



## THE STRANDLOPER

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*Afrivoluta pringlei* Tomlin 1947

### THE FAMILY CYMATIIDAE IN SOUTH AFRICA

by R.N. Kilburn

#### Part 3. The subfamily Charoniinae

(Note: References are listed in part 2 of this series (Circular No. 133, September 1971). Measurements, unless otherwise indicated, are those of the largest South African shell in the Natal Museum Collection.)

Genus Charonia Gistel, 1848.

Two species occur in South Africa, Charonia lampas (Linn., 1758) and C. tritonis (Linn., 1758), the former with two subspecies (Beu, 1970).

Charonia lampas pustulata (Euthyme, 1889) is the only common form, ranging from False Bay to Tongaat. It is perhaps most abundant in the East London area, where it is popularly known as the "Pink Lady". I have seen a single specimen of the nominate subspecies, C.l.lampas, dredged in the Cunene River mouth area (East London Museum), which enables it to be admitted to the South African fauna list. Intermediates between lampas lampas and lampas pustulata have, incidentally, been collected on Vema Seamount, some 350 miles out in the South Atlantic. The former has markedly weaker shoulder nodules than pustulata, and thinner pleats on the outer lip; in colour lampas is white or pale brown, with dark brown markings, instead of different shades of rich brown or pinkish orange. Length 196 mm (pustulata); the typical race reaches over 300 mm in length. In the Mediterranean, C.l.lampas feeds on holothurians (sea cucumbers) and echinoids (sea urchins), while the New Zealand subspecies prey on echinoids and asteroids (starfish) (Laxton, 1971). I have personally observed C.l.pustulata feeding on holothurians (Cucumaria sp.) at East London. This subspecies lives chiefly among rocks and in caverns in low tide gulleys and pools, but may be found in a wide variety of habitats down to about 20 fathoms.

Two other species, Charonia tritonis tritonis (Linn. 1758), is too well known to warrant description. It has been recorded from off Durban (E.A. Smith, 1903), although I have not personally seen it

from/ .....

from Natal. It has, however, been reliably found at a number of Mocambique localities, chiefly on sand among rocks or in caverns in a fathom or more of water. It lives on starfish, and is known to prey on the notorious "Crown of Thorns" (*Acanthaster planci* (Linn)). Its egg capsules have recently been described in detail by Berg (1971). Length 270 mm (Mocambique).

Genus Argobuccinum (Brug., 1792)

Only one South African species occurs, the well-known Argobuccinum argus (Gmelin, 1791). While there is an earlier name for this species, namely Gyrineum pustulosum Lightfoot, 1786, the International Commission on Zoological Nomenclature has been petitioned (Terry, 1968) to have the latter name suppressed, so hope remains that a name-change may not be necessary. This distinctive species ranges from South West Africa to Port Alfred (I regard records from further East as being very doubtful), and is a common intertidal form in the East Cape. West Coast shells are usually distinguishable from False Bay-South coast ones in the presence of a sharp tooth near the anterior end of the outer lip, sometimes accompanied by a few feeble finger-like projections. In the Eastern Cape it lives infratidally, and is rarely found in fresh condition on the beach. On the west coast and in False Bay it lives among rocks and on gravel in low tide pools, often among Pyura (red bait) or the holdfasts of kelp. It appears to be a scavenger. Length 84 mm.

Related species occur in cold temperate parts of the southern hemisphere and on some subantarctic islands (cf. Dell, 1963).

Genus Mayena

Mayena is the warm temperate equivalent of Argobuccinum, differing only in colouration and small radular details; it is nevertheless usually given full generic status.

The only South African member, commonly miscalled "Eugyrina gemmifera" by collectors, must clearly be regarded as a subspecies of the Australasian Mayena australasia (Perry, 1811), from which it differs only in having black markings on the outer lip. The correct name should therefore be Mayena australasia gemmifera (Euthyme, 1889).

This subspecies ranges from False Bay to Mocambique, and also occurs surprisingly enough on Seamount Vema. It lives chiefly half buried in gravel in low tide pools and gulleys, but may also be found clinging to the undersides of rocks. A small deep water form with prominent angular nodules, pale colouration and rather faint labral blotches, is sometimes trawled or taken from fishes' stomachs. The diet of M.a.gemmifera may prove to be the same as the nominate race, which feeds on ascidians and carrion (Laxton, 1971). The spawning habits of the latter have also been investigated by Laxton (1970). He found that the female broods over the eggs for three months, during which time she does not feed. Furthermore, it is a communal spawner, and a female, after her own eggs have hatched, may attempt to assist another female in brooding hers! My only observations on the spawning of the South African subspecies are that the female similarly broods the eggs, (for how long is unknown) and that the capsules are salmon pink, not white as reported for M.a.australasia. Length of shell 106mm.

