

# LAND SNAILS OF THE LOWLANDS OF NORTHERN LUZON

By JAMES L. BARNETT\*

The lowlands of Northern Luzon are to be found along the east and west coastal areas of the island. The west coast, or that area washed by the South China Sea, contains the provinces of Ilocos Norte, Abra, Ilocos Sur and La Union, while the east coast, or that area bounded by the Philippine Sea of the Pacific Ocean, consists of the provinces of Cagayan, Isabela and northern Quezon. The two coastal areas gradually rise to the high elevations of the Cordillera Central, or the mountains of Northern Luzon.

Both areas have weather conditions similar to Philippine weather in general. The climate is humid and hot at the coasts, cooling somewhat in the higher elevated, inland regions. The rainy season is the usual six month period, during which frequent and strong typhoons batter both coastal areas. The rich Cagayan valley, once the home of scores of species of land snails, bisects the provinces of Cagayan and Isabela. During recent years, however, the land snail population in the valley has been reduced to almost zero. Farmers, especially tobacco growers, discovering that the snails feed on new tender leaves and destroy much of the projected crop, have almost totally eliminated the land snails which once were to be found in abundance on both sides of the Cagayan river. Although *Achatina fulica*, introduced by the Japanese as a food supplement during World War II, was the main culprit, the farmers tried to eliminate all land snails from the valley. Now land snails are to be found only at higher elevations approaching the mountains.

Politically speaking, both regions are the scene of strong and apparently well-organized dissident movements. Given this activity throughout the two regions, particularly at the higher elevations, it is very difficult to find collectors who will risk entering the higher places in search of land snails. Recent acquisition of a small number of terrestrials from both areas has indicated that most of the more desirable species, long absent from dealer's lists, are still available, but not collectable.

Several species of representative shells of the two areas are shown in the photo:

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1. *Helicostyla (Calocochlia) pulcherrima* Sowerby. Early whorls purplish, intermediate whorls yellow-brown, and final whorl rich red-brown. Some shells are heavily covered with hydrophanous periostracum (H.P.), while others are without it. The flaring lip, columella and aperture are all shiny white. Sizes range from 45-47 mm. Found on trees and large bushes in foothills above the Cagayan river valley, near Ilagan.
2. *H. (C.) pulcherrima* form *chrysame* Sowerby. Much like the type shell, but of a deep golden color.
3. *H. (C.) chrysochiela* Sowerby. Early whorls pinkish, intermediate and final whorls white or yellow. Without H.P. Flaring lip, columella and aperture all an off white. 45-48 mm. On trees and bushes, in hills, near Appari, Cagayan, which is on the Babuyan Channel where the South China Sea and Pacific Ocean meet.
4. *H. (C.) luzonica* form *areolata* Möllendorff. Entire shell usually shiny, yellow-brown. Bands of light brown H.P. are found on the apex and at the periphery. The lip and columella are off white, while the aperture is blue-white. 32-35 mm. On trees and bushes in foothills above the Cagayan valley, at Tugue Garao, Cagayan.

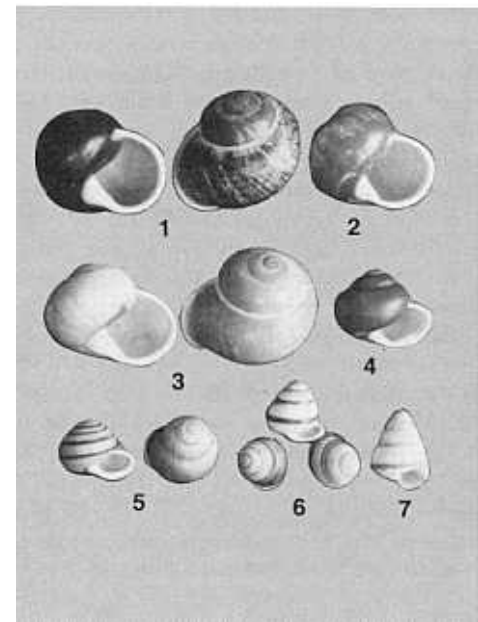
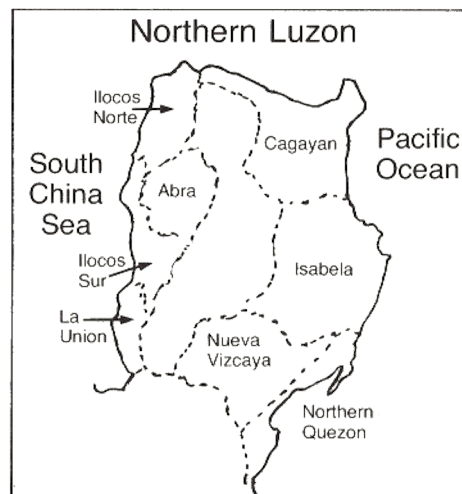


Photo: Barnett

5. *H. (Pachysphaera) sphaerica* Sowerby. Early whorls off white, and the remainder of shell yellow-brown. Some forms are brown-banded, while others are without banding. Lip, columella and aperture shiny white, with a narrow dark brown band at the umbilicus. 22-26 mm. On trees and bushes, in foothills, east of Bangued, Abra.
6. *H. (P.) annulata* Sowerby. Shell colors range from near white to dark red-brown, with brown banded yellow shells the most common. The solid lip, columella and aperture are shiny white, with narrow red-brown band at the umbilicus. 22-30 mm. On trees and bushes, in foothills, east of Narvacan, Ilocos Sur.
7. *H. (Hypselostyla) concinna* Sowerby. Entire shell off white, with brown bands between the whorls and at the periphery. The lip is thin, the columella short and the aperture small and compressed. 28-32 mm. On trees and bushes, in the hills east of the Cagayan valley near Lai-lo, Cagayan.



