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3/ THE CONSTITUTION OF THE FAUNA OF ROCKY
INTERTIDAL SHORES OF SOUTH WEST AFRICA.
PART II. ROCKY POINT

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INVERTEBRAT.
ZOOLOGY
Crustacea

ABSTRACT

A survey was made of the fauna of the rocky intertidal shore at Rocky Point, on the northern coast of South West Africa. Transects were made on the southern and northern sides of the Point. The fauna is described, and its relationship with the intertidal faunas of other parts of the southern African coast is briefly discussed. A full list of the species recorded from Rocky Point during the survey is given.

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THE CONSTITUTION OF THE FAUNA OF ROCKY
INTERTIDAL SHORES OF SOUTH WEST AFRICA.
PART II. ROCKY POINT

by

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I. INTRODUCTION

The second in a series of preliminary surveys of the intertidal fauna of rocky shores of South West Africa was carried out at Rocky Point on the north coast. Owing to the extreme inaccessibility of the locality, most of the work was done during a single visit in June 1969. A certain amount of preliminary collecting had been carried out during a brief visit in October 1968. The survey was made in the same way as the first of the series at Lüderitzbucht, described by Penrith & Kensley (1970).

II. DESCRIPTION OF THE AREA

Rocky Point is a basalt promontory situated at 18° 59' S., 12° 29' E. on the northern coast of South West Africa. The area is shown in plates 1 and 2. The surrounding desert consists mainly of undulating sandy and pebbly plains, with no rocky outcrops in the near vicinity. South of the promontory, which runs into the sea in a north-westerly direction, an exposed rocky coast bounded above by sand extends for about 500 metres to a hillock marked by a beacon; south of the beacon hillock the coast is predominantly sandy to the Hoarusib River mouth. To the north, the promontory forms a slight embayment. The promontory forms the southern rocky shore of the embayment, the rest of the coast line northwards being sandy. In the curve of the bay between the rocky and sandy shores is a low sheet of conglomerate rock that is exposed only at low water of spring tides; above it is a sandy beach, fringed at high tide mark by round, large pebbles. The embayment is sheltered from the strongest wave action by the point, and there is considerable deposition of silt in the southern part of the embayment.

Transects were made at three localities: (1) An exposed area just south of the promontory, (2) the sheltered northern slope of the promontory, (3) the conglomerate rock in the curve of the embayment.

The rocky slope south of the promontory consists of large masses of red basalt invaded by deep gullies and pools. A transect was made over an exposed rocky slope. Owing to the strong wave action, there were very few loose stones or rocks even in the pools; cryptofauna was therefore largely confined to the sparse algal tufts and to the underside of rocky overhangs. General collections were made amongst algae, including kelp holdfasts, and under rocky ledges.

The northern slope of the promontory consisted of red basalt with shallow pools and a much denser algal growth than the southern slope. Some very large deep tidal pools occurred along the top of the promontory, but the pools and crevices along the northern edge were all shallow. A transect was made over a fairly steep slope on the northern side.

The conglomerate rocks formed a flat area in the curve of the bay where comparatively sheltered conditions prevailed. Deposition of silt was most noticeable here, although it also occurred along the northern edge of the promontory itself.

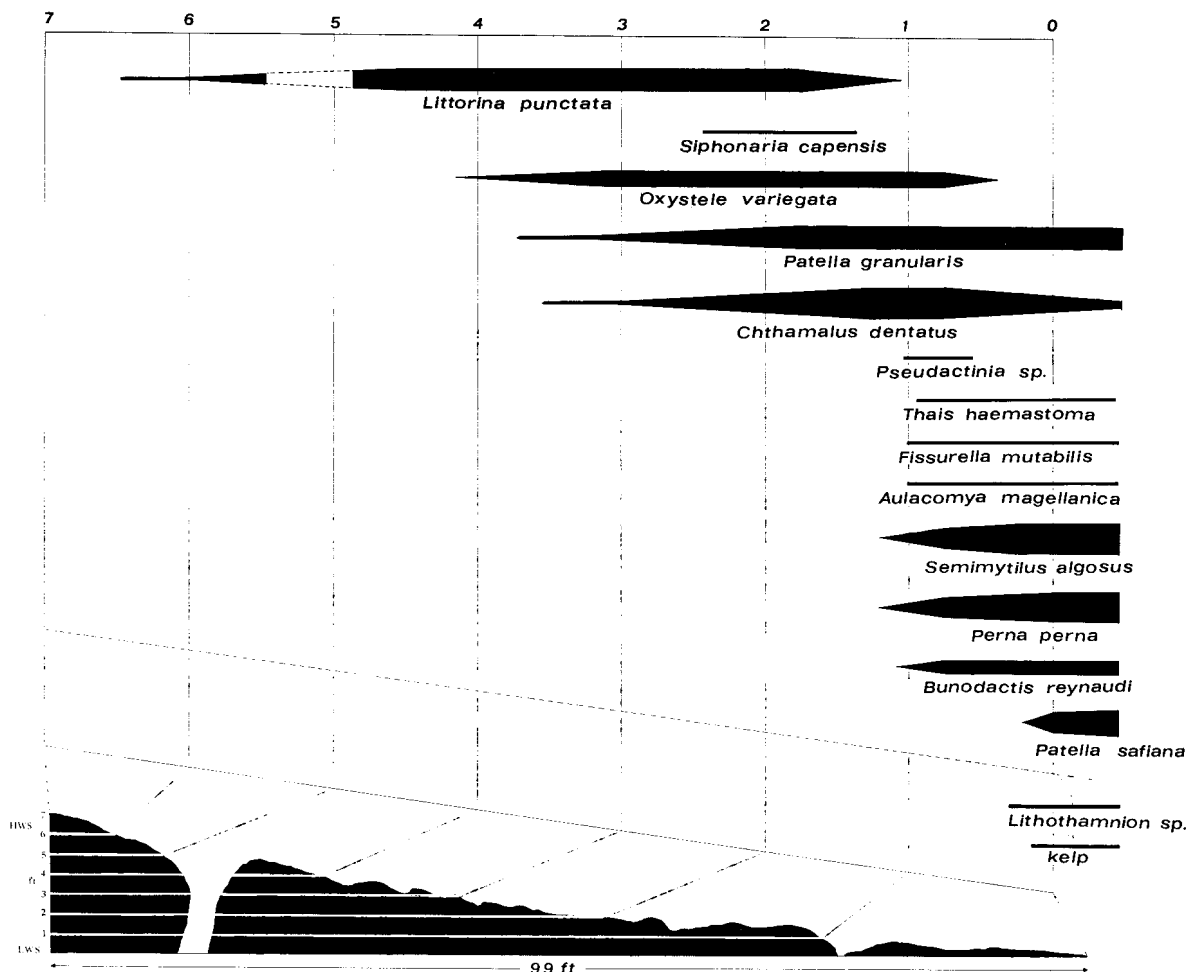


Figure 1: Transect made on south coast of Rocky Point

The conglomerate rock formed long low ridges running out to sea (plate 2), with shallow sandy pools between them. An extensive general collection was made from algae including kelp holdfasts and under loose stones in pools in this area and along the northern edge of the promontory.