Genus Gyrineum (Link, 1807)

This is the tropical equivalent of Argobuccinum, only one species, G.pusillum (Broderip, 1832), occurring in our waters. It is a small species, with cancellate sculpture and a violet aperture.

It may occasionally be found on the undersides of rocks in sheltered low tide pools. The species has an Indo-Pacific distribution, ranging south to the East London area, although a single shell was found at Port Alfred by Turton (1932). Nothing is known of its biology. Length 23 mm.

Genus Ranella Lam., 1812.

When first discovered in Zululand waters some years ago (cf. Dance, 1959), Ranella olearia (Linn., 1758), the only South African representative, caused a good deal of excitement. It is a very widely distributed species, occurring in the Mediterranean, Angola and New Zealand as well. In South African waters it ranges from the Tugela River mouth area to just south of Port Alfred. It is a deep water species (90-180 fathoms) and is never washed up on the shore, although it is not infrequently brought up in trawl nets, on account of its large size. Length 182 mm.

Genus Fusitriton (Cossman, 1903).

This is another deep water genus, although here our only species F. murrayi (E.A. Smith, 1891), appears to be endemic. It occurs 80-300 fathoms from off Saldanha Bay to the Port Elizabeth area, although the Natal Museum has two dead specimens (don. Mrs. K. Eastwood) from off Bazaruto Island, Mocambique, indicating that its limits have still to be established. Length 104 mm.

Genus Distorsio (Röd., 1798)

This is a small genus of tropical distribution (see Emerson & Puffer, 1953, for further details), with two Indo-Pacific species reaching Durban. Distorsio (Distorsio) anus (Linn., 1758) is the better known of the two, and is unique on account of the sharply up-turned siphonal canal and the expansive, flaring parietal callus. Length 69 mm. The other, Distorsio (Rhysema) reticulata Röd., 1798, has a more restricted, non-flaring callus, and a weakly bent siphonal canal. Length 61 mm. Both species are rare in Natal, particularly the latter. They are said to live under rocks below low tide level, although reticulata has been trawled.

Genus Cymatiella Iredale, 1924

This is a rather poorly defined genus, and should perhaps be synonymized with the European fossil Sassia Bellardi, 1872. Only one species lives in South Africa, namely, Cymatiella (Phanozosta) nassariformis (Sowerby, 1902), which has been dredged in 85-100 fathoms in the Scottburgh-Umhloti area. A specimen was also found in an intertidal pool at Chaka's Rock a number of years ago by Mrs. C.M. Connolly. It is a smallish species (length 40 mm), somewhat resembling Distorsio reticulata, but without the distorted spire and aperture. Although C. nassariformis was recorded from Japan by Bayer (1933) and Hirase (1922), this was renamed semitorta by Kuroda & Habe (1952), and apparently not related to the South African species.

Should any member have a spare specimen of nassariformis, the Natal Museum would be very grateful for a donation, as it is not represented in our collection!

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RANGE OF NERITA ALBICILLA.

Following on the notes on the range of this species published in Circulars 129 and 131, two members have given us the following information:-

Mr./.....

Mr. R. Day writes as follows - "Last year I visited the Heuningbos Estuary together with other scientists as guests of the Provincial Nature Conservation Department. Nerita albicilla was found on rocks fairly near the estuary mouth which was open. The habitat area here is very small".

Mrs A. Miller informs us that she has collected Nerita albicilla on the rocks in front of the light house at Cape Agulhas.

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LAND SNAIL ODDITY

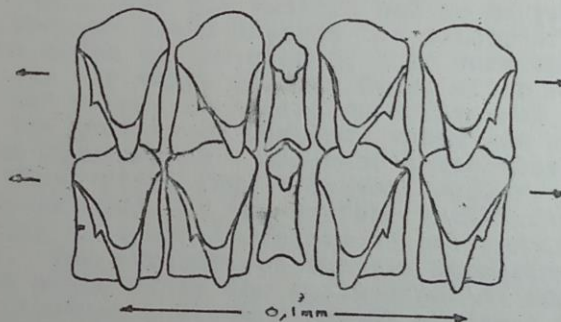
by K.J.Fuller

Readers may be interested in learning that while waiting for transport at Halali air strip (Etosha Pan, S.W.A.) I noticed a colony of land snails of the Genus Xerocerastus of which a small proportion were suspended by the spire on tall grass securely attached by spider webb wrapping.

Further investigation revealed the possibility that small spiders trapped the snails when the grass was short knowing that growth would hoist their future food supply out of harm's way.

In Barnard's "Beginners' Guide to S.A. Shells" he describes Xerocerastus as a Genus of deserticulous snails; species are few but the individuals occur in enormous numbers. It is very difficult to define species in this genus because the shells are so variable, even within the same colony extending over a few square yards, but the species may be Xerocerastus damarensis.