# REEFCOMBING

Members of the Hawaiian Malacological Society were offered overviews of three widely separated parts of the Pacific Basin at the March 4 meeting at the Waikiki Aquarium. About 50 members and a dozen visitors were present.

Chris Takahashi of Honolulu gave a short preview of the slide talk he is scheduled to give at the April meeting. It covered Hawaiian scenery, underwater life and shelling scenes with accompanying music. Takahashi is one of our most active diver/sheller/photographers.

Dave Mulliner, Research Associate of the San Diego Museum of Natural History and member of the San Diego Shell Club, followed with a series of slides taken on a recent trip to the central Philippines. Mr. and Mrs. Mulliner were in Honolulu as house guests of Tetta Richert. The slides and Mulliner's remarks stressed both the wealth and beauty of undersea life in the Philippines and its intensive exploitation.

Mulliner is the photographer for the new book on Terebridae by Bratcher and Cernohorsky.

Two-times HMS scholarship grantee Gustav Paulay of the University of Washington in Seattle reported to the Society on his research into the effects of geological sea level changes on the molluscs of Pacific Islands.

Paulay did much of his research on the island of Niue, in the mid ocean east of the Kingdom of Tonga, where tectonic forces have elevated the one-time atoll well above the sea. As a consequence, he pointed out, conditions there today resemble those on other islands long years ago when sea levels were as much as 300 meters lower than today.

Paulay's research indicated that lagoon-based bivalve species then had less than a 10 percent chance of survival and gastropods only about 35 percent. He established these figures by comparing fossil species on the island with present-day finds.

The March program was the first handled by the new vice president and program chairman, Jim Rohrbach. Olive Schoenberg is president for the balance of this year.

## Shell Gallery

Eliot and Charlotte Michaelson write that the growth of their Shell Gallery at Newton Centre, Massachusetts has been so great that they do not have enough time to pursue their other interests. As of March 1, 1987, Gayle and Ed Nieburger own and operate the Gallery.

The new owners are well versed in shells and allied matters. Ed is a past president of the Boston Malacological Club, is Counselor-at-large of the American Malacological Union and is a member of the Board of Directors of the Conchologists of America. Gayle's interests are in the peripheral areas of the business.

We wish the new owners success in their new venture.

## Poor Mili

Mili Backus, editor of *The Junonia*, journal of the Sanibel-Captiva Shell Club, recently fell "head over potatoes" down a flight of steps. She broke her right arm near her shoulder. Because of the location of the breaks the doctors cannot put a cast on her arm. She has to hold her arm motionless in a sling. This accident has removed her from ALL activity. This happened at the height of her publicity and public relations activity for the 50th anniversary of the Sanibel Shell Fair [HSN March 1987 p. 9].

We wish her a speedy recovery.

## Death of a Malacologist

Dr. Henry Drummond Russell passed away on Saturday, January 24, 1987 at the age of 78. Henry leaves his wife of 45 years, Mary Elizabeth Meade Russell, three daughters and several grandchildren.

Dr. Russell was the author of *Index Nudibranchia* in 1971. He composed the entire document on 3 x 5 cards before the time of personal computers. It is recognized as a definitive work on Nudibranchs. He also wrote *School Ponds for Biology Teaching* with J. W. Brainard in 1959. His papers include "Mollusks of the Family Neritidae of the Western Atlantic," 1941; "Freshwater Shells of New Hampshire" with W. J. Clench in 1938; and "Notes on Methods for the Nematode Killing and Preservation of Marine Organisms," 1963. Henry made contributions to the *Nautilus*, *Bulletin BCA*, *New Hampshire Fish and Game Reports*, *Bulletin of New England Museum of Natural History*, and *AMU Reports*.

Henry will be missed by his many friends and colleagues. We extend our deepest sympathy to Libby and the rest of the family.

## Elmer's Ailing

We are sorry to report that long-time HSN Associate Editor Elmer Leehman has been in a Honolulu hospital with complicated ailments that appear likely to keep him out of action permanently. Recent deterioration of his eyesight makes reading difficult, and his ability to write is also seriously impaired. Elmer's once active correspondence with shelling people worldwide probably can never be resumed, according to his wife, Marion Leehman. It is also unlikely that he will be able to continue as an Associate Editor.

## Gwen Cornfield, Are You There?

If anyone out there is in touch with Gwen Cornfield, aboard the yacht *Loreley* cruising the South Pacific, please ask her to contact the HMS office in Honolulu.

While you're at it, suggest that she write a report for HSN on her travels.

## Hawaiian Shell News

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HAWAIIAN SHELL NEWS does not knowingly carry original descriptions of species and does not wish to be cited as authority for new taxa.

# CHLAMYS RUSSATA REDISCOVERED

By HENK H. DIJKSTRA\*

**SNEEK** — Among the many specimens of Pectinidae and Propeamusiidae that Wesley M. Thorsson sent me from Hawaii was one lot of juvenile and adult dead specimens of *Chlamys russata* (Reeve, 1853).

Hertlein, 1935, [p. 29] reported that he had not seen any specimen referable to *Pecten russatus* Reeve in any of the collections that he examined. Dall, Bartsch and Rehder, 1938, [p. 92] quoted Reeve's description because they had not found specimens in their collection of material from Hawaii that agreed with Reeve's description. Kay, 1979, [p. 528] stated that "*C. russatus* Reeve, 1853, was erroneously described from the Hawaiian Islands."

After examining the types of *Pecten russatus* Reeve in the British Museum (Natural History) of London, I believe that the specimens sent me by Mr. Thorsson are *Chlamys russata* (Reeve, 1853).

