Koedoe (13): *37–49* (1970).

TWO SHELL MIDDEN OCCURRENCES IN THE TSITSIKAMA NATIONAL PARK, CAPE PROVINCE: A CONTRIBUTION TO THE STUDY OF THE ECOLOGY OF THE STRANDLOOPERS

by

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Introduction

The investigation of sites within the Tsitsikama National Park was undertaken during two periods of field work in 1965 and 1967. Initially in 1965, concern was expressed by Mr. R. Liversidge, the then Conservator of the Park, over the possible destruction of a midden at Swartrif, Site 2 of this report, in planned access road improvements. A limited excavation was carried out at the site. Subsequently in 1967 it was possible to extend this work during the course of a more general survey of the archaeology of the area. The survey on behalf of the National Parks Board had the primary aim of the establishment of one or more site displays and the Swartrif midden and a midden in a cave at the Storms River mouth (Site 1) were selected for this purpose. The results of the investigation of the two sites given here are presented in summary form in museum type displays at the Park.

Description of the sites

The wave-cut cave at the mouth of the Storms River, Site 1, is typical of a number of caves along the Tsitsikama coast. This rocky coast is formed by the truncated cliff-like margin of the Cretaceous-Tertiary marine peneplain. End-Tertiary uplift has raised the outer margin of this compound surface to some 600 feet above the present day sea level and the rivers, like the Storms River, flow across it in steep-sided gorges and occupy buried channels (Fig. 1). The emergent coast has been exposed to wave attacks during the Quaternary as evidenced by the large number of wave-cut caves to be seen marking periods of high sea-level still stand. Site 1 (Fig. 2a) appears to have been formed along an east-west striking shear zone and a considerable rock-fall has raised the level of the entrance to some fifty feet above the present day mean sea-level. The base of the tumble is at 25 feet above sea-level which approximates to the elevation of a widely observed marine still-stand along the South African coast (Krige 1927). The structural control of the shear zone is

