



## THE STRANDLOPER

BULLETIN OF THE  
CONCHOLOGICAL SOCIETY  
OF SOUTHERN AFRICA

NO. 143.

AUGUST, 1972

*Afrivoluta pringlei* Tomlin 1947

### SEA SHELLS AND THEIR MAKERS.

by R.N. Kilburn

#### Part 2 - The Nature and Function of Colouration in Sea Shells.

It is largely on account of their often brilliant colours and frequently intricate patterns, that sea shells have such a large following among collectors. Two of the questions most commonly asked by the layman are: "How do shells get their colours?", and "Why are they coloured thus?".

To understand the answer to the first question, we must first consider how a shell is formed, and how it grows. On hatching from the egg, or in other cases, after a short free swimming existence, the tiny mollusc already bears a microscopic translucent shell. As the animal grows, its shell increases in size in the following manner. The mollusc inside is partly encircled by a cloak-like flap termed the mantle under which lies the gills and various other organs. The edge of this mantle contains special cells, which secrete lime salts extracted from the seawater. This lime is deposited along the already existing margin of the shell, causing it to gradually increase in size.

Now, in addition to the lime producing cells, there are other cells which produce colouring matter. Thus, as the shell grows, these pigments are simultaneously secreted, and incorporated into the shell substance. The origin of these colour pigments is rather unromantic. They are in fact chemical waste-products produced within the mollusc's body. Instead of being expelled into the water, they are built into the shell. To a large extent, these pigments are derived from the creature's food thus the common European Dogwhelk produces a greyish or yellowish shell on a diet of barnacles, and a brown or purple shell when it feeds on mussels. Also, the greenish pigments (technically called bilins) which colour the shells of many herbivorous molluscs are thought to be derived from chlorophyll in the plant food.

Colouration may have various functions. Obviously, under normal circumstances a pure white shell would stand out sharply and soon attract the unwelcome attention of prowling fishes, octopi and other predators. Indeed those species that are pure white

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either burrow in sand, hide under rocks, or cover the shell with their mantle. So, basically, any colour will do as long as it is not too conspicuous. In many cases the colouration has no adaptive function; for example, the purple or red colour inside some shells never sees the light of day while the inhabitant is alive. Similarly no true function can be ascribed to the often minute details of pattern which sometimes distinguish closely allied species.

In other cases, however, the colour pattern blends with the background, serving as a camouflage. An example is the Violet Snail, *Janthina*, which floats on the surface of the ocean, hanging from a raft of bubbles. The shell here is a deep, almost translucent blue or violet, blending well with the surroundings.

Finally, there are those shells which possess vivid contrasting markings of black, white, red, purple etc. Such patterns serve the important function of breaking up the outline of the shell, helping to hide the mollusc from its natural enemies.

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This article was the second 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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SOME REFLECTIONS ON THE UMBILICUS.

by D. Freeman.

If this seems to be an introduction to meditation for practitioners of Yoga, let me hasten to reassure the gentle reader that the article is partly conchological.

One tends to forget that the newcomer to shell collecting is startled by the terminology we use, and this is one of the terms that intrigued me when I first heard it applied to shells.

Of course, each of us has our own umbilicus or belly button formed by the severing of the umbilical cord at birth - but why on earth use the word in conchology?

Let us go back to the origin and real meaning of the word. It is Latin, coming from the Greek "Ombalos" which was the word for a navel, also applied to the centre of anything, to the index of a sundial, to the end of a roller on which a manuscript was rolled and even, as used by the Roman writer Cicero, to an unidentified species of sea snail! So the meaning seems to revolve (appropriately) round the centre of something circular. I would not be surprised if there was also some connexion with the word "Umbo", which is the central boss or stud on a circular shield, but connotes something larger than the diminutive umbilicus.

Anyway, as applied to part of a sea shell, the sense is figurative. It describes the central hollow often found in members of the family Trochidae which, instead of coiling themselves tightly round the central columella, tend to leave more or less of a hollow in the middle. Perhaps the most striking example is the "spiral staircase" or "sundial" shell called Architectonica perspectivum. In other species, the umbilicus is more like a small dimple, but the word is useful for describing a distinctive feature.

Please note, also, that certain shells such as the *Cassis* and *Phalium* genera, or "helmet" shells, tend to have a crevice or fold between the outer wall of the shell and the heavy callous on the base. This is known as the "False umbilicus" because it

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is structurally different as you will be able to see if you compare them.

Incidentally, to return, to the contemplation of the human umbilicus, it is amusing to note that the great Michelangelo, in a painting of the Creation, shows Adam complete with this feature which he and Eve probably would not have had!

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ANNUAL GENERAL MEETING

Notice is hereby given that the Annual General Meeting of the Society will be held on Tuesday, 29th August, 1972 in the Lecture Hall of the S.A. Museum at 8.15 p.m.

