Afrivoluta pringlei Tomlin 1947

THE STRANDLOPER

BULLETIN OF THE
CONCHOLOGICAL SOCIETY
OF SOUTHERN AFRICA

NO. 152.
JUNE, 1973.

ADDITIONAL DETAILS OF LYRIA (LYRIA) LYRAEFORMIS (SWAINSON, 1821)

by A.B. Jenner

Under the description of the above species on pages 21 and 22 of "Living Volutes" by Clifton S. Weaver & John du Pont, 1970, it is stated that the animal and radula of this species were not available for study at the time the monograph was written.

Thanks to Mrs. Hooper, who, on a recent visit to Kenya, procured a live-taken specimen of Lyria (Lyria) lyraeformis I have had the privilege of extracting the radula and hereby wish to place on record details of the shell, its animal, operculum and radula.

The shell with typical colouring and marking, measuring 130 mm in length, has 15 axial ribs on the penultimate whorl and 13 fully developed ribs on the body whorl.

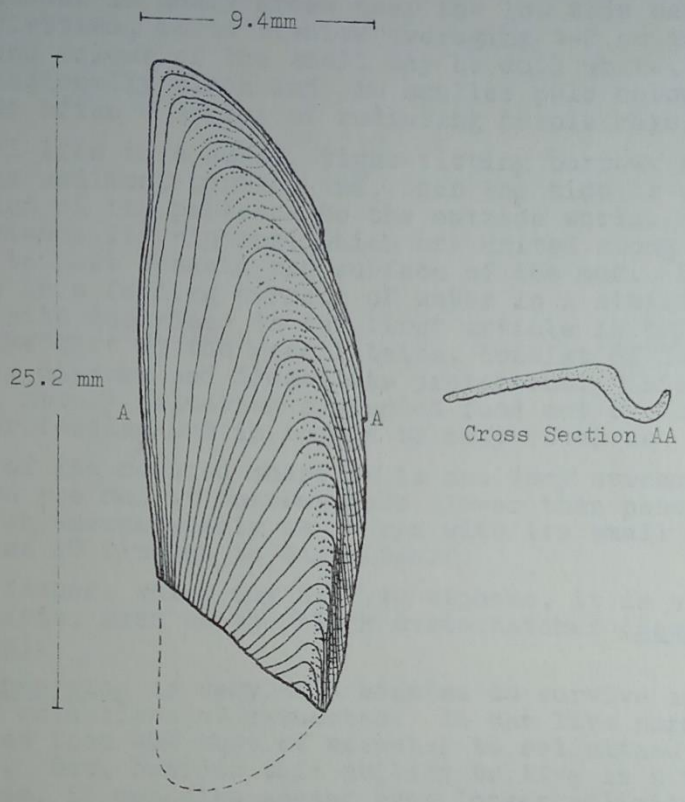
The animal is typically volutoid, with a short, wide, flat head. The eyes are tiny, dark blue in colour, spaced about 18 mm apart and lie at the base of slender conical shaped tentacles, between the latter and semi-circular lobes. The head, foot and mantle are profusely covered with light brown spots on a dirty white background.

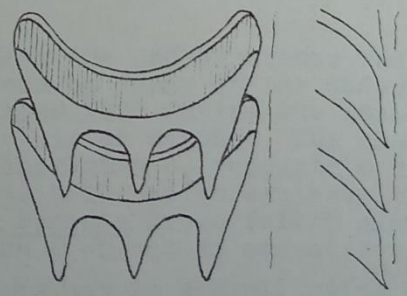
The fairly heavy horny operculum was firmly attached to the foot but is not complete, since an estimated one quarter of its original length appears to have been broken off and is missing. A noteworthy feature of the operculum is the unusual channel running along the length of its outer edge.

The radula is uniserial with tricuspid teeth and vestigial laterals are present and clearly visible. This vestigiary feature appears to be very uncommon and has heretofore been observed by the writer on only one other species of African Volutidae, notably that of Festilyria africana (Reeve, 1856) : see "Radula of Voluta africana Reeve" by D.W. Aiken in Circular No. 104, February, 1969.

For the record the specimen was taken at low tide whilst moving on to a rocky outcrop on sand flats at Gazi, South of Mombassa, on the 16th December, 1972, by a fisherman who delivered it to Mr. Nurmohamed for preservation and safe-keeping.

Lyria (Lyria) lyraeformis (SWAINSON 1821)





0.5mm

58 Rows

Length 7.2 mm

Width without laterals 0.396 mm

THE BIOLOGY OF SOME ESTUARINE BIVALVES

by A. McLachlan

Part 2 - The clams, Dosinia hepatica and Macoma litoralis.