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FIG.1

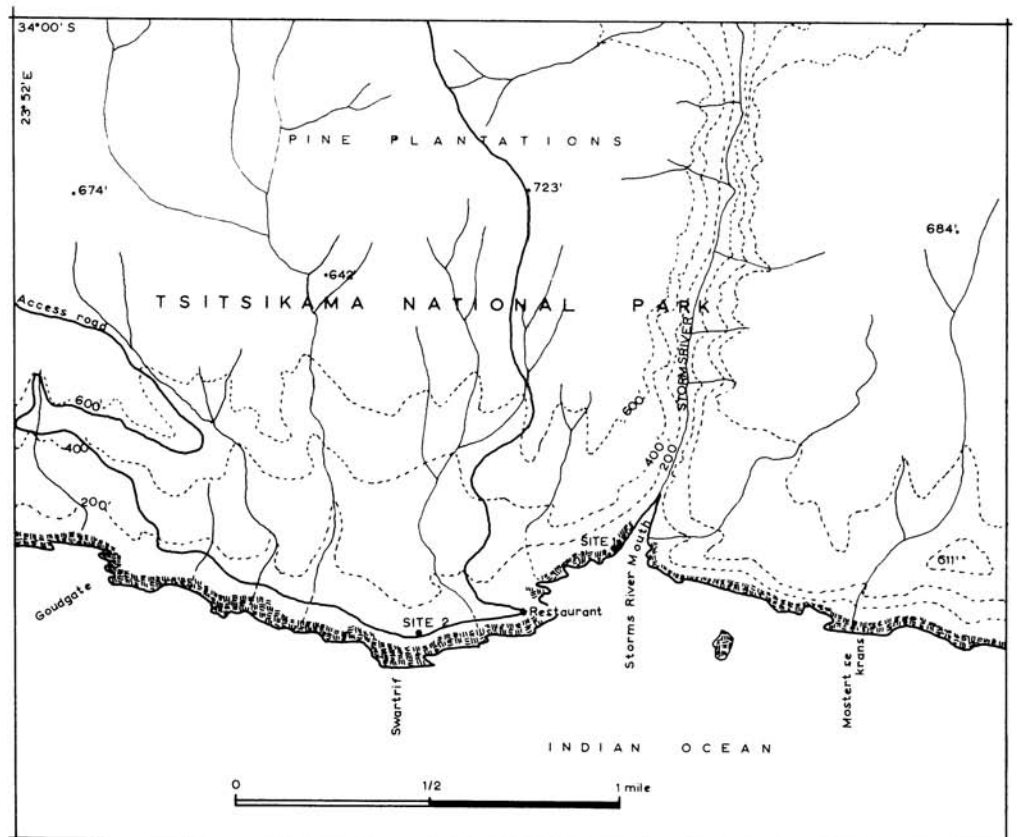

34°00' S
23° 52' E
PINE PLANTATIONS
674'
723'
642'
684'
TSITSIKAMA NATIONAL PARK
Access road
600'
400'
200'
600'
400'
200'
STORMSRIVER
SITE 1
611'
Goudgate
SITE 2
Restaurant
Storms River Mouth
Swartrif
Mostert se krans
INDIAN OCEAN
0
1/2
1 mile

Fig. 2a.