Monthly mean surface temperatures of inshore coastal waters in the vicinity of Rocky Point vary from 14° — 17°C (Stander, 1964). The embayment is so slight that it is unlikely that temperatures within it would differ greatly from those of the surrounding waters.

III. DESCRIPTION OF THE TRANSECTS

1. South coast of Rocky Point

The area of the transect is shown in plate 3. Stations were situated on exposed rocks on a slope of red basalt scored by crevices and gullies. The level of high water of spring tides was taken to be a line above which a powdery dark brown deposit that covered the rocks and sand higher up occurred. This deposit is the residue left by the large quantities of foam that accumulate periodically in this area and are deposited by wind for some considerable distance above the high water mark. The vertical distribution of non-cryptic animals and the ranges of the more characteristic algae are shown in figure 1.

The transect was bounded at the level of low water of spring tides by kelp, *Laminaria schinzii*. Algal growth above the kelp was in general sparse (plate 4). The rocks were encrusted in places with *Lithothamnion* sp. *Aeodes orbitosa* and *Cladophora capensis* were present to a level of 1 - 2 feet above L.W.S. A fine red alga was growing on some of the large specimens of *Perna perna*. No algae occurred in the upper 5 feet of the transect.

A large limpet, *Patella safiana*, and clusters of large specimens of *Perna perna* were the dominant animals at the lowest level of the transect (plate 4). A smaller mussel, *Semimytilus algosus*, was abundant amongst the byssus threads of *Perna perna*. A few small specimens of *Aulacomya magellanica* were found at the same level. Crevices in the lower two feet were packed with the sand-encrusted sea anemone *Bunodactis reynaudi*, and another anemone, *Pseudactinia varia*, was present in small numbers about one foot above L.W.S. Two gasteropods, *Thais haemastoma* and *Fissurella mutabilis*, were present in small numbers at the lowest levels.

A barnacle, *Chthamalus dentatus*, and a limpet, *Patella granularis*, extended from L.W.S. to about 3'6" above L.W.S., the former forming a dense mass over the rocks between about 6 inches and 1'8" above L.W.S. (plate 5). *Perna perna* was also common at this level. *Siphonaria capensis* was present in small numbers at about 2 feet above L.W.S. *Littorina punctata* occurred over a large area from one foot above L.W.S. to H.W.S., and extended into the splash zone above H.W.S.

The south side of Rocky Point offers very little shelter for cryptofauna owing to the lack of loose stones and the poor algal flora. At L.W.S. and to a level of about one foot above it, a number of small organisms find shelter in the holdfasts of kelp and other algae, and amongst the byssus threads of *Perna perna*. The polychaetes *Lumbrineris tetraura*, *Pseudonereis variegata*, and *Thelepus comatus* were common at the lowest levels, and *Naineris laevigata* and *Boccardia polybranchia* were common at about one foot above L.W.S. A small crab, *Pilumnoides perlatus*, was particularly common in kelp holdfasts and amongst *Perna perna*. Two large crabs were also found on the south side of the point: *Plagusia chabrui* was common just below L.W.S. and in pools in the intertidal zone, and *Grapsus grapsus* occurred near the top of the shore. An amphipod, *Hyale hirtipalma*, was common amongst algae from 0 - 1' above L.W.S.