A G E N D A.

1. Minutes of the previous Annual General Meeting as published in Circular No. 133 of September, 1971.
2. Matters arising from these minutes.
3. Consideration of the Reports of the Secretary and Treasurer as published below.
4. The adoption of these reports.
5. Any other business.
6. Vice-Presidents Address.
7. Election of the Council.

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Secretary's Report for the year ended 30th June, 1972.

I have pleasure in presenting the fourteenth annual report of our Society.

It was with deep regret that we recorded the death of two members during the period under review. Our President, Leila Kerr, passed away, after a short illness, on 5th March, 1972, and Mr. G. Armstrong passed away suddenly on 29th March. As you will know Leila Kerr was instrumental in the formation of the Society in May, 1958, and we owe her a great debt for all she did in the interests of the Society. I would like to take this opportunity of extending to Mr. Kerr and Mrs. Armstrong our deepest sympathy.

Membership. The membership of the Society as at 30th June was:-

	<u>At 30/6/71</u>	<u>Additions</u>	<u>Losses</u>	<u>At 30/6/72</u>
Honorary	1	-	-	1
Life	7	-	1	6
Ordinary	232	45	33	244
Student	27	4	6	25
Institutions	<u>9</u>	<u>-</u>	<u>-</u>	<u>9</u>
	<u>276</u>	<u>49</u>	<u>40</u>	<u>285</u>

This shows a net increase of nine members over the year. During the year 14 members resigned, 23 were removed from the roll for non-payment of subscriptions and 2 died. Although the net increase is well below the average increase of the past few years it is once again encouraging to note that the membership continues to grow.

Circulars. Eleven Circulars were issued during the year. They were numbers 131 to 141 inclusive, and contained a total of 11 pages. Circular No. 141 of June, 1972 saw the next step/ .....

step in the new format of the Circulars with the adoption of the name "The Strandloper". You may remember that when the format of the Circulars was changed with the issue of No. 121, your Council called for suggestions for a name. A few proposals were put forward and in February, 1971 your Council decided on the name now used. It was agreed then that this new name would be introduced with Circular No. 141, which would be the first in a new "set". Of the eleven Circulars issued during the year, one had a page of photographs, three had line drawings and the advertisement page appeared seven times. The articles published covered a variety of subjects, and we would like to thank all those members who contributed articles for publication. In addition to the eleven Circulars all members were sent a list of members, an up-dated Library Rules and a copy of extracts from a Government Gazette on collecting regulations.

Publications. There has been a steady demand throughout the year for back copies of the Circulars as well as for copies of various publications. The stocks of these are a hidden reserve for the Society and all sales constitute pure profit. Although the Society did not issue any special publication during the year we did on a number of occasions order various books in bulk for members thereby obtaining the benefit of a discount, which helped the Society's coffers.

Activities. Regular monthly meetings of the Society and Groups have been held in Cape Town, Port Elizabeth, East London, Durban, Pietermaritzburg and Johannesburg. Field outings have also been held on various occasions. The Eastern Cape Group, the youngest of all the Groups, continues to grow in leaps and bounds and is fast becoming the most active of all. The Transvaal Group, very courageously, organised a Shell Exhibition which was open to the public in Johannesburg for two weeks in October/November 1971, and they are to be congratulated for this highly successful project.

Library. During the year the following books and publications were added to the library:-

- No. 221 The Living Volutes of Africa by D.W.Aiken and K.J.Fuller.
- No. 222 The Fringe of the Sea by Isobel Bennett.
- No. 223 Notes on some Deep-water Volutidae, Turbinellidae and Turridae by R.N. Kilburn.
- No. 224 A Revision of the Littoral Conidae of the Cape Province by R.N. Kilburn.

I would like to take this opportunity of thanking the Authors of Nos. 221, 223 and 224 for donating these copies to the Society. Members in Cape Town once again made full use of the Library but it is felt that members outside Cape Town could make better use of it than they do. Only 23 books were posted to "country" members during the year.

Generally the year under review has been a very quiet year in the history of the Society but we start the new year with great ideas and the hope that we will continue to grow in strength and knowledge.

I would like to take this opportunity of thanking all those organisations, throughout the country, who made Lecture Halls and meeting rooms available to our members and everyone who contributed to the welfare of the Society.

Finally, I wish to thank the Vice-President and all the members of the Council for their support and assistance, not only during the past year, but during the whole of my three year term of office, as well as those members who have given encouragement over the

Treasurer's Report for the year ended 30th June, 1972.

The books and vouchers of the Society have been scrutinised by Miss K. Leers and Miss F. Leers and I now present the following account for your consideration.

Income and Expenditure Account for the year ended 30th June, 1972.