CAVE AT STORM'S RIVER MOUTH : SITE 1-1967

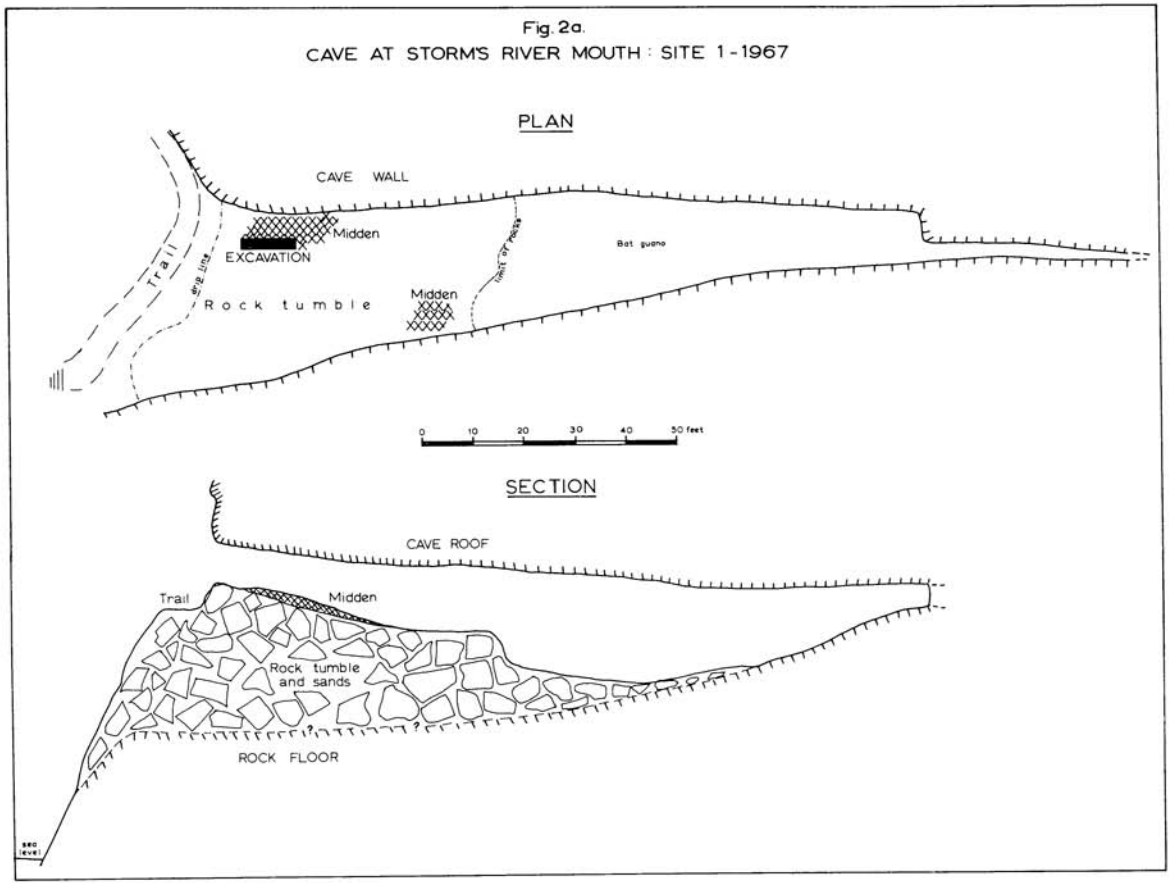
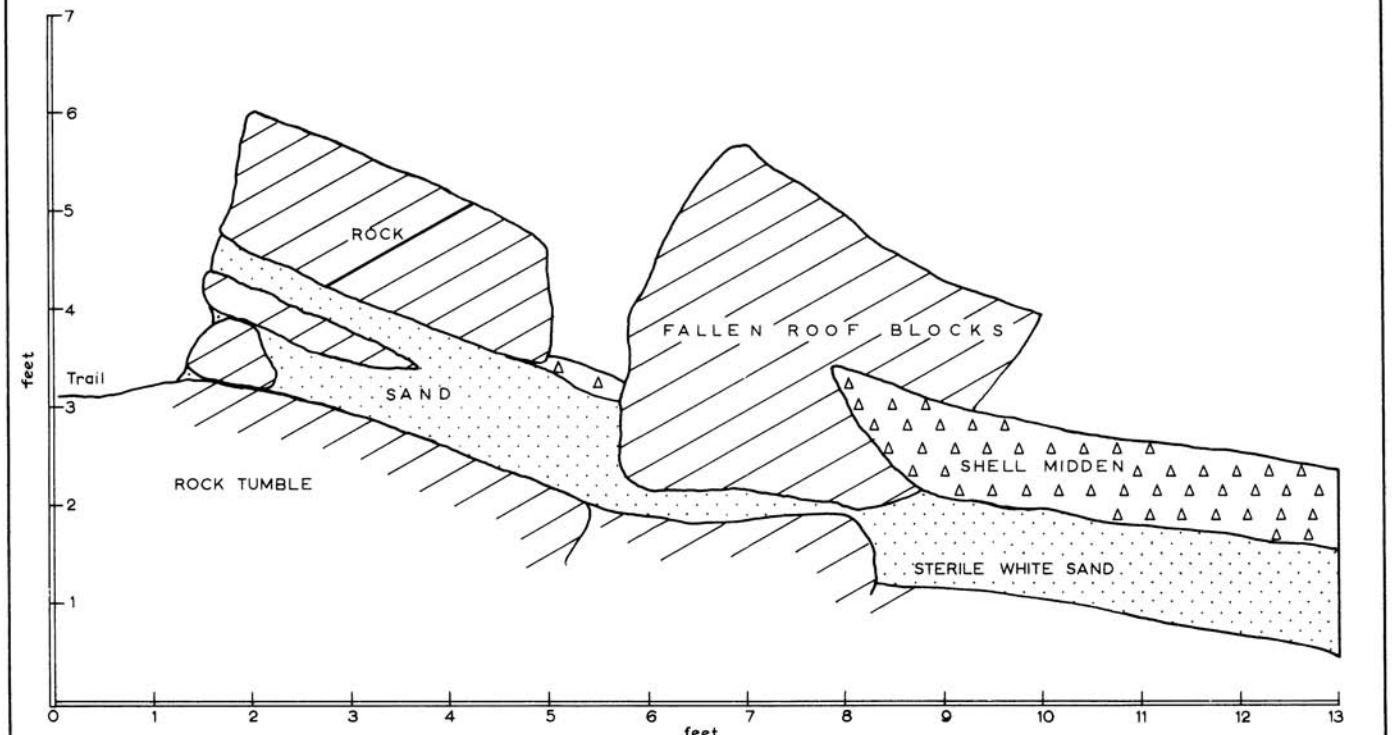


Fig. 2b.

SECTION THROUGH DEPOSIT AT STORM'S RIVER MOUTH CAVE: SITE 1 - 1967



reflected in the form of the cave which is 150 feet deep, 35 feet wide with a high roof. There is a marked slope in the floor of the cave due to the thickness of the tumble at the mouth.

