no other evidence, it seems to suggest a greater reliance on shellfish than in the preceding or succeeding periods. This matter is discussed further in the following section.

After about 2000 B.P., when pastoralism was introduced into the coastal region, there would have been increasing competition between the hunter-gatherers and the herders for the use of the land and its resources. The evidence for the early part of this period is by no means clear, but the indications are that the earliest herders had only sheep, cattle being introduced some centuries later (Schweitzer 1979: 202–203; Smith 1987: 393–394). It is also not clear whether this early evidence for pastoralism reflects the incursion into the coastal region of people along with the domestic stock, or whether it reflects the gradual adoption by local hunter-gatherers of the 'pastoralist package' (Wilson 1986*c*, 1989*b*). Whatever the case, by the time of early white settlement, the hunter-gatherers appear to have been restricted largely to the mountainous areas bordering the coastal region, whereas the pastoralists controlled the coastal plain. Parkington (1984: 167–168)

concluded that 'the appearance of pastoralism, reflected archaeologically in the inclusion of ceramics and particularly sheep bones into prepastoral contexts, resulted in the reorganization of hunter gatherer life into a pattern that survived to be historically described as soaqua. The visible elements of this life-style were greater use of isolated and fairly rugged parts of the landscape and the broadening of the resource base (Smith 1983) to include, or perhaps to emphasize, reliable and widespread but small food parcels such as underground geophytic corms, caterpillars, locusts, termites, a variety of shellfish, tortoises and rock rabbits. In some parts of the landscape alliances, or arrangements, were made with local pastoralists, and a certain amount of stock raiding helped supplement protein inputs from game hunting'.

Parkington (1984: 164) used the term *soaqua* 'not as denoting a tribe but rather, in lower-case letters, as denoting a behavioral complex'. Although Parkington's description of the *soaqua* life-style is in the main acceptable, the major change seems to have been the loss to the hunter-gatherers of access to the whole of their previous territories and the resources these contained. The degree of loss or restriction would have depended on their relationship with the pastoralists, which was sometimes hostile, sometimes not. The resource base changed from that of the pre-pastoralist period only as regards access to the various resources and by the probably occasional addition of domestic stock. In the post-settlement period, the white settlers with their guns were able to act more effectively than the Khoikhoi against the poisoned arrows of the 'Bushman' stock thieves who, by the end of the first quarter of the eighteenth century, probably included increasing numbers of Khoikhoi detribalized and impoverished by the plagues that affected them and their livestock (Elphick 1985: 37–40, 229–234).

Relatively little information is available regarding the evidence for subsistence from hunter-gatherer sites in the eastern part of the coastal region. Cable (1984, table 8) listed only eight reports on sites in the coastal region of Natal published between 1934 and 1978 (see also Mazel 1992*b*). Most of these dealt mainly with the artefactual content, with little or no mention of the fauna.

Schoute-Vanneck & Walsh (1959) reported on the excavation of a shell midden at the Ingane (= Ngane) River mouth, some 3 km north-east of Umkomaas on the Natal south coast. The deposit, which was not dated, contained stone, bone and shell artefacts as well as one NC3 (Iron Age) potsherd, which the excavators considered to be intrusive. Terrestrial faunal remains were sparse, but included the mandibles of three unidentified small antelope. Marine fauna were represented by fish-bones and shellfish, of which *Mytilus* (= *Perna*) *perna* was said to be the dominant species (Schoute-Vanneck & Walsh 1959: 46–52). The excavators considered this midden (A) to be 'entirely different from the more common Early Bantu middens of the Natal coast' and assigned it to the 'Developed Wilton', on the basis of the similarity of the artefacts to those from the Oakhurst shelter (Schoute-Vanneck & Walsh 1959: 55).

The comments by these authors on 'the Umlaas variant of the Smithfield C Culture' (Schoute-Vanneck & Walsh 1961) were discussed in the previous section, and all that needs to be added here is that the evidence from these Natal coastal Late Stone Age sites reflects an economy directed primarily at shellfish collecting, with a lesser emphasis on fishing and the hunting of terrestrial mammals.

The deposits from Umbeli Belli, the artefacts from which were discussed above, contained relatively few mammalian remains, of which the largest individual category

was bovids, chiefly the small blue duiker *Cephalophus monticola* (9) and Cape buffalo *Syncerus caffer* or domestic cattle *Bos taurus* (4) (Cable 1984, table 13). Marine shell was also present, but this was generally not quantified except for *Perna perna*, of which there were 848 hinges, and of which the total shell weight accounted for over 95 per cent of the site total of marine molluscs (Cable 1984, table 14). Cable (1984: 102) considered that the small quantity of shellfish present in the deposits resulted from the site's distance from the coast, but that 'the significance of the shellfish remains at Umbeli Belli is to indicate the site's role as a home-base site near enough to the sea to allow the exploitation of coastal resources on a regular basis, but with a rich and varied terrestrial catchment providing the bulk of the resources actually consumed on-site'.

The fauna from Borchers Shelter was not quantified, but Cable (1984: 121) reported that *Cephalophus monticola* was estimated to account for more than half of the mammalian fauna. Small quantities of highly fragmented marine shell were also recovered, of which *Perna perna* appeared to be the most common (Cable 1984: 123).

Fish remains were found at both sites but, where these were identified, they consisted entirely of fresh-water species (Cable 1984: 102, 123).

Davies & MacDonald (1978: 462 463) briefly mentioned marine fauna found in a shell midden at Umhlanga Rocks, a short distance up the coast from Durban, which was dated to 250 ± 35 B.P. (Pta–163). Mussels (*P. perna*) were said to have been more abundant in the upper part and oysters (*Striostrea margaritacea*) in the lower, whereas the top spit contained the bones and scales of many small fish. Pottery was absent from the deposit, and the only artefacts were small pebbles that the excavators thought were probably used for opening the shells. Davies & MacDonald (1978: 463) considered that these factors suggested that the midden should be ascribed to the San rather than to the Nguni. If this ascription is correct, it supports the evidence of Umbeli Belli, of quite late access to the coast by the hunter-gatherers of the region.

In a report quite remarkable for the time in its attention to detail, Chubb *et al.* (1934) described excavations in a cave at the mouth of the Umgazana (= Mngazana) River, some 16 km south-west of Port St Johns on the Transkei coast. The excavators identified 30 'strata' in the deposit, some of which were archaeologically sterile. Stone, bone and wooden artefacts were found throughout the deposit, which also contained potsherds from Stratum 14 upwards (Stratum 1 was the basal unit).

All the occupation layers contained abundant marine shells, mostly *Perna perna*, but also *Patella* spp., *Haliotis* sp. (given as *H. natalensis* but probably *H. spadicea*), and 'several species' of oysters. Fish remains, chiefly those of the musselcracker (more likely *Sparodon durbanensis* than *Cymatoceps nasutus*, since the former prefers the sandy habitat offshore from the site (Smith & Smith 1966: 50 51)), were also abundant in some of the strata. Terrestrial animals were represented by the bones of unidentified antelope, buffalo *Syncerus caffer*, warthog *Phacochoerus aethiopicus*, bush-pig *Potamochoerus porcus*, as well as a single rock hyrax *Procavia capensis* and an unidentified monkey (either the vervet monkey *Cercopithecus aethiops* or the blue monkey *C. mitis*).

Plant remains consisted of the estuarine eel-grass *Zostera capensis* and 'parcels' of the folded leaves of the 'wild banana' *Strelitzia augusta* (now *S. alba*) and, in Stratum 26, twigs of a littoral dune bush *Passerina ericoides*. No explanation was given for the presence of these flora, but the first two were probably used as bedding, whereas the third may have been the material used for making wooden pegs of the kind found in the

deposit. Barrow (1806: 142) recorded that the seeds of *Strelitzia reginae* were eaten 'by the Kaffers and Hottentots'.

In keeping with the practice of the time, there was no quantification of material, but the impression gained from the presence of Late Stone Age artefacts throughout the deposit is that this was a hunter-gatherer site rather than one attributable to Iron Age farmers. The site is interesting in that it appears to span the periods before and after the arrival of the farmers, as indicated by the absence of potsherds from the lower strata and their presence in the upper. Apart from these, there is no evidence of any change in the artefactual or faunal content of the deposit, which suggests that the presence of the farmers had little impact on the hunter-gatherers who occupied the cave, although they may eventually have been responsible for its abandonment. Other sites, like Umbeli Belli and Borchers Shelter, also provide evidence that hunter-gatherers continued to occupy the coastal region after the farmers had established themselves there.

Pastoralists

The earliest dated evidence for the presence of pastoralists in the coastal region, at about 2000 B.P., came from the cave site of Die Kelders (Schweitzer & Scott 1973; Schweitzer 1979) and an open-station shell midden at Hawston, some 30 km to the north-west (Avery 1974). The evidence is in the form of the bones of domesticated animals: sheep at both sites, and cattle as well in the upper layers of Die Kelders, dated to some 300–400 years later (Schweitzer 1979: 203, tables 1, 27). Slightly later dates were recorded for the Kasteelberg sites (Smith 1987: 393), where sheep also preceded cattle (Klein & Cruz-Uribe 1989). In the previous section, it was pointed out that the presence of potsherds is not *de facto* evidence that a site was occupied by herders, and the same applies to the remains of domestic stock. Pots and livestock were available, by fair means or foul, to hunter-gatherers in the area and it is thus necessary to exercise caution in interpreting their presence in sites. As mentioned above, Cable (1984: 97) pointed out that Iron Age potsherds are commonly found in Late Stone Age sites in Natal and it is thus equally likely that Khoikhoi potsherds are present in San sites in the western part of the coastal region. As also mentioned previously, Kinahan (1991: 44) suggested that pottery appeared in central Namibia before pastoralism, and that potsherds were collected by the Namib hunter-gatherers and dispersed over several sites.

Whether the herders of the coastal region were immigrants, or whether they were 'acculturated' former hunter-gatherers, was discussed briefly above, as well as elsewhere (Wilson 1986*c*, 1989*b*; Morris 1990; Smith 1990), but at present there is insufficient information available for this matter to be resolved with any certainty. If the early herders had only sheep, they may not have had the mat-and-wattle huts that were so typical of them in the historical period and which were transported on their pack-oxen. They may therefore have lived in caves and rock-shelters for at least part of the time, although firm evidence to support this is wanting. The present topography around Die Kelders is such that access to the cave is difficult enough for humans, let alone sheep, and impossible for cattle. It is, of course, possible that the topography has changed considerably since the cave was last occupied some 1 500 years ago: in fact, that may have been the reason for its abandonment. Caves are generally, however, impractical places in which to kraal domestic stock for any length of time. Apart from difficulty of access, many of them are small, Die Kelders and Elands Bay Cave being notable exceptions; and

there would have been problems with access to water and feed unless the animals were taken out daily. If, on the other hand, the animals were kraaled outside the cave, they would have been in danger from predators unless they were constantly guarded. The little bay to the east of Die Kelders could have provided a reasonably safe place to kraal livestock overnight, but access would have been difficult, particularly for cattle.

Klein & Cruz-Uribe (1989: 90–92) hypothesized that if the two Kasteelberg sites were 'specialized stockposts/sealing stations', where the sheep were concerned they 'would expect the middens to contain mainly young males and postprime females'. The reason for this was that if the herders were culling their flocks, they would select young males, since rams do not produce milk and only a few are needed for breeding purposes; and ewes that were no longer fecund could also be used for food. Klein & Cruz-Uribe were, however, unable to determine the sex of most of their samples, so they analysed the mortality profiles of the sheep from Die Kelders and the two Kasteelberg sites. They found that their prediction regarding adult sheep was not borne out by the profiles for Die Kelders and Kasteelberg B, where adults are less common than at Kasteelberg A. They also found that there is a statistically significant difference between the age profiles of the sheep from Kasteelberg A and Kasteelberg B and between those from Kasteelberg A and Die Kelders. In the Kasteelberg B and Die Kelders samples, the bulk of the sheep were in the first 20 per cent of life-span. In the Kasteelberg A sample there was a wider distribution, up to about 70 per cent of life-span, though there were still more in the first 20 per cent group (Klein & Cruz-Uribe 1989, fig. 8). Klein & Cruz-Uribe (1989: 91) concluded, however, that occupation of Kasteelberg A 'was less seasonally focused than at either KBB or Die Kelders, and it could have extended into a portion of the year when the people had to rely more on sheep and less on wild animals (especially seals)'.

The open nature of the sites and the relatively large number of sheep and cattle remains (Klein & Cruz-Uribe 1989, table 1), make it possible to accept that the Kasteelberg sites were occupied by herders, but there is another interpretation that can be made of the age profiles of the sheep from Kasteelberg B and Die Kelders. This is that, male lambs and post-prime ewes being the least necessary to the maintenance of the flocks, they are the most suitable for barter with, or payment for service by, hunter-gatherers (see also Smith 1990: 10–11). As mentioned above, neither of these sites has a large number of adults that could be identified as possibly being post-prime ewes (beyond 40–50% of life-span: Klein & Cruz-Uribe 1989: 90), but there are not that many at Kasteelberg A, either. The table suggests that about a quarter of the total of aged individuals is in this age-group, and their distribution is not suggestive of the killing of sheep of specific age-classes within this group.

Kolb (1738: 171) commented that the Khoikhoi 'let the Bulls run with the Cows, and the Rams with the Ewes the Year round. By which Means their Herds encrease [*sic*] apace, their Ewes yielding them constantly Two Lambs in the Year'. He also commented (Kolb 1738: 185–186) that, despite the great numbers of cattle slaughtered by the Khoikhoi during the ceremonies attending their rites of passage (called by him *Andersmakens*, a corruption of the Dutch *anders maaken*, to make different, or to change), 'their Herds often encrease too fast, and are greater than they can conveniently tend or find Pasture for'. In such a case, they would dispose of their surplus to the Europeans, or else to other Khoikhoi, from whom they would obtain tobacco, dagga (*Cannabis sativa*) 'or some other wanted Commodities', even though the exchange rate

was much lower than they would demand on other occasions. 'And if yet there remains an Excess, they charitably and very cheerfully distribute it among their own Poor.' Although it may be doubted that occasions such as the last arose more than rarely, particularly in the early period, it suggests a method of redistribution of wealth and a subsistence strategy that would be beneficial to both donor and recipient. In this regard, the example of the Little Chariguriqua, who were formerly herders for the Cochoqua, may be mentioned, although they were accused of having later stolen the livestock entrusted to their care (see above). Whether this practice was also extended to hunter-gatherers who had a clientary relationship with the herders cannot now be determined, but it suggests a method by which hunter-gatherers could have become herders in their own right (see also Smith 1985).

Although the Khoikhoi were recorded in the early historical period as having killed seals (Thom *ed.* 1952: 176) and caught fish with spears (Moodie *ed.* 1960: 93), there appears to be no reference to the inhabitants, other than the 'Strandlopers', having collected and eaten shellfish. However, although full information regarding the fauna from the Kasteelberg sites is still to be published, Smith (1987: 393–395) reported that Kasteelberg A contained 'large quantities of shellfish'. There was no mention of any in Kasteelberg B, but Smith (1991 pers. comm.) advised that this is also a shell midden, and bigger than Kasteelberg A. If these sites are accepted as being pastoralist sites, then they provide evidence that shellfish were part of the Khoikhoi diet; thus it is reasonable to assume that at least some of the shell middens of the post-2000 B.P. period are also attributable to the Khoikhoi. The problem here will be to identify these sites with any certainty. The mere presence of potsherds and/or the remains of domestic stock is no guarantee of a site being the result of herder subsistence activity and, as mentioned in the previous section, the artefacts themselves provide no evidence of the identity of their users.

Parkington (1984: 159) commented that 'the impression is gained that stock owners seldom hunted bovids for food but most frequently hunted carnivores in organized drives, partly to obtain desirable skins and partly to rid their herds of troublesome predators'. This impression was presumably gained from the early records, but these are far from complete with regard to the information archaeologists and ethnographers might desire. Kolb (1738: 203), although not always the most reliable of recorders, observed that

> 'The Victuals of the *Hottentots* are the Flesh and Entrails of Cattle and certain Wild Beasts, with Fruits and Roots of Several Kinds. But setting aside the Sacrifices . . . and other *Andersmakens*, the *Hottentots* rarely kill Cattle for their own Eating but when they are at a Loss for other Sustenance. The Cattle they devour between the *Andersmakens*, are, for the most Part, such as die naturally . . . .
>
> When, betwe[e]n the *Andersmakens*, Death, by Disease or Old Age, does not furnish them with Carcasses from the Herds, and the Men are not contented with Fruits, Roots, and Milk, provided wholly by the Women, they go a hunting or (if they live near the Sea) a fishing. They always hunt in Troops. Sometimes they bring Home a great Deal of Venison and sometimes they return without'.