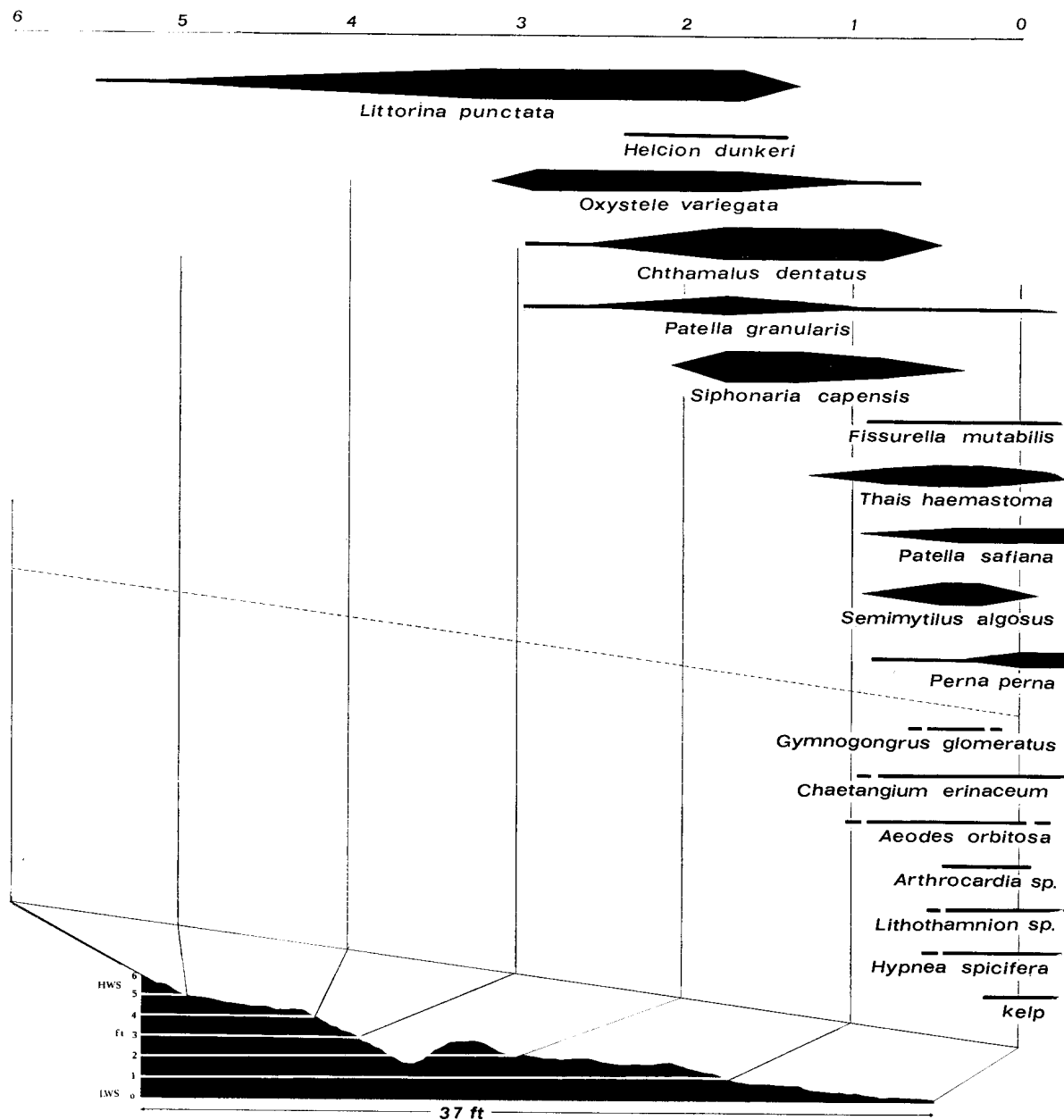


Figure 2: Transect made on north coast of Rocky Point

2. North coast of Rocky Point

The transect lay over a slope of red basalt with shallow pools and gullies (plate 6). The vertical distribution of non-cryptic animals and the extent of the common algae are shown in figure 2.

The transect was bounded at L.W.S. by kelp, *Laminaria schinzii*. From 0 - 1' above L.W.S. the rock was encrusted with *Lithothamnion* sp. and covered by a dense algal carpet consisting mainly of *Hypnea spicifera*, *Arthrocardia* sp., *Aeodes orbitosa*, *Chaetangium erinaceum*, and *Gymnogongrus glomeratus*.

Perna perna and *Semimytilus algosus* were common at the lowest levels of the transect, and two other mytilids, *Modiolus carvalhoi* and *Gregariella simplicifilis*, were present in the bases of algal clumps between 0 and one foot above L.W.S. *Patella safiana* was fairly common from about 6" above L.W.S. down to the infratidal fringe. *Patella granularis* extended from 0 - 3' above L.W.S., being commonest at about 1'8" above L.W.S. *Helcion dunkeri* was present at about 2' level above L.W.S. *Chthamalus dentatus* formed a dense belt at $\pm 9''$ - 2' above L.W.S. *Siphonaria capensis* was also abundant at this level.

Fissurella mutabilis was present and *Thais haemastoma* fairly common between 0 - 1' above L.W.S. Two small gasteropods, *Tricolia capensis* and *Pyrene kraussii*, occurred amongst the algal fronds, the former in very large numbers. *Oxystele variegata* was common from about 18" to 3' above L.W.S. *Littorina punctata* extended from about 1'4" above L.W.S. to 5'6", being most abundant from about 1'8" - 3'3" above L.W.S.

The algal carpet at the lower edge of the transect offered shelter to a number of small cryptic animals apart from the molluscs mentioned above. The polychaetes *Cirriformia capensis* and *Cirriformia tentaculata* were common in fine sand that had accumulated between the bases of algal tufts and in the crevices of the rocks. *Lumbrineris tetraura*, *Nereis (Nereis) falsa*, *Platynereis dumerilii*, and *Thelepus comatus* were common amongst the algae, and *Boccardia polybranchia*, *Marphysa capensis*, and *Pseudonereis variegata* were present in small numbers. An amphipod, *Hyale saldanha*, was common amongst the algae from 0 - 1' above L.W.S. An isopod, *Parisocladus perforatus*, was fairly common under stones and algae about 1' above L.W.S., and three other species, *Cymodocella pustulata*, *Exosphaeroma varicolor*, and *Dynamenella huttoni*, were present lower down. Two small crabs, *Pilumnoides perlatus* and *Xaiva biguttata*, were present at L.W.S. and just above. A brachiopod, *Discinisca tenuis*, and a black holothurian, *Cucumaria* sp., were present in crevices at the bottom of the transect.

3. Flat conglomerate rocks, north side of Rocky Point

A transect was made over the rocky fringe at the edge of the sandy beach just north of the point. The beach is bounded in this region at H.W.S. by a 15'3" broad band of large round pebbles, separated from the conglomerate rock by a sandy