The clam or venus shall, Dosinia hepatica (Lamarck), is a common inhabitant of most South African estuaries, where it is usually most abundant in muddy areas near the low tide mark. It is a small, flattish, round bivalve averaging 1-2 cm in diameter. The background colour of the shell may be dull white, fawn, grey or even occasionally black and, in smaller pale coloured specimens, there are often a series of radiating purple rays.

The shell lies in a small, tight-fitting burrow, a few centimetres below the sediment surface and, when the tide is out, gives no indication of its presence to the outside world. When the tide is in it extends its siphons, which are united along most of their length, to just beneath the surface of the mud. From this position it draws in a feeding current of water in a similar fashion to the pencil-baits described in the first article in this series. Its food, like that of the pencil-baits, consist of detritus and bacteria, diatoms and flagellate protozoans. This method of feeding, namely filtering suspended food out of the water, is known as filter feeding and is common to many bivalves.

Because of its rounded shape it is not very streamlined and when placed on the mud it burrows much slower than pencil-baits. Digging as energetically as it can with its small foot, it may take as much as 20 minutes to bury itself.

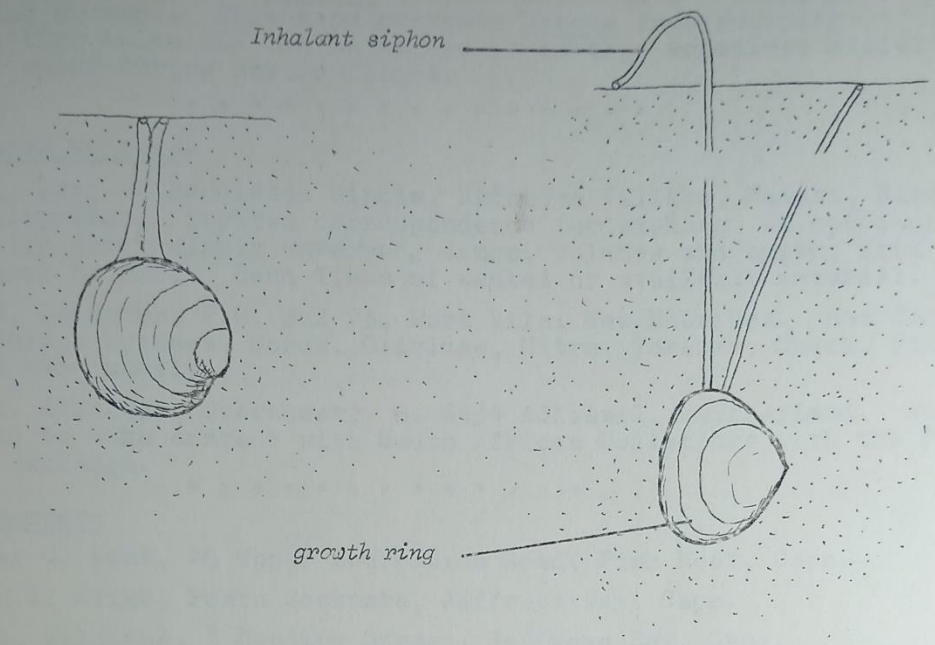
Besides fishes, which may nip its siphons, it is also preyed on by wading birds, such as the black oystercatcher (Haematopus moquini Bonaparte).

Dosinia hepatica is very well adapted to survive in the changing salinity conditions of estuaries. It can live normally in salinities from 40% that of seawater to salinities as high as 130% seawater. But, besides this ability to live in a wide range of salinities, it can also escape even longer salinities, such as fresh water (0% seawater), by tightly closing its valves and thus isolating itself from its environment. It can remain quite happily in this condition for considerable periods, a few weeks if need be. When the external salinity has returned to a level that it can tolerate it will then again open its valves and continue to live normally.

Dosinia spawns near the end of summer and a few months later the young (or spat) can be found on the mudbanks. Like the pencil-baits, Dosinia grows fast during the warm summer months and slowly during the colder winter months. The slow growth during each winter leaves a dark ring or concentric ridge on the shell, and these growth rings help one to estimate the ages of specimens of these bivalves. Dosinia grows fairly slowly to a diameter of slightly more than 2 cm and an age of five to six years.

Macoma litoralis Krauss is a small white bivalve also common in the muddier or siltier parts of many South African estuaries. Its shape is more triangular than that of Dosinia and it is also flatter laterally. Because of its more streamlined shape it burrows faster than Dosinia. It also normally lies deeper, usually 5-10 cm below the surface of the mud.

