



THE STRANDLOPER

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SEA SHELLS AND THEIR MAKERS.

by R.N. Kilburn.

Part 5 - Diet and Feeding Habits of Molluscs.

The range of diet and feeding habits within the group is enormous, and the subject can only be treated here in the most general terms. Most bivalves are filter feeders. They possess enormously enlarged gills, which are used to trap microscopic organisms from the water which passes over them. Others, such as the white or sand mussel, have long siphons by means of which they suck up the sediment from the surface of the sand, digesting bacteria and other edible particles. The giant clam is unique in that it actually farms tiny single-celled plants, called Zooxanthellae. These plants live inside the edge of the mantle, which has special lenses to supply them with light for photosynthesis. Surplus zooxanthellae are simply digested by the clam as required.

Nearly all other molluscs possess a special structure called the radula. This is a horny ribbon, set with numerous cross-rows of microscopic teeth, somewhat resembling a tiny flexible file. It is used to rasp off particles of food, and pull them into the mouth. This radula is constantly growing and as fast as teeth are worn away at the tip, they are replaced at the back.

Unlike bivalves, very few gastropods are filter feeders, although the worm shells of Vermetids, for example, fish for tiny organisms by means of threads of slime. The vast majority of gastropods are either carnivores or herbivores. All the more primitive gastropods, such as limpets and periwinkles, as well as most land and freshwater species, feed on vegetable matter. In marine species this consists mainly of the minute algae which film the rocks, although some browse on large seaweeds. The common perlemoen (*Haliotis midae*) for example, is able to rasp quite sizable hollows in the stalks of giant kelp.

The more advanced gastropods are either scavengers or predators. Most have a long proboscis which can be plunged into the tissues of the food animal. The scavengers feed on dead animal matter, a good example being the Plough Snails (*Bullia*) which patrol the surf of most of our sandy beaches in search of stranded jellyfish and other carrion.

True carnivorous gastropods prey on living organisms, such as other molluscs, worms or barnacles. Certain Cone shells are even able to capture and eat small fish. Some, such as the Murex, Dogwhelks

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and Moonsnails, bore through the shells of other molluscs after which they rasp out particles of living flesh.

There are also a number of small gastropods which are parasitic, sucking up the body fluids and tissues of living prey, without causing death. A few actually live inside the bodies of their hosts and consist of little more than bags of reproductive organs.

Of the remaining classes of molluscs, the Chitons graze on minute plants, while the Tusk shells trap tiny food particles by means of sticky thread-like tentacles. Finally, there are the Cephalopods which capture fish and crustacea with their tentacles, and bite out chunks with their beak-like jaws. Most, if not all, produce a poisonous saliva, which serves to paralyse the prey.

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This article was the fifth in a series which were originally compiled for, and broadcast by, the English Service of the S.A.B.C., who have given permission for distribution amongst members of the Conchological Society of Southern Africa.

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THE NEGLECTED LAND SNAIL.

by D. Aiken.

It is remarkable that, since the original Circular in May 1958, there have been very few references to non-marine molluscs.

In May/June 1964 there was an article by D. van Z. Englebrecth which dealt mainly with two species of land snail introduced from Europe, Helix aspersa Müller and Theba pisana (Müller). Then there was the fine series on Fresh Water Molluscs in Feb./Mar./Apl. 1970 written and illustrated by Chris Appleton. Apart from these occasional references it would appear that the Society's leanings are predominantly towards marine specimens.

Admittedly the sea yields more beautiful shells that exhibit a variety of form not found in land snails but, in view of the fact that there are more than 800 species of non-marine molluscs, they are surely worth investigating. The last major work on the subject was by Major M. Connolly in 1939 entitled "A monographic survey of South African non-marine Molluscs". Dr. H.H. Barnard also did a lot of work on terrestrial molluscs during his years at the South African Museum (1911-1964) but only a small part was published in his "A Beginners Guide to South African Shells" (1951). The obvious dearth of up-to-date information should encourage all our members to look for land snails, even if we only report the spread of introduced species like the garden pest, Helix aspersa, so that a modern distribution pattern can be established.

I am fortunate in that our keen member and intrepid traveller, Ken Fuller, is good enough to bring specimens back from South West Africa, Ovamboland, Malawi and other distant places, but I have also found that a number of species can be found in the ordinary Transvaal garden. Here I am helped by my son Roy whose keen eyesight and many hours of patient scratching in the soil have yielded a number of small species tentatively identified as follows:-

Pupilla fontana (Rüster), Céciliodes gokweanus (O.Boettger),
Vallonia pulchella (Müller), Vallonia costata (Müller),
Opeas mcbeani (M. & P.), Zonitoides arboreus (Say), and
Trachycystis rivularis (Krauss), var. densestriata Connolly.