Schreyer (1668 *in* Raven-Hart 1971: 122–123) described the hunting of elephants, and the trapping of rhinoceroses and hippopotami in pitfalls; also 'Elands, deer, steenbuck go there in great herds. To catch them the Hottentots surround them with

many men and draw these together little by little so that they enclose them, and sometimes they have a good catch'. He also mentioned that in the summer the Khoikhoi killed 'all sorts of wild beasts come to drink from the hollows in which the water has collected ... since often the water in the hills is dried up'. Thus, although it is not clear whether the Khoikhoi hunted regularly or only occasionally, perhaps seasonally, there are records that they did hunt; the evidence from the Kasteelberg sites (Klein & Cruz-Uribe 1989: 84–85, table 1) also provides support for the ethnohistorical information. At Kasteelberg, the numerical emphasis is on small bovids the size of grysbok or steenbok *Raphicerus* spp., with few small-medium ones if the sheep are excluded, and more large-medium bovids (Cape hartebeest *Alcelaphus buselaphus*) than large after deduction of the cattle from the totals for this size group. Wild bovids are, however, not as commonly represented as domestic ones, and the most numerous of all the mammals is the Cape fur seal *Arctocephalus pusillus*, which indicates the importance of at least one other marine resource to the occupants of these sites. It will be interesting to study the full faunal tables, including those for shellfish and fish, when these are published but, in the meanwhile, the evidence is that herders in the coastal region exploited the natural resources of both land and sea in addition to their domestic stock, though perhaps not to the same extent as the hunter-gatherers did.

Farmers

Compared with that available for the Late Stone Age peoples of the western part of the southern African coastal region, relatively little archaeological information has been published on the subsistence of Iron Age farmers of the eastern coastal region. Also, much of what has been published is subject to the same caveat as applies to the post-2000 B.P. Late Stone Age sites: that the presence of potsherds and the remains of domestic animals are no guarantee that the sites that contain these can be indisputably attributed to the people with whom they are more usually associated.

Hall (1981: 148) observed that 'In addition to domesticated cereal crops, other resources were clearly of importance to the Early Iron Age farmers of the coastal areas. Some of the Group 1 sites are marked by fragmentary molluscan remains as well as by pottery sherds, indicating that the nearby marine fauna was exploited. This may perhaps have been a further reason [besides the initially nutrient-rich soils] for the concentration of settlement along the immediate coastline. In addition, the coastal forests would have provided a variety of edible wild fruits as well as habitats for small animals which could have been either hunted or trapped. It would seem unlikely, however, that domestic livestock were important.... there is no evidence for cattle in this phase of the Early Iron Age elsewhere in southern Africa. In addition, ecological considerations make it seem unlikely that cattle had much of an economic role. Little grazing would have been available until the process of shifting agriculture was well advanced and secondary grasslands had become established. Such a change in the biotic structure could only have taken place after a sustained period of Iron Age farming' (present author's interpolation, taken from Hall's preceding paragraph).

Faunal remains from Iron Age sites appear to be rare: Voigt (1980: 94–95) reported that only 27 pieces of bone from Maggs's excavation at Mjonzani near Durban (Maggs 1980) were submitted for identification and, of these, only two tooth fragments came from the Early Iron Age deposits. Voigt (1980: 94) considered that the tooth fragments

might have been those of domesticated cattle *Bos taurus* but that 'neither fragment was large enough to unequivocally assign it to this species, so that undeniable evidence for the presence of domesticated cattle in this early period of the Natal Iron Age is still lacking'. A radio-carbon date of 1670 ± 40 B.P. (Pta–1980) was obtained from charcoal in the Early Iron Age deposits (Maggs 1980: 75). The few bone fragments from the Late Iron Age deposits included *B. taurus*, the small blue duiker *Cephalophus monticola* and fragments of bovids the size of sheep or goat; Voigt (1980: 94) commented that 'The presence of *Cephalophus monticola* indicates hunting or snaring activities in forested or thicket areas'.

MacKay (1980: 95–96) reported that most of the marine molluscs came from the Late Iron Age midden features at Mjonzani, only six of the total of 388 shells or fragments of shells having come from the Early Iron Age deposits. All that can be said of the Early Iron Age sample is that it includes the land snail *Metachatina kraussi*, the oyster *Crassostrea* (now *Striostrea*) *margaritacea*, and the brown mussel *Perna perna*. The Late Iron Age sample was dominated by *P. perna* (82,7% of the sample total), but included a few individuals of other species. MacKay (1980: 95) commented that the Early Iron Age midden 2 was contaminated by Late Iron Age material 'and in both cases there were very few shells, therefore this cannot be taken as proof of shellfish exploitation during the EIA occupation. However, evidence from other, similar sites is positive in this respect and it is probable that most shell as well as bone has weathered away over the intervening 1 700 years'.

The artefacts from the Emberton Way shell midden (Horwitz *et al.* 1991) were discussed above. The mammalian fauna was sparse, consisting of a few bones of small antelope (the possibility that one of these was that of a sheep is to be doubted), a suid, a genet, and rodents. The remains of tortoise, unidentified crustaceans, a number of fish and a few birds were also present (Horwitz *et al.* 1991, table 4). The shellfish fauna was dominated by *P. perna*, which accounted for 86,6 per cent of the sample, with limpets *Patella* spp. (9,8%) and a range of other species making up the balance (Horwitz *et al.* 1991, tables 5 and 6). Statistical tests on mussel hinge lengths led the authors to conclude that there was no clear evidence of excessive exploitation having caused a reduction in the size of the shellfish collected. They also considered that there was no evidence to support the possibility that an increase in species diversity in the midden pointed to a reduction in the availability of mussels (Horwitz *et al.* 1991: 22–23).

On the basis of studies of modern shellfish exploitation in Transkei and the distribution of Iron Age sites in Natal, Horwitz *et al.* (1991: 24–25) suggested that the Emberton Way midden reflected changes in the use of the site. In the earliest, Matola, phase, the site was used as a collecting station from which the shellfish were taken back whole to the nearby settlements. In the subsequent Msuluzi–Ntshekane phases, the settlements were further from the coast, and the shellfish were processed at the coast and only the edible portion taken back to the settlements.

Cronin (1982) reported on an Iron Age midden site at Mpame in Transkei, dated to 1310 ± 60 B.P. (Pta–2019) and 540 ± 55 B.P. (Pta–2017), so that the site encompasses both the Early and the Late Iron Age. He did not provide separate information for the two phases and commented that 'The Mpame midden represents the remains of hunting, fishing and shell collecting activities' (Cronin 1982: 38). The faunal sample was dominated by *Perna perna* 'which forms over 90% of the shell debris' and other animal

remains, 'occurring especially in the lower layers', included fish and terrestrial wild animals (Cronin 1982: 38) but no domestic ones. Cronin (1982: 38–39) suggested that 'Home bases or villages were probably not located along the shore but in the immediate hinterland close to arable soils'. Thus, even if the evidence for pastoralism and agriculture is lacking, it may be assumed to have formed the major part of the subsistence base of the Late Iron Age people, with hunting, fishing and shellfish collecting providing the bulk of the protein during the Early Iron Age. Cronin (1982: 39) commented that 'Early Iron Age groups, it is thought, indulged in intermittent but regular shell collecting based on a tidal cycle and primarily aimed at the harvesting of the *Perna perna* mussel'.

The best faunal evidence for the Late Iron Age in the coastal region comes from Mpambanyoni, where Robey (1980) excavated parts of two middens. Mpambanyoni is about 5 km downstream from Umbeli Belli Shelter (Cable 1984: 86), which was discussed above. Midden A was dated to 885 ± 50 B.P. (Pta–2534) and 980 ± 50 B.P. (Pta–2527), whereas Midden B yielded a date of 930 ± 50 B.P. (Pta–2528), thus dating the sites to the early part of the Late Iron Age (Robey 1980, table 4).

The sample of terrestrial fauna was not large but included the remains of an elephant *Loxodonta africana* and a possible cow or ox *Bos taurus*. The most common animal was the blue duiker *Cephalophus monticola*, of which 12 or 14 were represented, most of them juveniles (Robey 1980: 154, table 1).

The marine fauna included the remains of two seals *Arctocephalus pusillus*, 75 fish, of which the small Clinidae (25) were said to be the most common, and over 3 000 shellfish, 96,1 per cent of which were *Perna perna* (Robey 1980, tables 1–3). Robey (1980: 155) commented on the wide range of the lengths of the mussel valves, 18–146 mm, which suggests that these shellfish were not being individually selected, and that immature individuals were collected along with those of a suitable size.

Robey (1980: 163) observed of the people responsible for the middens, that 'They almost certainly lived a settled life, practised agriculture and probably herded cattle. However, hunting, fishing and gathering of shellfish, mainly the brown mussel *Perna perna*, must have made an important contribution to their diet'. He also commented on the presence of fish, 'as a taboo exists today on the eating of fish among the coastal Nguni'. C. Nongwana of the Albany Museum (1991 pers. comm. to L. Webley, and from her 1991 *in litt.* to the present author) said that this is not a taboo, but rather an avoidance. Mahola (1990: 14–15) observed that 'AmaPondo of the Transkei coast and amaXhosa of the Ciskei have for very many years lived in close proximity to the sea and yet are not known as fishing people. They collect shells for tribal ornaments. Their lack of interest is purely religious'. He considered this to result from the belief among the amaXhosa that 'seas and rivers are dwelling places of "the people of the river", the *abantu bomlambo*' who are very powerful and dangerous if disturbed; he concluded that this is why the amaXhosa and amaPondo know so little about fishing. 'Even today those who go out on trawlers to fish take these jobs in desperation for employment. . . . Their job demands of them to be greasy, dirty and fishy and subsequently their morale becomes very low. This physical and moral degeneration is believed to be the result of tampering with the underworld where they do not belong.'

There is no information as to the antiquity of this belief, but it seems unlikely to be of recent origin and may indicate the immigration of the southern Nguni from the interior, rather than along the coast. A Transkeian oral tradition relates that the

ancestors of these people entered the region from the interior into the Mzimvubu River drainage basin (Feely 1987: 67). J. B. Peires of the University of Transkei (1991 *in litt.*) said that local informants had told him that the dislike of (rather than taboo against) eating fish is due more to their resemblance to snakes than to 'a general refusal to disturb the sea', in which the *abantu bomlambo* do not live, dwelling rather in rivers. Under normal circumstances, people do not eat shellfish as they do not like the taste, but poor people eat them when they are hungry, as they do roots and bark.

The evidence for the Iron Age in the coastal region, limited though it may be, is that the farmers, whether engaged only in agriculture (Early Iron Age) or in pastoralism as well (Late Iron Age), also made use of the natural resources, terrestrial as well as marine, of the coastal region.

Discussion

If Early Stone Age people collected shellfish, they and their Middle Stone Age descendants may have done so to supplement the protein they obtained by hunting, at which they may not have been very proficient, and scavenging. Late Stone Age people were, it seems, proficient at hunting and trapping terrestrial mammals as well as seals, in addition to collecting tortoises, the remains of which are generally abundant in archaeological sites. They, at least, appear to have had little or no *need* to collect shellfish, and it must therefore be presumed that they did so from choice.

Yesner (1980: 729–730) pointed out that shellfish 'exist as a highly concentrated resource, are easily collectable by all segments of the human population with a minimum of energy input, and often serve as an emergency buffer during times of relative food scarcity'; he considered that shellfish collecting is not labour-intensive, but did not explain why. It may be suggested that, considering yield in terms of effort, collecting shellfish is labour-intensive—perhaps more correctly, labour-*expensive*—though the degree of effort varies according to the type of mollusc being collected. Sessile and colonial bivalves like mussels can be fairly easily removed in large numbers with the aid of an implement such as a digging stick, but will then include numbers of small individuals with little or no food value. Gastropods, which are generally distributed more sparsely than mussels, must be collected individually. Although in this case the reward in terms of flesh mass is determined by the collector's selectivity and may thus be greater than that of the unselective removal of mussels, the effort involved is greater than that of collecting mussels. Osborn (1980: 740–741) pointed out that 'shellfish are small-body-sized food resources and exhibit high shell-to-meat ratios; protein and energy content is low, processing time is high'. He mentioned that a white-tailed deer with a live weight of 64 kg contains more calories than a tonne of *Mytilus* sp. shellfish, and that a llama of 90 kg live weight yields 12.58 kg of protein or the protein equivalent of 135 259 mussels with a live weight of 4 329 kg. The mean of 31.3 kg for Osborn's mussels is low compared with about 300 kg for *Perna perna* from the Transkei coast (Bigalke 1973: 173), or 287/kg for the flesh weight of *Choromytilus meridionalis* (Kinahan 1991: 92), so that his live weight probably includes the shell. The weight equivalent of the deer would be a male bontebok *Damaliscus dorcas dorcas* and that of the llama would be eight male steenbok *Raphicerus campestris* (Smithers 1983: 613, 640), so that an 11-kg male steenbok would have a weight equivalent to about 3 300 *Perna perna* or 3 150 *Choromytilus meridionalis*. Griffiths (1981, table 1) gave the composition of dry whole black mussel *C. meridionalis* as 91,44 per cent

shell, 8,39 per cent flesh and 0,17 per cent byssus. This is certainly a low flesh yield in terms of the whole mollusc that must be collected; however, the dry flesh had an energy value of 19,5 kJ/g.

An experienced hunter would probably expend little effort in erecting a snare to trap a steenbok but he might have to travel some distance from the camp to find a suitable place, and the rewards would not be immediate or guaranteed. On the other hand, women and children could go to the shore at low tide and in a relatively short time collect a quantity of mussels sufficient to provide a meal for the band. Griffiths (1981: 107) reported densities of *C. meridionalis* in the range of 5 500–6 000/m^2, and Zoutendyk (1989: 18) those of *Perna perna* in excess of 5 000/m^2. These are for mussels of all sizes, and if they were collected *en masse*, a number of juveniles with little or no food value would be included. None the less, and despite the fact that the steenbok's flesh might have been the preferred food, the mussels would provide the *certainty* of sustenance, so that even if their collection was more labour-expensive than the snaring of a steenbok, in terms of survival it would have been worth the effort. The fact that the occupants of Byneskranskop 1 carried over 25 000 shellfish a minimum of 6 km back to the site, and the people of Umbeli Belli and Borchers shelters lesser quantities over greater distances—17 km in the case of Borchers Shelter—demonstrates that they considered worthwhile the expenditure of energy, both in the collecting and in the transporting.

Osborn's (1980) information supports the contention that the labour cost of shellfish collection is high in terms of flesh yield, but shellfish are generally a more reliable food source than antelope, regardless of cultural preferences. If the day's hunting were unsuccessful, marine resources would provide an alternative source of protein that would justify the amount of time and energy spent obtaining it by collecting shellfish and rock lobsters or by fishing. These resources are, however, not always available, for example, during the high seas that result from storms and gales, when the intertidal and subtidal zones may be inaccessible for a week or more, although there is always the possibility that items, even as large as whales, will be washed ashore. The advantage of living in the coastal region is that there are two resource zones, the sea and the land, one of which will always be open for exploitation.

The archaeological record does not provide any evidence for periods when terrestrial foods were scarce, although it is possible that during the course of the year, chiefly in the winter, carbohydrate-rich plant foods may have been. However, as is discussed below, marine fauna are not an appropriate dietary alternative to plant foods, so that the seasonal unavailability of the latter cannot be adduced as even a partial explanation for seasonal occupation of the coastal region or for the exploitation of marine resources. It must be mentioned that, although there is evidence that coastal sites were occupied during certain times of the year, there is no evidence to show that they were not also occupied during the rest of the year.

The archaeological evidence for all the groups except those who lived during the Early Stone Age, for whom comprehensive information is lacking, is that they exploited the marine and terrestrial resources of the region, the hunter-gatherers most of all, the herders and early farmers perhaps less so, and the later pastoral-agricultural peoples possibly least of all. The nature of these patterns of exploitation can be seen to have varied through time and in space, though the reality of the latter can be demonstrated only through intensive regional surveys, such as those being carried out in the western

Cape (Parkington 1987*a*). Single-site investigations have been, and will continue to be, useful in providing information on southern African archaeology and site-specific resource exploitation, but they cannot provide the desired information on changing patterns of land-use and resource exploitation over a wider area, such as the presumed territories of the inhabitants. There appears to be less difficulty in distinguishing between sites in the eastern coastal region that were occupied by hunter-gatherers and those occupied by farmers than there is in distinguishing between hunter-gatherer and herder sites in the western part. This is largely because these last two groups seem to have shared a common artefact technology, but perhaps also because 'typical' herder sites, like those at Kasteelberg, are still mostly undiscovered or have been destroyed by agriculture and other forms of development.

The presence of the remains of fish and shellfish in Iron Age deposits, related to the modern avoidance of marine resources, fish in particular, raises questions as to the correctness of the ascription of midden sites to the early Nguni. The chief difference between Stone Age and Iron Age middens is that the former contain stone artefacts, which are generally lacking from the latter, apart from grindstones. Potsherds, on the other hand, are found in both Stone Age and Iron Age deposits. At present, there seems little reason to doubt the correctness of the ascriptions, but the matter needs to be considered further.

If the suggestion by Horwitz *et al.* (1991), that changes in site use can be observed, can be substantiated by evidence from other Iron Age sites at the coast and in the interior, this will provide useful information on Iron Age subsistence behaviour.

