Late Holocene avian remains from Wortel, Walvis Bay, SWA/Namibia, and some observations on seasonality and Topnaar Hottentot prehistory

by

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ABSTRACT

Avian remains from a Late Holocene shell midden complex dated to between approximately 400 and 260 B.P. are examined. Evidence is presented for human utilisation of the birds as food. *Phalacrocorax capensis, Spheniscus demersus* and *Morus capensis* were the most common species taken. Sources of seasonal information indicate that the complex was probably occupied throughout the year. Data show similarity to ethnographic observations on Topnaar Hottentots, antecedents of whom are presumed to have been responsible for the complex.

CONTENTS

1 INTRODUCTION

A small sample of bird remains was recovered in 1976 from seven random one metre squares at an open shell midden complex at Wortel (23°03'S; 14°27'E), Walvis Bay. The site is situated inland in a dry area of the Kuiseb River delta approximately 3 km south of the Walvis Bay lagoon and 5 km inland of the west coast (Fig. 1). Two radiocarbon dates are available: Pta-1645, from square K2, is 400 ± 50 B.P. (AD 1460) and Pta-1651, from square K3, is 260 ± 50 B.P. (AD 1635) (Jacobson & Vogel 1977). Bird remains were recovered from all sampled squares which yielded other dietary components such as marine molluscs, fish and terrestrial and marine mammals.

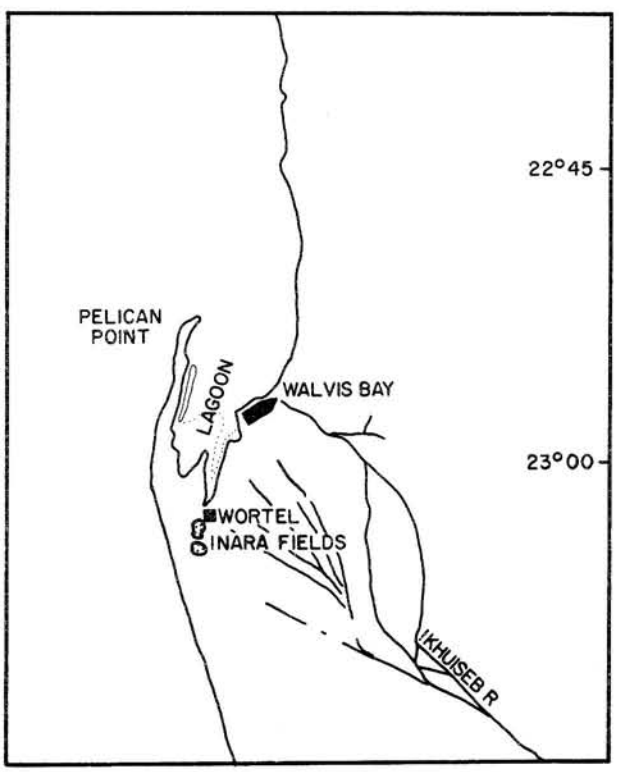

FIGURE 1: Location of Wortel midden complex in relation to Pelican Point, the lagoon, narra fields and the Kuiseb River.

2 METHOD AND RESULTS

Identification followed the method described previously (Avery 1977). A category of juvenile birds was recognised when bones were incompletely ossified. In the Pelecaniformes ossification is usually complete within a very short period of a bird's fledging and leaving the nest while Sphenisciformes remain in this state for longer (pers. obs.). Taxonomic determinations and minimum numbers of individuals per sample unit are given in Table 1. A total of 146 identifiable fragments representing a minimum number of 46 individuals was recovered. Identifiable material for each square is tabulated according to body part in Table 2.