In addition the following have been collected from farther afield and provisionally identified as:-

Metachatina/

- Metachatina kraussi Pfeiffer (Amanzimtoti, Natal)
Achatina simplex Smith (Ladysmith, Natal)
Achatina cinnamomea M. & P. (Grootvlei, Transvaal)
Achatina panthera (Ferussac) (Lourenco Marques)
Achatina semigranosa (Pfeiffer) (Natal Coastal dunes)
Achatina schinziana Mousson (Runtu, Ovamboland)
Achatina granulata (Pfeiffer) (Natal Coastal dunes)
Lauria dadion (Benson) (Ibo Island, off Mocambique)
Ledoulxia albopictus (Martens) (Ibo Island off Mocambique)
Ledoulxia mocambicus (Pfeiffer) (Ponta Zavora, Mocambique)
Fauxalus capensis (Küster) (Buffels Bay, Cape Point)
Fauxalus pereximus (M. & P.) (Nahoon Beach, East London)
Edourdia natalensis (Pfeiffer) (Natal coastal dunes)
Tomichia spp? (Maxixe, Mocambique)
Maisania wahlbergi (Benson) (Umhlanga Rocks, Natal)
Theba pisana (Müller) (D.F. Malan Airport, Cape Town)
Tropidophora ligata (Müller) (Richards Bay, Natal)
Tropidophora insularis (Pfeiffer) (Natal Coastal dunes)
Gulella gouldi (Pfeiffer) (Umhlanga Rocks, Natal)
Gulella wahlbergi (Krauss) (Umhlanga Rocks, Natal)
Gulella crassidens (Pfeiffer) (Umhlanga Rocks, Natal)
Gulella infredens (Martens) (Umhlanga Rocks, Natal)
Dorcasia alexandri Gray (Windhoek, South West Africa)
Trigonephrus globulus (Müller) (Kommetjie, Cape)
Trigonephrus haughtoni Connolly (Alexander Bay, Cape)
Trigonephrus rosaceus (Müller) (Alexander Bay, Cape)
Trigonephrus porphyrostoma (M. & P.) (Alexander Bay, Cape)
Coeliaxis blandi (Pfeiffer) (Nahoon Beach, East London)
Nata vernicosa (Krauss) (near Vryheid, Natal)
Natalina compacta (Connolly) (Marina Beach, Natal)
Xerocerastus damarensis (Auth. ?) (Etosha Pan, S.W.A.)
Sculptaria damarensis (H. Adams) (Damaraland)
Sheldonia inuncta (M. & P.) (Amanzimtoti, Natal)

Although some of these identifications may not be correct I give this somewhat lengthy list to illustrate the countrywide occurrence of land snails so that no member has to travel far to find some interesting specimens when tidal conditions preclude marine collecting and I would welcome specimens or correspondence from interested members.

I would like to record my thanks to collectors Dr. van Hoepen, Ken Fuller, Jack Scheepers and Roy Aiken, and to Chris Appleton for his valuable assistance in identifying many of these specimens.

References: Barnard, K.H., 1951 A Beginners Guide to South African Shells, Cape Town, Maskew Miller.

Connolly/

Connolly, M., 1939

A monographic survey of South African non-marine Molluscs. Ann.S.A.Mus, Vol.33.

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Any interested members wishing to send specimens to, or to write to Mr. Aiken please write direct to:- 18 Pieter Raath Avenue, Lambton, Germiston. Tvl. Editor.

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Exchange Wanted:

- Mrs. J. Bockstael, Box 23192, Dar-es-Salaam, Tanzania. Would like to get in contact with someone with whom she could exchange. Is particularly interested in Cowries but would like to get other types as well.
- Mr. W.J. Paul, 6 Annan Grove, Papakowhai, Paremata, New Zealand. Would like to obtain South African specimens of the family Cardiidae in exchange for various New Zealand shells.
- Mr. M. Falais, B.P. 312, Diego Suarez, Malagasy. Wants to contact a member who can help with the identification of Conidae.

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This column is run monthly for the benefit of all collectors of Shells. If you want to contact others with the idea of exchange why not let us have your requirements. There is no charge for this service.