A drawing of the radula by Don Aiken follows -



Approximately 71 teeth per row, 120 rows.

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THE DYE MUREX

by Prof. J.K. Mallory

Murex trunculus Linn. (Banded Dye Murex) and Murex brandaris Linn. (Spiny Dye Murex) were used extensively, especially in the Eastern Meditteranean, for the manufacture of a fastcolour dye of a rich purple hue - it was about 1600 BC that the Cretans discovered the process of using the secretion, known as punicin,

obtained/....

obtained from a gland located within the mantle of the mollusc and by 1000 BC wool and silk dyeing in the city of Tyre was a thriving business.

It was an extremely expensive process as well, for in 300 AD a pound of silk dyed in Tyrian Purple, as it was named, cost an amount equivalent to R20 000 - Using this dye, a purple silken scarf would have cost the equivalent of R630. It was for this reason that only royalty and the more affluent nobility could afford to possess garments dyed with this particular colour, hence the reason why we still have the tradition that purple is the colour reserved for royalty.

The reason for the high cost of this dye was that only two drops of the secretion were obtained from each mollusc and this secretion had to be processed before being used for dyeing purposes. In this processing the two drops shrank to one sixteenth of their former volume or one eighth of a drop. A minimum of 60,000 shells had to be obtained to produce a pound of dye.

The process adopted by the Phoenicians, who were considered to be the greatest exponents of the purple dyeing art, was to collect the shells just prior to the egg-laying period, because that is the time when there is most secretion in the gland. This secretion or punicin acts both as a defence against the murex's natural predatory enemies, to which it is repugnant, and it also protects the eggs, for as they are laid on the sea floor they are enveloped with a mucus containing a certain amount of punicin, which hardens into a membrane - thus protecting the eggs and keeping the predators away.

The dye glands containing the punicin had to be removed from the living animal, because death changed the colour of the secretion. Salt having been added to the glands, they were then allowed to rot in the hot sun for three or four days, after which the resulting pulp was placed in a lead or tin vessel for any other metal affected the quality of the dye, water was added and the mixture was then simmered at a moderate temperature by the application of steam piped from a distant boiler. The impurities were continually skimmed off the surface until after about ten days, the steaming mass had decreased to one sixteenth of its former quantity. The strength of the dye resulting from this process could be adjusted by the application of the correct amount of heat and by allowing a certain amount of light to shine onto the contents of the vessel during the simmering process.

This process produced a drab dark purple dye, but the Tyrians had the secret of mixing the dye obtained from the Spiny Dye Murex with the dye obtained from the Rock Shell, Thais haemastoma, in the correct proportions so that the wool and silken fabrics dipped therein took on a lustrous dark rich purple colour.

To aid in fixing this dyestuff permanently, a mordant was used, which was an alkali derived from a seaweed found principally on the Cretan coast.

It can be well imagined that as the shellfish from which this dye was obtained grew scarcer, so it became more expensive and during the period of the Roman Empire it eventually became the prerogative of the Emperor alone to wear royal purple garments.

However, the manufacture of Tyrian dye continued until about the 9th Century, when the Phoenician dye works were abandoned. Aniline dyes have now become universally used, although the Mixte

Indians of Central America still follow the ancient process, but in order to conserve their stocks of Murex they milk the mollusk of its secretion.

It is of interest to note that the purple bearing shell fish even figures in the Word of God, for in the book of Exodus, the Lord tells Moses how the Tabernacle should be furnished - "These are the contributions you shall accept them; violet, purple and scarlet yarn, fine linen and goat hair". The word violet must have referred to indigo and the words purple and scarlet to Tyrian dye.

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Information derived from an article entitled "Tyrian Purple" by John R. Robinson Jr. published in Sea Frontiers Vol. 17 (2).

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Change of Address:-

Mr. & Mrs. I. Balfour and family, 12 Pepworth Road, Scottsville, Pietermaritzburg, Natal.

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Exchange Wanted:

Mr. G. Segiouglou, 23B, Apollonos Street, Athens 118, Greece. Wants to exchange South African shells for those from the Aegean Sea.

Mrs. M. Cauchard, B.P.107, Papeete, Tahiti. Has a large selection of fine Polynesian shells for exchange.

Miss E. Meyer, 162 Fordyce Road, Walmer, Port Elizabeth. Would like to obtain a specimen of Argonauta argo.

Mrs. R. Livingston, 3606 Orange Avenue. No., Long Beach, California 90807, U.S.A. Would like to contact South African collectors with the view to exchange.

Mrs. H. O Brien, 278 Cummings Lane, Long Beach, California, 90805, U.S.A. Would like to contact South African collectors with the view to exchange.