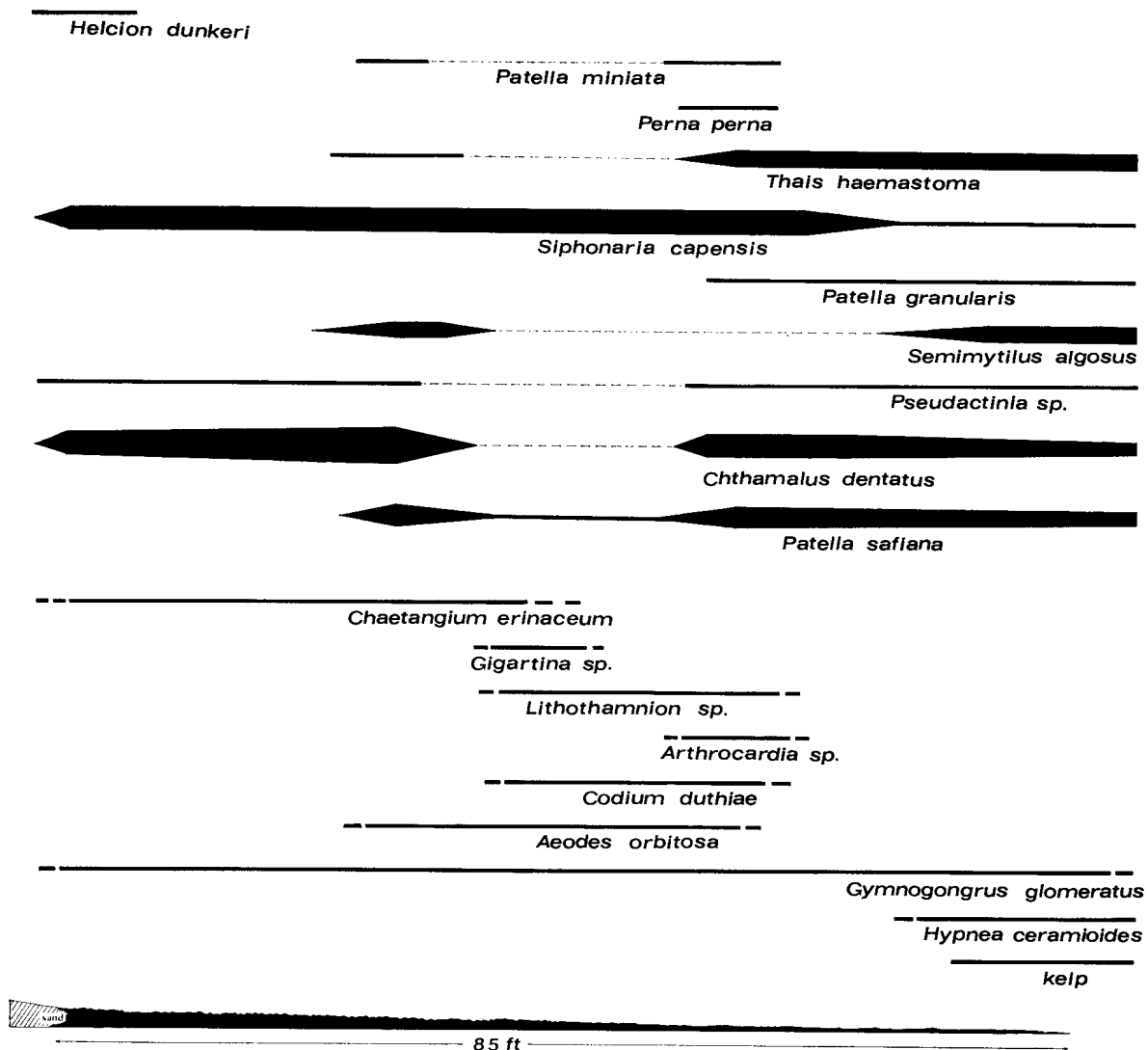


Figure 3: Transect made over flat conglomerate rocks north of Rocky Point

beach 71' wide. The vertical height from the pebbles to L.W.S. is about 5'6". The fall from the upper edge of the conglomerate rock to L.W.S. is six inches, over a distance of 84'10". The area of the transect is shown in plates 2 and 7.

The seaward edge of the rock is bounded by kelp (*Laminaria schinzii*) which also fills the gullies and grows for a short distance above L.W.S., so that it is exposed at low water of spring tides (plate 7). Owing to the very slight fall of the area of the transect, vertical zonation was not marked; it was more noticeable with respect to the algae than the animals. *Hypnea ceramioides* was abundant at the seaward edge; *Gymnogongrus glomeratus* occurred throughout; *Aeodes orbitosa*, *Codium duthiae*, *Arthrocardia* sp., *Lithothamnion* sp., and *Gigartina* sp. were common in the middle region of the transect. *Chaetangium erinaceum* was very common near the top.

All the common non-cryptic animals except *Siphonaria capensis* showed a decrease in numbers about 40' from L.W.S. (fig. 3), where silting was apparently particularly heavy, and the rocks and even the algae were covered with a thick layer of fine sandy mud. Numbers increased again above this level. Silting was in general heavy in the area (plate 8).

Loose stones were few, but the algae sheltered a fairly extensive cryptofauna: the small gasteropods *Tricolia capensis* (abundant), *Pyrene kraussii*, and *Nassa kochiana*; the polychaetes *Lumbrineris tetraura*, *Platynereis dumerilii*, *Nereis (Nereis) falsa*, *Thelepus comatus*, and *Lanice conchilega* (fairly common, the latter only in kelp holdfasts), and *Boccardia polybranchia*, *Naineris laevigata*, *Phyllodoce castanea*, and *Syllis (Typosyllis) armillaris* (present); the amphipods *Hyale saldanha* (common) and *Caprella penantis*, and *Elasmopus affinis* in kelp holdfasts; and the isopods *Cymodocella pustulata*, *Parisocladus perforatus*, and *Paridotea reticulata* (the latter species in kelp holdfasts near L.W.S.). A tanaid, *Anatanais gracilis*, was present in the silted area.

IV. FAUNA LIST AND NOTES ON THE OCCURRENCE OF PARTICULAR GROUPS

A full list of the invertebrate and permanently intertidal fish species recorded from Rocky Point is given in table 1. More species were recorded from the northern than from the southern side of the Point; the reason for this is probably the greater amount of shelter offered to cryptofauna on the north side, which is not exposed to the full force of the waves as is the southern side, and consequently has a richer algal flora and a greater number of loose stones available. Several species that occurred on both sides of the point were apparently more common on the northern side. A few species were found to be common on the exposed, south side (e.g. the sea anemone *Bunodactis reynaudi*, the polychaetes *Boccardia polybranchia*, *Naineris laevigata*, and *Pseudonereis variegata*, an amphipod, *Hyale hirtipalma*, and the crabs *Plagusia chabrus* and *Grapsus grapsus*), and less common or absent on the northern side.

Polychaeta

Of the 18 species of polychaetes recorded from Rocky Point, nine were recorded from Lüderitzbucht by Penrith & Kensley (1970). Another species, *Harmothoe goreensis*, has been recorded intertidally from Lüderitzbucht (Day, 1967). Only one of the species recorded from Rocky Point, *Branchiomma violacea*, is endemic to the South African region.

Five species have not been recorded, intertidally at least, from localities between the south-western Cape and Swakopmund and the northern South West African coast. *Boccardia polybranchia* has been taken in shallow dredges off Lüderitzbucht, but intertidally only from Swakopmund and from localities from Saldanha Bay eastwards. *Lumbrineris tetraura* has been taken intertidally from Swakopmund and from localities from Lambert's Bay eastwards. *Nereis (Nereis) falsa* occurs intertidally at Swakopmund and has been taken in shallow dredges off Lüderitzbucht, occurring again intertidally from Port St. John's to St. Lucia Bay in Natal. *Phyllodoce castanea* has been taken from Swakopmund and Lüderitzbucht in shallow dredges but intertidally only from the Cape Peninsula eastwards. *Syllis (Typosyllis) prolifera* has not been recorded between Swakopmund and the Cape. The other three species, *Dorvillea rudolphi*, *Eulalia (Eumida) sanguinea*, and *Lanice conchilega*, are widely distributed species but have not been recorded from localities west of Saldanha Bay on the southern African coast.

Cirripedia

Only a single species of barnacle, *Chthamalus dentatus*, was found at Rocky Point, but it was present in vast numbers and formed a conspicuous balanoid zone at the lower mid-tidal level of the shore. It is a tropical species that disappears between Lüderitzbucht and False Bay.