Discussion of subsistence, as indicated by dietary inferences from stable isotope analyses of human bone, is continued below.

SUBSISTENCE STRATEGIES: SEASONAL MOBILITY VERSUS SEDENTISM

The seasonal mobility hypothesis

For many years, conventional archaeological thinking has been that the coast was visited seasonally as part of the annual round of hunter-gatherers, who spent the other part of the year in the interior. Put at its simplest, the 'seasonal mobility hypothesis' (Parkington 1972) postulates that, because of a shortage or even absence of plant foods in the interior during the winter, hunter-gatherers would have been constrained to spend that period at the coast, where they could supplement their diet with marine foods, and where the climate was more tolerable. This hypothesis was derived from a number of lines of evidence (summarized by Inskeep 1978: 105–114): the absence from, or paucity in, coastal deposits of the remains of edible plants and their presence in deposits in the interior along with inflorescences of grasses used for bedding that indicate summer occupation; the age at death of pups of the Cape fur seal *Arctocephalus pusillus* that indicate their dying in the winter; and similar studies on juvenile rock hyrax *Procavia capensis* from sites in the interior that indicate their death during the summer (see also Parkington & Poggenpoel 1971; Parkington 1972, 1976*a*, 1977; Deacon 1976; Schweitzer 1979; etc.).

More recently, as Parkington (1987*a*: 18–19) put it, 'The original model of seasonal movement has been modified and challenged, giving rise to a new generation of research projects with particular spatial, temporal or methodological emphases'. Basically, the

change has been the recognition that the pattern of seasonal movement was not rigid—summer in the interior, winter at the coast—but that it was adapted to changes in climate and environment such as those, for example, resulting from changes in sea-level that would have increased or reduced the distance of living sites, particularly caves, from the sea. These changes would have affected the availability of resources and consequently the scheduling of visits to certain areas. As examples of these, Elands Bay Cave was abandoned for about 4 000 years during the mid-Holocene (Parkington 1987*a*: 7), probably as a result of the marine transgression that occurred during this period making marine resources inaccessible, whereas Nelson Bay Cave appears to have been suitable for year-round occupation for at least the last 10 000 years (Inskeep 1987: 293).

Demographic changes would also have played their part, especially those resulting from the introduction of pastoralism to the coastal region during the last 2 000 years and the expansion of white settlement during the last 300 years (Parkington 1984). Another factor recognized is that seasonal movement may not have been just between the coast and the interior, but that some groups may have moved between the winter rainfall region of the western and south-western Cape and the summer rainfall region to the east and north-east (Parkington 1987*a*: 7). Parkington *et al.* (1988: 28) drew attention to the higher frequencies of hornfels and altered dolerite (presumably the 'shale' and 'other' of their table 3.1) in the Pleistocene deposits of Elands Bay Cave. They suggested that these raw materials were brought in from east of the Cape Fold Mountain Belt and that 'the most frequent kind of stone tool made from hornfels, a knife-like tool or scraper, resembles the concavo-convex scrapers which are widespread in the interior'. An implication of this, they suggested, might be that 'Pleistocene groups ranged over larger areas than their Holocene descendants'.

An aspect of the seasonal mobility hypothesis that seems not to have received the attention it deserves is that, whereas many inland sites have yielded evidence that their occupants had some sort of contact with the coast, coastal sites do not provide evidence that their occupants were people who also lived in the interior, the Pleistocene evidence from Elands Bay Cave cited above being the exception rather than the rule. Marine shell has been found at sites in the interior, such as Melkhoutboom (Deacon 1976: 51), Wilton (Deacon 1972: 31), Boomplaas (Deacon *et al.* 1978: 54), De Hangen (Parkington & Poggenpoel 1971: 19), Observatory Shelter at Sutherland (Lloyd Evans *et al.* 1985: 106), and even as far inland as Koffiefontein in the Orange Free State (Humphreys 1970: 108–110), which is some 500 km from the nearest point on the coast. Although it is possible that the shell from some of these sites, which is often in the form of ornaments, could have resulted from trade or gift exchange with people living nearer the coast, there appears to be nothing in the Holocene deposits of coastal sites that could not have been obtained from the coast itself, or from a few kilometres inland.

Sealy & Van der Merwe (1986*a*: 142), whose isotopic analyses of human skeletons from the Cape coastal region are discussed below, pointed out that the evidence for seasonal occupation is based on *positive* indicators and that it 'does not address the very difficult problem of showing that winter occupation of the mountains and summer occupation of the coast did *not* occur'. Where sites in the coastal region are concerned, they contain many food items that are not season-specific: shellfish, adult mammals, rock lobsters and fish among them. A case can be made for filter-feeding bivalves such as mussels having been avoided during the summer out of fear of poisoning by eating them

when they had been toxified as a result of a 'red tide', specifically, dense blooming of the phytoplankton *Gonyaulax catenella* (Branch & Branch 1981: 108–110). Other phytoplankton blooms de-oxygenate the water and can cause mass mortality of marine life but are not toxic and may have been welcomed by people at the coast when they occurred. However, eating grazing gastropods, fish and rock lobsters during and after a toxic 'red tide' would not have lethal results; and terrestrial mammals and reptiles, also marine and terrestrial birds, would have presented no such problem. The remains of these are found in most coastal deposits and it needs to be demonstrated that they did not provide the resource base at times when mussels and the like may have been avoided. Sealy & Van der Merwe (1986*a*: 143) pointed out that, since 'mussels can remain toxic for months after a red tide episode, one might argue that it would be unsafe to eat them without full-time knowledge of coastal waters'. Although this is true, it need not require full-time *occupation* of the coast for this knowledge to be acquired. Experience would have taught the people that it was generally unsafe to eat mussels during the summer, and they may thus have avoided them then as a matter of course, whether or not there was any evidence of a toxic red tide having occurred, particularly as there was a variety of other shellfish available, although not in the same concentrations as mussels.

Parkington (1977: 155) considered significant the reports of late eighteenth-century travellers, such as Barrow, Sparrman and Thunberg, that the Khoisan used 'uyntjestyd' ('the time of the little onions', i.e. bulbs and corms: late winter/spring) as a seasonal marker, since these plant foods were important in their diet. He commented: 'This is a record of the importance of corms, the recognition of their fluctuating availability and of their value above and beyond the economic sphere.' It should be noted, however, that none of these early writers reported that 'uyntjestyd' was marked by large-scale migration from the coastal region to the interior, which should have been the case if the seasonal mobility model holds good. The absence of such evidence suggests that the availability of geophytes in the coastal region was sufficient for the needs of the occupants of the area.

Parkington (1987*a*: 11) mentioned that radio-carbon dates for Elands Bay Cave, Tortoise Cave and Spring Cave point to their not having been occupied during the period between about 3000–1700 B.P., 'whereas all dates for megamiddens except two come from this time interval' (see Parkington 1987*a*, fig. 2). These 'megamiddens' are described (Parkington 1991: 333) as accumulations of shell 'some tens of thousands of cubic metres in volume' on top of or behind the dune cordon immediately behind flat platforms of intertidal rock that were the habitat of extensive mussel colonies. 'There are very few animal bones, stone or bone tools, no features such as stone emplacements or hearth pits and the shellfish component is usually about 85% black mussel (*Choromytilus meridionalis*).' Parkington (1991: 333–334) commented that it was 'difficult to imagine groups of people pursuing such a restricted life-style [as that indicated by the contents of the megamiddens] with no release for a thousand years or more'. He suggested, therefore, that sites consisting of extensive stone tool scatters in deflation hollows in the coastal plain should, with the megamiddens, be considered as 'parts of a single settlement system'. The sites cannot be directly dated, but their artefactual component was said to be 'similar in composition to dated assemblages older than 2 000 years'. Study of the rather limited inventories for 21 of these scatters, as well as the frequencies of the raw materials used for retouched artefacts (Manhire 1987, appendices 5, 6), suggests that they could be assigned to any part of the Wilton period, that is, to any time in the last 8 000 years or so

(cf. Deacon 1972, 1984; Deacon 1976; Schweitzer & Wilson 1982), not just to the period of the megamiddens. They could, in fact, equally well be assigned to the earlier period, 7800–3800 B.P., when Elands Bay Cave and Tortoise Cave were also unoccupied, and reflect subsistence activities in the coastal hinterland at a time when marine resources were not available, or caves at the coast not accessible.

Parkington (1991: 334) further suggested that the megamiddens were collecting points 'scheduled for spring tide days and thus reflect episodic and restricted visits by people focussed at least partly on the terrestrial resources of the coastal plain. Such episodes could have been of 3 or 4 days duration and may have been seasonally restricted or not'.

Plausible though this suggestion is, it must be pointed out that evidence is wanting for the exploitation of 'the terrestrial resources of the coastal plain'. As mentioned by Parkington, the megamiddens contain very few bones of terrestrial animals, and the absence of faunal remains from the artefact scatters provides no clue as to the exploitation of food resources of any kind at these sites. Moreover, that the megamiddens consist mostly of *C. meridionalis*, which is susceptible to toxification during a 'red tide', makes questionable Parkington's suggestion that the visits that resulted in their creation 'may have been seasonally restricted *or not*' (present author's emphasis). Branch & Branch (1981: 109, fig. 140B) said of 'red tides' that 'Although they come and go unpredictably, their frequent appearance on the west coast of southern Africa usually follows a pattern'. Their figure shows that 'red tides' are most prevalent in summer and least so in winter, but can occur at any time if conditions (upwelling and favourable wind conditions) are suitable.

Parkington (1991: 334) continued with the observation that 'the situation after about 1 700 years ago is markedly different; in such sites, potsherds and animal bones occur. Coastal sites between 300 and 1 700 years old in the western Cape may be in or out of rock shelters, are usually small, perhaps 10–100 m^3 in volume, have substantial quantities of both marine and terrestrial animal bones as well as artefacts and include bedding patches, hearths, post holes and pits. The variety of location, foodwaste composition and artefactual assemblages makes these sites better candidates as temporary domestic camps and certainly implies a radically different coastal settlement response than that of the previous millennium. Combined with the far smaller volume of actual midden, the later phase might reflect longer residential visits to the coast by fewer people. The correspondence between the appearance of domestic animal bones and pottery in sites and the distinct shift in settlement details at about 1 700 years ago has prompted us to see the appearance of pastoralists as the key factor in promoting the change'.

In contrast to Parkington's suggestion of longer stays at the coast during this period, Buchanan (1988: 95) concluded from his reconstruction of prehistoric diet for the period 1800–300 B.P. that the duration was 'about 10/11 days per visit if visited regularly once a year and a maximum duration to any annual visit of about one month'. Buchanan's reconstruction was extensively analysed by the present author (Wilson 1990, appendix). It was found that almost half (44,6%) of the energy (kilojoule) values from which Buchanan (1988, table 5.6) derived his total energy budget cannot be accounted for on the basis of the archaeological data he provided and are therefore merely speculative. The accuracy of Buchanan's calculations, which were based on extrapolations of estimates and means and the application of externally-derived data, was questioned. It was also shown that the

methods by which Buchanan computed the energy values for each of the components contributing to the total energy budget contain two or more detectable cumulative error factors, as well as other probable ones that were not detected (see also Noli 1986). The magnitude and direction (i.e. under- or overestimate) of the computation errors cannot be calculated on the basis of Buchanan's data, but serve to make questionable his total energy budget and thus any conclusions drawn from it. Also open to question is Buchanan's assumption that all the sites in an area were to be attributed to the same small group of people. In the case of the Elands Bay area, the deposits in Elands Bay Cave, Tortoise Cave and Spring Cave are contemporaneous, and it is difficult to accept that they would all have been occupied simultaneously by Buchanan's estimated average of 18 people (Buchanan 1988: 95).

The major weakness in Buchanan's reconstruction is that he divided the total energy budget equally among the members of a single hunter-gatherer band and for each of the 1 500 years covered by his reconstruction. Given that Buchanan (1988: 10) chose to 'focus on the period from 1800 to 300 B.P. characterised by the presence of pottery', i.e. by the presence of the Khoikhoi in the region, he did not take into consideration the almost certainly increasing effect that the herders must have had on the lives of the hunter-gatherers and their access to the resources of the coastal region, since this is where the Khoikhoi mostly established themselves. It must be conceded, however, that a meaningful method of allocating the resources on the basis of probably diminishing access to them would be extremely difficult to devise and substantiate.

Humphreys (1987: 34) questioned the utility of the seasonal mobility hypothesis and suggested that current models 'represent idealized abstractions that in all probability do not reflect what actually happened in the past'. He used statistics on rainfall from the northern Cape and Botswana to show that this is so variable that generalizations such as 'average rainfall' are meaningless in real-life terms, and that the availability of standing water can be crucial in determining hunter-gatherer exploitation strategies (Humphreys 1987: 35–36). Historical observations of hunter-gatherers in the northern Cape during the last century provided evidence that, even in this relatively arid environment, these people were more or less permanent residents in their territories (Humphreys 1987: 36–37). Humphreys (1987: 37) concluded that 'we might not be justified in assuming that seasonal mobility was a strategy adopted universally throughout southern Africa. If the latter proposition is true, we have a situation where we are looking for evidence that not only does not exist but which, even if it did, could probably not be isolated'. Parkington (1991: 332) commented that 'The seasonal mobility hypothesis should not be taken to apply to regions more than 100 km inland'.

The effects of changes in the weather, such as long droughts and recurrent drought cycles that could cause the abandonment of an area, possibly for decades, would normally not be detectable in the archaeological record. The effects of such episodes would have been countered by what Humphreys (1987: 36) termed 'adaptive processes (the *cumulative effects* of adaptive behaviour)'. However, Humphreys, who considered archaeological sites to be a reflection of these adaptive processes, doubted the ability of archaeologists 'to be able to isolate "average" adaptive behaviour within the broad expanse of adaptive processes'.

Although archaeologists refer to material in sites as being *in situ*, it has actually all been disturbed by the activities of the occupants of the site, both during and subsequent

to the occasion when the material was deposited. No matter how meticulously sites are excavated, current methods are not capable of demonstrating that parts of the deposit (e.g. layers) relate only to a specific season, for all that they may contain specific seasonal indicators. It is even to be doubted that if, for example, mussels were eaten only during the winter months and other shellfish during the summer, this would be detectable archaeologically. Concentrations of individual shellfish species are sometimes found in coastal deposits, but these relate to specific meals rather than to specific seasons.

Another factor in the seasonal mobility hypothesis that must be questioned is whether marine resources are an appropriate dietary replacement for plant foods. This is discussed in the following sections.

Isotopic analyses of human bone as indicators of prehistoric diet

A challenge to the seasonal mobility hypothesis was provided by Sealy (1986, 1989) and Sealy & Van der Merwe (1985, 1986*a*, 1987, 1988), who investigated prehistoric human diet by means of analyses of the ratios of stable isotopes of carbon (^{12}C and ^{13}C) found in human bone. They suggested that these ratios can be used to determine the proportion of marine versus terrestrial foods consumed by the individuals whose skeletal remains they studied. The results of their investigation led them to claim that some of the people whose remains they analysed had spent their whole lives at the coast.

The analytical processes and their rationale have been fully discussed by these authors and for the purposes of this study it is only necessary to state they considered that, in a biome with a C_3 flora, a more positive $\delta^{13}C$ value of around $-11‰$ in human bone collagen is taken to be indicative of a marine diet, whereas a more negative value of around $-21‰$ is taken to be indicative of a terrestrial diet. Sealy & Van der Merwe (1986*a*: 141) suggested that the percentages of marine versus terrestrial foods eaten could be calculated as

> 100% marine diet at $-16.5‰$ + diet-collagen spacing of $+5.1‰$ = bone collagen $\delta^{13}C$ value of $-11.4‰$
>
> 100% terrestrial diet at $-24‰$ + diet-collagen spacing of $+5.1‰$ = bone collagen $\delta^{13}C$ value of $-18.9‰$
>
> 50% marine, 50% terrestrial diet at $-20.2‰$ + diet-collagen spacing of $+5.1‰$ = bone collagen $\delta^{13}C$ value of $-15.1‰$.

Sealy's first paper (1986) dealt with 19 human skeletons for which radio-carbon dates had been obtained, 12 of which came from coastal contexts and seven from inland contexts. Those from the coast had $\delta^{13}C$ values ranging from $-11{,}2‰$ to $-17{,}4‰$, whereas the values for those from the interior ranged from $-16{,}0‰$ to $-19{,}0‰$ (Sealy 1986, tables 20, 21). This led to the conclusion that 'inland dwellers consumed very little marine-based food, whereas coastal dwellers ate considerable amounts' (Sealy 1986: 89). Sealy & Van der Merwe (1986*a*: 142), whose paper dealt with 14 of the same skeletons, concluded that 'the isotopic data clearly do not support the prevailing seasonal-mobility model .... Most of the indicators used to demonstrate summer occupation of the mountains and winter occupation of the coast are *positive* indicators. The case for both phenomena is fairly convincing but does not address the very difficult problem of showing that winter occupation of the mountains and summer occupation of the coast did *not* occur. This is the crux of the problem'.