Original diagnosis [plate XXIX species 126 (Mus. Cuming)]:

"*Pecten russatus*. Pect. testá subtrigono-orbiculari, aequilaterali, aequivalvi, valvis costis ad viginti angustis radiatis, interstitiis subexcavatis, ad latera costarum serrulatis; carneá, rufo-fusco lentiginosá; auriculis valdá inaequalibus.

"The flesh-tinged Pecten. Shell somewhat triangularly orbicular, equilateral, equivalve, valves rayed with about twenty narrow ribs, interstices rather hollow, serrulated at the sides of the ribs; flesh-colour, freckled with red-brown; ears very unequal.

"Hab. Sandwich Islands.

"A small sharply-ribbed freckled shell."

Additional description: Shell small to 30 mm, higher than wide, moderately thin and flat. Anterior and posterior auricles unequal in size. Umbonal angle of about 90°. Left valve of mature specimens has 22 to 24 primary costae. Near the central disk secondary riblets appear on each side of the costae. Near the ventral margin two or three riblets are visible between the primary costae. The same morphological characters are present on the right valve. The ribs are small, serrulated and more pronounced to the flanks of the exterior surface of the disk. The byssal notch is moderately wide. The ctenolium is present with four to six denticles. The basic color is creamy with red-brown dots, also visible on the interior side of the valves.

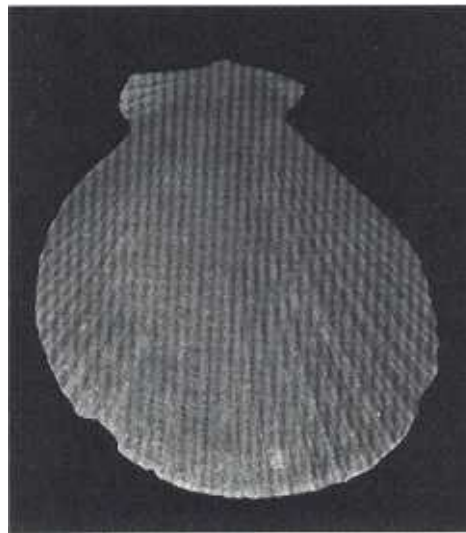
Locality: Pailolo Channel, Hawaiian Islands, Lat. 21° 02.8'N, Long. 156° 42.5'W. Dredged by R. V. *Janthina VII* August 23, 1981, from sand bottom at 120-130 fathoms.

Note: The shells described by Reeve are, in my opinion, young specimens of the species about 15 mm in height, which lack the secondary riblets. These appear after this stage of development.

\*Gravineweg 12, 8604 CA Sneek, Nederland.



*Pecten russatus* Reeve, 1853. Original type figure.



*Chlamys russata* (Reeve, 1853) from Pailolo Channel, Hawaii 120-130 fm.

Photo: Dijkstra

## Acknowledgements

I am grateful to Mrs. Solene Norris of the British Museum (Natural History) who invited me to study the types of Pectinidae and to Mr. Wesley N. Thorsson, who sent me Pectinidae and Propeamusiidae material for comparative studies.

## References

- Reeve, I. A., 1852-53, "Monograph of the genus Pecten." *Conch. Icon.* London, vol 8, pls 1-35, figs 1-176.
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# You Can Help Date Fossils

By NAOMI F. GOLDSMITH, PhD\*

**OMER** — Mr. John Robinson of Fife, Scotland, sent me some fossil oysters from Cyprus [see *HSN* Sept. 1983 p. 12]. Studies of these shells may enable me and my associates to determine a date for the refilling of the Mediterranean Sea after it "dried up" during the Messinian Age, approximately five million years ago.

Our original attempt to age-date ostreid fossils using beryllium-10 concentrations failed, despite the best efforts of Dr. Louis Brown of the Carnegie Institution of Washington and his team and of Dr. Jurg Beer and Dr. Willi Wolfli and their team at ETH, Zurich. It appears that Recent macroinvertebrate taxa, for example, mollusks, balanids, and brachiopods, have insufficient or highly variable Be<sup>10</sup> uptakes. In contrast, fossil invertebrates such as corals and *Mercenaria* may be subject to post-mortem adsorption of Be. Beryllium was especially interesting since its half-life would have permitted dating fossils several millions of years old, whereas C<sup>14</sup> is useful for dating only the most recent 40,000 to 50,000 year-old fossils.

We are now taking a different tack, using the ratio of two strontium isotopes Sr<sup>87</sup>/Sr<sup>86</sup> in bivalves of known ages to set up a standard curve. The existing standard curve was established using scaphopods, gastropods and deep sea cores by Professor Donald J. DePaolo and his student, Bonnie L. Ingram, Department of Earth & Planetary Sciences, University of California at Los Angeles, Los Angeles 90024.

We will work with Dr. DePaolo and his team to set up a standard curve using bivalves of the Neogene, the most recent 35 million years. This requires that we find ostreids and other bivalves that are near old lava flows or basalts that can be potassium-argon dated.

Once the standard curve is established we should be able to solve various stratigraphic problems. For instance, when was the Tethys Ocean cut off from the early Mediterranean Sea? When did the Mediterranean refill after drying up? When did South America and North America join?