Seven avian species were identified. Five of these, *Spheniscus demersus* Jackass Penguin, *Procellaria aequinoctialis* White-chinned Petrel, *Morus capensis* Cape Gannet, *Phalacrocorax carbo* White-breasted Cormorant and *P. capensis* Cape Cormorant are fully marine. Two species *Pelecanus onocrotalus* White Pelican and *Phoenicopterus ruber* Greater Flamingo are lagoonal. One terrestrial species, *Struthio camelus* Ostrich, is represented by egg-shell fragments. Three marine species, *P. capensis, S. demersus* and *M. capensis* respectively, were the most common.

TABLE 1: WORTEL. Species and minimum number of individuals per unit.

TAXON	EXCAVATED SQUARES							
	K1	K2	K3	K4	K7	K8	K9	TOTAL
Struthio camelus								
Ostrich (egg-shell only)	X	X	X	X	X	X	X	X
Spheniscus demersus								
Jackass Penguin	1	3(1)	4	-	3	-	1	12(1)
Procellaria aequinoctialis								
White-chinned Petrel	-	1	-	-	-	-	-	1
Pelecanus onocrotalus								
White Pelican	-	-	-	-	-	1	1	2
Morus capensis								
Cape Gannet	2(1)	1	-	-	1	1	-	5(1)
Phalacrocorax carbo								
White-breasted Cormorant	-	?1	-	-	-	-	-	?1
P. capensis								
Cape Cormorant	7	3	2	1	2	1	2	18
Phoenicopterus ruber								
Greater Flamingo	1	2(1)	-	-	2	1	1	7(1)
MIN. NO. INDIV.	11	11	6	1	8	4	5	46

X = egg-shell only
( )= no. of immature individuals in total

TABLE 2: WORTEL. Skeletal parts by which birds (all taxa) are represented and number of individuals potentially represented by each part (in brackets).

	K1	K2	K3	K4	K7	K8	K9	TOTAL
Cranial	-	-	-	-	-	4(1)	-	4(1)
Vertebrae	4(1)	3(1)	-	-	-	1(1)	1(1)	9(4)
Innominate	1(1)	-	-	-	4(2)	-	-	5(3)
Ribs	-	1(1)	-	-	-	-	-	1(1)
Sternum	-	-	-	-	-	-	-	-
Furcula	-	-	-	-	-	-	-	-
Scapula	-	-	1(1)	-	-	-	-	1(1)
Coracoid	4(3)	4(3)	3(3)	-	4(3)	-	1(1)	16(13)
Humerus	18(6)	8(4)	3(1)	1(1)	4(3)	2(1)	3(2)	39(18)
Radius	1(1)	6(3)	1(1)	-	1(1)	1(1)	-	10(7)
Ulna	-	1(1)	4(2)	-	2(1)	-	-	7(4)
Cuneiform/Scapholuna	-	-	-	-	-	-	-	-
Carpometacarpus	3(2)	1(1)	1(1)	-	-	-	-	5(4)
Digit/Phalanges	-	-	-	-	-	-	-	-
Femur	1(1)	5(2)	6(4)	-	3(2)	1(1)	-	16(10)
Tibiotarsus	6(3)	4(3)	8(4)	-	6(4)	-	-	24(14)
Fibula	-	1(1)	-	-	-	-	-	1(1)
Tarsometatarsus	-	3(2)	-	-	-	-	1(1)	4(3)
Phalanges	-	3(2)	-	-	-	-	-	3(2)
Metatarsal 1	-	-	-	-	-	-	1(1)	1(1)
TOTAL BONES IDENT.	38	40	27	1	24	9	7	146
NO. TAXA	4	6	2	1	4	4	4	8
MIN. NO. INDIV.	11	11	6	1	8	4	5	46

3 DISCUSSION

3.1 Taphonomy

The bones are not well-preserved. The high salt content of the depositional environment and the fact that much of the material was exposed to weathering have resulted in considerable deterioration of some bone surfaces. In addition, a number of bird bones, as well as mammalian components, show damage characteristic of chewing by carnivores. It is possible, therefore, that some bird bones which are normally fragile, especially those of incompletely ossified individuals, may not have survived. This would reduce the minimum numbers of individuals determined from the sample.