<u>1971</u>	<u>INCOME</u>	<u>1972</u>
43	Entrance Fees	41-00
353	Subscriptions	589-25
25	Life Membership Fee	-
29	Profit on Sale of Publications	105-84
4	Library Fines	2-30
29	Interest	34-32
7	Advertising	4-70
<u>490</u>	<u>TOTAL INCOME</u>	<u>777-41</u>
	<u>EXPENDITURE</u>	
411	Cost of Circulars (including postage and envelopes)	412-24
67	Secretarial Postages	61-55
33	Printing and Stationery	36-69
20	Library Expenditure	13-10
16	Bank Charges and Exchange	10-08
5	Addressograph Plates	10-80
5	Sundry Expenditure	5-00
-	Grant to Transvaal Group re Exhibition	35-00
<u>557</u>	<u>TOTAL EXPENDITURE</u>	<u>584-46</u>
67	Leaving a SURPLUS to be carried to Accumulated Funds of : (1971 - R67 Deficit)	192-95

Statement of Accumulated Funds as at 30th June, 1972.

692	Balance as at 1st July, 1971	624-76
67	Add Surplus for the year (1971 - Less Deficit)	192-95
<u>625</u>		<u>817-71</u>
<u>279</u>	Subscriptions paid in advance	<u>326-00</u>
<u>904</u>		<u>1143-71</u>

Represented by:-

	<u>Cash</u>	
104	Standard Bank of S.A. Ltd. (Current Account)	143-71
800	Natal Building Society (Savings Account)	1000-00
<u>904</u>		<u>1143-71</u>

Review of a new Publication by D. Freeman

A Catalog of Dealers' Prices for Marine Shells (3rd Edition) by Tom Rice. Price Three Dollars. Published by Of Sea & Shore Publications, P.O. Box 33, Port Gamble, Wash. 98364. U.S.A.

Shell collectors in this country who place a monetary value on their collections or on their trading material will welcome this new (May 1972) publication. In 70 closely packed pages it lists the genera alphabetically with the species grouped under each genus. A useful feature is the listing of the countries of origin of the species. Where the prices may be affected by size and quality of specimens, a range of prices is given. Of particular interest are the listings of many South African shells such as Burnupena and Bullia, and many others that are not generally mentioned by compilers of price lists.

It is, however, disconcerting to find separate entries for Voluta bullata Swainson and Voluta bullatina Weaver & Du Pont, with different prices for each. These are one and the same shell. The list has been collated from various sources and, with the classification of mollusca in its present fluid state, this sort of error is bound to occur. Collectors with a reasonable knowledge of synonyms should not be unduly inconvenienced by this shortcoming.

This catalogue will be enormously useful to anyone trading or exchanging shells or faced with the problem of valuing a collection.

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Changes of Address

Mr. C.R.P. Mills, 301, Stanlou Court, Weltevreden Street, Bellville.

Miss R. Silbert, 10, Lauriston Court, Louis Botha Avenue, Houghton, Johannesburg.

Mrs. P.A. Prentice, P.O. Halfway-House, Transvaal.

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Exchange Wanted:

Mr. & Mrs. D. Stahl, 1542 Benmore A 2, Anaheim, Ca. 92805, U.S.A. Wish to exchange U.S. shells for South African Epitonidae, Mitridae, Pectenidae, Marginellidae, Muricidae and rare bivalves.

Mr. G. Madec, Honorary Director of the Bank of France, 32 rue Brande 29 N. 12000. France. Wants to correspond with a member who is prepared to exchange South African shells for French stamps.

Mr. P.S. Sultana, "Madonnina", Main Street, Zabbar, Malta. Wants to contact for world wide shells.

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Around the Groups.

Natal Midlands Group, Pietermaritzburg. Our last meeting was the general meeting of the Group and was attended by eleven members and visitors. Mr. Kilburn had arranged a film show which was held in the Lecture Room of the Museum. The films were about the sea and sea life.

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Border Group, East London. Ten members, one visitor and two prospective members attended our June meeting. We were pleased to have Mr. & Mrs. Giles from Cape Town with us. Our subject was again Deep Sea Shells off the S.A. Coast. Descriptions were read from Mr. P. Elston's notes in Circular No. 51 and members discussed new ranges and depths at which specimens had been found since these notes were written in 1964. Mrs. Faulkner showed her specimens of these shells as they were described, and many cases of doubt about identity were sorted out. There were the usual good displays of members shells.

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Natal Group, Durban. Nine members and 2 guests attended the meeting held on 1st July. After discussions about exhibiting shells at the Alexandria Show in July 1973 and the possibility of arranging two camping shelling weekends Mr. Young told the members of his investigation of Durban Bay after the recent heavy oil pollution caused by damage to the Pipe-line. He mentioned his study over the years of the only known colony of living Pholas jordani on the Natal coast and how this colony has been completely exterminated. This was only one of a number of species which he personally has seen destroyed in the past three years of pollution of the Bay. It was agreed that a letter be written to the Natal Parks Board requesting that the removal of the periodic growth of sea lettuce be stopped - a bid to enable marine life to be restored in the Bay.