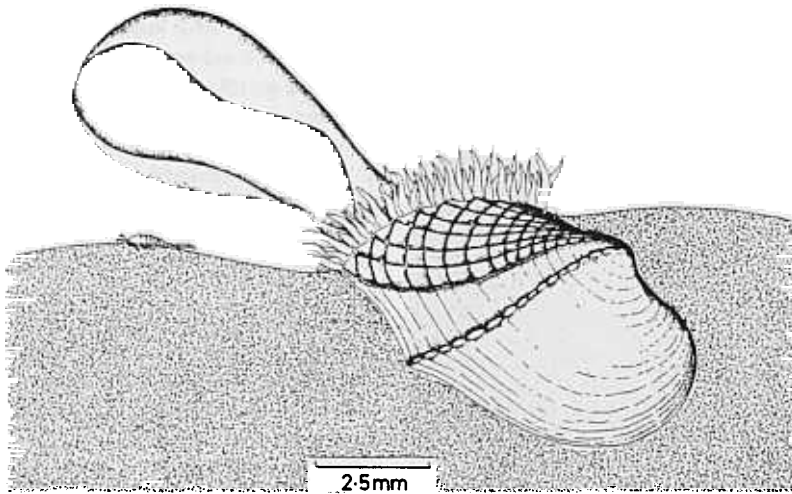
If *HSN* readers can supply us with marine fossil shells — oysters or clams — situated in or near dated lava flows, we would be delighted to include their contributions in the standard curve. The methodology is so sensitive that a 100 mg sample, approximately 4 thousandths of an ounce, is an adequate sample.

Readers should send as much information about the specimen and locality as possible. A highway or USGS map marking the locality would be very useful. Send them to Dr. DePaolo or to me.

We are also interested in fossils from North Africa, the Mediterranean islands and from Iran and Iraq where current political situations make fossil collecting quite difficult.

\*Anthracothere Hill, Box 473, Omer, Israel.

## BEYOND THE REEF:

**Lyonsiella formosa (Jeffreys, 1881)**

*Lyonsiella formosa*. The animal in a natural position in the sediment and with the inhalant cowl of the siphon fully extended. The animal is here illustrated capturing a bottom-dwelling copepod. This has not been observed but is the interpreted feeding mechanism. (Reproduced from *Pacific Science* by permission of the University of Hawaii Press.)

By **THOMAS A. BURCH, MD**

KAILUA — In December 1981, I took Brian Morton, of the University of Hong Kong, Department of Zoology, dredging on the *Janthina VII*. We got the only specimen of *Lyonsiella formosa* that we had seen in over 10 years of dredging in Hawaiian waters. This came from Burch Station 81090 at Latitude 21° 16.1'N, Longitude 157° 52.1'W which was just off Honolulu from a depth of 460 m in fine sand.

I photographed and then gave the specimen to Dr. Morton, since he is especially interested in bivalves. He preserved the specimen in formalin, took it home, dissected it, made serial sections for microscopic examination for anatomical studies, and wrote a paper on how he believes that it captures prey (Morton, 1984).

*Lyonsiella* is in the family Verticordiidae which is one of several families of deep ocean floor bivalves that are carnivores. All apparently capture their prey by pumping fluids in and out of the mantle cavity.



*Lyonsiella formosa* (Jeffreys, 1881) from 460 m off Honolulu, Hawaii. B. P. Bishop Museum No. 207491. Photo: Burch.

Based on his dissections and histological studies, Morton postulates that sensory papillae on the siphonal tentacles detect the prey which is then captured by eversion of an enormous hoodlike cowl of the inhalant siphon. He believes that inversion of the siphon then brings the prey into the mantle cavity and that distension of the siphon within the mantle cavity pushes the prey into the mouth. He suggests that the unfused tips of the palps or the foot may assist in this.

According to Morton, *Lyonsiella formosa* previously had only been reported from the Canaries, the Azores, the Bay of Biscay, and the Gulf of Mexico. This is the first report of its occurrence in the Pacific. He states that *Lyonsiella elegans* (Thiele and Jaekel, 1931) — the Pacific species — is morphologically indistinguishable from *L. formosa*; "it seems likely that *L. formosa* is not restricted to the Atlantic, but is a widely distributed bathyal species."

## REFERENCE

Morton, Brian, 1984. "Prey Capture in *Lyonsiella formosa* (Bivalvia: Anomalo Anomalodesmata: Verticordiacea)." *Pacific Science* 38(4):283-297, 11 figs.

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# COWRIES ALIVE AND DEAD AT SANDOWAY, BURMA

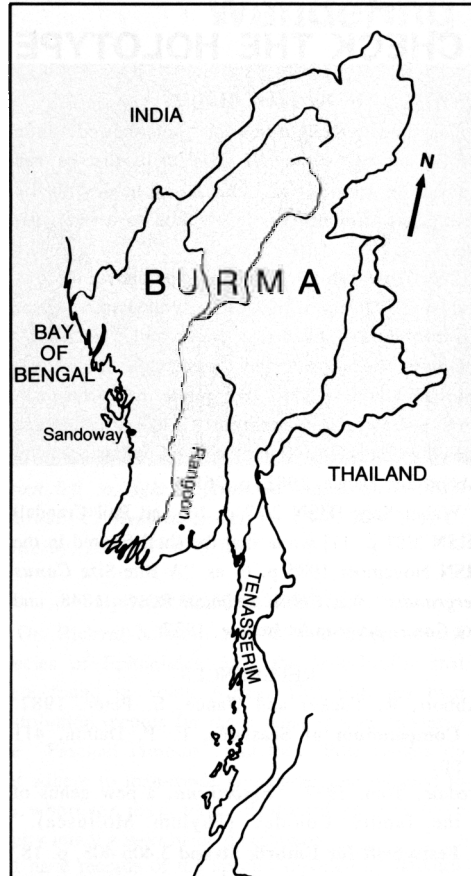
By JUNE P. AND DAVID C. HALSTED\*

**RANGOON** — For visitors and most noncitizen residents, Sandoway (18° 21'N, 94° 21'E) on the Bay of Bengal presents the only opportunity for shell collecting in Burma. Access to other promising areas along this coast, as well as the long Tenasserim coast and offshore islands of southern Burma, is restricted.