Occupation in terms of midden accumulations is evident on the surface in two separate areas; on the south side fifteen feet from the entrance and some fifty feet into the cave on the north side. Neither shell accumulation is extensive and while other occurrences may be buried within the tumble, the uneven surface of the floor and the low light towards the rear may have been a consistent factor in limiting the occupation area. The excavation in this cave consisted in cutting a thirteen foot section through the midden accumulation near the entrance and this section stands as portion of the public site display (Fig. 2b). The small area covered by this shell accumulation and its limited thickness point to it being a short term accumulation.

Site 2, the Swartrif midden, is on a steep slope against a rock outcrop that flattens upslope at the foot of an over-hang which is 20 feet wide and some six feet deep (Fig. 3). The position is more accessible and more exposed than the site at the mouth and possibly this accounts for the thicker and more extensive occupation and it may represent a focus over a more protracted time period. In 1965, two cuttings were made, one on the slope below the overhang and the second under the overhang. The deposit was shown in these cuttings to be developed to a thickness of between one and two feet on the lower slope and to wedge out against the overhang (Fig. 3). The 1967 cutting was a trench 9 feet long and 4 feet wide excavated to expose the midden accumulation in three stepped sections, the deepest reaching bedrock at a depth of 2′8″. This section is preserved as a site display.

Cultural Material

The frequency of artefacts in the midden deposits is low. The material from the 1965 excavation at Site 2 is housed at the Tsitsikama National Park and has not been re-studied here. Apart from manuports, the finds include a cast iron object in the top of the midden against the overhang, a number of flaked cobbles, untrimmed flakes and from the cutting in the lower slopes, a lower grindstone and two rubbers. A similar range of cultural material was recovered in the 1967 cuttings. From Site 1, ornaments included an ostrich shell pendant and an undrilled conus shell and artefacts, a bone scoop, pieces of red and yellow ochre, cobbles and pebbles in shale and quartzite, a sample of seven flakes in quartz, quartzite and silcrete and eleven chunks in quartz.

The cast iron object has probably limited dating significance occurring as it does in the top two inches of deposit under the overhang and is likely to be a later intrusion. Pottery is absent in the samples from both midden occurrences and they appear to date to a period prior to the introduction of pottery. Although such negative evidence has reduced reliability for dating, sampling especially in the case of the Swartrif