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New Members:

- Mrs. C.R. Nelson, Praia Morrunguld, Caixa Postal 33, Massinga, Mocambique.
- Mr. G.F. Stegmann, 3 Kya-Bridmore, Bridmore Rd., Linton Grange, Port Elizabeth.
- Mr. B.H.A. van Loggerenberg, 37 Pearce Rd., Bluff, Durban.
- Mrs. D.M. Lowe, 6 Masonic Street, Port Alfred.
- Mr. J.P. Marais, Private Bag 9021, Pietermaritzburg.
- Mrs. M.W. Mears, 705 Protea Flats, Cape Rd., Port Elizabeth.
- Mr. B.C. Briscoe, P.O. Box 947, Port Elizabeth.
- Miss M.T. Clements, 2 Bernardt Cresc., Somerset West, Cape.

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Eastern Cape Group:

Following a request from this Group, the Council have agreed that the Group is sufficiently well established to warrant Council Representation and have accordingly co-opted the Chairman of the Group, Mrs. C.M. Watters, as a Regional Council Member.

The committee Members of the Group are:- Chairman Mrs. C.M. Watters, Vice-Chairman Mrs. M.O. Farrell, Secretary Mrs. G. Carstens, and Committee Members, Mr. F. Greave and Mr. H. White.

The Eastern Cape Group was formed in November, 1970, the inaugural meeting being attended by 4 members and 3 prospective members. Today the membership in the area totals 34, of which no fewer than 10 are Student Members. This Group is to be congratulated on their sure and steady growth.

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Bye-Laws:

Your Council has, in terms of Clause 6 Section (a) Subsection (ii) and (iii), compiled Bye-Laws for the Governing of Local Groups of Members.

These Bye-Laws have been accepted by your Council and a copy is enclosed with this Circular for your information.

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Index:

An index of Circulars Nos. 121 to 140 has now been compiled and will be forwarded to all members in the very near future.

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Around the Groups:

Border Group - East London. The October meeting was very poorly attended - there being only three members and two visitors present. There were apologies from three members. The subject for the meeting was the family Cymatiidae in South Africa but it was decided that with so few present that the prepared talk would be held over. Mrs. Leslie and Miss Eva both brought very good displays and our time was spent sorting out names and having a general discussion.

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Natal Midlands Group - Pietermaritzburg. At our last meeting Mr. Kilburn gave a talk on Nuculidae, Malletiidae and Solemyidae. He explained in great detail, with specimen shells which were passed around for us to examine, the types of hinges, valves and the characteristics of each variety.

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Eastern Cape Group - Port Elizabeth. Our October meeting was well attended, there being 29 members and visitors present, with apologies from a further three members. The necessity of having a member on the Council of the Society was discussed, and arrangements were made for an application to be forwarded to the Secretary. Mr. Briscoe, a prospective member, suggested that we might have more than one meeting per month, and it was agreed that this should take the form of an informal meeting to be held on the third Wednesday of each month at the home of one of the members. Mrs. Watters suggested that we try to get a conservation officer to give a talk at our next meeting. Mention was made of the shell shop recently opened in Gonubie. Mrs. Carstens, who has already paid the shop a visit, mentioned that there was a splendid selection of quality shells for sale at very reasonable prices. The shop is also a Shell Museum.

Special finds of the month were a specimen of Demoulia abbreviata found on Humewood beach by Mrs. Mears complete with the animal, too badly decayed to preserve, but with the operculum intact, also a live specimen of Clavatula tripartita off Summerstrand Beach at a depth of 14 metres. Mr. White reported finding one specimen each of Marginella algoensis and M. jucunda alive in rock pools at low tide at Cape Recife. The animal of M. algoensis is green and that of M. jucunda is reddish.

Having finished with all the formalities tea was served and the slide show on mollusca got under way. This proved to be very interesting and informative and our thanks go to Mrs. Watters, Mr. White and Mr. Vaesen for some excellent slides.

A Field day held on 22nd October at Cape Receife was blessed with perfect weather and a very low spring tide. Members started to arrive at the site from about seven thirty and by nine o'clock we had a total turn out of thirty. Although some of the species were there in large numbers, members practiced moderation and only a minimum number were taken. Shelling continued until the incoming tide prevented members from doing so and despite sunburn, sore legs and sore backs, a very pleasant time was had by all.

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Review of a new Book: by D. Freeman.

Marine Shells of the Pacific - Volume II by W.O. Cernohorsky.

Published by Pacific Publications (Aust)(Pty)Ltd., Box 3408, G.P.O. Sydney, Australia.