The shore at Sandoway is a sand beach broken by expanses of rock reef. The salinity of the water is low, and wave action is moderate to heavy. Conditions for collecting are best during the period November through April. The monsoon season, May through October, is marked by heavy rain and strong waves.

We visited Sandoway in November and December 1984, February 1985, and January 1986 concentrating on a stretch of shoreline about a mile long, mostly south of the airport. Low tides ranged from about one meter to just above datum, which exposed or left only very shallow water over expanses of rock reef along the shore. The reef is covered by boulders of varying sizes, some dead coral and a scattering of live coral. A layer of silt appears to be generally on the increase. This plus destruction of live coral by local inhabitants contributes to an apparently deteriorating environment for cowries, at

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least as far as the areas accessible from shore are concerned. Air was not available at Sandoway for scuba diving, limiting our collecting to what we could reach from shore or by diving from the surface.

on the beach. We collected 1,022 shells at different points in as random a sample as possible. We did not collect beach specimens of *C. arabica* as there was no doubt about its status in the area. However, it would not have been among the most numerous of the beach-collected species. Most shells were decorative, and some were very worn. The results are listed along with size ranges. From the sizes, which include shells found alive, it can be seen that some cowry species at Sandoway are small.

*Cypraea arabica* was by far the most common species we found alive. It was the only live species we found on our final visit, when the silt was heaviest. *C. errones* was next in quantity, although not many more than a dozen were found alive, followed by *C. gracilis*, *C. clandestina*, *C. hirundo*, *C. vitellus*, *C. interrupta* and *C. staphylaea*.<sup>1</sup> Among rocks near the outer edge of the reef at low tide in about a foot of water we also found an empty *C. nivos*.<sup>2</sup>

A more complete idea of the variety of cowries in the Sandoway area was obtained from shells found

at Sandoway. We collected 1,022 shells at different points in as random a sample as possible. We did not collect beach specimens of *C. arabica* as there was no doubt about its status in the area. However, it would not have been among the most numerous of the beach-collected species. Most shells were decorative, and some were very worn. The results are listed along with size ranges. From the sizes, which include shells found alive, it can be seen that some cowry species at Sandoway are small.

*Cypraea nivos* and three other species can be added which occur in the Sandoway area. *C. mauritiana* is sold in local shops, along with *C. caputserpentis*. We did not visit the right habitat for these species but suitable localities are in the general area. A Burmese collector one day showed us a beach specimen of *C. isabella* he had just picked up. This brings the total to 23 species of cowries that we can account for at Sandoway.

### NOTES

1. Animal characteristics of these species generally conform with published reports. Some minor exceptions: Live *Cypraea errones* had a yellow siphon, with a lighter gray-yellow fringe. Tentacles were orange, and the foot light yellow with dark speckles. The mantle was generally translucent and pale yellow, with some scattered darker patches. Papillae were branched. *C. hirundo* had a pale, translucent mantle with short, pale papillae. The foot and siphon were pale yellow and the tentacles orange. *C. interrupta* had a black siphon and a dark gray mantle with lighter patches. Tentacles were red. The foot was gray above and below with a light-colored edge.

2. The shell of this specimen (55.5 mm) had been repaired in many places, indicating a hard time dealing with a fairly turbulent environment.

## Sieve Cowrie (*Cypraea cribraria* Linne)

Snorkeling in a sheltered cove  
I spied a tiny jeweled egg  
Seated upon a coral throne.

In dressing gown of red and black  
The bashful cowrie hid its home —  
A glistening spot in this twilight zone.

I reached to pick my treasure up  
And quickly its garment disappeared —  
Revealing the porcelain shell alone.

Oh, sun tanned beauty with big white spots,  
A regal gem in the Sulu Sea,  
How wondrously you have grown.

Forest W. Redding

Species	Number of beach specimens	Size range (mm.)
<i>C. arabica</i>		53.4 — 34.6
<i>C. asellus</i>	2	20.1 — 15.2
<i>C. caurica</i>	14	43.5 — 20.7
<i>C. cicercula</i>	11	17.7 — 12.4
<i>C. clandestina</i>	63	16.8 — 9.6
<i>C. cribraria</i>	18	22.3 — 13.3
<i>C. errones</i>	80	32.2 — 15.6
<i>C. erosa</i>	18	31.4 — 19.5
<i>C. gangranosa</i>	48	27.2 — 11.9
<i>C. gracilis</i>	292	17.2 — 10.3
<i>C. hirundo</i>	151	17.8 — 10.1
<i>C. interrupta</i>	16	22.1 — 15.3
<i>C. globulus</i>	1	16.4
<i>C. lamarckii</i>	14	36.5 — 19.8
<i>C. lynx</i>	3	36.3 — 26.5
<i>C. pallida</i>	193	23.4 — 13.7
<i>C. staphylaea</i>	89	18.1 — 9.4
<i>C. talpa</i>	2	67.4 — 63.0
<i>C. vitellus</i>	7	54.7 — 36.0

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The Hawaiian Malacological Society maintains a modest stock of back issues of *Hawaiian Shell News*. Copies of most issues back to 1960 are available although some are in xerox form. Write the Back Issue Manager for information.