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Natal Midlands Group Notes:

Eight members and two visitors were present at our September meeting. This attendance, plus four apologies, indicates the sustained interest of the Group.

Mr. Kilburn continued with the next of his series of talks, his subject this month being Bursidae and Colubrariidae. His talk was again well illustrated with specimen shells. These talks do much to foster interest; more knowledge being an inducement to look closer at all sea life when on shell hunting expeditions.

Mr. Cruikshank again showed an assortment of shells which many of those present had not seen before. Discussion of these shells was of much interest during tea, after which the meeting closed with all members looking forward to our next gathering on 2nd. October.

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Border Group Notes:

Our subject for August was the family Cymatiidae. We held an

informal/ .....

informal meeting with nine members present and Adeline Gillmore in the Chair. There were so many specimens exhibited that discussion on these lasted until teatime. Many shells were identified and Adeline had a wonderful selection of swops on display.

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Durban and Natal Coast Group:

There was not a large attendance at our August meeting due to the fact that Durban was subjected to exceedingly bad weather including gale-force winds and intermittent deluges of rain. Nevertheless nine members braved the elements and there were apologies from ten.

Mr. Young reported the commencement of the removal of the sea-lettuce from Durban Bay and informed that he had been in touch with the Natal Parks Board in this connection. This sea-lettuce is the first that Durban has had for four years and is alive with the early stages of marine animals.

Film slides were shown by Mr. Smith and a general discussion on the display of shells was enjoyed. The display included some rarities from various parts of the world.

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Minutes of the Meeting of the Society held on 28.9.1971.

Professor Mallory, our newly elected Vice-Chairman, took the Chair and opened the meeting with a warm word of welcome to all present.

Apologies for absence were recorded from Miss. D. Gould and Mrs. Mallory.

The minutes of the previous meeting, having been published in Circular No. 133, were taken as read and confirmed.

The Secretary reported that she had received a copy of a book on Australian shells called "Seashells of Australia". This book has thirty two pages of which thirty were coloured plates depicting about 160 species. There were no descriptions or authors but names only. The book is selling for R2-25 and orders may be placed with the Society as a bulk order will be purchased from Australia.

Mr. Freeman announced that he had received a letter from Mr. Hawkins of Zululand, requesting Cape trawled Volutes as well as a list of the Cape Volutes. As Mr. Freeman was unable to assist he asked members to help in this request.

Noted that a letter had been received from Mr. van Hamburg expressing thanks to all those members who had assisted in his appeal for specimen shells.

Mr. Kapp initiated the first of a series of short talks on shells. This talk was based on the talks given by Mr. R. Kilburn on the English Service of the SABC three years ago. This was followed by talks and discussion on the Cassidae on display and then by Le Maitre's talk on pollution and its effects on marine life. All agreed that the meeting had been most interesting and informative.

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Invitation.

An exhibition of shells will be held in the foyer of the Johannesburg Public Library from the 25th October to the 14th

November/ .....

November, 1971. The Mayor of Johannesburg will open the exhibition at 6.00 p.m. on Monday, 25th October. A cordial invitation is extended to all members who may be in Johannesburg on that date.

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Meetings:-

The next meetings of the Society and Groups are:

Society - Cape Town. Tuesday, 26th October, 1971 in the Lecture Hall of the S.A. Museum, Queen Victoria Street at 8.15 p.m. Professor A. Brown will address the meeting, his subject being the Genus Bullia. These will be the shells for display.

Transvaal Group - Johannesburg. Friday, 29th October, 1971 in the Theatre Hall of Shell House at 8 p.m. Mr. J. Orr will give a talk and show slides.

Natal Midlands Group. Saturday, 6th November, 1971. Field excursion. For further details please contact Mr. Kilburn at the Natal Museum.

Durban & Natal Coast Group - Durban. For details please contact Mr. Young of 81 Palm Bay, 46/50 St. Georges Street, Durban.

Border Group - East London. For details please contact the Acting Secretary, Mrs. Latigan, 29 Kennington Road, Nahoon.

Eastern Cape - Port Elizabeth. For details please contact Mrs. Watters, 4 Molsonder, 10th Avenue, Summerstrand.

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The Auger

An enemy to all molluscs,  
Is the point of an Auger's shell.  
The Auger is fierce,  
And he dares to pierce,  
The cover of other shells.

He stealthily creeps to the shell,  
And pierces it with his point.  
He sucks his prey out,  
And then looks about,  
For a place to enjoy his joint.

The Auger, now satisfied,  
Creeps into his hole,  
The other shell dead,  
On the deep sea bed,  
To become a Conchologists goal.

Fiona Maule (aged 12)

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SECRETARY/LIBRARIAN

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