Amphipoda

Amongst the amphipods, *Jassa falcata* seems to have an interrupted distribution similar to that of several other species in various groups, having been recorded from Swakopmund and Saldanha Bay but not between. This species and *Elasmopus affinis* are the only amphipods from Rocky Point which were not recorded from Lüderitzbucht by Penrith & Kensley (1970). *Elasmopus affinis* is the only truly West African amphipod recorded from Rocky Point, this being the first record of the species south of the Congo.

The difference in local distribution between *Hya!e saldanha* and *Hya!e hirtipalma* noted at Lüderitzbucht (Penrith & Kensley, 1970) is again seen, the former common on the more sheltered northern side of Rocky Point, and the other being common on the exposed southern side.

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Decapoda

Several subtropical/tropical West African species of Decapoda were recorded from Rocky Point. These include *Acanthonyx lunulatus* and *Grapsus grapsus*, as well as the sand-burrowing crabs *Ocypode cursor* and *Ocypode africana*.

Isopoda

All the isopods were previously recorded from Lüderitzbucht (Penrith & Kensley, 1970), and most are endemic.

Mollusca

Nine of the 23 species collected have so far been recorded only from the southern African region, including Moçambique. Two, *Fissurella mutabilis* and *Tricolia capensis*, have been recorded from more tropical areas of the Indian ocean. *Tapes corrugata*, *Nassa kochiana*, and *Littorina punctata* are known from West Africa, and the former two species from the Mediterranean as well. *Modiolus carvalhoi* and *Semimytilus algosus* are known from Chile and Peru. *Kellya rubra* is cosmopolitan. *Patella safiana* and *Thais haemastoma* are common in tropical West Africa but have not previously been recorded from southern African shores. There is a sharp difference between the molluscan faunas of Lüderitzbucht and Rocky Point. *Aulacomya magellanica*, the common mytilid of exposed shores at Lüderitzbucht, with a wide distribution in cold southern waters, is almost entirely replaced at Rocky Point by *Perna perna*, a circumtropical species, and the large limpet *Patella argenvillei*, which forms a belt at L.W.S. at Lüderitzbucht and on the west coast of South Africa, is replaced at Rocky Point by *Patella safiana*.

Brachiopoda

Discinisca tenuis was common under stones and overhanging ledges. The distribution of this species is similar to that of *Semimytilus algosus*, but it is also fairly common at Lüderitzbucht.

Pisces

Six species of fishes which could be classified as permanent inhabitants of the intertidal zone were collected at Rocky Point (table 1). Of these, three are apparently endemic to the southern African region (*Clinus superciliosus*, *Blennius cornutus*, and *Chorisochismus dentex*). Of the other three, *Blennius cristatus* is

widespread in the eastern Atlantic and the Mediterranean; *Apletodon pellegrini* is known from Madeira and the Cape Verde Islands, and tropical West Africa to the southern Cape Province (Penrith, 1969). *Blennius vandervekeni* was described comparatively recently by Poll (1959) from Lobito, in Angola. *Blennius cristatus* was fairly common only on the north side of the point; *Blennius cornutus* and *Blennius vandervekeni* were fairly common on both sides of the point. *Chorisochismus dentex* was common in deep pools on the south side of the point, and *Clinus superciliosus* occurred rarely in pools on the south side. *Apletodon pellegrini* was rare, and occurred in pools at the mid-tidal level on both sides of the point.

V. DISCUSSION

Rocky Point is a small area that does not offer as wide a variety of habitats as Lüderitzbucht. The difference between the exposed and sheltered areas is far smaller at Rocky Point, where both sides of the point receive a certain amount of wave action. It is improbable that water temperatures differ greatly on either side of the point, and differences between the faunas of the southern and northern sides of Rocky Point can probably be explained entirely by the relatively greater amount of shelter offered on the northern side, with consequent development of cryptofauna, and the greater amount of silting on the northern side, which may encourage some species and act as a deterrent to others.

Rocky Point evidently lies in a transitional area between the cold west coast of southern Africa and the tropical coast of West Africa. Only 60% of the invertebrate species recorded during the present survey are typical of the intertidal zone of the west coast. 13% are forms (mainly West African) which have not been recorded from the South African region other than the northern coast of South West Africa. The remainder of the species have been recorded from other parts of the South African coast, but are not typical of the west coast from Cape Point to Lüderitzbucht. Of the permanently intertidal fishes, two species occur on the south coast of South Africa but have not been recorded from the area between the northern coast of South West Africa and the Olifants River mouth on the southern west coast; two species are common on the west and south coasts of South Africa; and two have not otherwise been recorded from the South African region.

The occurrence of species present on the south coast of South Africa, from Lambert's Bay eastwards, but not recorded from the west coast proper, is an interesting feature of the fauna of Rocky Point. In most cases, these are widely distributed species whose occurrence, at least intertidally, is interrupted by the cold Benguela waters off the west coast. However, two of these species, *Blennius cornutus* and *Gregariella simplicifilis*, are apparently endemic to the southern African region, and the interrupted distribution pattern in their cases is of particular interest.

Another interesting feature of the Rocky Point fauna is the presence there of two species, occurring in very large numbers, otherwise known only from the Pacific coast of South America.

Certain groups, such as the isopods and the amphipods, showed a stronger element of typically west coast fauna than others; all the isopods and all but two of the amphipods are species typical of the west coast. On the other hand, only about half of the molluscs and polychaetes were typical of the west coast, one third of the fishes, and one quarter of the Decapoda.

Although southern African species form the bulk of the fauna at Rocky Point, and species typical of the west coast are in the majority (60% of the invertebrates and 33% of the fishes), several of the dominant animals of the intertidal zone are tropical species, notably *Perna perna*, *Chthamalus dentatus*, and *Patella safiana*, so that the appearance of the area is very different from that of a typical west coast shore.

VI. SUMMARY

A survey of the intertidal fauna of the rocky shore at Rocky Point indicated that the area lies in a region of transition between the cold west coast of southern Africa and the tropical coast of West Africa. Temperatures in the area are not high (14-17°C), and it is therefore not unexpected that the majority of species are southern African species rather than West African tropical ones, and that many of them are typical of the cold west coast. However, several of the animals which dominate the intertidal zone of the west coast of southern Africa are absent from Rocky Point, and the intertidal zone at Rocky Point is dominated to a large extent by tropical species.

VII. ACKNOWLEDGEMENTS

We are indebted to the South West African Administration for permission to make the survey at Rocky Point, and to the Director of the State Museum, Windhoek, Mr. C.G. Coetzee, for providing transport and accompanying us to the area, as well as giving much assistance during the survey.

We are grateful to the Council for Scientific and Industrial Research for a grant towards the costs of the expedition.