# L' Affaire pergrandis

## CHECK THE HOLOTYPE

By TOM BURCH

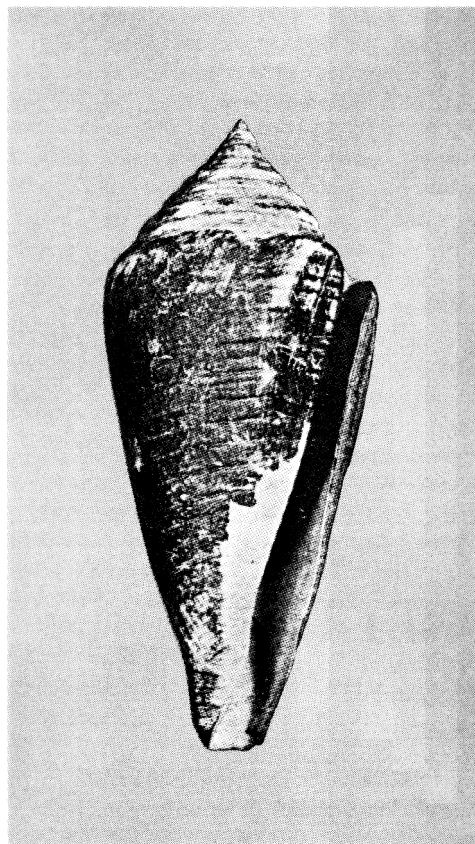
Tom Iredale thought that this shell showed "little affinity to any" group of cone shells that he had studied: the species was "unique" so he described a new genus, *Embrikena*, in addition to a new species.

The figure below of the holotype shows the distinctive characters of the shell: elevated spire, linear mouth, marked posterior canal and "peculiar" sculpture. Iredale said the "pure white shell" was overlaid "with a very fine pilose periostracum." This periostracum apparently hid color pattern shown in Patchick's figure, as well as the figure in Abbott and Dance, 1982, p. 261.

Walter Sage [HSN 2/87 p. 10] and Phil Crandall [HSN 3/87 p. 11] wrote that the shell figured in the HSN November 1986 p. 6, as "A Bite-Size *Conus pergrandis*" was *Conus sieboldii* Reeve, 1848, and not *Conus pergrandis* Iredale, 1937.

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- Abbott, R. Tucker and Dance, S. Peter, 1982. *Compendium of Seashells*. E. P. Dutton, 411 pp.  
 Iredale, Tom, 1937. "*Embrikena*, a new genus of the family Conidae (Phylum Mollusca)." *Festschrift für Embrik Strand* 3:406-408, p. 18.



*Embrikena pergrandis* Iredale, 1937, original type figure.

# Are You, Too, A Malamaniac?

By ANDY KNEPPER

STUART, FL — They say the first step toward curing an addiction is to get the person to admit there is a problem. Well I am to the point where there is definitely a BIG PROBLEM. Maybe there are a few others, if so, we could start a "Shellers Anonymous" and help each other. Our first step is to look at a few of the signs and symptoms.

Is all your spare time taken up with hunting, cleaning, studying and playing with your shells?

When there are chores to be done such as cooking, washing, defrosting freezers, do you clean your shells while waiting? If so, do you find yourself using luke warm water to set in the freezer so it takes longer and gives you more time for shells?

When it's time to clean house do you find yourself noticing that it is the pile of shells in the corner that is messing up the house so they better be dealt with first?

When you eat out, do you order the stuffed shells, shell macaroni, taco shells, clams, oysters or mussels?

When conversation at work or with friends turns to you, do your friends' faces turn to disgust at your renditions of tramping through the sawgrass, muck and swamps to find slimy creepy crawlers on trees? Let's face it, they are used to white tennis skirts and plaid golf pants.

Do you find yourself requesting time off at work in accordance to low tides and scuba trips?

When bank books need balancing or bills paid, do you have to clean the shells off the desk first?

Is your social life deteriorating because parties, luncheons and get-togethers take away precious time from your evenings with your shells?

Or family: do you wonder who that "other being" is in the house that you rarely see when you take off your magnifier glasses or take a break from the shells? He is the one who insists on eating, dirtying up clothes and house, or throws the newspaper over the shell you just put down. Or worse still he came in and pulled the plug on your glue gun and informed you "it is 2 a.m. and time to go to bed."

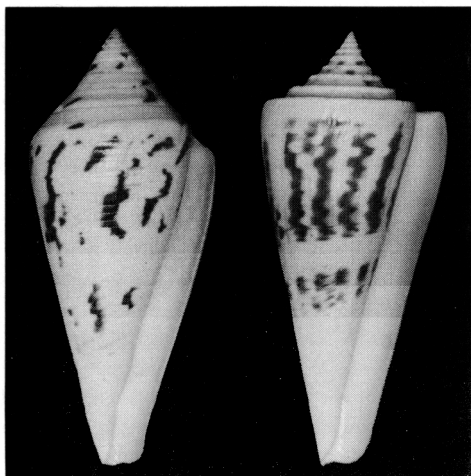
Do you look at your pantry shelves with longing to throw out the canned goods and make it into shell storage space? Or wonder which piece of furniture is going to go to make room for new shell cabinets and cases?

Well I have all the above symptoms. I look around and wonder where we can add another room. Only my husband says we don't have room for a 30' x 40' addition. I feel closed in; I want to live on a sand flat. In fact I may get my wish. I spent last month's rent on shells.

Help, I'm being swallowed by a giant clam! WAIT! Not yet, there's a *Murex*. OOOHHH.

Someone please pull the glue gun plug!

Treasure Coast (Fl.) Shell Club Newsletter



*C. pergrandis*

*C. sieboldii*

By R. M. FILMER\*

SURREY — I would like to support Dr. Walter Sage's letter in HSN February 1987 [p. 10]. In this letter Dr. Sage refers to the article by Paul Patchick on *Conus pergrandis* Iredale, 1937, published in HSN November 1986 [p. 6]. In my opinion, Dr. Sage is correct in identifying the specimen illustrated as *Conus sieboldii* Reeve, 1848. The photograph shows *C. pergrandis* (left) and *C. sieboldii* (right). These two specimens are almost exactly the same size: *C. pergrandis* 72.5 x 30.7 mm, *C. sieboldii* 72.4 x 30.7 mm. The *C. pergrandis* is from Bohol in the Philippines and the *C. sieboldii* is from Taiwan.