Ethnographic evidence and the association of Late Stone Age cultural remains in the Wortel shell midden complex (pottery, stone and bone artefacts and ostrich egg-shell beads) have led archaeologists (Sydow 1973; Jacobson & Vogel 1977) to assume that heaps of shellfish with fish and marine and terrestrial mammal and bird remains were discarded by people who had brought them to the locality as food and raw materials. Although recent coastal accretion may have altered the position of the coast-line and course of the Kuiseb River to some extent, the archaeological context of the occurrences leaves no doubt that the complex was established as a result of human activity.

Bones could also, however, have been contributed to the accumulations through the use of the same areas by *Hyaena brunnea* brown hyaena and *Canis mesomelas* black-backed jackal. Both species regularly scavenge fish, bird and seal remains from beaches and may remove them to eating places several kilometres inland (Skinner & Van Aarde 1981; Stuart 1976; S. Braine, R. Loutit, J.A.J. Nel, pers. comm.). They are also likely to have scavenged discarded bones from human occupation areas. From observations at the *H. brunnea* breeding den in the Unjab River delta in the Skeleton Coast Park it is clear that, while a number of marine birds were carried in from the coast 4,5 km away, virtually no bird bones remained after consumption. Birds were totally consumed and bones which survived digestion were highly fragmented and eroded by the acid action of digestive juices. This was not the case at Wortel. Relatively high numbers of bird bones were found and fragmentation due to chewing was limited. Bones of *Arctocephalus pusillus* Cape fur seal in the Wortel sample also did not show characteristic damage caused by hyaenas. *C. mesomelas* on the other hand does leave remnants of bird carcasses which, apart from showing damage caused by chewing, are virtually indistinguishable from those left by prehistoric people (Avery in press). Recent observations on the Skeleton Coast revealed a *C. mesomelas* eating area only metres away from 5 whale-bone huts inland near the Ugab River mouth where weathering is rapidly making them indistinguishable from other bones on the site.

The fact that a number of the bones recovered from the Wortel excavation show marks characteristic of small carnivore chewing emphasises this problem. It is probably impossible to distinguish the gnawing of *C. mesomelas* from that of domesticated dogs which, given the age of the occurrences, the inhabitants of the midden complex undoubtedly possessed or to determine whether on contextural or other evidence gnawing on bird bones was secondary to human activity. In the case of the remains of *A. pusillus* however, cut marks caused by butchering are evident on a number of the better-preserved bones. Here human activity was clearly primary to that of the small carnivore. Such evidence also supports the initial assumption that the birds and other vertebrate and invertebrate animals were brought in by human activity. It is concluded that people were responsible for the primary accumulation of animal remains in the Wortel complex; discarded food debris was then scavenged by small carnivores such as domesticated dogs or *C. mesomelas.*

3.2 Exploitation of birds

The mean minimum number of birds per square metre (3,54) at Wortel is relatively high compared to the number of birds in shell midden samples from the south-western Cape (1,88; range 1,10-2,54: Avery 1976, 1977, 1981*a*; Robertshaw 1978; Schweitzer 1979). This suggests that birds were either easier to obtain or that more effort was put into this component of the diet in an area such as Wortel with relatively low density of larger terrestrial prey. The former is perhaps the major cause, however, as Pelican Point is regularly used as a roost by sea-birds such as *Phalacrocorax capensis.*