The first volume of Marine Shells of the Pacific has been deservedly popular since it first appeared in 1967. Conchologists will be enthusiastic about volume II. It is thicker (there are more than 400 pages) it covers 600 species not included in Volume I and, while it is an attractive book, it is not just one of those coffee table volumes to impress visitors, but a book to be used.

As before, black and white photographs are used for the illustrations. These are clear and well grouped, with similar species side by side. In addition, there are colour plates of some three dozen species which seem to be precisely those that could benefit most from this special treatment, e.g. the four Harpa. The strong colours chosen for the backgrounds to these plates are unusual but they are, on the whole, well reproduced and effective.

Putting all the plates together at the back of the book with only a list of names and text references on each facing page has left space for a very full descriptive text. Two satisfying features are the selection of a good cross-section of species of each genus or family, and the comparisons between similar species. Synonyms of the scientific names are also frequently referred to. Readers will welcome the inclusion of many of the smaller species that are often neglected in works of this kind. Nassarius, Lienardia and Pyrene all get a good airing, as do the Littorinids and Limpets. There are more than a dozen species of Tonna. In all, 74 different Families of mollusca, including 13 Families of bivalves, make this a thoroughly useful addition to your bookshelves.

For those who do not already have Volume I, a revised edition is available. I can strongly recommend them both.

Australian regulations against retail price maintenance have prevented the publishers from quoting the price on the dust jacket, but I understand that it is 13 Australian Dollars.

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Minutes of a meeting of the Society held on 31st October 1972.

The Chairman, Mr. D. Freeman, welcomed members and visitors to the meeting, with a special word of welcome to our guest speaker, Mr. B. Kensley. Apologies for absence were received from five members.

The Minutes of the previous meeting, as published in Circular No. 145, were taken as read and confirmed. There were no matters arising from those minutes.

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It is with regret that we record the death of Mrs. M. Hanbury of Kloof, Natal. We extend our deepest sympathy to her family.

Mr. Freeman reported that members of the Society were invited to a meeting of the False Bay Underwater Club to be held on 15th November in their clubhouse under the rail bridge in Wetton Road, Wynberg at 8.15 p.m. Mr. Donald Good would talk and show slides of his twenty-one day trip by canoe down the Amazon River.

Suggestions for projects that could be undertaken by members of the Society have been received from Mr. Bruce Campbell. These would be fully discussed at the November meeting.

Mr. Freeman announced that Council representation had been granted to the Eastern Cape Group and that their Chairman, Mrs. C.M. Watters, had been co-opted as a Regional Council Member.

A copy of "Marine Shells of the Pacific - Volume II" by W. Cernohorsky had been received for the library. A review of this publication appears elsewhere in the Circular.

Mrs. Prior and Mr. & Mrs. Watt, who had recently returned from visits to Mauritius, brought some of their shells for display.

As the meeting of 28th November would be the last meeting of the year it was decided that members would each bring a plate of eats.

The Librarian requested that all library books be returned at the November meeting as the library is to be checked and a new list of books compiled.

Mr. Kensley then addressed the meeting. He gave a brief description of four families of planktonic feeding gastropods, their feeding habits and mode of locomotion. There were examples of the shells on display. He also announced that the book which he has compiled should be out within the next month. As soon as it is available members will be notified. The S.A. Museum was in the process of rearranging the shell exhibits and he appealed to members to help with the displays by donating shells. He would compile a list of the shells required which would be sent to all members. It is hoped that the members will co-operate in this task.

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MEETINGS:

The next meeting of the SOCIETY will be held on Tuesday, 28th November in the Lecture Hall of the S.A. Museum at 8.15 p.m. There will be a Shell Quiz, discussion on the mounting of the reference collection. Mrs. Prior will talk about her trip to Mauritius and Mr. Campbell's suggested projects will be discussed.

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The next meeting of the EASTERN CAPE GROUP will be held on 2nd December in the Lecture Room of the Port Elizabeth Museum.

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The next meeting of the BORDER GROUP will be held on Monday, 4th December in the Lecture Room of the East London Museum at 7.30 p.m.

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The next meeting of the NATAL MIDLANDS GROUP will be held on Saturday, 2nd December at the Natal Museum, Pietermaritzburg at 2 p.m. There will be a talk on the Arcidae.

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SECRETARY/LIBRARIAN

TREASURER/EDITOR

Mrs. R.O. Carlsson
P.O. Box 98, Howard Place, Cape, South Africa.

Mr. R.O. Carlsson