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SEA SHELLS AND THEIR MAKERS.

by R.N. Kilburn.

Part 10 - Further Tips for Shell Collectors.

If you have followed the instructions given in the last article, your specimens should need no further treatment. It is permissible, however, to rub a little machine or paraffin oil onto the surfaces that have become dull. In dry climates this will also prevent your shells cracking, an unfortunate tendency in some bivalves and land shells. Varnish should never be used, and the practice, followed by some collectors, of polishing shells with hydrochloric acid, can not be too strongly criticised. This treatment not only imparts a highly unnatural gloss, but ruins fine sculptures and destroys all details of the delicate apical whorls. Shells maltreated in this way should be rejected by all serious collectors.

All shells should be properly labelled, as soon after collecting as possible. The label should bear the scientific name (if known) and the exact locality. Details such as date, habitat etc. are also useful. The most vitally important item, however, is the exact locality where the specimen was found; without this information a shell, unless exceptionally rare, is fit only for the rubbish dump.

There are numerous systems in use for housing shell collections, two of which may be mentioned. The best is to use closed containers of suitable sizes, plastic or glass-topped boxes being ideal. Metal containers should be avoided, as a shell, once discoloured by rust cannot be cleaned. The label is placed inside the box with the specimen. A bed of cotton wool may be used, although recent reports suggest that this may sometimes encourage harmful bacteria. The second method is to affix the shells to stiff cards, using a non-hardening adhesive such as rubber cement or plastic putty. The label is glued next to the specimen.

Whichever method is used, great care should be taken to ensure that shells and labels do not at any stage get mixed up. The most thorough collectors number their shells with Indian ink, and enter the relevant details in a catalogue. This removes any possibility of "accidents". A problem arises with the small to minute shells, which are easily lost. These are best kept in glass vials, plugged with cotton wool. The label is inserted in the tube with a specimen, which for extra protection may be first wrapped in a twist of cellophane.

The type of cabinet used depends on personal preference. The chief specifications are that it should be lightproof (to prevent the

fading of colours) and dustproof. Any wood will do with the exception of oak, as this emits acetic acid fumes, which will ruin your shells. The cabinet should be kept away from damp situations, which promote mildew and bacteria.

Finally there remains the problem of identification. Here the prospective collector is advised to contact someone with similar interests in his area for advice and assistance. Much benefit will also be derived from joining the Conchological Society of Southern Africa, which, although based in Cape Town, has branches in each province. Your nearest museum should be able to direct you.

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This article was the last in a series of ten talks which were originally compiled for, and broadcast by, the English Service of the South African Broadcasting Corporation, who have given permission for free distribution amongst members of the Conchological Society of Southern Africa.

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Editors Note: The Society has a limited number of copies of these talks available for any members who wish to have a copy. In terms of the S.A.B.C. copyright no charge can be made for these and they are accordingly offered free to members. Please write to the Secretary if you wish to have a complete set.

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FAMILY CYPRAEIDAE - SOME OBSERVATIONS ON THE DEVELOPMENT OF
THE GENUS ARABICA JOUSSEAUME, 1884.

by B.J. Young.

The following observations on two specimens of Cypraeidae were only possible through the kind co-operation of Mr. A.T. Young who established a marine aquarium in November, 1972.

Specimen 1. Arabica histrio Gmelin, 1791.

On the 12th November, 1972 a specimen in the bulla stage of growth was found in a rock wall in Durban Harbour. When recovered, it was not possible to determine the species.

The specimen was immediately placed in the tank. At this stage the shell measured 43.00 x 20.20 x 18.50 mm, (length, depth and width respectively).

Steady growth took place until 2nd April, 1973, when the specimen died from a cause which was not established. Throughout the 141 days during which it survived it appeared to be in good health and was active in the tank. The shell measurement taken at this time read as follows:-

length 60.50 mm; depth 27.20 mm; width 38.25 mm.