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Transvaal Group, Johannesburg. We were delighted to have met Thema and Richard Carlsson who passed through Johannesburg on their way to the coast. It was unfortunate that they were unable to extend their stay which would have afforded all members the opportunity of meeting them at our meeting. Our July meeting was devoted to an evening of films, one of which was "The Last Frontier" produced by the National Parks Board. This showed the magnificent scenery of the Tsitsikama Coastal Reserve and contained many underwater shots of the rich sea life which abounds there.

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Eastern Cape Group, Port Elizabeth. There was no meeting this month but members devoted their efforts to a display of shells at the Port Elizabeth Hobbies Fair. This was a great success and a full report will be published next month.

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Editors Note. Apologies to all Group Secretaries but owing to lack of space this month all the above notes have been drastically pruned so as to reduce the space taken.

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Minutes/

Minutes of a meeting of the Society held on 27th June, 1972.

Professor Mallory in the chair, welcomed those present. Apologies were received from Mr. & Mrs. Giles, Mr. & Mrs. Carlsson and Mr. Graham Ivy.

The minutes of the previous meeting as published in Circular No. 141 were taken as read and adopted.

Mrs. Kuttel asked whether she might read a letter she had written in which she objected most strongly to the name of the Circular. Professor Mallory asked that Mr. Freeman relate the events leading up to the adoption of the title. Professor Mallory accepted Mrs. Kuttel's letter and would put it to the next Council Meeting.

Mr. Freeman spoke about the shells on display and then read a letter from Mr. Carlsson in which it was stated that the type specimen of Cypraea cruickshanki had been shown to him at the Natal Museum.

Mr. Freeman then read extracts from the introduction by Dr. K.H. Barnards "Contributions to the knowledge of S.A. Marine Mollusca" in which the beginnings of conchology in South Africa were described.

Professor Mallory apologised for Mr. Zoutendyk being unable to talk as his original subject had never taken place as HUNEC had been cancelled. Instead Prof. Mallory gave a most interesting talk on Marine pollution - the problems and the attempts to curb and reduce it.

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Minutes of a meeting of the Society held on 25th July, 1972.

Professor Mallory, in the Chair, welcomed members and visitors with a special word of welcome for Mrs. Ruth Leslie of the Border Group. Apologies for absence were received from Mrs. Kinloch, Miss Swart and Messrs. Hart & Kapp.

The minutes of the previous meeting, as published above, were read and adopted.

In reply to the words of welcome, Mrs. Leslie extended greetings from the Border Group.

The Secretary reported that the following publications had been received for the library:-

- Australian Shells by B. Wilson & K. Gillett, and
- Durban Museum Novitates Vol. X, Pt. 14 describing  
A New Cowry From Deep Water Off Natal, With  
Notes on Allied Species by P. J. Kilburn.

A copy of the Philippine Shell News had been received. This publication is back in circulation after an absence of nine years.

The deaths of Mr. Tom Iredale in Australia and Mr. Tom Shields in Hawaii were noted.

Possible speakers and subjects for next years meetings were discussed and the Secretary agreed to contact the names mentioned.

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The question of Field outings was discussed and the following arrangements were made:-

Sunday, 27th August. Cape Hangklip. Low tide 10.45a.m.

Sunday, 24th September. Buffels Bay. Low tide 9.44 a.m.

Mrs. Connolly put forward the suggestion that members with spare shells to swop could bring a list with them to the meetings. These lists could be displayed and arrangements made about swopping.

Members who had brought shells for display spoke briefly about their displays. Mr. & Mrs. Giles brought along some of their more interesting finds they had while travelling up and down the coast.

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MEETINGS:

The next meeting of the SOCIETY will be held on Tuesday, 29th August, 1972 in the Lecture Hall of the S.A. Museum, Queen Victoria Street, Cape Town at 8.00 p.m. This meeting will be the Annual General Meeting of the Society. The shells for display and discussion will be the Genus Murex. A film has been arranged.

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The next meeting of the TRANSVAAL GROUP will be held on Friday, 18th August, 1972 in the Cafeteria of Shell House at 8.00 p.m. Professor W. MacNae will give a talk on the "Digestive System of Molluscs".

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The next meeting of the NATAL MIDLANDS GROUP will be held on Saturday, 2nd September, 1972 in the Board Room of the Natal Museum, Loop Street, Pietermaritzburg at 2.00 p.m. There will be a talk on the Fissurellidae.

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The next meeting of the BORDER GROUP will be held on Monday, 4th September, 1972 in the Lecture Room of the East London Museum, Oxford Street at 8.00 p.m.

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SECRETARY/LIBRARIAN

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