This dietary interpretation was questioned by Parkington (1986) and marked the beginning of a debate largely restricted to the three (Parkington 1987*b*, 1991; Sealy & Van der Merwe 1986*b*, 1987, 1988, 1992). The current outcome of the debate is that, whereas the protagonists of each point of view have made minor modifications to their arguments, they remain committed to the correctness of their beliefs and unconvinced of that of the other side.

Sealy (1989, table 5) provided isotope values derived from human bone from 33 males and 29 females, as well as for eight juveniles and four individuals whose gender could not be determined. Where the males are concerned, five had values of $-12‰$ or more positive and four had values more negative than $-15{,}1‰$, the most negative value being $-16{,}6‰$. In the case of the females, three had values of $-12‰$ or more positive and eight had values more negative than $-15{,}1‰$, with the most negative value $-17{,}9‰$. In other words, 88 per cent of the males and 76 per cent of the females consumed more marine foods than terrestrial foods, and more males than females did so. This is hardly consistent with the general image of a *hunter*-gatherer society. The four males with the most negative values and six of the females were dated to 2010 ± 50 B.P. or younger, which allows for the possibility that some of them might have been Khoikhoi, but the indication of a fairly heavy reliance on marine foods is not consistent with what one would expect of a herder society, for all that Kasteelberg provided evidence of apparently extensive exploitation of shellfish and seals (see above, in the section on herder subsistence). The Kasteelberg sites yielded only a single juvenile burial, with an isotope value of $-15{,}9‰$ (Sealy 1989, table 5). A. B. Smith (1990 pers. comm.) said that these were the remains of a girl of about eight years.

Kinahan (1991, table 4.2) published details of the $\delta^{13}C$ values of six skeletons from the ≠Khîsa-//gubus herder site near Walvis Bay (see below, in the section on the ≠Aonin). Four were females, one a male and one was unidentified as to gender. The values for five of the six ranged from $-11{,}3‰$ to $-14{,}9‰$, indicating a greater reliance on marine foods than on terrestrial ones, although Kinahan (1991: 114) considered that these values indicated 'an emphasis on animals which feed on browsing, although evidently grazers were important'. The remaining skeleton, no. 5, a female with an estimated age at death of 40 years, yielded a value of $-7{,}4‰$, more than a third more positive than the value of $-11{,}4‰$ given above as indicating a 100 per cent marine diet. Kinahan, however, did not comment on this evident anomaly.

Sealy & Van der Merwe (1992: 462) stated that 'We have made it clear from the first that we do not believe $\delta^{13}C$ values can be interpreted in terms of the exact percentages of different foods eaten'. This contradicts their statement quoted above, in which they gave the values for fully terrestrial and marine diets and one for a half-terrestrial : half-marine diet. It also calls into question subsequent statements (Sealy & Van der Merwe 1986*b*: 148; 1987: 263; 1988: 93) that a $\delta^{13}C$ value of $-11‰$ (or, in their 1988 paper, $-12‰$) was indicative of a wholly (or largely) marine diet.

Sealy & Van der Merwe (1992: 462) also stated that 'no-one knows exactly how, or to what extent, carbon in different components of foods (proteins, fats and carbohydrates) is translated into bone tissue. This is likely to be a very complicated set of problems, requiring a major effort to solve'. In the circumstances, it is probably wiser to reserve judgement on the efficacy of the analytic process in the interpretation of prehistoric diet until the problems have been solved.

Francalacci (1989: 109) observed that 'Trace element analysis is a useful tool for reconstructing the dietary habits of ancient human populations, but its relative reliability and the various technical aspects of the method are still debated'. The method thus appears to be at much the same level of development as isotope analyses and to have the same potential as these for investigating prehistoric human diets; it could be used as a control against which to check the results of isotope analyses. Discussing the potential of the method, Francalacci mentioned that high levels of zinc found in human bones indicated that marine molluscs were an important food source to the people whose remains he studied. It would therefore seem to be of interest, and probably of value to researchers such as Sealy & Van der Merwe, if trace element analysis were integrated into their palaeodietary research as a complement to their isotope analyses.

The problem of proteins

That people lived exclusively, or more or less exclusively, on marine foods was questioned by Noli & Avery (1988) on physiological grounds (see also Parkington 1991: 336–338). Discussing the role of the major dietary components—carbohydrates, fats and proteins—they pointed out that, although there is no limit to the amount of carbohydrates and fats that can be consumed safely, this is not the case where proteins are concerned. Moreover, it was clear from the various case studies cited by Speth (1987) that 'consumption of lean meat alone led to symptoms of starvation and protein poisoning within a week, diarrhoea within 7–10 days, severe debilitation within 12 days and the possibility of death within weeks'. Thus, despite uncertainty about the maximum amount of protein that can be consumed with safety, 'it is clear that people cannot survive long on protein alone, and, furthermore, that there are severe limitations on the amount of protein-rich foods that can, in the short term, safely be consumed by humans'. They also considered that the amount of protein, about 400 g, estimated by Speth (1987) to be the daily maximum that could be consumed safely, to be 'an overestimation of the ability of humans to utilize protein as a major source of energy and [which] would not have been possible for long', due to the physiological and metabolic factors they mentioned (Noli & Avery 1988: 396–397).

Noli & Avery (1988: 399) mentioned further that Krueger & Sullivan (1984) had suggested 'that carbon isotopes do not reflect the total diet in humans, but only the protein component. This would mean that the use of plant foods would not register isotopically. If this is indeed so, it is not surprising that the majority of values for coastal people reflect a very strong marine diet'.

Pointing out that 'It would have been particularly dangerous on the coast to live on the flesh of shellfish, fish and marine mammals for longer than a few days without the inclusion of a carbohydrate- or fat-rich source of energy', Noli & Avery (1988: 399) concluded that 'in view of this, existing hypotheses and dietary reconstructions which assume that coastal hunter-gatherers were able to subsist entirely on protein-rich diets for protracted periods extending over months, need to be reassessed'.

Speth (1989: 330–331) cited a personal communication from G. F. Cahill jun. that the apparent upper limit of lean flesh mass that the body can safely handle 'is about 300 g or roughly 50 per cent of one's normal total daily caloric intake', although conceding that 'The precise nature and value of this limit, however, remain poorly documented and controversial'.

Perhaps the most important aspect of Speth's paper is the attention he drew to the need to offset the effects of potential protein poisoning by including, in particular, large amounts of fat in the diet. Proposing that about 300 g of protein, or 50 per cent of total per capita daily caloric intake under normal, non-stressful conditions is 'the approximate upper limit that can be consumed safely on a sustained basis', Speth (1989: 333–334) pointed out that 'The extent to which this threshold varies among foraging populations because of genetic factors, or is affected by the absolute amounts or relative proportions of fat and carbohydrate in the diet, remain[s] unknown' and that 'input from medical and nutritional specialists, as well as more detailed long-term studies of protein intakes among foragers in different ecological settings and under different dietary regimes are [*sic*] critically needed to clarify this issue'.

Speth (1989: 334) cited Stefansson (1944: 90; 1956: 31, 212–213), who had experimented with living on an all-protein diet and suffered ill-effects, but not when he lived on a diet of pemmican, as arguing that the ideal mixture for pemmican was 'about one pound of fat for every six or seven pounds of lean meat', which is a minimum of 12,5 per cent of fat in the total meat and fat mixture.

It must be borne in mind that marine fauna, whether molluscs, fish or mammals, do not consist entirely of protein, and that the human digestive system is capable of adapting to different diets. Little has been published on the biochemical constituents of southern African molluscs, particularly with regard to those species that are the most common components of shell middens: limpets *Patella* spp., mussels *Choromytilus meridionalis*, *Aulacomaya ater* and *Perna perna*, also perlemoen (abalone) *Haliotis midae*, and alikreukel or top-shell *Turbo sarmaticus*. Lombard (1977, table 11) gave information for *T. sarmaticus* showing that in the samples of this gastropod he analysed, the protein content was in the range 63,75–79,62 per cent (mean 71,07%), fat 3,90–6,15 per cent (mean 4,95%) and carbohydrate 2,88–17,68 per cent (mean 11,11%). Seasonal variation was observed, with protein values at their lowest in mid- to late summer (February–April), and at their highest in spring to early summer (September–November). Waselkov (1987, table 3.4) provided similar data for various shellfish species and in every case the protein content considerably exceeded the combined fat and carbohydrate content.

P. Zoutendyk of the Coastal Processes and Management Advice Department, Council for Industrial and Scientific Research, Stellenbosch (1990 pers. comm.) mentioned that, during gametogenesis, mollusc gonads produce relatively large amounts of lipids. The eating of sexually mature shellfish during this period would therefore help alleviate the debilitating effects of a high-protein intake. However, little research has been done in this regard and, as far as is known, none with regard to its application to human diet.

Whether the relatively low amounts of fat and carbohydrate indicated by Lombard and Waselkov would have been sufficient to mitigate the effects of a high intake of protein, especially over an extended period, is a matter for dieticians to determine; but a problem here is that a living population on which to test this might not have the same physiological ability to metabolize such foods as did the indigenous populations who may have lived in this way. It is arguable, however, that people who lived on a high-protein diet for part of the year and a high-carbohydrate diet, or even a 'balanced' one, for the rest of the year would probably have had problems in making the necessary physiological adjustment from season to season, unless the transition was gradual.

In 1654 it was recorded that 'Herry's allies', presumably the Goringhaiqua, 'were busy melting oil from the blubber of the dead whale, (which they preserved in the dried *trombas* [the giant kelp *Ecklonia maxima*] . . .) with which they explained that they grease themselves, and if they get bread from us, dip it in and thus eat' (Moodie *ed.* 1960: 46). Dapper (1668 *in* Schapera *ed.* 1933: 57) commented that 'The Saldanhars or Cochoquas and other neighbouring Hottentots live in the dry summer on their cattle, but in the winter on certain roots growing in the ground in the rainy season'. None the less, there is evidence that fats and carbohydrates were part of the diet of the Khoisan, and it is unlikely that the faunal remains from archaeological sites represent only the protein intake of the people responsible for the deposits or, for that matter, their whole diet.

DISCUSSION

Goodwin (1946: 5) reported that he had 'watched a man collect, cook and devour a petrol-tin full of shell-fish'. On that basis, he calculated that in a year six people would accumulate over 50 m^3 of uncompressed shell or 5 m^3 of compressed shell; he concluded that 'It is clear that a considerable bulk of fish shell [*sic*] does accumulate'. If Goodwin's calculations are anywhere near accurate, they provide good support for the suggestion that people did not eat shellfish throughout the year—at least, not in those quantities. Were they to have done so, it is likely that the middens that have accumulated during the past 2 000 years or so since the sea reached its present level would be considerably bigger than they are, and coastal caves, which generally have a longer history of occupation, would have been filled rapidly. This does not, of course, mean that Goodwin's suggestion can be used to support the seasonal mobility hypothesis, especially since there is no accurate information regarding the size of the groups who lived in the coastal region during the course of its human occupation, or of the size of their territories.

The extensive Holocene shell midden deposits in Die Kelders cave were accumulated during a relatively short period of about 500 years (Schweitzer 1979, table 1). There are at least three ways in which this could have happened:

1. they are the result of year-round occupation of the site by a small group;
2. they accumulated as a result of shorter, perhaps seasonal, visits by a larger group than the hypothetical permanent occupants;
3. they were deposited by groups, possibly of the same size as those in (2), who made short but frequent visits, e.g. for a few days once or twice a month during the period around spring tide, when the shellfish would have been most accessible at low tide.

Schweitzer (1979: 206) mentioned that dune molerats *Bathyergus suillus*, the most common mammal in the Die Kelders faunal assemblage, are most active during July (winter). Although this could lead to the suggestion that the site was occupied during the winter, it does not prove that this was the only time the site was occupied; there is no other evidence to support or refute any of the three possibilities outlined above. In contrast, in the nearby site of Byneskranskop 1, it took some 12 000 years for about 3 m of deposit to accumulate. Even allowing that this site is not a shell midden, the slow rate of accumulation makes it improbable that the site was occupied more than sporadically, perhaps only as a way-station en route from the coast to elsewhere, as indicated by the presence of marine fauna. It may also have been occupied by people travelling in the opposite direction, but the deposits contain nothing specific to support this. The

information from Elands Bay Cave, mentioned above, provides evidence of long-term changes in exploitation of the resources of the area but, as also mentioned above, Sealy & Van der Merwe (1986*a*: 142) pointed out that this does not provide evidence of non-occupation of the site outside the winter months.

It is evident that, whether or not isotopic studies such as those of Sealy & Van der Merwe do accurately reflect the type of protein, marine or terrestrial, or combinations of both, attempts at reconstructing the diets of the indigenous peoples must give consideration to the probability that fats and carbohydrates played an essential part in their diet. The fact that many coastal deposits, whether in caves or in the open, contain a sometimes considerable terrestrial component cannot be ignored; and if isotope values for dated skeletons do not accord with the evidence from similarly-dated archaeological deposits, then the isotopic interpretation needs to be re-evaluated. However, it must be borne in mind that there is not a one-to-one correlation between the dietary component of archaeological debris and the diet of a similarly-dated skeleton, which can only be *inferred.* This problem is accentuated by the probability that, whether or not people lived at the coast temporarily or permanently, they did not always occupy, or return to, a single site, so that their total diet cannot be determined accurately.

Schwarcz (1991: 273) commented that 'For maximum effectiveness, any isotopic paleodiet study should be preceded by an archaeological, archaeo-botanical and -zoological study to define the list of foods that were *actually* consumed' (present author's emphasis). Although there is generally little problem in compiling a list of the fauna found in archaeological sites, the opposite is true where the flora are concerned, particularly in the coastal region. Although the scarcity or even absence of plant remains in deposits in the coastal region has been taken as supporting the seasonal mobility hypothesis, it is likely that the contribution of plant foods will always be underestimated because of preservation factors, a matter that is touched on in the following section. A further problem is to determine, from the total of *potential* dietary components in an area, what was *actually* consumed. As a somewhat extreme, but none the less pertinent, example, Noli (1986: 38) queried the contribution of a hippopotamus to the diet of the people responsible for the Hailstone Midden at Elands Bay, when this animal was represented by a single sesamoid. The isotopic studies show, at best, a ratio of marine to terrestrial proteins: they do not provide information about seasonality except in so far as they appear to show that, at certain periods, people may have spent more time at the coast than the seasonal mobility model suggests.

It is open to question as to whether either the Khoikhoi or the San actually *needed* to supplement their diets with marine foods: choice, rather than need, is more likely to have been the determinant, given the archaeological evidence that there seems always to have been an adequate supply of terrestrial animals of one kind or another. In the terminal Pleistocene and early Holocene, the transition from extensive grasslands to more closed, shrubby or forest vegetation seems to have reduced the availability of gregarious bovids and equids in the coastal region (Klein 1980). This may have resulted in a greater dependence on marine foods after about 8000 B.P., as indicated by the evidence from Byneskranskop 1, although at Nelson Bay Cave there was apparently quite a considerable input from this source some 3 000 years earlier. It was mentioned above that Inskeep (1987) considered Nelson Bay Cave to have been suitable for year-round occupation from about 10000 B.P., that Byneskranskop 1 was possibly only a transit

camp, and that Elands Bay Cave was abandoned for at least two periods during the Holocene. Observations of this kind need to be integrated into wider regional studies, with good information on site occupation (dating) and use, including the resources exploited. Consideration also needs to be given to the likelihood that changes in resource exploitation were culturally, rather than environmentally, determined.

If problems and lacks, such as those mentioned by Speth (1989), exist with regard to extant populations, extrapolation of such data as are available and may be obtained in the future, and their application to the extinct populations studied by archaeologists, can produce results that, at best, will be only conjectural. Isotopic studies such as those undertaken by Sealy (1986, 1989) and Sealy & Van der Merwe (1985, 1986*a*, 1986*b*, 1987, 1988, 1992) and discussed above, offer a provocative challenge to conventional archaeological interpretation; however, Speth's comment that 'input ... [is] critically needed to clarify this issue' (Speth 1989: 334) needs to be reiterated.

ARCHAEOBOTANY—PLANT REMAINS FROM COASTAL SITES

Plant foods are an obvious dietary resource to mitigate the effects of a high intake of protein, and there is abundant ethnobotanical evidence for the use of plant foods, both endemic and exotic, by the indigenous peoples of southern Africa (e.g. Watt & Breyer-Brandwijk 1962; Smith 1966; Archer 1982; Fox & Norwood Young 1982). There is also a fair amount of archaeological evidence in this regard, but most of it comes from sites in the interior (e.g. Parkington & Poggenpoel 1971; Deacon 1976; Mazel 1992*a*). Very little evidence has come from sites at the coast or in the coastal region and, as mentioned in the preceding section, this has provided one of the major arguments in support of the seasonal mobility hypothesis.

Excavations by W. J. J. van Rijssen in a shelter in the Great Brak River valley, some 4 km from the coast, yielded considerable quantities of plant remains, mostly of species of Iridaceae, but also including seeds, those of the yellowwood *Podocarpus* sp. among them (personal observation; Van Rijssen in prep.). In contrast to Byneskranskop 1 and, apparently, Oakhurst, both of which are further from the coast than the Great Brak River shelter, this site yielded relatively little marine shell.