The two species differ in the following ways:

Spire — *C. pergrandis* higher, straighter and less stepped. Spire whorls not concave and sculptured by even spiral grooves (*C. sieboldii* has none).

Shape — *C. pergrandis* is less elongate and not as concave in outline, the shoulder is much less acute and it is much heavier (29 gm as opposed to 22 gm)

Sculpture — The spiral grooves in *C. pergrandis* are distinctly stronger and always cover the entire body whorl (not in *C. sieboldii*).

I have other larger specimens of both species in my collection and all display the same differences.

I am especially interested, however, in the fact that the Patchick specimen came from Moreton Bay, Queensland. To the best of my knowledge this is the first report of *C. sieboldii* from Australia. I would welcome any further information from readers about the occurrence of this species in Australia. I should also say that I am not unduly surprised to hear this species has been found in deep water off Australia because there are a number of cone species which are now known to occur in the China seas and in Australia. They include *C. tribblei queenslandis*, *C. teramachii*, *C. ione*, *C. sugimontis whiteheadae*, *C. pergrandis*, and *C. lischkeanus* forms.

\* Winterbourne House, Chobham, Surrey GU248AL, England

# GREAT CORALLIVOROUS GASTROPODS!

By ANDREW PAGE\*

MELBOURNE — Twenty years ago the stinging cells of scleractinian (stony) corals were thought to keep these sedentary organisms relatively free from predation. Since the development of skin-and scuba-diving techniques, however, many of the organisms previously known as "coral associates" have been observed to feed on their coral hosts.

Gastropods reported to feed on the body tissues of scleractinian corals include species from the Coralliophilidae, Muricidae, Ovulidae, Epitoniidae, Architectonicidae, Tergapedidae, Pinufidae and Pleurobranchidae families. In the course of my study at Lizard Island, near the northern end of Queensland's Great Barrier Reef, I found eight species of corallivorous gastropods belonging to three of the above families.

The Coralliophilidae (as their name suggests) includes many coral associates. *Coralliophila violacea* (Kiener), *C. pyriformis* (Kira) and *Quoyula monodonta* (Blainville, 1832), previously called *Q. madreporarum* (Sowerby, 1834), were principally on colonies of *Porites*, *Turbinaria* and pocilloporid corals respectively. The shells of these coralliophilids are usually covered with encrusting algae, making them difficult to find.

*Coralliophila violacea* is the most common coralliophilid at Lizard Island, occurring in aggregations of up to nine in crevices on massive *Porites lobata* and *P. lutea* colonies (fig. 1). Each coralliophilid occupies a semi-permanent "home site" on its coral host. Home sites are scars of dead (bleached) coral skeleton approximately the same size and shape as the occupant's aperture (fig. 2).

No coralliophilids were observed feeding on coral polyps. An Atlantic species, *C. abbreviata* (Lamarck), has been reported to feed on coral polyps, resulting in the partial destruction of its host. The exact source of nourishment of many other coralliophilids, however, is not known. *C. violacea*, *C. pyriformis* and *Quoyula monodonta* may feed on mucus exuded by their coral hosts.

\*Andrew Page was recipient of HMS Scholarship grants in 1985 and 1986.

*Quoyula monodonta* and host coral *Stylophora pistillata* (note scar left by *Q. monodonta*).



All photos: Page  
Two *Epitonium billeeana* and eggs on their host coral, a species of *Dendrophyllia*.

The muricid genus *Drupella* includes many known corallivores. Its radula differs radically from those of other muricids which generally feed on barnacles, polychaete worms and other molluscs. *Drupella cornus* (Röding) was commonly encountered on the reefs of Lizard Island, principally on colonies of *Turbinaria* and *Acropora* corals. The rarer *D. concatenata* (Lamarck), *D. ochrostoma* (Blainville) and *D. fragum* (Blainville) were only found on *Acropora* corals. *Drupella cornus* were found aggregated in groups of up to 14 at the bases of their host corals during the day. Their shells are often encrusted in coralline algae, making them difficult to find.

Unlike the coralliophilids, *D. cornus* were observed to graze over the surface of their host corals leaving a bleached (white) skeleton (fig. 3). Feeding was nocturnal and generally on the uppermost branches of a colony to which *D. cornus* ascend at night. "Swarms" (up to 1,500 individuals per half square metre) of *D. rugosa* (Born) and *D. fragum* have devastated reefs in Japan and the Philippines. Densities of *Drupella* species at Lizard Island were much lower than these values and damage to corals appeared to be slight.

Although many wentletraps are known to live in close association with scleractinian corals, there are

few conclusive reports of epitoniids feeding on stony corals. *Epitonium billeeana* (Du Shane & Bratcher) (fig. 4) is found wherever its host corals occur at Lizard Island (mostly in shaded areas, e.g. sides of coral cliffs and in caves). This "golden wentletrap" feeds by everting its long, extensible proboscis (see HSN Nov. 1984, p. 1) into the calyx of individual coral polyps.

All the above gastropods are adapted to a corallivorous existence. Detailed study of their feeding behaviour and biology should aid our understanding of how corallivorous gastropods deal with the stinging cells and toxins elaborated by corals.

*Drupella cornus* feeding on an acroporid coral leaving a dead skeleton.



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# 'Swallowing the Anchor'<sup>1</sup>

By KAY POPE\*

ST. MAARTEN — When the wife has been collecting shells for 20 years and the husband has been writing books for more than 30, the biggest problem in their home life is contained in one word: storage.