Four marine species which breed commonly on islands off the Namibian coast form 80% of the sample. They are unlikely to come ashore unless dead or dying. *Spheniscus demersus, Morus capensis* and *Procellaria aequinoctialis* occur in large numbers relatively close inshore (Mienertzhagen 1950) but are unlikely to enter lagoons and are, therefore, most likely to have been taken from the seaward beaches. Although they breed off the Namibian coast, *P. capensis* and *P. carbo* will also roost on rocky or sandy beaches when not breeding. Large numbers of *P. capensis* are known to use Pelican Point as a roost (Mienertzhagen 1950). Given its habit of roosting in accessible areas and the fact that it is often slow to take off when approached carefully (pers. obs.; H.H. Berry, pers. comm.) at least some *P. capensis* may have been actively hunted. *P. capensis* will occasionally enter lagoons to fish (Berry & Berry 1975), and may also have been accessible in this context. Thus, at least fifty per cent of the seabirds, including most of the cormorants, must have been scavenged from the shore rather than hunted (Avery 1981*a*). The remaining 20% of the sample is represented by two species, *Pelecanus onocrotalus* and *Phoenicopterus ruber,* both of which are common in

the Walvis Bay lagoon and nearby Sandwich Harbour (Berry 1975; Berry & Berry 1975; Underhill *et al.* 1977; Whitelaw *et al.* 1978). Both species are most likely to have occurred along the fringes and sand-banks of the open lagoon and Pelican Point and in brackish pools rather than in the salt marshes which lie closer to the site (Mienertzhagen 1950; Berry & Berry 1975). This may be supported by the absence of *Phoeniconaias minor* Lesser Flamingo from the samples. Although *P. minor* is often more common than *P. ruber,* and follows similar seasonal movements, at Sandwich Harbour its feeding habits cause it to favour brackish pools, channels and vegetated salt marshes (Berry & Berry 1975). The relatively low frequencies of flamingoes, which can occur in flocks of several thousand, suggest scavenging of sick or dead animals rather than active hunting. Collectively, therefore, it is suggested that exploitation of birds took place on the coast and along the shores of the shallow lagoon although marine species made the greater contribution. The only terrestrial species, *Struthio camelus* Ostrich is documented from egg-shell fragments and beads. The bird cannot, therefore, be confidently identified as a food item in this context although Ostriches doubtless occurred along the Kuiseb River and surrounding plains.

3.3 Evidence for seasonal exploitation

Most of the birds found in the samples breed seasonally (Rand 1963). Although this normally takes place over several months the presence of recently fledged juveniles can indicate the season of exploitation (Avery 1977; 1981*a*). Information on the season of exploitation is present in the form of incompletely ossified bones of recently fledged juvenile *Spheniscus demersus, Morus capensis* and *Phoenicopterus ruber* individuals. It is possible that preservation factors have reduced the numbers of the immature individuals, the bones of which would have been more susceptible to both weathering and chewing. *S. demersus* has spring and autumn breeding peaks with juvenile mortality especially marked during October (Avery 1977, 1981*a*).

M. capensis is a summer breeder. Mortality of juveniles only occurs towards the end of the breeding season, especially during April and May. No juvenile *Phalacrocorax capensis*, the most common species both in the samples and living populations, are present. This could be taken as evidence that human occupation did not take place between approximately January and April when newly fledged birds occur. It is, however, also possible that there were no breeding colonies near the site. Lack of juvenile *P. capensis* would not then be significant. The potential use as a seasonal indicator of *Procellaria aequinoctialis* which congregates off-shore mainly in winter (Cooper & Dowle 1976) is as yet inconclusive. Although still in their early stages beach surveys in the Skeleton Coast Park (S. Braine, R. Loutit, pers. comm.) suggest that highest mortality and therefore accessibility on the coast took place in summer rather than winter, as might be expected. *P. ruber* breeds during winter when the whole population usually leaves the coast, flying inland to the Etosha Pan. There is, therefore, potentially a period between February and August when no *P. ruber* would be present on the coast. Breeding is, however, dependent on sufficient rainfall inland. This can be unpredictable and there are times when quite large proportions of the flamingo population may remain at the coast throughout the year (Berry 1975), thus reducing the usefulness of this species as a seasonal indicator. The immature individual from K2 must, however, have been taken after a successful breeding season subsequent to the birds' return to the coast in September. Accepting that the samples are small, available seasonal evidence (Fig. 2) shows that the birds were most likely to have been taken between September and May with exploitation being unlikely, but not impossible, during the intervening three months.