We are grateful to Dr. N.A.H. Millard, of the University of Cape Town, for identifying the hydroids, and to Mr. R.H. Simons, of the Division of Sea Fisheries, Cape Town, for identifying the algae.

VIII. GAZETTEER

Agulhas	34° 50' S. 20° 00' E.	Lüderitzbucht	26° 38' S. 15° 10' E.
Danger Point	34° 37' S. 19° 17' E.	Möwe Point	19° 23' S. 12° 42' E.
Doring Bay	31° 53' S. 19° 00' E.	Olifants River	
Durban	29° 53' S. 31° 00' E.	mouth	31° 42' S. 18° 11' E.
East London	33° 00' S. 27° 54' E.	Port Alfred	33° 36' S. 26° 54' E.
False Bay	27° 59' S. 32° 23' E.	Port Elizabeth	33° 58' S. 25° 36' E.
False Cape Frio	18° 29' S. 12° 01' E.	Port Nolloth	29° 17' S. 16° 51' E.
Hermanus	34° 25' S. 19° 14' E.	Port St. Johns	31° 37' S. 29° 33' E.
Inhambane	23° 51' S. 35° 29' E.	Rocky Point	18° 59' S. 12° 29' E.
Jeffrey's Bay	34° 05' S. 24° 55' E.	St. Lucia Bay	28° 12' S. 32° 25' E.
Kei River mouth	32° 41' S. 28° 23' E.	Saldanha	33° 00' S. 17° 56' E.
Knysna	34° 03' S. 23° 03' E.	Still Bay	34° 23' S. 21° 24' E.
Kosi Bay	27° 00' S. 31° 50' E.	Swakopmund	22° 40' S. 14° 34' E.
Kunene River		Table Bay	33° 56' S. 18° 28' E.
mouth	17° 15' S. 11° 45' E.	Torra Bay	20° 28' S. 13° 15' E.
Lamberts Bay	32° 04' S. 18° 20' E.	Toscanini	20° 51' S. 13° 25' E.
Lobito	12° 21' S. 13° 32' E.	Walvis Bay	22° 59' S. 14° 31' E.

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Species	Rocky Pt South	Rocky Pt North	South African Distribution	General Distribution
Phylum: PORIFERA				
<i>Ciocalypta alleni</i> de Laubenfels	P	—	Saldanha to Durban	Endemic
<i>Sycon</i> sp.	—	P		
Phylum: CNIDARIA				
Class: HYDROZOA				
<i>Aglaophenia pluma dichotoma</i> (M. Sars)	—	P	Lamberts Bay to Knysna	Mediterranean, West Africa
<i>Campanularia integra</i> MacGillivray	—	P	Cape to Natal	Cosmopolitan
<i>Clytia hemisphaerica</i> (Linnaeus)	—	P	Saldanha to Natal	West Africa, Moçambique, New Zealand
? <i>Obelia dichotoma</i> (Linnaeus)	—	P	Lamberts Bay to Natal	Cosmopolitan
? <i>Plumularia setacea</i> (Ellis & Solander)	—	P	Lamberts Bay to Natal	Cosmopolitan
<i>Symplectoscyphus macrogonus</i> (Trebilcock)	P	P	Lamberts Bay to South Coast	New Zealand
Class: ANTHOZOA				
<i>Anthopleura michaelsoni</i> (Pax)	—	P	Lüderitzbucht to Durban	Endemic
<i>Bunodactis reynaudi</i> (Milne Edwards)	C	—	Lüderitzbucht to Durban	Endemic

Species	Rocky Pt South	Rocky Pt North	South African Distribution	General Distribution
<i>Pseudactinia varia</i> Carlgren	P	—	Cape Peninsula to East London	St. Helena
Phylum: ANNELIDA				
Class: POLYCHAETA				
<i>Boccardia polybranchia</i> (Haswell)	C	P	Walvis Bay to Cape	Mediterranean, Atlantic, New Zealand, Subantarctic Islands
<i>Branchiomma violacea</i> (Schmarda)	—	P	Swakopmund to Durban	Endemic
<i>Cirriformia capensis</i> (Schmarda)	—	FC	Swakopmund to Kei	Tropical eastern Atlantic
<i>Cirriformia tentaculata</i> (Montagu)	—	C	Swakopmund to Moçambique	North Atlantic, Indo- Pacific, tropical eastern Atlantic
<i>Dorvillea rudolphi</i> (Delle Chiaje)	—	P	Saldanha	Mediterranean, Atlantic
<i>Eulalia (Eumida) sanguinea</i> Oersted	P	—	Saldanha to Moçambique	Cosmopolitan
<i>Harmothoe goreensis</i> Augener	—	P	Lüderitzbucht to Moçambique	Senegal, Angola
<i>Lanice conchilega</i> (Pallas)	—	C	Saldanha to Moçambique	Mediterranean, West Africa, Indo-Pacific
<i>Lumbrineris tetraura</i> (Schmarda)	C	A	Walvis Bay to Natal	Cosmopolitan
<i>Marphysa capensis</i> (Schmarda)	P	C	Swakopmund to Saldanha	Antarctic, Sub- antarctic Islands

Species	Rocky Pt South	Rocky Pt North	South African Distribution	General Distribution
<i>Naineris laevigata</i> (Grube)	FC	P	Swakopmund to Moçambique	Mediterranean, Cir- cuntropical
<i>Nereis (Nereis) falsa</i> Quatrefages	P	A	Walvis Bay to Natal	Mediterranean, West Africa, Malagasy
<i>Phyllodoce (Genetyllis) castanea</i> (Marenzeller)	P	FC	Walvis Bay to Moçambique	Indo-Pacific
<i>Platynereis dumerilii</i> (Audouin & Milne Edwards)	P	A	Swakopmund to Richard's Bay	Cosmopolitan
<i>Pseudonereis variegata</i> (Grübe)	A	P	Lüderitzbucht to Moçambique	Circumtropical
<i>Syllis (Typosyllis) armillaris</i> (Müller)	—	FC	Swakopmund to Moçambique	Cosmopolitan
<i>Syllis (Typosyllis) prolifera</i> Krohn	P	P	Walvis Bay, Cape to Moçambique	Mediterranean, Indo- West-Pacific
<i>Thelepus comatus</i> (Grübe)	C	A	Lamberts Bay	South Atlantic, Indo-Pacific
Phylum: ARTHROPODA				
Class: CRUSTACEA				
Subclass: CIRRIPIEDIA				
<i>Chthamalus dentatus</i> Krauss	A	A	South West Africa to Natal	West Africa, Angola, Aden, Malagasy
Subclass: MALACOSTRACA				
Order: PERACARIDA				
Suborder: TANAIIDACEA				