Liengme (1987, table 5) listed 25 plant species found in the deposits in Elands Bay Cave. Of these, 11 are edible, or could be, depending on their species, which was generally not given. Information as to the stratigraphic location of these residues was also not given, but they are presumed to date from after the second hiatus, or after about 3800 B.P. (Parkington 1987*a*: 7).

The only plant remains recorded from the deposits in Die Kelders cave were small patches of the estuarine eel-grass *Zostera capensis* (Schweitzer 1979: 206) which is not known to be edible. The quantities were too small for it to have been used as bedding and the reason for its presence is unknown. However, in the course of the new excavations carried out in the cave during 1992 by G. Avery, quantities of seeds were recovered, at least one kind being of an edible species (personal observation). Further information will become available when the samples have been analysed.

Plant remains were recovered from throughout the deposit at Byneskranskop 1, except the basal layer (Schweitzer & Wilson 1982, table 23). These include five, and possibly more, edible species. However, although the bulk of the sample from this site

was not analysed, the total amount recovered was small relative to the amount of faunal material (personal observation). Thus, though preservation factors should not be overlooked, it seems that plant foods, or those with preservable residues, were not an important factor in the diets of the occupants while they were in the cave.

Inskeep (1987: 210–212, table 55) recorded the presence of only four edible or possibly edible plant species in the Holocene upper levels of Nelson Bay Cave. The seeds represent only a proportion of the 114 that were recovered, and only 18 *Watsonia* sp. corm bases were found. The Nelson Bay Cave evidence also suggests that there was not a great reliance on plant foods, although in all the cases cited preservation factors should not be overlooked. Inskeep's table 15 gave the seasonal availability of these plants, which covers all the months of the year according to species. As mentioned previously, Inskeep (1987: 293) considered that Nelson Bay Cave was suitable for year-round occupation from at least 10000 B.P.

The most common plant remains in Inskeep's excavation were those of *Jatropha capensis* (Inskeep 1987, appendix 46). The part present was not specified, but the number, 54 in two adjacent squares of Unit 131, with four more in other units, suggests that these were seeds. Watt & Breyer-Brandwijk (1962: 420–422) reported that the sap of *J. capensis* (Euphorbiaceae) contains hydrocyanic (prussic) acid and has been used as an internal remedy for tuberculosis and other respiratory ailments, also for the treatment of ringworm. However, the seeds of other *Jatropha* species, also poisonous if eaten raw or in quantity, after being lightly roasted and the pericarp removed, have been used as purgatives.

DISCUSSION

The sparse botanical evidence from these sites does little to counter the seasonal mobility hypothesis or to refute the claim that coastal peoples had a more or less exclusively marine diet. It is certainly not true to say that, from the archaeological literature, 'It is ... clear that terrestrial hunter-gatherer diets included large amounts of plant foods, with meat providing a supplement rather than a regular staple' (Sealy *et al.* 1987: 2 715). Protein-rich foods, whether of terrestrial or marine origin, are not an appropriate dietary substitute for the vitamins, carbohydrates and fibre obtainable from plant foods. More research needs to be carried out with regard to the range and seasonal availability of the numerous edible plant species within the coastal region, including those that leave no residues. The problem here is that, no matter what might be *assumed* to have been eaten, or for which there is ethnographic evidence, unless the remains of such plants are found in archaeological deposits, the case for such use cannot be convincingly argued. Of 40 species of plants eaten by the modern inhabitants of the Kamiesberg region in the north-western Cape interior (Archer 1982), only about 10 would leave detectable residues, or might do if preservation was good. Similarly, the remains of only about half of the two dozen plants recorded during Simon van der Stel's expedition to Namaqualand in 1685–1686, as being used by the Khoikhoi for food or medicinal purposes (Waterhouse 1932; De Wet & Pheiffer *eds* 1979), would be likely to be preserved.

Grevenbroek (1695 *in* Schapera *ed.* 1933: 188) observed that it was the men's duty to prepare the winter's supply of food, 'to wit wild almonds [*Brabejum stellatifolium*] ... roots of the larger arum [*Zantedeschia aethiopica*] ... and various bulbs. [They], in their spare time, and as a hobby, expose these nuts and roots to the

sun, and roast them with a little fire, and when they have thus become fit to stand the passage of time they bestow them in ditches and caves, as if in a storehouse' (present author's interpolations).

There is no evidence for the use of storage pits anywhere in the southern to western Cape coastal region, other than those found during Van Rijssen's excavations in the shelter in the Great Brak River valley (Van Rijssen in prep.; personal observation). It seems, though, that it would require more than a spare-time occupation or 'hobby' to collect, prepare and store a quantity of these foodstuffs sufficient to last even a small, extended-family group for the four or five months of the Cape winter and until the new crop could be harvested.

There is also the problem of how many plant species are capable of being stored. The fruit of the so-called sour fig *Carpobrotus edulis* (actually one of the Mesembryanthemaceae) can be dried, and it is probable that the corms of the Iridaceae and the rhizomes of *Zantedeschia aethiopica* could be stored, as suggested by Grevenbroek's observation, but information is not available as to their palatability in such a condition, or their durability. Several of the pits in the Great Brak River valley shelter appear to have been lined with the outer casing of *Boophane disticha* bulbs (or another large species of the Amaryllidaceae) and contained bundles of the leaves of Iridaceae as well as corm scales and bases. Most of the trees and shrubs whose seeds were found in the sites mentioned bear fruit in the spring or summer, but it is doubtful that their berries could be stored for any length of time.

A major problem that also needs investigation is the agent(s) of introduction, which could be animals, birds, the wind, as well as humans.

Archaeobotany is another field in which much work still needs to be done. In this regard, techniques for the recovery of microbotanical remains need to be applied more consistently than is the case at present. Research in this field should also include the study of plants that were recorded as having other than dietary uses, such as for medicinal purposes or the manufacture of clothing and equipment.

ETHNOGRAPHY—THE ≠AONIN

In the context of the debate on whether people did, or could, live more or less exclusively on marine foods, it is pertinent to provide information on recent coastal-dwelling people in southern Africa. Budack (1977) studied the ≠Aonin or 'Topnaar', a small Nama Khoikhoi tribe living in Namibia in the vicinity of Walvis Bay. Among them also lived a few Dama, people originally of Negro stock who have integrated with the tribe physically as well as socially (Budack 1977: 2).

Sydow (1973) published a useful and interesting synthesis of the history of these people, from what was apparently the first contact by Dutch from the Cape in 1670 (see Moodie *ed.* 1960: 307–308; also 362–363 for a visit in 1678) until the nineteenth century.

Nienaber (1989: 135–156) consulted a wider range of sources than did Sydow and drew attention to the wide range of interpretations that have been made of ≠*ao*, 'top'. He concluded that, whatever the claims made regarding the former prosperity of the ≠Aonin, by the time they were specifically identified, in the early nineteenth century, they were an impoverished and socially degraded people who had acquired their nickname from their habit of fleeing to the mountaintops to escape their enemies, who robbed them of their goats and cattle.

The ≠Aonin formerly consisted of two sections, the !Khuisenin, '!Khuiseb people', who lived further inland along the !Khuiseb River and came to the coast only seasonally, and the Hurìnin, 'sea people', who lived near the coast (Budack 1977: 12). The !Khuisenin had large and small livestock and when they came to the coast did not fish, but concentrated on harvesting the *!nara* melons *Acanthosicyos horridus* (Cucurbitaceae) that grow wild among the dunes. The flesh of these can be eaten while fresh (November–April) and the seeds dried and stored for later use. The Hurìnin had no livestock and harvested not only the *!nara* but also the produce of the sea (Budack 1977: 7, 13–14).

The Hurìnin fished by means of traps made of baskets or weirs woven of rushes, by spearing, or by catching with the bare hands. The flesh of stranded whales and dolphins was also much appreciated, as were fish washed up after being killed by 'red tide'. Budack (1977: 37) reported that none of his ≠Aonin informants had ever observed or heard of any cases of poisoning such as can result from a toxic 'red tide', and a study of 21 dinoflagellates from the area revealed none that appeared to be toxic. (Kinahan (1991: 112) mentioned that the floor of the Walvis Bay lagoon is periodically disturbed by eruptions of sulphuretted hydrogen, which cause mass mortalities of fish.) Seals were clubbed, turtles, sea-birds and flamingoes caught and their eggs also eaten, as were various species of shellfish, notably limpets *Patella* spp., brown mussels *Perna perna* and white mussels *Donax serra*. Only a few shellfish were eaten at the beach, the bulk being taken to the dwellings, which were inland: 'Settlements next to the beach were unknown' (Budack 1977: 14–36).

DISCUSSION

The evidence is that the Hurìnin, the ≠Aonin who lived near the coast, had an economy that was largely marine-based but also included an important terrestrial component, the *!nara*, which provided a year-round supply of vegetable food. Watt & Breyer-Brandwijk (1962: 345) reported that *Acanthosicyos horridus* is rich in protein, the 'cake' yielding 61,3 per cent, whereas the seeds yielded 44,28–46,30 per cent of a light oil. Dentlinger (1977, unnumbered and unpaginated table) provided the following information:

	Protein	Fat	Carbohydrate
Flesh (fresh)	1,4%	1,9%	11,1%
Flesh (cake)	11,2%	15,4%	2,3%
Seeds	30,7%	57,0%	34,0%

the cake being the boiled and sun-dried flesh, from which much of the fat was allowed to drain (Dentlinger 1977: 28). Fox & Norwood Young (1982: 165) stated that the seeds, which were dried and used for winter consumption, tend to become rancid after a time. However, the cake, rolled or cut into strips, lasts for years.

Kinahan (1991: 98) cited information from A. S. Wehmeyer (*in litt.*) that the fresh melon yields 265 kJ/100 g, which compares favourably with 231 kJ/100 g for *Donax serra*. The dried cake yields up to 1 342 kJ/100 g, whereas the seeds yield as much as 2 709 kJ/100 g. The *!nara* is thus a rich source of food energy.

There is a great difference in the protein content of the cake given by the two sources, which makes it difficult to evaluate the role of the *!nara* in the diet of the Hurìnin. If

Dentlinger (1977), rather than Watt & Breyer-Brandwijk (1962), provided the correct analysis, the amount of oil or fat may have been adequate to compensate for the ingestion of plant and animal protein. It may also be that the relatively high oil or fat content of the seeds moderated the effects of the protein ingested in the pulp and the marine foods. However, oil and fat derived from fish and marine mammals were also important items in the diet of the Hurìnin. Budack (1977: 20–21) reported that fish oil was extracted from the heads of 'salmon' (according to Kinahan (1991: 110), the salmon-like cob *Argyrosomus hololepidotus*) by boiling, but the mackerel *Scomber japonicus* was called *tana-tsũb* or 'headache', because it is very fat and it was believed that eating too much of it could cause a headache. Oil rendered from the blubber of whales 'was chiefly used for food', mixed with ground dried fish; the fat of seals was also eaten (Budack 1977: 26, 29).

In the light of the current debate regarding the effects of excessive protein intake, it is unfortunate that a more complete study of the diet of the Hurìnin was not undertaken. Appended to the information regarding the preparation and use of the sun-dried flesh of whales and dolphins is the comment that 'In earlier times it was also crushed in a mortar and mixed with vegetables' (Budack 1977: 26). Dentlinger (1977: 29–30), who studied the !Khuisenin of the interior, mentioned that these people ate maize meal and bread as well as, occasionally, other wild plant foods. This suggests that the *!nara* may not have been the only plant food eaten by the Hurìnin, but information in this regard was not provided.

Budack (1977: 2) mentioned that other Khoikhoi tribes still refer to the ≠Aonin as !Naranin, '*!nara* people', and commented: 'The term !Naranin has a slightly derogatory connotation. Other Khoe-khoen look down on the ≠Aonin, because the latter, like the Bushmen, are dependent on *veldkos* for a considerable part of the year.' This is a rather surprising, and perhaps somewhat recent, attitude since there is abundant evidence in the early records that the Khoikhoi also ate veldkos (wild plant foods) (e.g. Kolb 1738: 162, 204, 207, 209; Moodie *ed.* 1960: 396, 404, etc.; Raven-Hart 1967: 33, 100, 128–129, 180, etc.; Thunberg *in* Forbes *ed.* 1986 *passim*). However, Dentlinger (1977: 31) commented that 'Being dependent on nara implies being poor, and being poor implies having no cash to buy more desirable commodities . . . and dependence on nara has become an indication of low social status'.

Kinahan (1991: 87–122) studied the archaeology of the !Khuiseb delta and found that the archaeological evidence contradicted Budack's (1977) observation that pastoralists did not exploit marine resources. The site of ≠Khîsa-//gubus is in the dunefield within 8 km of Walvis Bay and was occupied after the middle of the eighteenth century (Kinahan 1991: 100, 103). It yielded the remains of a total of some 2 500 fish, predominantly the sea barbel *Galeichthys feliceps*, as well as those of whales, dolphins, seals, penguins and cormorants, whereas domestic stock was represented by minimum estimates of 28 sheep/goats and five cattle (Kinahan 1991: 110–112). Kinahan (1991: 117) considered that the site, with its important waterhole, was a post for trading with the Europeans, and cited the evidence of early visitors, who noted that domestic stock were absent from herder camps near the coast, so that they had to wait several days before the animals were brought from stockposts in the interior. As mentioned previously, Kinahan (1991: 107) considered that pots were used for cooking *!nara* flesh prior to making it into cakes.

The disparities between Kinahan's archaeological evidence and Budack's ethnographic observations are probably the result of chronological differences: Kinahan (1991:

122) commented that, by the early years of the present century, 'the nomads were no longer independent herdsmen, but dispossessed vagrants and squatters'.

Whatever the case, the Hurìnin appear to provide evidence that it is possible to survive on a high-protein and largely marine diet along with, apparently, a relatively high intake of animal and vegetable fats or oils, although a complete analysis of their total diet would be necessary to confirm this. It seems, though, that because the Hurìnin lived within reach of the coast, and had done so for some time, their bodies were adapted to the efficient metabolism of the foods they ate.

SUMMARY AND CONCLUSIONS

The aim of this study was to examine the evidence relating to the 'Strandloper concept': that there were people who lived on the southern African coastline by beachcombing and who were of a different race from those also recorded as having lived there. The information provided by the early travellers and settlers was dealt with first because it antedated the development of anthropology in the subcontinent and thus set the scene for subsequent physical anthropological and archaeological interpretations.

The first indigenous inhabitants seen by the voyagers from Europe, at Mossel Bay in 1488, were undoubtedly herders, but the identity of the second group, seen at St Helena Bay in 1497, is not clear. On the basis of the information provided, some of which was evidently added later, they appear to have been hunter-gatherers—there was no evidence of domesticated animals; however, the men were away from their home base, so that the absence of livestock cannot be accorded undue significance. That they wore copper beads in their ears is made more problematic in the light of the apparent lack of possession of metal by the herders in the western coastal region until they started bartering their livestock for it with the European voyagers. Later, it was found by the European settlers that the territory of the Little Namaqua, to the north of most points of early contact, was evidently the source of all the indigenous copper, which appears to have been restricted to them. The men of St Helena Bay may thus have been Namaqua who left their beasts at their kraal, or they may have been hunter-gatherers who had by some means acquired copper ornaments from the Little Namaqua. The limited dietary evidence is that the people met at St Helena Bay subsisted on both terrestrial and marine resources.

For more than a century after Da Gama's visit to St Helena Bay, the descriptions of the indigenous people of the coastal region were exclusively of people who can be identified as herders. From early in the seventeenth century, however, the presence was recorded in the Table Bay area of a small group of people who had no domestic animals of their own and were said to subsist on what they could find along the shore, together with the roots of certain plants. These were the people who became known to the first European settlers as 'Strandlopers', 'Watermen' and 'Vismans' and whose Khoikhoi name was Goringhaicona. It is not clear whether these people were outcasts from Khoikhoi tribes or whether they were former hunter-gatherers who had established some sort of clientary relationship with the Goringhaiqua, who occupied the Cape Peninsula, or a mixture of both, but their name, meaning 'children of the Goringhaiqua', clearly implies subordinate status. It was pointed out that the observations on the Strandlopers before 1652 were only partial, being based on what was seen when ships called at Table Bay. It was suggested that the way of life of this group may have been a response to the

perceived advantages of being the first to make contact with the voyagers and by acting as intermediaries in the bartering process, both then and after the establishment of the white settlement. Their way of life, as described, was typical of neither hunter-gatherers nor herders, and the later documentary information is that they were either absorbed into the service of the settlers or moved away from the area. Certainly, by the early eighteenth century, when the Khoikhoi way of life was shattered by the plagues that affected them and their livestock, the Strandlopers had ceased to exist as a visible entity. The only other records of Strandlopers, at Saldanha Bay and east of the Peninsula during the latter part of the seventeenth century, are sparse and inconclusive except in so far as these men were mostly recorded as not having possessed domestic animals, although on occasion there were herders in the area. Information on the diet of these people was not provided.