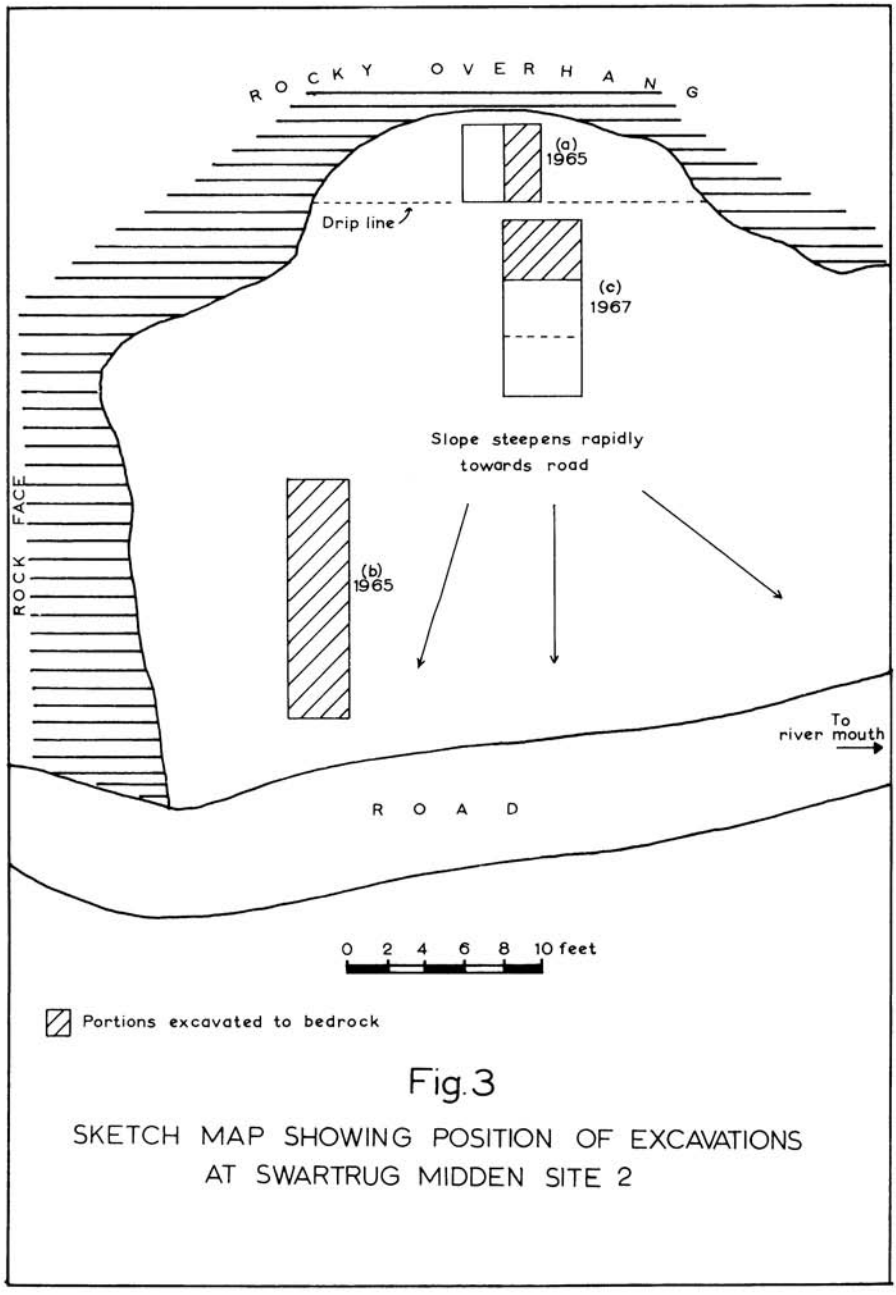


Fig. 3

SKETCH MAP SHOWING POSITION OF EXCAVATIONS AT SWARTRUG MIDDEN SITE 2

midden cannot be satisfactorily invoked to explain its absence. A midden occurrence in a cave two miles west of Swartrif is an example of a pottery midden occurrence and some sherds were recovered from a midden horizon in the sinking of foundations for the Park restaurant a quarter of a mile east of Swartrif.

The two most interesting cultural finds from the Swartrif midden occurrence were small round stones with tie-grooves ringing them. These are clearly weights and the context strongly suggests line sinkers for fishing. The weights (Fig. 4) were recovered from different sample

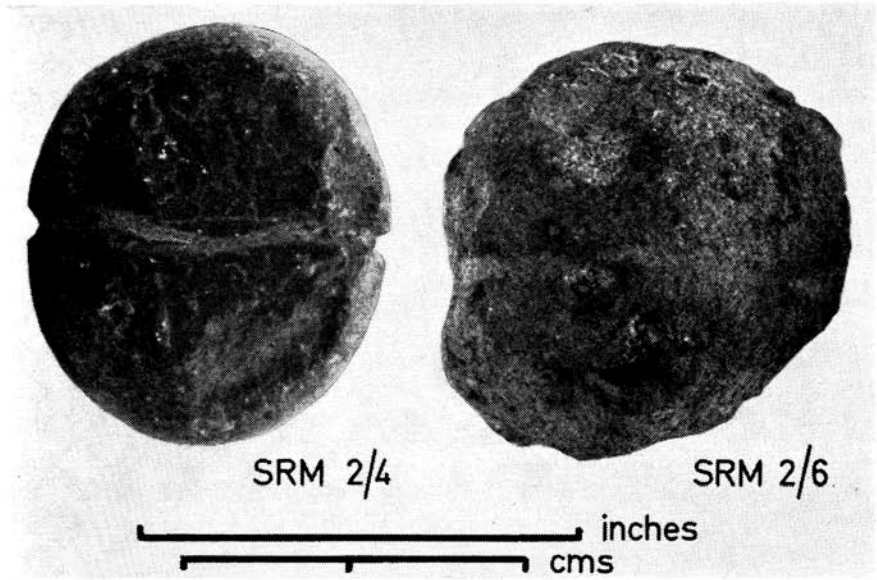


Fig 4. Two tie-grooved weights from site 2.