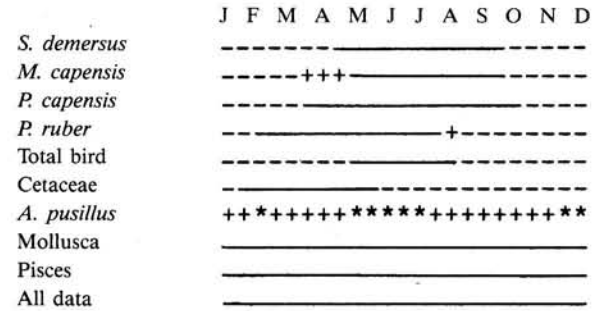

FIGURE 2: Summary of seasonal information discussed in text. – – – = period of highest mortality; ——— = potential availability; +++ = observed range of immature; * = intersect of juvenile seal mandible measurement on regression.

Evidence from other preserved dietary components suggests, however, that exploitation and, therefore, occupation may have occurred throughout the year (Figs. 2 & 3). Whale remains occur in K2 and K8 only. Although certain common species such as *Eubalaena australis* southern right whale and *Megaptera novaeangliae* hump-back whale visit the Namibian coast on a regular seasonal cycle between June and January (P. Best, pers. comm.) this evidence is difficult to interpret in practice. Ethnographic evidence shows that preservation of meat extended the potential period of utilisation (Budack 1977). It is impossible to establish whether bones such as the vertebrae represented in K2 and K8 were brought to the site with fresh meat or dried. They could also have been found along the coast at any time and brought in for their own utility as seats. Remains of *Arctocephalus pusillus* Cape fur seal provide better evidence (Parkington 1972). Comparison of the Wortel remains with known-age specimens in the South African Museum shows that at least some of the seals were pups taken between May of their first and March of their second years, although numbers are small and ranges great. Some samples have individuals which could have been taken during