The appearance of the shell at this stage, looked at from either end, was a marked tendency towards flattening dorso-ventrally. The outer lip was commencing to curl and at the outer edge thereof a primary stage of development of the teeth was taking place. These, measuring on the average $1\frac{1}{2}$ mm in length, were already tinged with the characteristic red colour. At the same time a very early stage of the columella teeth was to be seen. These arose from a prominent, curved, yellow ridge measuring about 8.50 mm, being the first stage of the development of the columella side of the posterior outlet. From the anterior end of this ridge, a line of minute raised spots proceeded in a direct line towards the anterior end of the shell. The first eight of these were clearly defined and, although minute, already tinged red. The remainder could only

be seen as a series of faint shadows (when the shell was held at an appropriate angle to the light) until they began to emerge as a similar series of raised spots at the anterior end, then merging into the developing terminal ridge.

The spire was prominent.

When looked down on, the colour on the dorsum was fast approaching the final stage, then graduating into earlier stages towards the outer lip, where underlying transverse bands were very clear. The method of laying down the colour was visible on the outer lip (under magnification) as a series of very fine striae running somewhat irregularly parallel with the outer edge.

The fossula was undeveloped.

Specimen 2. Arabica sp.

On the 23rd January, 1973, the writer recovered another specimen well out on the rocks at Brighton Beach, Durban, during a very low tide. This, a shell of massive proportions, as the following details show, is nevertheless in a juvenile stage. Measurements taken on the date of finding and immediately prior to being placed in the tank were as follows:-

length 91.75 mm; depth 51.25 mm; width 61.50 mm.

The animal appeared to settle down well in the tank, however, at date it appears to be somewhat lethargic.

The outer lip at the time of recovery was clean-cut and appeared to be very fragile and remained in this state for a considerable period. Owing to the fact that, due to movement about the tank, was only intermittently possible to keep observations on this specimen, it was not until the 9th March that it was noted that development of the outer lip was taking place. This has taken the form of the laying down of a zone of off-white colour along the lip. Averaging about 2-3 mm in width it is striate and irregular. During the period of lip development, at such time as observations could be made, it was noted that the mantle was extended only to that extent necessary for the work being undertaken. This suggests that it is the function of the outer areas of the mantle to attend to building. It was, in fact, possible to see through the edge of the mantle and see the indefinite outlines of tooth development on the columella. These, however, have now been seen to be only very slightly raised above the surrounding areas. No colour has been noted thereon.

The colour development stage is indefinite overall and not more or less zoned as in the case of specimen 1.

The spire is not produced beyond the outer border of the posterior outlet.

The shell was again measured on 10th April and such measurements are set out following those originally taken:-

	<u>23rd January 1973</u>	<u>10th April 1973</u>	<u>Increase</u>
Length	91.75 mm	92.50 mm	0.75 mm
Width	61.50 mm	63.60 mm	2.10 mm
Depth	51.25 mm	52.20 mm	0.95 mm

As far as could be observed both specimens browsed on such seaweeds (more particularly the green ones) as it was possible to supply periodically. A proclivity on the part of both specimens to spend lengthy periods in the bubble-zones of the aerators of the tank was also noted.

THE BIOLOGY OF SOME ESTUARINE BIVALVES

by A. McLachlan.

Part 1 - The pencil-baits, Solen spp.

This is the first of a short series of articles describing the biology of some common burrowing bivalves which have recently been studied in the Zwartkops estuary, near Port Elizabeth.

The pencil-bait, or razor shells, Solen capensis Fischer, 1811, is well known in many South African estuaries where it is often used extensively as bait for fish such as steenbras and grunter. In these estuaries it prefers fairly clean sand and is seldom found in muddy areas. It is commonest near the low tide mark where small specimens are easily obtained by digging. The larger specimens, up to 15 cm long, live in deep burrows and can usually only be extracted by means of a hooked wire which is rapidly inserted into the burrow, twisted, and then withdrawn, with the impaled bivalve on the end. The openings of their burrows are easily recognised by their characteristic shape of a figure "8", this shape being moulded to the form of their united siphons. In the case of large specimens these burrows can be as much as a metre deep.