levels in the same grid square of the 1967 cutting. One weight is made on an edge-ground shale piece and is incomplete. The lower surface, a cleavage plane, does not carry a groove. This was found in sample SRM 2/4, at grid reference 0′–3′, depth 6″–12″ and the 4 grams it weighs is a minimum figure. The second weight is broken irregularly but is sufficiently complete to suggest an original spherical form. It is made in silcrete and weighs 10 grams although it is estimated that the complete object weighed approximately 20 grams (0.75 ounces). This silcrete weight which retains a rough surface appearance was found in sample SRM 2/6, drawn from grid square 0′–3′ at a depth of 24″–32″. The finds were thus from an upper and the lowest levels of the shell midden accumulation which is here a uniform bed composed of whole and comminuted shell in a dark black soil matrix.

Food remains

For the purpose of the displays, it was pertinent to provide evidence of how prehistoric groups had exploited available food resources of the

TABLE 1

Site—Sample	*Storms River Site 1*		*Storms River Site 2, Sample SRM 2/3*		*Storms River Site 2, Sample SRM 2/4*		*Comments*
	f	%	f	%	f	%	
Patella argenvillei	48	6.7	—	—	6	1.0	
Patella barbara	68	9.4	9	2.0	20	3.2	
Patella cochlear	130	18.1	72	15.9	61	9.7	Limpets—edible but
Patella longicosta	260	36.1	51	11.3	84	13.4	with indigestible
Patella oculus	51	7.1	27	6.0	39	6.2	raduli
Patella tabularis	26	3.6	4	0.9	4	0.6	
Perna perna	71	9.9	154	34.0	272	43.2	Mussels—edible
Turbo sarmarticus	71	9.9	50	11.0	61	9.7	Alikreukel—edible
Oxystele tigrina	6	0.8	48	10.6	48	7.6	Winkels—edible
Oxystele sinensis	11	1.5	26	5.7	34	5.4	
Haliotis sanguineum	6	0.8	2	0.4	—	—	Siffie—edible
Haliotis midae	—	—	10	2.2	—	—	Perlemoen—edible
W f	720		453		629		
			Other inclusions				
Balanus maxillarus	2		—		—		Barnacles
Tetraclita serrata	—		—		2		
Dinoplax gigas	1		—		—		Chitons
Thias capensis	1		—		—		
Thias squamosa	—		—		1		(Active predator)
Burnupena cincta	13		—		17		Welks
Burnupena lagenaria	5		—		—		(Scavenger)
Burnupena sp.	4		—		—		

coastal habitat. To this end particular emphasis was placed on the analysis of the shell and fish remains. The limited but important faunal sample was not studied in like detail. Seal, duiker, bushbuck, bird and tortoise are represented in the faunal samples from both sites (C. K. Brain, pers. comm.). In the main, such coastal sites show some emphasis on hunting towards marine mammals and sea birds reflecting the additional potential of this habitat over the inland mountain belt. The coastal habitat perhaps also offered greater potential for scavenging in addition to hunting.

The two middens provided useful samples for comparison in both the range and importance of different shell fish and fish remains. The occurrence of shell is tabled (Table 1) for three samples from the two sites (for comparison see Goodwin, 1938; Maggs and Speed, 1967). The sample from Site 1 was not partitioned. From Site 2, two samples were analyzed, SRM 2/3 and SRM 2/4. Site 2 is a thicker accumulation and was sampled in six excavated units controlled in area and depth by arbitrarily set

limits. The analyzed samples from Site 2 were drawn from the same grid square (0′–3′) at different depths(SRM 2/3 2″–6″; SRM 2/4 6″–12″) and give some measure of the homogeneity of the accumulation. Comparisons made between Site 1 and Site 2 may reflect a number of factors including time, conscious selection and available species in the collecting area.