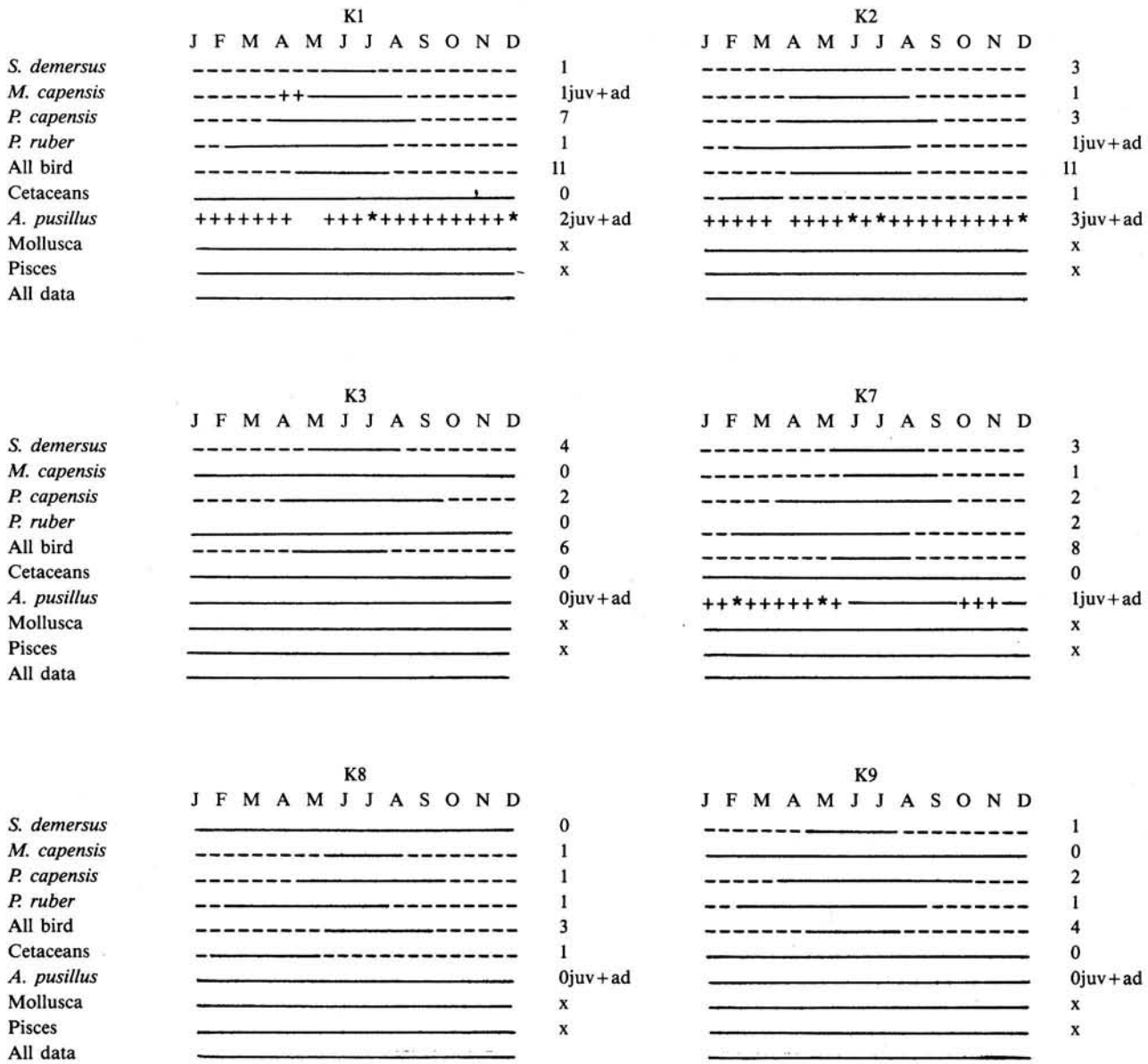

FIGURE 3: Seasonal information for each square. Numbers refer to minimum numbers of individuals; x = present, but not quantified; juv + ad = no. of juvenile individuals + presence of adults; other symbols as for Figure 2.

the three-month gap shown by the birds (Fig. 3). Adults occur in each sample and could have been taken at any time. Molluscs and fish are available throughout the year and although they occur in the samples no seasonal data have as yet been derived from them. It seems that while crude seasonal partition of some resources suggests that exploitation in most samples lapsed for a short period in the year, this probably represents limitations of the data. It seems more reasonable to accept that the dietary components represent exploitation throughout the year.

3.4 Topnaar Hottentots

The Kuiseb River valley and adjacent coast-line is the traditional territory of the Topnaar Hottentots or ǂAonin whose antecedents are considered to have used the area for centuries (Jenkins & Brain 1967; Rudner 1968; Sandelowsky & Pendleton 1970; Sydow 1973; Budack 1977; Jacobson & Vogel 1977). It appears that all Topnaar use coastal areas from time to time. Budack (1977) has suggested that one tribal section with deep-rooted traditions about coastal resources lived permanently at the coast while others with herds of domestic animals used the Kuiseb valley and only visited the coast between November and April to harvest *Acanthosicyos horrida* narra fruit, a staple food of all groups, rather than to utilise marine resources. Archaeologically, however, it seems that the latter possibility cannot be tested due to assumed similarities which are likely to have cut across the subsistence activities of all Topnaar groups.

Accepting that the middens were left by Topnaar antecedents, or at least people living in much the same way, excavations at Wortel provide quantifiable observations on aspects of their diet and past way of life.