Species	Rocky Pt South	Rocky Pt North	South African Distribution	General Distribution
<i>Anatanaais gracilis</i> (Heller)	P	P	Lüderitzbucht to Durban	Ceylon, St. Paul & Amsterdam Is.
Suborder: ISOPODA				
<i>Cymodocella pustulata</i> Barnard	—	C	Lüderitzbucht to Natal	Endemic
<i>Deto echinata</i> Guérin	FC	—	Lüderitzbucht to Danger Point	St. Paul Is.
<i>Dynamenella huttoni</i> (Thomson)	—	FC	Lüderitzbucht to Zululand	New Zealand, Gough Is.
<i>Engidotea lobata</i> (Miers)	—	P	Lüderitzbucht to Port Elizabeth	Endemic
<i>Exosphaeroma varicolor</i> Barnard	—	FC	Lüderitzbucht to Hermanus	Endemic
<i>Idotea indica</i> Milne Edwards	P	—	Lüderitzbucht to Table Bay	Malabar coast
<i>Nerocila</i> sp.	—	P (on mullet)		
<i>Paridotea reticulata</i> Barnard	—	P	Lüderitzbucht to Still Bay	Endemic
<i>Parisocladus perforatus</i> (Milne Edwards)	FC	FC	Lüderitzbucht to Zululand	St. Paul Is.
Suborder: AMPHIPODA				
<i>Aora typica</i> Kroyer	—	P	Lüderitzbucht to Durban	Australia, New Zealand, Subantarctic Islands

Species	Rocky Pt South	Rocky Pt North	South African Distribution	General Distribution
<i>Caprella penantis</i> Leach	P	P	Natal to Lüderitzbucht	Cosmopolitan
<i>Elasmopus affinis</i> Delle Valle	C	C		West Africa
<i>Hyale hirtipalma</i> (Dana)	C	—	Lüderitzbucht to False Bay	Chile, Peru, New Zealand, Subantarctic Islands
<i>Hyale saldanha</i> Chilton	P	C	Lüderitzbucht to False Bay	Endemic
<i>Ischyrocerus anguipes</i> Kroyer	—	P	Lüderitzbucht to Natal	North Atlantic
<i>Jassa falcata</i> (Montagu)	—	FC	Swakopmund to False Bay	Cosmopolitan
<i>Paramoera capensis</i> (Dana)	FC	FC	Lüderitzbucht to Durban	New Zealand, Falkland Is.
<i>Talorchestia quadrispinosa</i> Barnard	—	FC (sandy beach)	Lüderitzbucht to False Bay	Endemic
Order: EUCARIDA				
Suborder: DECAPODA				
<i>Acanthonyx lunulatus</i> (Risso)	P	P	Rocky Point to Kunene	Mediterranean, West Africa to Angola
<i>Grapsus grapsus</i> (Linnaeus)	P	—	Rocky Point	Cosmopolitan
<i>Hippolyte palliola</i> Kensley	—	P	Rocky Point to Kunene	Endemic
<i>Ocypode africana</i> de Man	—	P	Kunene to Rocky Point	West Africa to Angola

Species	Rocky Pt South	Rocky Pt North	South African Distribution	General Distribution
<i>Ocypode cursor</i> (Linnaeus)	P	P	Kunene to Rocky Point	Mediterranean, West Africa to Angola
<i>Palaemon pacificus</i> (Stimpson)	—	P	Namaqualand to Kosi Bay	Cosmopolitan
<i>Pilumnoides perlatus</i> (Poepfig)	FC	FC	Rocky Point to False Bay	Panama, Chile, Britain
<i>Plagusia chabrus</i> (Linnaeus)	C	—	Kunene to Natal	Chile, New Zealand, Australia
<i>Xaiva biguttata</i> (Risso)	—	P	Kunene to Rocky Point	West Africa to Angola
Phylum: MOLLUSCA				
Class: LAMELLIBRANCHIATA				
<i>Aulacomya magellanica</i> (Chemnitz)	P	—	Rocky Point to Natal	Straits of Magellan, Falkland & Kerguelé Islands
<i>Gregariella simplicifilis</i> Barnard	—	P	Kunene to Natal	Endemic
<i>Kellya rubra</i> Montagu	P	—	Lüderitzbucht to Natal	Cosmopolitan
<i>Modiolus carvalhoi</i> (Klappenbach)	—	FC	Kunene to Torra Bay	Chile, Peru
<i>Perna perna</i> (Linnaeus)	A	C	Kunene to Delagoa Bay	Circumtropical
<i>Semimytilus algosus</i> (Gould)	A	A	Rocky Point to Swakopmund	Chile, Peru
<i>Tapes corrugata</i> (Gmelin)	P	P	Walvis Bay to Natal	Mediterranean, West Africa, Angola

Species	Rocky Pt South	Rocky Pt North	South African Distribution	General Distribution
Class: GASTEROPODA				
<i>Bullia digitalis</i> Meuschen	—	P (sandy beach)	Lüderitzbucht to Port Alfred	Endemic
<i>Fissurella mutabilis</i> Sowerby	P	P	Lüderitzbucht to Natal	Moçambique, Malagasy
<i>Helcion dunkeri</i> (Krauss)	—	P	Lüderitzbucht to Natal	Endemic
<i>Littorina punctata</i> Philippi	A	A	Saldanha to Knysna, Lüderitzbucht	West Africa
<i>Nassa kochiana</i> Dunker	—	P	False Bay to Port Alfred	Mediterranean, Cape Verde Is., West Africa
<i>Natica c.f. marochiensis</i> (Gmelin)	—	P	Inhambane to East London	Indo-Pacific, Morocco to Angola
<i>Oxystele variegata</i> (Anton)	A	C	Lüderitzbucht to Natal	Moçambique
<i>Patella granatina</i> Linnaeus	—	P	Lüderitzbucht to Agulhas	Endemic
<i>Patella granularis</i> Linnaeus	C	P	Lüderitzbucht to Zululand	Endemic
<i>Patella miniata</i> Born	—	P	Lüderitzbucht to Zululand	Endemic
<i>Patella safiana</i> Lamarck	C	C		Algeria, Morocco to Angola
<i>Pyrene kraussi</i> (Sowerby)	—	C	Port Nolloth to Natal	Endemic
<i>Scyllaea pelagica</i> Linnaeus	—	P	Table Bay to Jeffrey's Bay	Atlantic