The shell remains include whole and fragmentary shell. Initial sorting at the sites was designed primarily to give a qualitative appreciation of the range of shell fish collected. Thus complete specimens were selected for, to facilitate identification to the species level. The key characters that allow the reasonable separation of the two species of *Oxystele*, for example, require the examination of the apex, the ridging of the spire and the colouring of the inner lip of the opening. The operculum of *Turbo samarticus* on the other hand survives well, is sufficiently diagnostic to allow identification and gives a good measure of the minimum number of individuals represented. The main bias in selecting for complete shell probably results in the species with more fragile shells (excluding *Turbo*) being under-represented. These would be *Oxystele*, *Perna* and *Haliotis*. The counts of *Perna* are single valves. The degree of fragmentation is similar in the Site 1 and upper samples from Site 2. There is an increase in fragmentation of the shell in the lower levels (below 12″) at Site 2 and these levels are not considered here.

The range of species represented at the two sites is very similar and indicates collecting directed primarily at the Lower Balanoid. The characteristic fauna of this zone predominates (R.M. Tietz pers. comm.). The percentage frequencies of the different genera in the two samples from Site 2 are not significantly different ($P = 0.3$; G test, Kullback, Kupperman and Ku, 1962) although on the same basis the sample from Site 1 differs significantly from the combined samples from Site 2 ($P < 0.001$). This reflects the importance of *Patella* sp. at Site 1 and the higher frequencies of *Perna* and *Oxystele* in the Site 2 samples. The internal consistency in the Site 2 samples could be explained by selection or collecting from a somewhat restricted area. It is interesting to note the absence of *Patella granularis* from either site. This limpet was not recorded in a recent survey (August, 1964) of the inter-tidal zone at the Storms River mouth although it is common elsewhere on the Tsitsikama coast (R. M. Tietz pers. comm.). A prediction of the type of collecting areas reflected in the samples from the two sites was made by Miss Tietz without information on the localities of the sites in the Park. This prediction based on Stephenson (1939) and Broekhuysen (1940) and admittedly tentative, placed the collecting area for Site 1 near the mouth of a river and exposed to wave action and that of Site 2 in a more sheltered locality away from the influence of freshwater. The close correspondence of the prediction to the coast immediately adjacent to the respective sites is noteworthy and is indicative that the collecting areas were very localized and selection or preference is not marked. The gross differences between the shell

fish fauna found at the two sites can be readily explained by situation.

The fish fauna (Table 2) represented in the samples from the two sites again provides interesting contrasts. A wide range of species is found in the sample from the Storms River mouth cave, Site 1, while at the Swartrif midden, Site 2, *Diplodus sargus* is the main species present. All species are common and caught along the Tsitsikama coast by line fishermen

Table 2

Storms River Site 1 Mouth Cave Midden Fish Remains

No. (after Smith 1949)	*Identification*	*Premaxilla*		*Dentaries*		*Minimum number of individuals*
		Left	*Right*	*Left*	*Right*	
547	*Pomatomus saltator*			1	2	2
710**	*Rhabdosargus sarba*			4	1	4
713*†	*Diplodus sargus*	6	3	2		6
714	*Diplodus trifasciatus*	1	1	2		2
721	*Chrysoblephus laticeps*	2	7	2	3	7
725*	*Chrysoblephus gibbiceps*		1	1		1
726	*Lithognathus lithognathus*			1	1	1
727*	*Lithognathus mormyrus*			1	2	2
738**	*Pachymetopon grande*	1				1
		10	12	14	9	26

*Easily caught
†Maybe killed by upwellings of cold water

Storms River Site 2 Swartrif Midden Fish Remains

No. (after Smith 1949)	*Identification*	*Premaxilla*		*Dentaries*		*Minimum number of individuals*
		Left	*Right*	*Left*	*Right*	
710**	*Rhabdosargus sarba*		1			1
713*†	*Diplodus sargus*	20	15	14	10	20
714	*Diplodus trifasciatus*		1			1
721	*Chrysoblephus laticeps*	2	4	1		4
		22	21	15	10	26