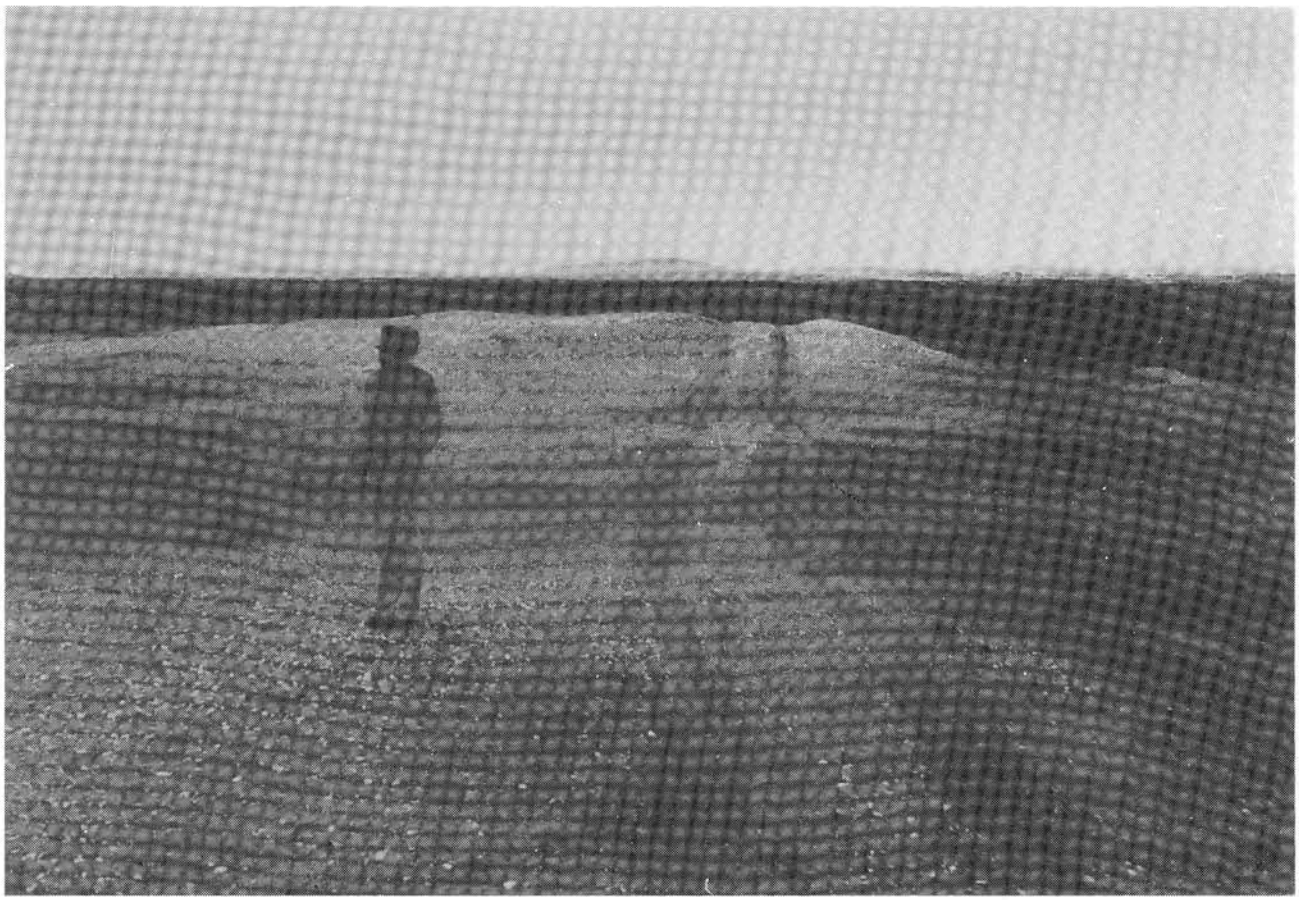

PLATE 1: View of central midden from the south, showing recent damage by off-road vehicles. Photograph by J. Kinahan.