When feeding, Solen capensis lies below the surface of the sand with the tips of its siphon almost level with the surface. Sometimes, however, the siphons are held just above or just beneath the surface. By means of these siphons water lying immediately above the sand is drawn in, and from this water, by filtration through its gills, the pencil-bait extracts its food of fine decaying organic matter (called detritus) and bacteria, unicellular plants or diatoms and tiny flagellate protozoans. Many fish nip the siphons when they are exposed. The siphons are, however, built up of a series of segments which can easily break off and thus save the pencil-bait from being dragged from its burrow. Siphons which have been nipped off and then regenerated are easily recognisable as they are somewhat shorter and thicker than normal siphons.

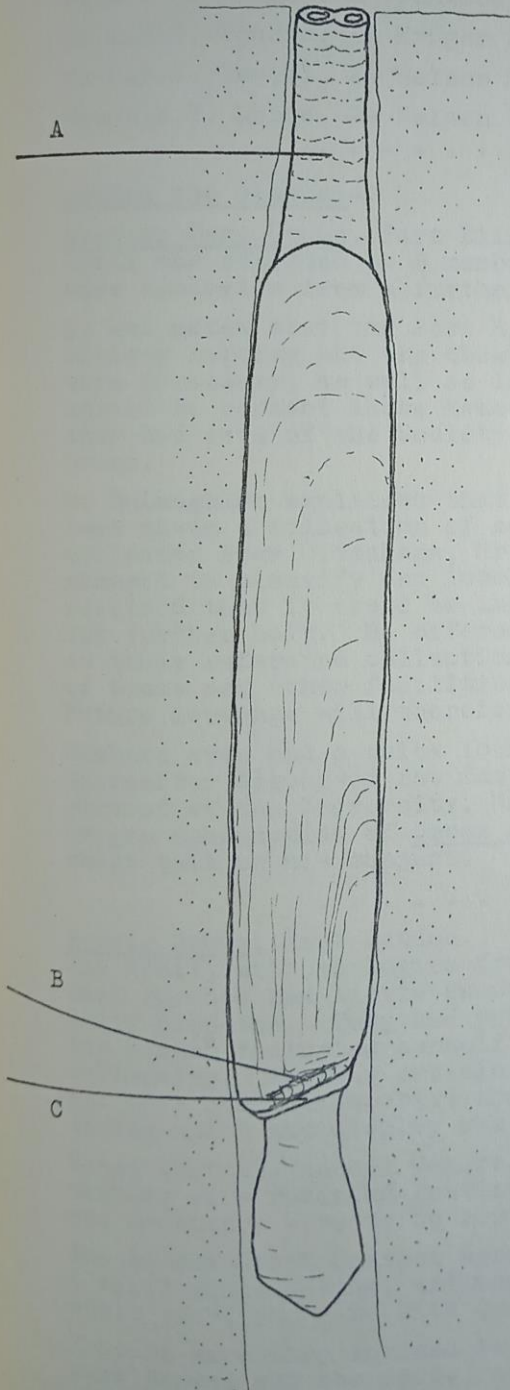
Solen capensis can burrow rapidly by repeated thrusts of its powerful foot and, when placed on the sand, it can disappear within a few minutes, the speed of burrowing depending on the hardness and water content of the sand and the size of the animal. Small animals generally burrow faster than larger ones.