The observations of Gordon and Paterson (see page 313–315) in the north-western Cape coastal region during the late eighteenth century, although also only partial, were of hunter-gatherers living there who subsisted on marine and terrestrial foods, but it is not clear whether they were permanently or only seasonally resident at the coast. The evidence is, however, that they were not restricted to the mouth of the Orange River, but moved along the coast as well as some distance into the interior.

It was suggested that the 'Strandloper concept' was probably revived in the nineteenth century by the publication of the first part of Moodie's *The Record* (1960), at a time when people were beginning to interest themselves in the anthropology and prehistory of the Cape. It was almost certainly from this source that the name 'Strandloper' found its way into the registers of the South African Museum, whence it was adopted by Shrubsall (1907, 1911) in his studies of South African crania, and by Péringuey (1911) in the earliest local study of the South African Stone Age.

It was shown that, statistically at least, there is virtually no difference between the male 'Strandloper' and 'Bushman' crania that Shrubsall used in his study, an observation supported by his own statistics. Because all the 'Strandloper' crania came from coastal contexts, it is presumed that this was Shrubsall's reason for assigning them to this category, but there is a lack of information regarding the provenance of the 'Bushman' and 'Hottentot' crania. These may well have been assigned to their categories on the basis of previous metrical studies, perhaps of living populations, rather than on the basis of their having been those of individuals who had been known in their lifetimes. Shrubsall's summary statistics indicate that the range of the individual measurements for each group overlaps that of each of the other two groups and, if nothing else, provide support for Schultze's (1928) conclusion that the 'Hottentots' and 'Bushmen' form a biological group that is distinct from all the other peoples of Africa but cannot be separated into individual sub-groups. It was also shown that, on the basis of Keen's criteria for the identification of 'Hottentot' and 'Bushman' skulls using their 'typical' cranial indices, the 'Strandloper' males in Shrubsall's sample could be classified as 'Hottentot', 'Bushman' and, mostly, 'Bush-Hottentot' hybrids, whereas the females were 'Bushman' or also mostly hybrids. These early craniological studies do not support the suggestion that the Strandlopers were a race distinct from the Khoisan.

Information on cultural aspects of coastal populations, as indicated by artefact assemblages from archaeological sites, was surveyed. It is considered that there is still too little knowledge of the nature and causes of the variability, both spatial and temporal, that can be observed in these assemblages for a valid distinction to be made between

hunter-gatherer and herder sites. It was suggested that more work needs to be done, particularly with regard to the assemblages of the 'post-Wilton' of about the last 3 500 years, which appear to resemble those of the pre-Wilton Albany industry. There is no evidence to support the existence of a population in the western coastal region that was technologically distinct from any other contemporary population in the region, even after the advent of pastoralism some 2 000 years ago. Information on the technology of the pastoralists, other than their pottery, is for the most part not yet available and must await publication of that from the Kasteelberg sites and others that may yet be discovered. The present evidence, however, is that the pastoralist tool-kit lacked the wide range of formally retouched stone tools that characterize the Wilton industry, and which started to diminish well before the herders arrived in the coastal region.

Since the major basis for the identification of the Strandlopers in the early records, other than their not possessing domestic stock, was their supposedly miserable subsistence mode, it was appropriate to consider the archaeological evidence for subsistence. The overview showed that, almost without exception, sites in the coastal region that contain food debris, whether these are in caves or in the open, reveal that terrestrial foods were eaten as well as marine ones. The evidence for this dates from the Upper Pleistocene, but is sparse until the late Pleistocene, and is best in the Holocene. All sites in the coastal region that date to before 2000 B.P. are to be assigned to hunter-gatherers, but after that date there is evidence, in the western part, for the presence of herders and, in the eastern part, for farmers. The evidence for herder subsistence is at present restricted to the Kasteelberg sites, full information from which is still to be published. Where the Iron Age farmers are concerned, the scanty evidence for the Early Iron Age suggests that these people were agriculturalists who obtained their animal protein from shellfish and fish as well as from terrestrial mammals; but, in the Late Iron Age, pastoralism was added to their subsistence base and possibly became their main source of animal protein.

Attempts at dietary reconstruction, or even at assessing the proportionate contribution of marine and terrestrial foods, are hampered by the practice of retaining all bone but, in most cases, of only sampling marine shell, so that this important component is under-represented and the contribution of shellfish to the diet under-estimated. The isotopic analyses of human bone by Sealy (1986, 1989) and Sealy & Van der Merwe (1985, 1986*a*, 1986*b*, 1987, 1988, 1992) appear to provide evidence that the people on whose skeletons the analyses were carried out had diets that included marine foods in varying amounts, and that this dietary component was more common in the period 3000–2000 B.P. than in the preceding or succeeding periods. What is in question, however, is the accuracy of the method, and whether it is capable of showing the contribution of other dietary components besides protein. That people could live more or less exclusively on a high-protein diet derived from marine foods was questioned on the basis of evidence that excessive ingestion of protein can cause illness and even death within a short period.

It was suggested that the isotope analyses do not effectively overturn the seasonal mobility hypothesis, which is itself in need of re-evaluation, since the evidence for this is based on positive seasonal identifiers and does not take into account the contemporaneous presence of non-seasonal components. That the isotope analyses appear to show that some people at some times had a higher intake of marine foods

than other people at other times is, in some cases, a reflection of the evidence provided by the archaeological fauna. The isotopic data show, too, what the archaeological fauna also shows: that people, in general, did not live solely by 'strandloping', but rather that they exploited the resources of the coastal region, both terrestrial and marine. In this regard, future re-evaluation of the seasonal mobility hypothesis should allow for the testing of the hypothesis that territories differed according to the environment of the area and the resources it provided. The model of movement between the coast and the mountains is too simplistic and should encompass more complex and variable patterns of movement, both in time and space. Because of the general homogeneity of artefact types in the coastal region, there is little cause for optimism that archaeologists will be able to define with any reasonable certainty the territories of individual groups. If this is indeed the case, they will also not be able to reconstruct prehistoric diet to the extent that could be desired—certainly not to that attempted by Buchanan (1988).

Plant foods are an appropriate dietary resource to mitigate the effects of a high animal protein intake, but the archaeological evidence for the use of these is sparse, leaving their contribution to prehistoric diet to be inferred rather than demonstrated. Modern ethnographic evidence, in the form of Budack's (1977) study of the Hurìnin of Namibia, is that this group was accustomed to living on a diet that consisted almost entirely of a variety of marine resources, together with a single plant food species, the *!nara* melon. Although Budack did not carry out a comprehensive analysis of the contribution of the various dietary components, his information provides evidence that people can subsist on a largely marine diet as long as there is also input from plant foods, and it is probable that this was also the case in the past.

To conclude, the evidence of both the early records and archaeology is that the diet of people in the coastal region—hunter-gatherers, herders and farmers—included terrestrial as well as marine foods, so that their subsistence mode cannot be described as 'strandloping': the eking out of their existence by beachcombing. That this *appeared* to be the way of life of the Goringhaicona, the 'Strandlopers' of the seventeenth century, is a mistaken view based on partial evidence and coloured by the cultural prejudices of the observers. What the archaeological evidence does show is that the coastal region was occupied by people who had an intimate knowledge of the resources of the coastal region, and that they exploited these resources in ways best suited to their needs.

There is also no evidence to support suggestions that there were people in the western half of the coastal region who were biologically or culturally different from the Khoisan, making due allowance for the fact that there may be evidence for spatial and temporal biological variation and that aspects of the culture of the Khoikhoi herders differed from that of the San hunter-gatherers, and that the 'culture' of the Goringhaicona was typical of neither group. There is no evidence for the presence of the Khoikhoi in the eastern part of the coastal region, which was occupied initially by hunter-gatherers and later by Nguni farmers, who differed from the Khoisan both biologically and culturally.

There is, therefore, no justification for the general use of the name 'Str ndloper', which incorrectly reflects the various ways of life of the peoples of the coastal region. Use of the name as an informal sobriquet for the Goringhaicona should be accompanied by explanation that they were not mere beachcombers, but people who had adapted their

life-style to accommodate their interaction with the European voyagers and settlers and the Khoikhoi herders.

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REFERENCES

ARCHER, F. M. 1982. 'n Voorstudie in verband met die eetbare plante van die Kamiesberge. *Journal of South African Botany* **48** (4): 433–449.

AVERY, D. M. 1982. Micromammals as palaeoenvironmental indicators and an interpretation of the late Quaternary in the southern Cape Province, South Africa. *Annals of the South African Museum* **85** (2): 183–374.

AVERY, G. 1974. Open station shell midden sites and associated features from the Pearly Beach area, south-western Cape. *South African Archaeological Bulletin* **29**: 104–114.

AVERY, G. 1975. Discussion on the age and use of tidal fish-traps (visvywers). *South African Archaeological Bulletin* **30**: 105–113.
AVERY, G. 1976. A systematic investigation of open station shell midden sites along the southwestern Cape coast. Unpublished M.A. thesis, University of Cape Town.
AVERY, G. 1988. Some features distinguishing various types of occurrence at Elandsfontein, Cape Province, South Africa. *Palaeoecology of Africa and the surrounding islands* **19**: 213–219.
AVERY, G. 1990. Avian fauna, palaeoenvironments and palaeoecology in the late Quaternary of the western and southern Cape, South Africa. Ph.D. thesis, University of Cape Town.
BARROW, J. 1806. *Travels into the interior of southern Africa* **1**. London: T. Cadell & W. Davies.
BIGALKE, E. H. 1973. The exploitation of shellfish by coastal tribesmen of the Transkei. *Annals of the Cape Provincial Museums (Natural History)* **9** (9): 159–175.
BOSMAN, D. B. & THOM, H. B. *eds*. 1957. *Daghregister gehouden by den Oppercoopman Jan Anthonisz. van Riebeeck. III. 1659–1662*. Amsterdam and Cape Town: Balkema for the Van Riebeeck Society.
BRADLOW, E. & BRADLOW, F. *eds*. 1979. *William Somerville's narrative of his journeys to the eastern Cape frontier and to Lattakoe 1799–1802*. Cape Town: Van Riebeeck Society. (The Van Riebeeck Society Publications (ser. 2) **10**.)
BRANCH, G. & BRANCH, M. 1981. *The living shores of southern Africa*. Cape Town: C. Struik.
BRINK, J. S. & DEACON, H. J. 1982. A study of a Last Interglacial shell midden and bone accumulation at Herolds Bay, Cape Province, South Africa. *Palaeoecology of Africa and the surrounding islands* **15**: 31–40.
BUCHANAN, W. F. 1988. Shellfish in prehistoric diet. *BAR International Series* **455**: 1–257.
BUDACK, K. F. R. 1977. The ≠Aonin or Topnaar of the lower !Khuiseb Valley and the sea. *Khoisan Linguistic Studies* **3**: 1–42.
BURCHELL, W. J. 1967. *Travels in the interior of southern Africa* **1**. Cape Town: C. Struik (facsimile reprint).
BUTZER, K. W. 1973. Re-evaluation of the geology of the Elandsfontein (Hopefield) site, south-western Cape, South Africa. *South African Journal of Science* **69**: 234–238.
CABLE, C. 1984. Economy and technology in the Late Stone Age of southern Natal. *BAR International Series* **201**: 1–267.
CHUBB, E. C., BURNHAM KING, G. & MOGG, A. O. D. 1934. A new variation of Smithfield Culture from a cave on the Pondoland coast. *Transactions of the Royal Society of South Africa* **22** (4): 245–268.
COATES PALGRAVE, K. 1977. *Trees of southern Africa*. Cape Town and Johannesburg: C. Struik.
COCKROFT, M. J., WILKINSON, M. J. & TYSON, P. D. 1987. The application of a present-day climatic model to the late Quaternary in southern Africa. *Climatic change* **10**: 161–181.
CRONIN, M. 1982. Radiocarbon dates for the Early Iron Age in Transkei. *South African Journal of Science* **78**: 38–39.
DART, R. A. 1937. The physical characteristics of the /?auni-≠khomani Bushmen. *Bantu Studies* **11** (3): 175–246; Appendix: A–W.
DAVIES, O. & MACDONALD, J. 1978. Excavation of a shell-midden at Umhlanga Rocks, Natal. *Annals of the Natal Museum* **23** (2): 461–464.
DEACON, H. J. 1970. Two shell midden occurrences in the Tsitsikama National Park, Cape Province: a contribution to the study of the ecology of the Strandlopers. *Koedoe* **13**: 39–49.
DEACON, H. J. 1976. Where hunters gathered. *South African Archaeological Society Monograph Series* **1**: 1–232.
DEACON, H. J., DEACON, J., BROOKER, M. & WILSON, M. L. 1978. The evidence for herding at Boomplaas Cave in the southern Cape, South Africa. *South African Archaeological Bulletin* **33**: 39–65.
DEACON, J. 1972. Wilton: an assessment after fifty years. *South African Archaeological Bulletin* **27**: 10–48.
DEACON, J. 1979. Guide to archaeological sites in the southern Cape. Occasional publication of the Department of Archaeology, University of Stellenbosch. (Duplicated.)
DEACON, J. 1984. The Later Stone Age of southernmost Africa. *BAR International Series* **213**: 1–439.
DENTLINGER, U. 1977. The !Nara plant in the Topnaar Hottentot culture of Namibia: ethnobotanical clues to an 8,000-year-old tradition. *Munger Africana Library Notes* **38**: 1–39.
DE VILLIERS, H. & WILSON, M. L. 1982. Human burials from Byneskranskop, Bredasdorp District, Cape Province, South Africa. *Annals of the South African Museum* **88** (2): 205–248.
DE WET, G. C. & PHEIFFER, R. H. *eds*. 1979. *Simon van der Stel's journey to Namaqualand in 1695*. Cape Town and Pretoria: Human and Rousseau.
DINGLE, R. V. & ROGERS, J. 1972. Pleistocene palaeogeography of the Agulhas Bank. *Transactions of the Royal Society of South Africa* **40** (3): 155–165.
ELPHICK, R. 1977. *Kraal and castle. Khoikhoi and the founding of white South Africa*. New Haven and London: Yale University Press.
ELPHICK, R. 1985. *Khoikhoi and the founding of white South Africa*. Johannesburg: Ravan Press.

ENGELBRECHT, J. A. 1936. *The Korana. An account of their customs and their history, with texts.* Cape Town: Maskew Miller.

FEELY, J. M. 1987. The early farmers of Transkei, southern Africa before A.D. 1870. *BAR International Series* **378**: 1–142.

FLEMMING, B. W. 1977. Depositional processes in Saldanha Bay and Langebaan Lagoon. *Bulletin. Joint Geological Survey/University of Cape Town Marine Geoscience Group* **8**: i–xxvi, 1–215.

FORBES, V. *ed.* 1986. *Carl Peter Thunberg: travels at the Cape of Good Hope 1772–1775.* Cape Town: Van Riebeeck Society. (The Van Riebeeck Society Publications (ser. 2) **17**.)

FOX, F. W. & NORWOOD YOUNG, M. E. 1982. *Food from the veld.* Johannesburg: Delta Books.

FRANCALACCI, P. 1989. Dietary reconstruction at Arene Candide cave (Liguria, Italy) by means of trace element analysis. *Journal of Archaeological Science* **16**: 109–124.

GOODWIN, A. J. H. 1929. The Wilton Industry. *In:* GOODWIN, A. J. H. & VAN RIET LOWE, C. The Stone Age cultures of South Africa: 251–282. *Annals of the South African Museum* **27**: vii, 1–289.

GOODWIN, A. J. H. 1937. Archaeology of the Oakhurst Shelter, George. Part VII. Summary and conclusions. *Transactions of the Royal Society of South Africa* **25** (3): 321–324.

GOODWIN, A. J. H. 1946. Prehistoric fishing methods in South Africa. *Antiquity* **20**: 1–8.

GOODWIN, A. J. H. 1952. Early man in the Cape Peninsula. *In:* MABBUTT, J. A. *ed. The Cape Peninsula*: 124–143. Cape Town: Maskew Miller.

GOODWIN, A. J. H. 1956. Metal working among the early Hottentots. *South African Archaeological Bulletin* **11**: 46–51.

GRIFFITHS, R. J. 1981. Population dynamics and growth of the bivalve *Choromytilus meridionalis* (Kr.) at different tidal levels. *Estuarine, Coastal and Shelf Science* **12**: 101–118.

HALL, M. 1981. Settlement patterns in the Iron Age of Zululand: an ecological interpretation. *BAR International Series* **119**: 1–191.

HAUSMAN, A. J. 1980. Holocene human evolution in southern Africa: the biocultural development of the Khoisan. Ph.D. dissertation, State University of New York, Binghamton.

HAUSMAN, A. J. 1984. Holocene human evolution in southern Africa. *In:* CLARK, J. D. & BRANDT, S. A. *eds. From hunters to farmers: the causes and consequences of food production in Africa*: 261–289. Berkeley, Los Angeles and London: University of California Press.