This little bivalve has relatively long siphons, specially adapted to a mode of feeding known as deposit feeding. This type of feeding behaviour is a well known characteristic of species belonging to the genera Tellina and Macoma. In contrast to



Dosinia hepactica and Macoma litoralis in feeding positions.

suspension feeding, or filtering of the overlying water, deposit feeders use their long inhalant siphons like vacuum cleaners. suck up fine food particles lying on the surface of the mud Macoma extends its inhalant siphon above the surface of the mud and then loops the tip downwards to touch the surface. The tip then waves back and forth along the surface, sucking up the fine deposits. This action of the siphon leaves a series of fine furrows radiating from the siphon. The exhalant siphon is shorter than the inhalant one and opens at the surface of the mud. The indigestible parts of the deposits that have been sucked in are expelled every now and then through the inhalant siphon. This is effected by the animal closing its exhalant siphon and forcing its valves closed, thus ejecting water and wastes back out of the inhalant siphon. Macoma's food consists chiefly of detritus and bacteria lying on the mud surface, but diatoms and flagellate and ciliate protozoans are also found in its gut. One would expect to find this species in areas with fine muddy sediments with plenty of detritus on the surface, Macoma can also occasionally act as a suspension feeder by using its inhalant siphon just to take in the water above the surface. It does, however, spend much more time deposit feeding.

Macoma spawns towards the end of summer and its spat grow to about 4 mm long by the first winter. This species also has growth rings and grows at about the same rate as Dosinia. It lives like Dosinia to an age of five to six years, by which time it is a little more than 2 cm long.

Like Dosinia, Macoma has adapted to changing salinities of estuaries and it can even live in water with a salinity of only 20% that of sea water. It is unfortunately not able to close its

valves as tightly as Dosinia as the valves have a small posterior opening or gape. This gape prevents Macoma from escaping salinities below 20% sea water and it is thus sometimes killed by fresh water during severe floods.

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Exchange Wanted:-

Mr. A. Luz, 10 Recoletos Circle, Urdaneta Village, Makati, Rizal, Philippines. Invites correspondence for exchange of specimen shells particularly cowries, cones, volutes and murex, from common to rare. Send lists of wanted or available material.

Mr. K. Andersen, P.O. Box 73, Port Vila, New Hebrides. Has for exchange Cypraea, Conus, Olividae, Mitra, Terebra, Murex, Volutes and rare shells.

Mr. A. Rocchese, Oberhusstr. 6, 8134 Adliswil, Switzerland. Would like to make contact with South African Collectors with the view to exchange.

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New Members

Master C. Kent, 46 Upper Recreation Road, Fish Hoek, Cape.

Mrs R.E. Krige, Poste Restante, Jeffreys Bay, Cape.

Mrs J. Williams, 3 Meeding Street, Jeffreys Bay, Cape.

Dr B. Wingreen, 10 Lance St., Baysville Ext., East London, Cape.

Mrs B. Wingreen, 10, Lance St., Baysville Ext., East London, Cape.

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Changes of Address.

Mr C.T. Stuart, c/o Namib Desert Research Station, P.O. Box 953, Walvis Bay, South West Africa.

Mrs Y. Clement, P.O. Box 437, Oranjemund, South West Africa.

Mr P.A. van der Westhuizen, c/o Welkom Tea Room, 30 Beare Street, Kuruman, Cape.

Mrs B.G. Granville, The Cypresses, P.O. Shagen, E. Tvl.

Mr R.J.H. Titterton, 12 John St., Birchleigh Ext. 4, Kempton Park, Johannesburg, Tvl.

Mr P.W. Clover, 925 Lexington Ave., El Cerrito, California 94530 United States of America.

Mrs I. Davies, 14 Pursers Cross Rd., Fulham SW6 4QX, England.

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Around the Groups

Transvaal Group, Johannesburg. Our meeting of 18th May was attended by twenty-five members and visitors. Prof. H.J.Schoombee of the Department of Zoology at the Randse Afrikaanse Universiteit addressed the Group. His subject was "Parasites in Fresh Water Molluscs" with particular reference to the genus Physopsis, species of which are intermediate hosts to Bilharzia. These have sinistral shells and distribution ranges from the Eastern Cape northwards to Central Africa, including all rivers flowing into the Indian Ocean. Physopsis occur in the upper reaches of rivers and particular care must be taken in these areas. Habitat includes the water hyacinth and other aquatic plants. They are extremely sensitive to pollution. It was clear from the questions asked at the close of the talk that considerable interest has been aroused by Prof. Schoombee's address, linking as it did, conchology, malcology and man himself - even if in a rather unpleasant combination.

Eastern Cape Group, Port Elizabeth. Ten members, three prospective members and one visitor attended the meeting of 19th May. There were apologies from another five members. Mrs Lewis reported that she had found a bookbinder who was prepared to bind the Society's circulars at the reasonable price of 75 cents per volume. Interested members can contact Mrs Lewis with a view to having their circulars bound. Mrs Watters informed the meeting that Mrs Dawson, who will be in Europe for almost a year, had donated the book "Marine Shells of the Pacific" by W.O. Cernohorsky to the Group's library. The Secretary was to contact Messrs. Maskew Miller to obtain copies of the errata slip for Brian Kensley's book "Sea Shells of Southern Africa". After the official part of the meeting was over members discussed the family Fissurellidae. The University's collection of this family was brought up to date with spare specimens donated by members.