The other common pencil-bait is Solen corneus Lamarck. It is smaller than S. capensis, only growing to about 9,5 cm in length. In its general habits it is very similar to S. capensis, except that it occurs mainly in very muddy or silty areas and is rare on sandy banks. For this reason, these two species seldom colonise the same areas. Its burrow is shallower than that of S. capensis and it can easily be obtained by digging. Its burrow does not usually have the characteristic figure "8" shaped openings as do the burrows of S. capensis, as the soft mud where it occurs does not maintain the shape of the siphons. S. corneus feeds in the same manner as S. capensis and is also subject to having its siphon nipped. It is seldom used as bait because of its smaller size.

It would be appropriate here to mention some means of distinguishing between these two species. They have generally been distinguished by a groove along the anterior margin of the shell, which is generally obvious in S. capensis and absent in S. corneus. This feature is however, only distinct in larger specimens and even then it is not always easy to recognise unless one has a specimen of both species to compare.

In living specimens, even if they are only 1 cm long, the following features can easily be recognised.

Solen capensis in its burrow



In S. capensis the anterior fold of the mantle around the foot is a distinct orange-red colour and the siphons are yellow. In S. corneus however, this anterior fold of the mantle, as well as the siphons, are very pale coloured or white. Further, shells of S. capensis are generally pale brown or creamy white, while those of S. corneus are pale to dark brown. The red mantle fold of S. capensis is however, the most obvious distinguishing feature. The shells of both species are approximately the same weights at equal sizes, although of course, S. capensis grows larger than S. corneus.

As both species live in estuaries, where the salinity naturally varies according to the tides and the amount of fresh water inflow, they would be expected to be reasonably tolerant of salinity changes. In fact both species can live in water at least 25% more saline than sea water as well as in water 60% less saline than sea water. This hardiness undoubtedly aids their survival in estuaries.

Both species appear to spawn in late summer and the young hatched or spat, are common by May. They are then a little more than 1 cm long. Growth is very rapid, in the first year especially, and occurs in cycles, in which the fastest growth occurs in summer and the slowest in winter. The slow growth in winter sometimes results in the appearance of rather indistinct winter, or growth, rings on the shell valves. The largest specimens of S. corneus appear to be about five years old, but it is not known to what age S. capensis grows.

- A. Yellow siphons
- B. Anterior groove
- C. Red mantle fold

Exchanges Wanted:-

Mr S. Sharpe, Amherst, R.R. 42, Nova Scotia, Canada. Would like to obtain a specimen of Argonauta argo in exchange for Canadian Shells.

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New Members:-

Miss E.M. Gibson, 4 Wychwood Ave., Linkside, Port Elizabeth, C.I.

Mr L.M.C. Fouche, 3A Kruger Street, Ventersburg, O.F.S.

Mr S.B.D. Nevill, 24 Nelson Road, Amanzimtoti, Natal.

Mrs S.M.E. Lubbe, 24 Nelson Road, Amanzimtoti, Natal.

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Around the Groups:-

Eastern Cape Group, Port Elizabeth. The Group meeting of 14th April was attended by 8 members and 2 prospective members. There were apologies from a further three members.

It was noted that the Port Elizabeth Museum had consented to the Society sorting out the showcases in the Museum and re-labelling were necessary, as well as improving on specimens. Mrs Lewis agreed to contact those members who were not present to enquire they had sets of the Society's Circulars which they wished to bound.

Mr McLaughlan explained that the University of Port Elizabeth had been given a collection of some 5000 shells by the widow of a collector from Uitenhage, Mr E. Wicks. He had quite successfully managed to classify and label this very mixed collection but realized that it could be improved upon and called on the members for further help. He offered to let the members use the collection as their reference collection. Mr McLaughlan also offered the use of books and other facilities of the University to members. Future meetings will therefore be held at the University.

Members then had a quick look at the University collection and thereafter discussed the families Janthinidae and Scalidae. A student at the University, Mr Hanekom, was busy measuring the oxygen consumption of Donax serra and Donax sordidus and gave a short talk on his subject.