HENDEY, Q. B. 1974. The Late Cenozoic Carnivora of the south-western Cape Province. *Annals of the South African Museum* **63**: 1–169.

HIERNAUX, J. 1974. *The people of Africa.* London: Weidenfeld and Nicolson.

HORWITZ, L., MAGGS, T. & WARD, V. 1991. Two shell middens as indicators of shellfish exploitation patterns during the first millennium AD on the Natal north coast. *Natal Museum Journal of Humanities* **3**: 1–28.

HROMNIK, C. A. 1990. Aguada de Saldanha: the real story? Part 2. *Quarterly Bulletin of the South African Library* **45** (1): 29–40.

HUMPHREYS, A. J. B. 1970. The remains from Koffiefontein burials excavated by W. Fowler and preserved in the McGregor Museum, Kimberley. *South African Archaeological Bulletin* **25**: 104–115.

HUMPHREYS, A. J. B. 1987. Prehistoric seasonal mobility: what are we really achieving? *South African Archaeological Bulletin* **42**: 34–38.

INSKEEP, R. R. 1978. *The peopling of southern Africa.* Cape Town and London: David Philip.

INSKEEP, R. R. 1987. Nelson Bay Cave, Cape Province, South Africa: the Holocene levels. *BAR International Series* **357** (i): 1–313.

JACOBSON, L. 1987*a*. The size variability of ostrich eggshell beads from central Namibia and its relevance as a stylistic and temporal marker. *South African Archaeological Bulletin* **42**: 55–58.

JACOBSON, L. 1987*b*. More on ostrich eggshell variability: the Geduld early herder assemblage. *South African Archaeological Bulletin* **42**: 174–175.

KEEN, J. A. 1952. Craniometric survey of the South African Museum collection of Bushman, Hottentot and Bush-Hottentot hybrid skulls. *Annals of the South African Museum* **37** (2): 211–226.

KINAHAN, J. 1991. *Pastoral nomads of the central Namib Desert. The people history forgot.* Windhoek: Hirt and Carter.

KLEIN, R. G. 1972. Preliminary report on the July through September 1970 excavations at Nelson Bay Cave, Plettenberg Bay (Cape Province, South Africa). *Palaeoecology of Africa and the surrounding islands* **6**: 177–208.

KLEIN, R. G. 1975. Middle Stone Age man-animal relationships in southern Africa: evidence from Die Kelders and Klasies River Mouth. *Science* **190**: 265–267.

KLEIN, R. G. 1976. A preliminary report on the 'Middle Stone Age' open-air site of Duinefontein 2 [Melkbosstrand, south-western Cape Province, South Africa]. *South African Archaeological Bulletin* **31**: 12–20.

KLEIN, R. G. 1978. The fauna and overall interpretation of the 'Cutting 10' Acheulean site at Elandsfontein (Hopefield), southwestern Cape Province, South Africa. *Quaternary Research* **10** (1): 69–83.

KLEIN, R. G. 1980. Environmental and ecological implications of large mammals from Upper Pleistocene and Holocene sites in southern Africa. *Annals of the South African Museum* **81**: 223–283.

KLEIN, R. G. 1983. Palaeoenvironmental implications of Quaternary large mammals in the fynbos region. *In:* DEACON, H. J., HENDEY, Q. B. & LAMBRECHTS, J. J. N. *eds.* Fynbos palaeoecology: a preliminary synthesis. *South African National Scientific Programmes Report* **75**: 116–138.

KLEIN, R. G. & CRUZ-URIBE, K. 1987. Large mammal and tortoise bones from Elands Bay Cave and nearby sites, western Cape Province, South Africa. *In:* PARKINGTON, J. E. & HALL, M. *eds. Papers in the prehistory of the western Cape, South Africa. BAR International Series* **332**: 132–163.

KLEIN, R. G. & CRUZ-URIBE, K. 1989. Faunal evidence for prehistoric herder-forager activities at Kasteelberg, western Cape Province, South Africa. *South African Archaeological Bulletin* **44**: 82–97.

KLEIN, R. G. & CRUZ-URIBE, K. 1991. The bovids from Elandsfontein, South Africa, and their implications for the age, palaeoenvironment, and origins of the site. *The African Archaeological Review* **9**: 21–79.

KOLB(EN), P. 1738. *The present state of the Cape of Good-Hope* **1**. (Transl. G. Medley.) London: Innis and Manby.

KRUEGER, H. W. & SULLIVAN, C. H. 1984. Models for carbon isotope fractionation between diet and bone. *American Chemical Society Symposium Series* **258**: 205–221.

LIENGME, C. 1987. Botanical remains from archaeological sites in the western Cape. *In:* PARKINGTON, J. & HALL, M. *eds. Papers in the prehistory of the western Cape, South Africa. BAR International Series* **332**: 237–261.

LLOYD EVANS, T., THACKERAY, A. I. & THACKERAY, J. F. 1985. Later Stone Age rescue archaeology in the Sutherland district. *South African Archaeological Bulletin* **40**: 106–108.

LOMBARD, H. W. 1977. Die bevolkingsdinamika van en energievloei deur *Turbo sarmaticus* op twee rotsstrande in die Oos-Kaap. Unpublished M.Sc. thesis, Department of Zoology, University of Port Elizabeth.

MACKAY, J. 1980. Appendix 2. Molluscan and other shell remains. *In:* MAGGS, T. Mzonjani and the beginning of the Iron Age in Natal. *Annals of the Natal Museum* **24** (1): 95–97.

MAGGS, T. 1980. Mzonjani and the beginning of the Iron Age in Natal. *Annals of the Natal Museum* **24** (1): 71–96.

MAGGS, T. M. O'C. & SPEED, E. 1967. Bonteberg Shelter. *South African Archaeological Bulletin* **22**: 80–93.

MAHOLA, W. S. 1990. AmaXhosa and fishing. *The Phoenix* **3** (3): 14–15.

MAINGARD, L. F. 1931. The lost tribes of the Cape. *South African Journal of Science* **28**: 487–504.

MAINGARD, L. F. 1932. History and distribution of the bow and arrow in South Africa. *South African Journal of Science* **29**: 711–723.

MAINGARD, L. F. 1935. The first contacts of the Dutch with the Bushmen until the time of Simon van der Stel (1686). *South African Journal of Science* **32**: 479–487.

MANHIRE, A. 1987. Later Stone Age settlement patterns in the Sandveld of the south-western Cape Province, South Africa. *BAR International Series* **351**: 1–186.

MARKS, S. 1972. Khoisan resistance to the Dutch in the seventeenth and eighteenth centuries. *Journal of African History* **13**: 55–80.

MARTIN, P. D. 1872. Stone implements and shell caves. *The Cape Monthly Magazine* **5**: 53–55.

MAZEL, A. D. 1992*a*. Collingham Shelter: the excavation of late Holocene deposits, Natal, South Africa. *Natal Museum Journal of Humanities* **4**: 1–51.

MAZEL, A. D. 1992*b*. Changing fortunes: 150 years of San hunter-gatherer history in the Natal Drakensberg, South Africa. *Antiquity* **66**: 758–767.

MAZEL, A. & PARKINGTON, J. 1978. Sandy Bay revisited: variability among Late Stone Age tools. *South African Journal of Science* **74**: 381–382.

MOODIE, D. *ed.* 1960. *The Record.* Amsterdam and Cape Town: A. A. Balkema (photostatic reprint).

MÖRNER, N-A. 1978. Palaeogeoid and palaeoecological changes in Africa with respect to real and apparent palaeoclimatic changes. *Palaeoecology of Africa* **10**: 1–12.

MORRIS, A. G. 1986. Khoi and San craniology: a re-evaluation of the osteological reference samples. *In:* SINGER, R. & LUNDY, J. K. *eds. Variation, culture and evolution in African populations*: 1–12. Johannesburg: Witwatersrand University Press.

MORRIS, A. G. 1987. The reflection of the collector; San and Khoi skeletons in museum collections. *South African Archaeological Bulletin* **42**: 12–22.

MORRIS, A. G. 1990. Khoikhoi origins. *The Phoenix* **3** (3): 8–13.

MORRIS, A. G. 1992. *The skeletons of contact. A study of protohistoric burials from the lower Orange River Valley, South Africa.* Johannesburg: Witwatersrand University Press.

MORRIS, A. G., THACKERAY, A. I. & THACKERAY, J. F. 1987. Late Holocene human skeletal remains from Snuifklip, near Vleesbaai, southern Cape. *South African Archaeological Bulletin* **42**: 153–160.

MOSSOP, E. E. 1927. *Old Cape highways.* Cape Town: Maskew Miller.

MOSSOP, E. E. *ed.* 1935. *The journal of Hendrik Jacob Wikar (1779).* Cape Town: Van Riebeeck Society. (The Van Riebeeck Society Publications (ser. 1) **15**.)

NIENABER, G. S. 1989. *Khoekhoense stamname: 'n voorlopige verkenning.* Pretoria and Cape Town: Academica.

NOLI, D. 1986. The excavations at Hailstone Midden (HSM), Eland's Bay, western Cape Province, with observations on the determination of diet. Unpublished B.A. (Honours) project, University of Cape Town.

NOLI, D. 1989. An archaeological investigation of the Koichab River region of the south-western Namib Desert, centred on the activities of Holocene hunter-gatherers. Unpublished M.A. thesis, University of Cape Town.

NOLI, H. D. 1993. Archery in southern Africa. The evidence from the past. Unpublished Ph.D. thesis, University of Cape Town.

NOLI, D. & AVERY, G. 1988. Protein poisoning and coastal subsistence. *Journal of Archaeological Science* **15**: 395–401.

OPPERMAN, H. 1978. Excavations in the Buffelskloof rock shelter near Calitzdorp, southern Cape. *South African Archaeological Bulletin* **33**: 18–38.

OSBORN, A. 1980. Comment on Yesner, D. R. 1980. Maritime hunter-gatherers: ecology and prehistory. *Current Anthropology* **21** (6): 740 741.

PARKINGTON, J. 1972. Seasonal mobility in the Late Stone Age. *African Studies* **32**: 223–243.

PARKINGTON, J. 1977. Soaqua: hunter-fisher-gatherers of the Olifants River Valley, western Cape. *South African Archaeological Bulletin* **32**: 150 157.

PARKINGTON, J. 1980. Time and place: some observations on spatial and temporal patterning in the Later Stone Age sequence in southern Africa. *South African Archaeological Bulletin* **35**: 73–83.

PARKINGTON, J. 1981. The effects of environmental change on the scheduling of visits to the Elands Bay Cave, Cape Province, South Africa. *In:* HODDER, I., ISAAC, G. & HAMMOND, N. *eds. Pattern of the past. Studies in honour of David Clarke*: 341–359. Cambridge: Cambridge University Press.

PARKINGTON, J. 1986. Isotope assessment and seasonal mobility in the southwestern Cape of South Africa. *Current Anthropology* **27**: 145–146.

PARKINGTON, J. 1987*a*. Changing views of prehistoric settlement in the western Cape. *In:* PARKINGTON, J. & HALL, M. *eds. Papers in the prehistory of the western Cape, South Africa. BAR International Series* **332** (i): 4–23.

PARKINGTON, J. 1987*b*. On stable carbon isotopes and dietary reconstructions. *Current Anthropology* **28**: 91 93.

PARKINGTON, J. 1991. Approaches to dietary reconstruction in the western Cape: are you what you have eaten? *Journal of Archaeological Science* **18**: 331–342.

PARKINGTON, J. E. 1976*a*. Coastal settlement between the mouths of the Berg and Olifants rivers. *South African Archaeological Bulletin* **31**: 127–140.

PARKINGTON, J. E. 1976*b*. Follow the San. An analysis of seasonality in the south western Cape, South Africa. Ph.D. thesis, Cambridge University, Cambridge, England.

PARKINGTON, J. E. 1984. Soaqua and Bushmen: hunters and robbers. *In:* SCHRIRE, C. *ed. Past and present in hunter gatherer studies*: 151–174. New York: Academic Press.

PARKINGTON, J. & POGGENPOEL, C. 1971. Excavations at De Hangen, 1968. *South African Archaeological Bulletin* **26**: 3–36.

PARKINGTON, J., POGGENPOEL, C., BUCHANAN, W., ROBEY, T., MANHIRE, A. & SEALY, J. 1988. Holocene coastal settlement patterns in the western Cape. *In:* BAILEY, G. & PARKINGTON, J. *eds. The archaeology of prehistoric coastlines*: 22 41. Cambridge: Cambridge University Press.

PATERSON, W. 1790. *A narrative of four journeys into the country of the Hottentots, and Caffraria, in the years 1777, 1778, 1779.* Second edition. London: J. Johnson.

PÉRINGUEY, L. 1911. The Stone Ages of South Africa as represented in the collection of the South African Museum. *Annals of the South African Museum* **8**: 1–201; 209–215.

POGGENPOEL, C. A. 1987. The implications of fish bone assemblages from Eland's Bay Cave, Tortoise Cave and Diepkloof, for changes in the Holocene history of the Verlorenvlei. *In:* PARKINGTON, J. & HALL, M. *eds. Papers in the prehistory of the western Cape, South Africa. BAR International Series* **332** (i): 212–236.

RAPER, P. E. & BOUCHER, M. *eds.* 1988. *Robert Jacob Gordon: Cape Travels, 1777 to 1786.* Houghton, Johannesburg: The Brenthurst Press. (ser. 4 and 5.)

RAVEN-HART, R. 1967. *Before Van Riebeeck: callers at South Africa from 1488 to 1652.* Cape Town: C. Struik.

RAVEN-HART, R. 1971. *Cape Good Hope 1652–1702. The first fifty years of Dutch colonisation as seen by callers.* Cape Town: A. A. Balkema.

ROBERTSHAW, P. T. 1978. Archaeological investigations at Langebaan Lagoon, Cape Province. *Palaeoecology of Africa and the surrounding islands* **10/11**: 139–148.

ROBERTSHAW, P. T. 1979. Coastal settlement, freshwater fishing, and pastoralism in the later prehistory of the western Cape, South Africa. Ph.D. thesis, Cambridge University, Cambridge, England.

ROBEY, T. 1980. Mpambanyoni: a Late Iron Age site on the Natal south coast. *Annals of the Natal Museum* **24** (1): 147–164.

ROBEY, T. S. 1987. The stratigraphic and cultural sequence at Tortoise Cave, Verlorenvlei. *In:* PARKINGTON, J. & HALL, M. *eds. Papers in the prehistory of the western Cape, South Africa. BAR International Series* **332** (ii): 294–325.

RUDNER, J. 1968. Strandloper pottery from South and South West Africa. *Annals of the South African Museum* **49** (2): 441–663.

RUDNER, I. & RUDNER, J. 1954. A local Late Stone Age development. *South African Archaeological Bulletin* **9**: 103–107.

SADR, K. & SMITH, A. B. 1991. On ceramic variation in the south-western Cape, South Africa. *South African Archaeological Bulletin* **46**: 107–114.

SAMPSON, C. G. 1974. *The Stone Age archaeology of southern Africa.* New York and London: Academic Press.

SCHAPERA, I. 1930. *The Khoisan peoples of South Africa.* London: Routledge and Kegan Paul.

SCHAPERA, I. *ed.* 1933. *The early Cape Hottentots described in the writings of Olfert Dapper (1668) Willem ten Rhyne (1686) and Johannes Gulielmus de Grevenbroek (1695).* Cape Town: Van Riebeeck Society. (The Van Riebeeck Society Publications (ser. 1) **14**.)

SCHOUTE-VANNECK, C. A. & WALSH, R. C. 1959. The shell middens at the Ingane River mouth, Natal south coast. *South African Archaeological Bulletin* **14**: 43–55.

SCHOUTE-VANNECK, C. A. & WALSH, R. C. 1961. The Umlaas variant of the Smithfield C culture. *South African Archaeological Bulletin* **16**: 137–143.

SCHRIRE, C. 1980. An enquiry into the evolutionary status and apparent identity of San hunter-gatherers. *Human Ecology* **8**: 9–32.

SCHRIRE, C. 1992. The archaeological identity of hunters and herders at the Cape over the last 2 000 years: a critique. *South African Archaeological Bulletin* **47**: 62–64.

SCHRIRE, C. & DEACON, J. 1989. The indigenous artefacts from Oudepost I, a colonial outpost of the VOC at Saldanha Bay, Cape. *South African Archaeological Bulletin* **44**: 105–113.

SCHRIRE, C. & DEACON, J. 1990. Reply to Wilson, Van Rijssen, Jacobson and Noli. *South African Archaeological Bulletin* **45**: 124–125.

SCHRIRE, C., DEETZ, J., LUBINSKY, D. & POGGENPOEL, C. 1990. The chronology of Oudepost I, Cape, as inferred from an analysis of clay pipes. *Journal of Archaeological Science* **17**: 269–300.

SCHULTZE, L. 1928. Zur Kenntnis des Körpers der Hottentotten und Buschmänner. *Zoologische und Anthropologische Ergebnisse einer Forschungsreise im westlichen und zentralen Südafrika . . . in den Jahren 1903–1905* **5** (Systematik, Tiergeographie und Anthropologie, 17): 145–227.