Species	Rocky Pt South	Rocky Pt North	South African Distribution	General Distribution
<i>Siphonaria (Patellopsis) capensis</i> Quoy & Gaimard	P	C	Lüderitzbucht to Kosi Bay	Inhaca Is.
<i>Thais haemastoma</i> (Linnaeus)	C	C		Mediterranean, Atlantic, West Africa
<i>Tricolia capensis</i> (Dunker)	P	A	Lüderitzbucht to East London	Mauritius
Phylum: ECHINODERMATA Class: ECHINOIDEA <i>Parechinus angulosus</i> (Leske)	FC	—	Lüderitzbucht to Zululand	Moçambique
Class: HOLOTHUROIDEA <i>Cucumaria</i> sp.	—	FC		
Phylum: BRYOZOA <i>Electra verticillata</i> (Lamouroux)	P	P	Port Nolloth to East London	English Channel to Angola, New Zealand
<i>Membranipora tuberculata</i> (Bosc)	—	P	Port Nolloth to Table Bay	Circumtropical, south Atlantic
Phylum: CHORDATA Class: PISCES <i>Apletodon pellegrini</i> (Chabanaud)	P	P	Rocky Point to Port Elizabeth	Madeira, Cape Verde Is. Senegal to Moçamedes

Species	Rocky Pt South	Rocky Pt North	South African Distribution	General Distribution
<i>Blennius cornutus</i> Linnaeus	C	C	False Cape Frio to Swakopmund, Doring Bay to Natal	Endemic
<i>Blennis cristatus</i> Linnaeus	P	FC	Kunene River Mouth to Toscanini	Mediterranean, tropical West Africa
<i>Blennis vandervekeni</i> Poll	FC	FC	False Cape Frio to Mōwe Point	Lobito to Moçamedes (Angola), eastern Mediterranean
<i>Chorisochismus dentex</i> (Pallas)	C	—	Rocky Point to Natal	Endemic
<i>Clinus superciliosus</i> (Linnaeus)	P	—	Rocky Point to Kei River mouth	Endemic



Plate 1: General view of Rocky Point area from a hillock to the south



Plate 2: Rocky Point from the beach to the north, at low water of spring tides



Plate 3: Area of transect south of Rocky Point

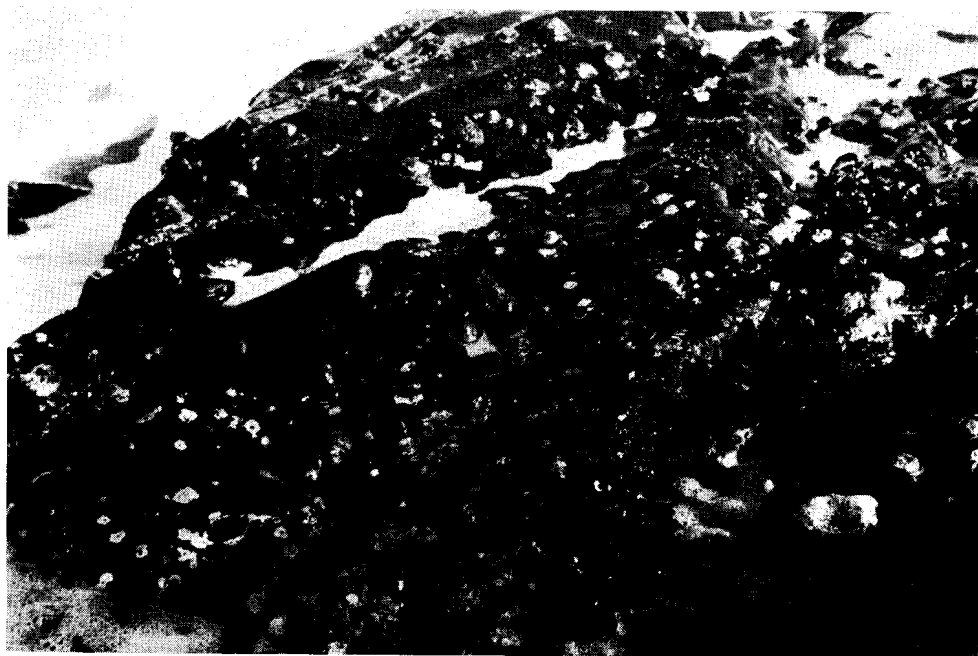


Plate 4: Lower part of transect south of Rocky Point



Plate 5: Balanoid zone, transect south of Rocky Point



Plate 6: Area of transect on north side of Rocky Point



Plate 7: Area of transect over conglomerate rocks north of Rocky Point

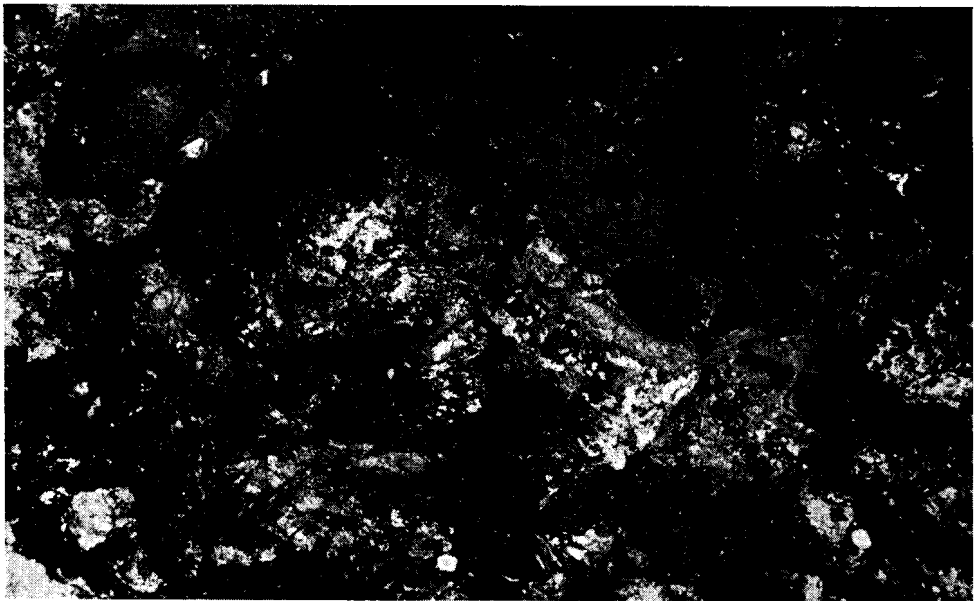


Plate 8: Part of conglomerate rock