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Border Group, East London. Six members attended the meeting of 2nd April, with apologies from another two. Mrs Latigan reported that she had had little success as regards publicity with the Daily Dispatch. They had published an article on "Unusual careers for women" featuring herself instead of the subject of shell collecting. Another article had been submitted but not published and they had not inserted the promised write-up for the week during which the display was appearing in the French Bank window.

Noted that the Annual General Meeting would be held soon and members were reminded that nominations for Chairman, Vice-Chairman and Secretary were to be sent in not later than 24th April.

The Sacred Heart Convent were hoping to gather enough material for a small shell museum, and members were invited to contribute one shell each, complete with data.

Members were then invited to take part in a shell quiz. The papers were marked and the prize, a very fine Fusivoluta clarkii, was presented to Miss Eva, the lucky winner. During tea-time a

Dip was put out and all gallantly, and in some cases profitably, spent their 20c pieces, until all the parcels had been taken. This was to raise funds to pay for the material used in the drive to recruit more members. Although small in numbers, the meeting was full of enthusiasm, and a vote of thanks was passed to those who had organised the programme.

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Durban and Natal Coast Group, Durban. With apologies from fifteen, our meeting of 14th April was attended by eight members and five guests. The Chairman, Mr Scheepers, welcomed Mrs von Bredow, who together with her husband and daughter, had travelled from Ballitoville. It was noted that this was the first meeting that Mr B.J. Young had missed since joining the Society in 1967, but the circumstances, the arrival of his son and family from Australia, were understandable.

Arising from the minutes of the previous meeting the matter of the renewals of the Shell Permits from the Natal Parks Board was discussed and the Chairman advised members to continue as in the past by sending in the expired permits once a year only when they expired. It was noted that no new permits had been received from the Parks Board to date. It was also pointed out that the Authority to contact in Mocambique for permission to collect shells in that country was the Port Captain of each district and not the Police.

Mr J. Scheepers then addressed the meeting and gave a very interesting talk on the Olividae. The members present were very grateful for this talk as the family is a very difficult one to identify and Mr Smith expressed the thanks of all present. The very extensive olive collection of Mr Scheepers and Mrs Niell was exhibited and members were able to name their own shells from this collection.

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Natal Midlands Group, Pietermaritzburg. Due to the first Saturday in April being at the Long weekend a field day was arranged for the following Sunday (April 15th) at Reunion Rocks, Natal South Coast. Eight members arrived at 8 a.m. only to find the area full of oil. This we discovered was due to a seepage from an oil pipe-line. We managed, however, to find a small variety of a few good specimens but shelling on the whole was very poor.

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Transvaal Group, Johannesburg. The Group's Annual General Meeting was held on 25th April, 1973. Nineteen members and six visitors were present. The Vice-Chairman Mr R. Ruben, took the chair in the absence of Mr G.A. Hyatt. Mr Ruben proposed a vote of thanks to Mr Hyatt for his work over the past year. During his term of office he had promoted interest in the scientific aspect of conchology and had been greatly concerned with conservation and pollution. The vote of thanks was warmly endorsed by the meeting. Mr. Ruben then said that he wished, on My Hyatt's behalf, to thank the committee for their support during the past year.

Mr. Ruben reviewed the activities of the Group during the past year and in particular congratulated Mr Ed Ralph on his outstanding drawings of shells which have been appearing in "The Strandloper", and Mr Don Aiken and Mr R. Kilburn of the Natal Museum whose "Notes on Two Endemic South African Cypraea" were published in the October 1972 issue of "The Veliger".

Members were asked for their views on a programme for the forthcoming year and a general discussion followed. The Vice-Chairman

then closed his report and the incoming Group Committee was elected. After scrutiny of the votes the new Committee was announced as follows:-

Chairman	Dr E.H. van Hoepen
Vice-Chairman	Mr R. Ruben
Secretary	Mrs A.H. Adam
Treasurer	Mr A.H. Adam
Member	Mrs B. Hooper.