*Easily caught
†Maybe killed by upwellings of cold water

at the present time. However, some species *Pomatomus saltator*, *Chrysoblephus laticeps* and *Lithognathus lithognathus*, for example, are not considered easily caught (J. L. B. Smith, pers. comm.). Upwellings of cold water,

common along the south Cape coast may cause the inshore surface water temperatures to fall rapidly by as much as 10° C (18° F). This can result in a high mortality of species with low temperature tolerances and sensitivity to sudden temperature changes. *Diplodus sargus* is an example here and the occurrence of this species in the midden samples is not necessarily indicative of conscious fishing. Under certain conditions fish of this species are washed ashore in quantity and can be readily gathered. It is interesting to note that at Site 2 where *Diplodus sargus* has a high frequency two possible line sinkers were found. At Site 1, the range of species was considered by Professor Smith to be clear evidence of fishing. It is evident that the groups occupying these sites were exploiting the available fish resources to a perhaps unexpected extent and that they were technically capable of competent line fishing.

Discussion

The stringer development of resorts along the eastern and south Cape coast has proceeded at an increasing tempo over the last five years and the seeming absence of regional planning control has made these developments a source of concern to conservationists generally. One direct result has been a high rate of destruction of coastal midden sites. The initiation of some broad programme aimed at sampling and conserving an adequate control series of such sites is a matter of some urgency. Even in the Tsitsikama National Park, a conservation area, the provision of tourist facilities at the Storms River mouth has resulted in disturbance of some archaeological occurrences. The excavations reported here reflect the interest and concern of the National Parks Board, but are in themselves inadequate as a control for the Park area and were not intended as such.

Perhaps the most interesting results to come out of the study of the two midden occurrences in the Park have been those evidencing the practise of competent line fishing. Although no direct connection with these sites is implied, it is of interest to note that there are historical records of mobile Bush groups, to whom line fishing was known, who inhabited the Cape Folded Belt east of Table Bay at the time of the early Dutch settlement (*vide* Goodwin, 1952). Goodwin (1946) has stressed the importance of tidal fish traps to coastal populations, but hitherto the evidence for line fishing has been somewhat less than satisfactory. Thorn gorges and vegetable fibre cord are used in fishing by some coastal peoples in south east Africa (J. L. B. Smith, pers. comm.) and a like range of materials, if used on the southern African coast, would rarely be preserved. That such was similar to the equipment used is perhaps indicated by Goodwin (1946). Granted that some coastal groups were technically capable of line fishing and from evidence elsewhere (Grindley, 1967) able to catch Cape Rock Lobster in quantity, it would seem that prehistoric groups were exploiting the food resources of the coastal habitat more efficiently than apparent from the somewhat prejudiced observations recorded by seventeenth century writers.

It has long been suggested that the coastal midden occurrences are the product of regular seasonal visits by groups whose territories extended inland. At present there is indeed little evidence for specialized groups occupying the coastal habitat exclusively in the south and east Cape at any period during the post-Pleistocene. The persistent occurrence of marine shell fragments and ornaments in excavated caves and shelters within the mountains of the eastern portion of the Cape Folded Belt (Hewitt, 1921; Deacon, H. J., 1969; Deacon, J., 1969) evidences regular contact if not movement between the coast and the immediate hinterland. This pattern was probably well established in the early post-Pleistocene (Deacon, H. J., 1969) and appears to have been a feature of the climax phase of the Wilton Culture that dominated the eastern Cape region between at least 5,000 and 2,500 years before the present (Deacon, J., 1969). An oral tradition recorded from the Joubertina District is possibly indicative of the type of pattern that movements of hunter-gatherer groups between the coast and montane habitats may have taken. The tradition mentions the occupation of a cave on the Tsitsikama coast for a period of one to two months in the summer and migration as far afield as the Baviaans Kloof during the rest of the year (Deacon, H. J., 1969). This model of seasonal movements requires more rigorous testing and in as far as the shell midden occurrences are linked through a single socio-economic system to sites in the inland habitats, they cannot be studied in isolation from the latter. As more radiocarbon dates become available it will be of interest to ascertain whether a high frequency of midden occurrences fall within the climax phases of the Wilton Culture as known in the eastern Cape.

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ran the tests for significance on the shell samples. Further, I am grateful to Mr. H. J. van Eck of Kimberley and Mr. L. du Plessis of Joubertina for drawing my attention to the Onder Kouga area where the oral tradition relating to band movements was recorded.

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