SCHWARCZ, H. P. 1991. Some theoretical aspects of isotope paleodiet studies. *Journal of Archaeological Science* **18**: 261–275.

SCHWEITZER, F. R. 1970. A preliminary report of excavations of a cave at Die Kelders. *South African Archaeological Bulletin* **25**: 136–138.

SCHWEITZER, F. R. 1979. Excavations at Die Kelders, Cape Province, South Africa: the Holocene deposits. *Annals of the South African Museum* **78** (10): 101–233.

SCHWEITZER, F. & SCOTT, K. J. 1973. Early occurrence of domestic sheep in sub-Saharan Africa. *Nature* **241** (5 391): 547.

SCHWEITZER, F. R. & WILSON, M. L. 1982. Byneskranskop 1: a late Quaternary living site in the southern Cape Province, South Africa. *Annals of the South African Museum* **88** (1): 1–203.

SEALY, J. 1986. Stable carbon isotopes and prehistoric diets in the south-western Cape Province, South Africa. *BAR International Series* **293**: 1–150.

SEALY, J. C. 1989. Reconstruction of Later Stone Age diets in the south-western Cape, South Africa: evaluation and application of five isotopic and trace element techniques. Ph.D. thesis, University of Cape Town.

SEALY, J. & VAN DER MERWE, N. J. 1985. Isotope assessment of Holocene human diets in the south-western Cape, South Africa. *Nature* **315** (6 007): 138–140.

SEALY, J. C. & VAN DER MERWE, N. J. 1986*a*. Isotope assessment and the seasonal-mobility hypothesis in the southwestern Cape of South Africa. *Current Anthropology* **27**: 135–144.

SEALY, J. C. & VAN DER MERWE, N. J. 1986*b*. Reply to comments on Sealy & Van der Merwe (1986*a*). *Current Anthropology* **27**: 147–148.

SEALY, J. C. & VAN DER MERWE, N. J. 1987. Stable carbon isotopes, Later Stone Age diets and seasonal mobility in the south-western Cape. *In:* PARKINGTON, J. & HALL, M. *eds. Papers in the prehistory of the western Cape, South Africa. BAR International Series* **332** (i): 262–268.

SEALY, J. C. & VAN DER MERWE, N. J. 1988. Social, spatial and chronological patterning in marine food use as determined by $\delta^{13}C$ measurements of Holocene human skeletons from the south-western Cape, South Africa. *World Archaeology* **20**: 87–102.

SEALY, J. C. & VAN DER MERWE, N. J. 1992. On "Approaches to dietary reconstruction in the western Cape: are you what you have eaten?"—a reply to Parkington. *Journal of Archaeological Science* **19**: 459–466.

SEALY, J. C., VAN DER MERWE, N. J., LEE THORP, J. A. & LANHAM, J. L. 1987. Nitrogen isotopic ecology in southern Africa: implications for environmental and dietary tracing. *Geochimica et Cosmochimica Acta* **51**: 2 707–2 717.

SERTON, P. 1971. English summary of the Introduction. *In:* VALENTYN, F. *Description of the Cape of Good Hope with the matters concerning it. Amsterdam 1726. Part I*: 3–13. Cape Town: Van Riebeeck Society. (The Van Riebeeck Society Publications (ser. 2) **2**.)

SHRUBSALL, F. C. 1898. Crania of African Bush races. *Journal of the Royal Anthropological Institute* **27**: 263–292.

SHRUBSALL, F. C. 1907. Notes on some Bushman crania and bones from the South African Museum, Cape Town. *Annals of the South African Museum* **5** (5): 227–270.

SHRUBSALL, F. C. 1911. A note on craniology. *Annals of the South African Museum* **8**: 202–208.

SINGER, R. 1958. The Boskop 'race' problem. *Man* **232**: 173–178.

SINGER, R. & WYMER, J. 1982. *The Middle Stone Age at Klasies River Mouth in South Africa*. Chicago and London: Chicago University Press.

SKEAD, C. J. 1980. *Historical mammal incidence in the Cape Province*. **1**. *The western and northern Cape*. Cape Town: Department of Nature and Environmental Conservation of the Provincial Administration of the Cape of Good Hope.

SMITH, A. B. 1983. Prehistoric pastoralism in the southwestern Cape, South Africa. *World Archaeology* **15** (1): 79–89.

SMITH, A. B. 1984. Adaptive strategies of prehistoric pastoralism in the south-western Cape. *In:* HALL, M., AVERY, G., AVERY, D. M., WILSON, M. L. & HUMPHREYS, A. J. B. *eds.* Frontiers: South African archaeology today. *BAR International Series* **207**: 131–142.

SMITH, A. B. 1985. Development of Khoikhoi society in South Africa: implications for pastoral archaeology. *Origini. Preistoria e protostoria delle civiltà antiche* **13**: 409–422.

SMITH, A. B. 1986. Competition, conflict and clientship: Khoi and San relationships in the western Cape. *In:* HALL, M. & SMITH, A. B. *eds.* Prehistoric pastoralism in southern Africa. *South African Archaeological Society Goodwin Series* **5**: 36–41.

SMITH, A. B. 1987. Seasonal exploitation of resources on the Vredenburg Peninsula after 2 000 B.P. *In:* PARKINGTON, J. & HALL, M. *eds. Papers in the prehistory of the western Cape, South Africa. BAR International Series* **332** (ii): 393–402.

SMITH, A. B. 1990. The origins and demise of the Khoikhoi: the debate. *South African Historical Journal* **23**: 3–14.

SMITH, A. B. & PHEIFFER, R. H. 1988. Early sketches of Khoikhoi at the Cape. *Quarterly Bulletin of the South African Library* **42** (2): 59–66.

SMITH, A. B., SADR, K., GRIBBLE, J. & YATES, R. 1991. Excavations in the south-western Cape, South Africa, and the archaeological identity of prehistoric hunter-gatherers within the last 2 000 years. *South African Archaeological Bulletin* **46**: 71–91.

SMITH, C. A. 1966. Common names of South African plants. *Botanical Survey Memoir* **35**: 1–642.

SMITH, J. L. B. & SMITH, M. M. 1966. *Fishes of the Tsitsikama Coastal National Park*. Johannesburg: National Parks Board of Trustees of the Republic of South Africa.

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

SPETH, J. D. 1987. Early hominid subsistence strategies in seasonal habitats. *Journal of Archaeological Science* **14**: 13–29.

SPETH, J. D. 1989. Early hominid hunting and scavenging: the role of meat as an energy source. *Journal of Human Evolution* **18**: 329–343.

STEFANSSON, V. 1944. Pemmican. *Military Surgeon* **95** (2): 89–98.

STEFANSSON, V. 1956. *The fat of the land*. New York: Macmillan.

STOW, G. W. 1905. *The native races of South Africa*. London: Swan Sonnenschein.

STREET, F. A. & GROVE, A.T. 1976. Environmental and climatic implications of late Quaternary lake-level fluctuations in Africa. *Nature* **261** (5559): 385–390.
SYDOW, W. 1973. Contributions to the history and protohistory of the Topnaar Strandloper settlement at the Kuiseb River Mouth near Walvis Bay. *South African Archaeological Bulletin* **28**: 73–77.
'S. T.' 1871. Shell caves. *The Cape Monthly Magazine* **3**: 174–176.
TANKARD, A. J. 1975. Cenozoic sea-level changes: a discussion. *Annals of the South African Museum* **71**: 1–17.
THACKERAY, J. F. 1988. Molluscan fauna from Klasies River, South Africa. *South African Archaeological Bulletin* **43**: 27–32.
THEAL, G. M. 1897. *History of South Africa under the administration of the Dutch East India Company (1652 to 1795)* **1**. London: Swan Sonnenschein.
THEAL, G. M. 1918. *Ethnography and condition of South Africa before A.D. 1505*. 2nd edition. London: George Allen and Unwin.
THOM, H. B. *ed.* 1952. *Journal of Jan van Riebeeck. I. 1651–1655*. Cape Town and Amsterdam: Balkema for the Van Riebeeck Society.
THOM, H. B. *ed.* 1954. *Journal of Jan van Riebeeck. II. 1656–1658*. Cape Town and Amsterdam: Balkema for the Van Riebeeck Society.
THOM, H. B. *ed.* 1958. *Journal of Jan van Riebeeck. III. 1659–1662*. Cape Town and Amsterdam: Balkema for the Van Riebeeck Society.
THOMPSON, G. 1827. *Travels and adventures in southern Africa*. London: Henry Colburn.
VALENTYN, F. 1971. *Description of the Cape of Good Hope with the matters concerning it. Amsterdam 1726. Part I.* (Final editor E. H. Raidt. English translation R. Raven-Hart.) Cape Town: Van Riebeeck Society. (The Van Riebeeck Society Publications (ser. 2) **2**.)
VALENTYN, F. 1973. *Description of the Cape of Good Hope with the matters concerning it. Amsterdam 1726. Part II.* (E. H. Raidt. *ed.* English translation R. Raven-Hart.) Cape Town: Van Riebeeck Society. (The Van Riebeeck Society Publications (ser. 2) **4**.)
VAN DER HORST, G., KLINGELHOEFFER, E. W., ROSSOUW, G. J. & COETZEE, T. J. 1978. A new and unique discovery of a Strandloper skeleton. Our fossil heritage II. *The Eastern Cape Naturalist* **63**: 10–12.
VEDDER, H. 1928. *The native tribes of South West Africa*. Cape Town: Cape Times Limited.
VOIGT, E. A. 1980. Appendix 1. Mammalian remains from Mzonjani. *In:* MAGGS, T. Mzonjani and the beginning of the Iron Age in Natal. *Annals of the Natal Museum* **24** (1): 94–95.
VOIGT, E. A. 1982. The molluscan fauna. *In:* SINGER, R. & WYMER, J. *The Middle Stone Age at Klasies River Mouth in South Africa*: 155–186. Chicago and London: The University of Chicago Press.
VOLMAN, T. P. 1978. Early archeological evidence for shellfish collecting. *Science* **201** (4 359): 911–913.
VOLMAN, T. P. 1981. The Middle Stone Age in the southern Cape. Ph.D. thesis, University of Chicago.
WASELKOV, G. A. 1987. Shellfish gathering and shell midden archaeology. *In:* SCHIFFER, M. B. *ed. Advances in archaeological method and theory* **10**: 93–210. London: Academic Press.
WATERHOUSE, G. 1932. *Simon van der Stel's journal of his expedition to Namaqualand, 1685–6*. Dublin: Hodges, Figgis, and Co.
WATT, M. J. & BREYER-BRANDWIJK, M. G. 1962. *The medicinal and poisonous plants of southern and eastern Africa*. Edinburgh and London: E. & S. Livingstone.
WILSON, M. 1969. The hunters and herders. *In:* WILSON, M. & THOMPSON, L. *eds. The Oxford History of South Africa. I. South Africa to 1870*: 40–74. London: Oxford University Press.
WILSON, M. L. 1986*a*. Notes on the nomenclature of the Khoisan. *Annals of the South African Museum* **97** (8): 251–266.
WILSON, M. L. 1986*b*. An archivist's error? Notes on the origin of two farm names in the western Cape. *Contree* **20**: 33–34.
WILSON, M. L. 1986*c*. Khoisanosis: the question of separate identities for Khoi and San. *In:* SINGER, R. & LUNDY, J. K. *eds. Variation, culture and evolution in African populations*: 13–25. Johannesburg: Witwatersrand University Press.
WILSON, M. L. 1989*a*. Shell middens and 'Strandlopers'. *Sagittarius* **4** (1): 2–5.
WILSON, M. L. 1989*b*. The problem of the origin of the Khoikhoi. *The Digging Stick* **6** (1): 2–4.
WILSON, M. L. 1989*c*. 'Strandlopers' in the Gordon Journals: a correction. *South African Archaeological Bulletin* **44**: 120.
WILSON, M. L. 1990. Strandlopers and shell middens. An investigation into the identity, nomenclature and life-style of the indigenous inhabitants for the southern African coastal region in the prehistoric and early historical period, with a recent example. Appendix: An evaluation of the reconstruction of prehistoric coastal human diet by Buchanan (1988). Unpublished M.A. thesis, University of Cape Town.
WILSON, M. [L.] 1991. Strandloper[s?]. Who were the past inhabitants of the South African coast? *The Phoenix* **4** (2): 14–21.

Wilson, M. L. & Klinghardt, G. P. 1989. 'New' light on an old land: the journals of Robert Jacob Gordon. *South African Archaeological Bulletin* **44**: 49–52.

Wilson, M. L., Van Rijssen, W. J. J., Jacobson, L. & Noli, H. D. 1990. Comment on the indigenous artefacts from Oudepost I. *South African Archaeological Bulletin* **45**: 122–124.

Yates, R. J., Miller, D. E., Halkett, D. J., Manhire, A. H. & Parkington, J. E. 1986. A late mid-Holocene high sea-level: a preliminary report on geoarchaeology at Elands Bay, western Cape Province, South Africa. *South African Journal of Science* **82**: 164–165.

Yesner, D. R. 1980. Maritime hunter-gatherers: ecology and prehistory. *Current Anthropology* **21** (6): 727–735.

Zoutendyk, P. 1989. Aspects of the biology of the brown mussel *Perna perna* relating to the potential exploitation of wild stocks. *CSIR Research Report* **639**: 1–30.

Zubakov, V. A. & Borzenkova, I. I. 1990. Global palaeoclimate of the late Cenozoic. *Developments in Palaeontology and Stratigraphy* **12**: 1–456.

6. SYSTEMATIC papers must conform to the *International code of zoological nomenclature* (particularly Articles 22 and 51).

Names of new taxa, combinations, synonyms, etc., when used for the first time, must be followed by the appropriate Latin (not English) abbreviation, e.g. gen. nov., sp. nov., comb. nov., syn. nov., etc.

An author's name when cited must follow the name of the taxon without intervening punctuation and not be abbreviated; if the year is added, a comma must separate author's name and year. The author's name (and date, if cited) must be placed in parentheses if a species or subspecies is transferred from its original genus. The name of a subsequent user of a scientific name must be separated from the scientific name by a colon.

Synonymy arrangement should be according to chronology of names, i.e. all published scientific names by which the species previously has been designated are listed in chronological order, with all references to that name following in chronological order, e.g.:

Family **Nuculanidae**

Nuculana (Lembulus) bicuspidata (Gould, 1845)

Figs 14–15A

Nucula (Leda) bicuspidata Gould, 1845: 37.
Leda plicifera A. Adams, 1856: 50.
Laeda bicuspidata Hanley, 1859: 118, pl. 228 (fig. 73). Sowerby, 1871: pl. 2 (fig. 8a–b).
Nucula largillierti Philippi, 1861: 87.
Leda bicuspidata: Nicklès, 1950: 163, fig. 301; 1955: 110. Barnard, 1964: 234, figs 8–9.

Note punctuation in the above example:
comma separates author's name and year
semicolon separates more than one reference by the same author
full stop separates references by different authors
figures of plates are enclosed in parentheses to distinguish them from text-figures
dash, not comma, separates consecutive numbers.

Synonymy arrangement according to chronology of bibliographic references, whereby the year is placed in front of each entry, and the synonym repeated in full for each entry, is not acceptable.

In describing new species, one specimen must be designated as the holotype; other specimens mentioned in the original description are to be designated paratypes; additional material not regarded as paratypes should be listed separately. The complete data (registration number, depository, description of specimen, locality, collector, date) of the holotype and paratypes must be recorded, e.g.:

Holotype

SAM–A13535 in the South African Museum, Cape Town. Adult female from mid-tide region, King's Beach, Port Elizabeth (33°51′S 25°39′E), collected by A. Smith, 15 January 1973.

Note standard form of writing South African Museum registration numbers and date.

7. SPECIAL HOUSE RULES

Capital initial letters

(a) The Figures, Maps and Tables of the paper when referred to in the text
e.g. '. . . the Figure depicting *C. namacolus* . . .': '. . . in *C. namacolus* (Fig. 10) . . .'
(b) The prefixes of prefixed surnames in all languages, when used in the text, if not preceded by initials or full names
e.g. Du Toit but A. L. du Toit; Von Huene but F. von Huene
(c) Scientific names, but not their vernacular derivatives
e.g.Therocephalia, but therocephalian

Punctuation should be loose, omitting all not strictly necessary

Reference to the author should preferably be expressed in the third person

Roman numerals should be converted to arabic, except when forming part of the title of a book or article, such as
'Revision of the Crustacea. Part VIII. The Amphipoda.'

Specific name must not stand alone, but be preceded by the generic name or its abbreviation to initial capital letter, provided the same generic name is used consecutively. The generic name should not be abbreviated at the beginning of a sentence or paragraph.

Name of new genus or species is not to be included in the title; it should be included in the abstract, counter to Recommendation 23 of the Code, to meet the requirements of Biological Abstracts.

M. L. WILSON

THE 'STRANDLOPER' CONCEPT AND ITS RELEVANCE TO THE STUDY OF THE PAST INHABITANTS OF THE SOUTHERN AFRICAN COASTAL REGION