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Minutes of a meeting of the Society held on 24th April, 1973

In the absence of the Chairman Mr. Freeman, Mr. Carlsson took the chair and welcomed those present with a special word of welcome to the guest speaker, Dr. Thomson of the Department of Nature Conservation.

Apologies for absence were received from six members.

The minutes of the previous meeting, as published in Circular No. 150, page 7 were taken as read and adopted.

Arising from the minutes, the Secretary reported that Dr. Barry had agreed to allow the members to meet in the Lecture Hall of the Museum on a Saturday afternoon. The first of these meetings for junior and new members as well as any others who are interested will be held on 12th May 1973 at 2.30 p.m.

The field day held at Cape Hangklip on 6th April had been successful. Those who had attended had found a variety of shells. As there were no suitable tides over the long weekend at the end of May, it was not possible to arrange another outing for then.

The Chairman drew members' attention to the errata slip which had been published for the book "Sea Shells of Southern Africa" by B. Kensley. If any members had obtained a copy of the book prior to the issue of this errata slip they were to contact the publishers and request a copy of the errata slip.

The shells on display were the family Haliotidae and members who had brought shells then gave brief talks on them.

The guest speaker, Dr. Thomson, then took the floor and gave a most interesting talk on conservation and the aims of his Department. The film "Wild Wings" was then screened. This outstanding film showed the work being done by conservationists in England to increase and protect the flocks of the threatened species of water birds. The questions put to Dr Thomson indicated that his talk and film were well received and that members were aware of the vital need to practice conservation.

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MEETINGS:-

The next meeting of the SOCIETY will be held on Tuesday, 29th May 1973 in the Lecture Hall of the South African Museum, Queen Victoria Street, Cape Town at 8.15 p.m. The shells for display and discussion will be the family Trochidae as figured on pages 34 to 45 of "Sea Shells of Southern Africa".

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The next meeting of the TRANSVAAL GROUP will be held on Friday, 18th May, 1973 in the Auditorium of Shell House at 8.00 p.m.

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The next meeting of the DURBAN AND NATAL COAST GROUP will be held on Saturday, 19th May, 1973. The shells for display and discussion will be the family Fissurellidae.

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The next meeting of the NATAL MIDLANDS GROUP will be held on Saturday, 2nd June, 1973 at the Natal Museum, Pietermaritzberg at 2.30 p.m. This meeting will be the Group's Annual General Meeting. Films will be shown.

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The next meeting of the BORDER GROUP will be held on Monday, 4th June 1973 in the Lecture Hall of the East London Museum at 7.30p.m.

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The next meeting of the EASTERN CAPE GROUP will be held on Saturday 2nd June, 1973 at the Port Elizabeth Museum at 2.30 p.m.

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ANNUAL GENERAL MEETING.

Notice is hereby given that the Annual General Meeting of the Society will be held on Tuesday, 28th August, 1973, and nominations for Council, in writing, are hereby called for. Such nominations are to reach the Secretary NOT LATER THAN 28TH JUNE, 1973. The present Council is as follows:-

- President Prof. J.H. Day
- Vice-President Mr. D. Freeman
- Secretary Mrs. R.O. Carlsson
- Treasurer Mr. R.O. Carlsson
- Members Mrs. M.C. Giles
- Mrs. J.W. Watt
- Mr. M.C. Giles
- Mr. L. Kapp
- Mr. J.W. Watt

Nominations are now called for to fill the following positions:-

- a) President Vacant through expiry of one year term of office
- b) Treasurer Vacant through expiry of three year term of office
- c) Five members resident in Cape Town and vicinity.

Before sending in your nominations will you please make sure that your nominee agrees to the nomination.

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SUBSCRIPTIONS:

The time has again arrived when subscriptions are due for payment. Some members have paid in advance but for those who have not as yet paid, subscription accounts will be in the post soon. Please assist your Treasurer and pay promptly on receipt of your account.

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