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Border Group, East London. With apologies from four our meeting of 7th May was attended by seven members. The meeting agreed to the proposal that the Annual General Meeting be held in July. A film is to be obtained if possible, and Mr Carlsson had agreed to address the meeting on the family Marginellidae. It was also agreed that the members should meet socially in various homes once a month starting at Pat Palmer's on Thursday 17th May. This will give the members, especially the newer ones, an opportunity to view each others shells and to sort out their own queries. The subject for the evening was the ecology of the sea shore. Our area was discussed and the factors which influence it were outlined. It was explained how pollution and lack of conservation can upset the delicate ecological balance and the implications of possible imbalances were pointed out. A competition was held in which members were to name 10 Indo-Pacific shells. Pat Palmer won first prize and Dr. Wingreen the second.

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Natal Midlands Group, Pietermaritzburg. At our May meeting Mr. Kilburn spoke on the bivalve Mytilacea. While he spoke on their biology and characteristics some fine specimens of varied sizes were handed around. There were some of about half an inch in size which are essentially rock dwellers and, only to be obtained by splitting open a rock. Mrs Lambert brought a fine specimen of Cymatium lotorium which she had found together with its eggmass whilst shelling off Vetchies Pier in Durban. Mrs Lambert said that she had found the parent shell actually resting on the eggmass, surely the protective maternal instinct! Mrs Cook returned recently from Australia where she had visited her brother. Whilst there she had spent several weeks shelling in Queensland, Victoria, South Australia and New South Wales. Her glowing accounts of the beaches, clear sea and sand, completely free of oil or any other pollution is in itself a joy to hear. As for the shells - they were there in their dozens to meet her! Mrs Cook just goes into raptures over the vast variety of shells and their colours, even the humble nerite proved impressive. She was given a beautiful Syrinx aruanus Linn., by one of her friends. This beautiful shell is salmon pink in colour and measures 21 inches in length. Last but not least she says everyone was extremely kind and generous, this is something she will always remember with so very much appreciation. To all Charlotte's Aussie friends a very big thank you.

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Minutes of the meeting of the Society held on 29th May 1973 in the Lecture Hall of the South African Museum, Cape Town at 8.15 p.m.

Mr Freeman, in the Chair, welcomed those present. Apologies for absence were recorded from four members.

The minutes of the previous meeting were taken as read and adopted. It was resolved that special notices would be sent to all local members in future when a guest speaker was invited to address the meeting.

The Secretary reported that the Saturday afternoon study group had had its first meeting with nine members present and apologies from a further three. A field outing had also been held by the Group and this had proved to be a success. It had been decided to meet on the second Saturday of each month in the Lecture Hall of the South African Museum at 2.30 p.m.

Mr Freeman had on display a copy of R. Tucker Abbott's book "The Kingdom of the Sea Shell". The price is about R12. It is an American Hamlyn publication and is very well produced with excellent colour plates. The subjects covered are very varied and include a chapter on the cooking of shell fish.

Members were reminded that nominations for Council were to be with the Secretary by the 28th June, 1973.

Mr and Mrs Carlsson would be away on leave from 15th June to 11th July and Mrs Giles had agreed to be acting Secretary during their absence.

Members who had brought shells for display then gave short talks on them. This was followed by a talk from Mr G. Verheof who had just returned from a trip to Australia, the Pacific Islands and South America.

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MEETINGS:

The next meeting of the SOCIETY will be held on Tuesday, 26th June, 1973 in the Lecture Hall of the South African Museum at 8.15 p.m. The shells for display and discussion will be the families Liotiidae, Turbinidae and Phasianellidae as illustrated on pages 44 to 53 of "Sea Shells of Southern Africa".

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The next meeting of the EASTERN CAPE GROUP will be held on Saturday, 7th July, 1973 at the University of Port Elizabeth at 2.30 p.m.

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The next meeting of the BORDER GROUP will be held on Monday, 2nd July, 1973 in the Lecture Room of the East London Museum at 7.30 p.m.

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The next meeting of the DURBAN AND NATAL COAST GROUP will be held on Saturday 21st July, 1973.

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The next meeting of the NATAL MIDLANDS GROUP will be held on Saturday 7th July, 1973 in the Natal Museum.

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The next meeting of the TRANSVAAL GROUP will be held on Friday, 22nd June, 1973 in the Aduitorium of Shell House at 8.00 p.m. A film produced by Jacques-Yves Cousteau will be shown.

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