Wortel is and doubtless was in the past the locality of extensive narra fields (Sydow 1973; Budack 1977). Although narra seeds are not preserved in the samples it is possible that this is one of the important factors determining occupation at this locality. Although the apparent gap in bird exploitation coincides to some extent with the season when narra plants were not fruiting this is not necessarily significant for the timing of occupation. After harvesting, narra fruit and seeds were preserved for use outside the season and, as discussed above, the gap may in fact reflect utilisation at this time of an optimal resource not normally preserved and, therefore, archaeologically invisible. J. Kinahan (pers. comm.) reports that during the 1960s R. McCalman collected both narra knives and enough narra seeds from middens at Wortel to demonstrate consistent use of this resource. The gap is thus most likely caused by differential preservation and limitations in the methods of extracting research data (see section 3.2 above). Sydow (1973) mentions that while they lived permanently on the coast the Topnaars changed huts every 2-3 months for hygienic reasons. This would account for sample variability within an overall all-year mosaic.

All the species identified at Wortel are on the list recorded as being hunted and eaten by the Topnaars (Budack 1977). Larger samples are likely to have included more of those which he lists. The possible significance of the absence of *Phoeniconaias minor* from the samples has been discussed. Its presence on Budack's list adds support to the contention that its absence at Wortel reflects hunting/collecting away from its preferred habitat. We know that active hunting of birds did take place. Records show that the Topnaar occasionally chased and caught young penguins which came on to the beach, took eggs from nests, clubbed juvenile cormorants and shot gulls with bows and arrows. Large numbers of birds were taken during the breeding season (Morrell 1832; Schultze 1907; Budack 1977). This affects the scavenging hypothesis to some extent although, as suggested above, the penguins at least are likely to have been weak or sick birds. Adult and juvenile cormorants, especially *P. capensis,* were likely to have been accessible at roots in the lee of Pelican Point or along the beaches. It is significant that the peak of the above-mentioned predation coincided with breeding when birds both congregate and suffer high mortality (Avery 1981*a*).

Scheduling of their exploitation is therefore unlikely to differ from that suggested on the basis of availability shown by beach surveys. There is no archaeological evidence for the use of eggs apart from those of the Ostrich. No gulls occur in the samples and it is likely that the reported use of bow and arrow for the capture of birds, while spectacular, was not prevalent (Morrell 1832). Morrell also mentions that birds were dried for later use, an important factor when considering seasonal data.

4 CONCLUSION

From the data presented it appears that there was no deliberate specialisation on any particular species. Although *P. capensis* and *S. demersus* are the most common species in the samples proportions tend to reflect the relative size of living populations as evidenced by beach surveys of modern sea-bird mortality (Avery 1981*b*) although the situation may have been different in the past. If peak natural mortality correlates with breeding, this may explain the low frequency of the relatively common Greater Flamingo whose breeding area was far away. Exploitation of birds was, therefore, very much a case of accessibility. Present evidence assumes their use was for food; there is no archaeological evidence at Wortel so far for the use of penguin skins for clothing (Owen 1825) or bird bones as artefacts.

Seasonal data available from the bird remains and other components suggest that a range of subsistence activities, perhaps aimed at local availability of a number of resources, spanned the whole year. Thus, while ethnographic evidence may suggest that some groups moved inland at times, from an archaeological point of view the Wortel complex reflects full-time occupation of the area. This underlines both the complexity of subsistence strategies and limitations in the resolution of archaeological data.

In spite of the small samples there is general agreement between the avian and the other components examined and the information provided by Budack's Topnaar informants, as well as early travellers. The most notable exceptions are illustrated by ethnographic observation on subsistence activities involving what would be archaeologically invisible resources. These include narra resources, the use of meat removed from carcasses before transport to living sites (larger marine mammals and sand-sharks, etc.) and the practice of extending the availability of resources by drying.

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