As the wife, I have put away more than 700 species of Caribbean shells totaling several thousand specimens; Dudley, my husband, has accumulated about 2,000 books, a number of them more than 200 years old. (He is also a naval historian with a vast research library.)

Store all of this in the 55-foot ketch which has been our home for many years, and you find that the most daunting aspect of finally moving ashore is summed up in "Where are we going to put it all?"

Our boat, *Ramage*, has dozens of lockers and shelves. When we inspected the condominium apartment in which we will live when it's completed we were quite staggered to discover how people who live on shore make do with so few closets and shelves.

In the past 20 years we have cruised the eastern Caribbean extensively, using a succession of islands — Grenada, the U.S. and British Virgin Islands, Puerto Rico and Antigua — as bases for two or three years at a time. We came to this Dutch possession of St. Maarten seven years ago, and here we have stayed.

Since our arrival, Dudley has become steadily less mobile as a result of World War II wounds. He was finding walking very difficult and his balance undependable; sailing our big ketch was more and more of a problem for him. (I am only five feet tall and, although I'm willing enough, the job is more than I can handle.) Clearly, the time had come to sell *Ramage* and move ashore.

By a happy coincidence, as we were accepting the inevitable, a block of apartments was under construction right on the beach opposite our favourite anchorage on French St. Martin. (This island is divided between Dutch St. Maarten and French St. Martin.) We took one look at the plans and signed up for a duplex. As I write this, we are waiting for the builders to finish — by Christmas, we hope.

So, for the time being I am alternating between my shipboard microscope, peering at microshells, and my drawing table, constructing a detailed scale plan of our apartment — shell cabinets here, Dudley's writing desk there, bookcases along that wall, where can I store specimens awaiting cleaning? . . . and so on endlessly.

Living ashore should not interfere too much with our collecting. We are selling the yacht, but we have bought a high-speed launch in which we hurry to our favourite shelling areas. This does have the advantage that we can get there and back in time for the next meal. In the past, like the molluscs we were seeking, we carried our home with us!

In making the change after having lived so long afloat, obviously it is important to choose the right bit of land on which to roost. Our choice of St. Maarten/St. Martin was influenced by our enjoyment of the cosmopolitan life here. St. Martin is very French, with fresh *croissants* for breakfast, *terrines* and *païës* and French cheeses for lunch, and . . . but do I need to go on? And, let us admit, the fact that it is a duty-free island has some undeniable advantages.

St. Maarten/St. Martin stands atop a large, shallow sandy bank, with the British island of Anguilla just seven miles to the north. Dutch Saba and St. Eustatius are about 30 miles to the south, and French St. Barts some 20 miles to the southeast.

Unfortunately, since Hurricane Klaus in November 1984, the shelling around St. Maarten



Dudley and Kay Pope Aboard *Ramage*

has been generally poor. *Strombus* and *Cassis* remain plentiful, however, and the conch fishery continues to flourish. Each day the fishermen return with open boats loaded to the gunwales with the queen conchs (*Strombus gigas* Linne) that our local restaurants want to have on their menus constantly.

*Charonia variegatus* Lamarck also are common, while *Conus regius* Gmelin, and *C. mus* Hwass remain fairly plentiful. *Conus daucus* Hwass and *C. spurius* can be found occasionally.

As a consequence of the current scarcity of showy shells, I have been concentrating on the micros recently (see "Onward to 800!" HSN September 1986, p.12). Using my hand dredge in shallow water, I bring up loads of tiny shells from the sand close to the coral reefs. Meanwhile, we live in hope that the general shelling will improve as time passes.

By the time you read this, Dudley and I will be getting used to parking a car rather than trying to pick up a mooring buoy or preparing to go ashore in *Ramage's* dinghy. And we will be becoming accustomed to hearing the sea breaking on the beach beneath our balcony instead of slapping against the hull.

"Swallowing the anchor" is a traditional sailor's phrase meaning he's moving ashore permanently.

## A FAST START FOR SLOW MOVERS

Snail farming is an enterprise that probably hasn't even occurred to most people. But raising these slow-moving molluscs for human consumption is proving to be a profitable sideline for a growing number of Americans.

Imports still account for most of the snails consumed in the United States and Canada. U.S. imports alone are estimated to be worth \$200 million a year. Asian countries, especially Taiwan provide 85 per cent. Europe supplies the rest.

When you see *l'escargot* on a restaurant menu, the snail that's most likely served is *Helix aspersa*, the common brown garden snail, which French settlers brought to America in the 1850s. Today, it is a pest in many areas. California alone is said to spend \$37 million annually trying to control it.

Many farmers gladly permit snail gatherers to come into their fields and take as many as they like, at no charge. This free breeding stock keeps snail farming start-up costs low. Most beginning producers raise their snails in a boxed-in backyard garden or even in a wooden barrel.

One of the people responsible for the burst of popularity of snail farming in the United States is Ralph Tucker of Fresno, CA. Realizing that there was virtually no domestic snail production, he came up with the idea of selling fresh animals to restaurants and gourmet cooks, rather than the canned product.

Today, Tucker has about 25,000 *H. aspersa* growing in his mid-city backyard. Two-foot-high wooden walls and an inward-slanting strip of copper keep them from crawling out.

"My 25-by-35-foot 'oasis' can support about 50,000 snails," he says. "They are actually quite easy to raise. I plant lettuce, cabbage, broccoli, brussels sprouts and other vegetables for them to eat. Snails are marketable at about six months, when their shells show six rings."

Tucker started his own newsletter, called *The Artichoke Leaf*, three years ago. Subscribers automatically become members of the Snail Club of America, which recently had over 800 members throughout the United States and in nine other countries.

Club members agree that finding markets for their snails is not difficult. The challenge is in providing a steady supply.

Abridged from *The Furrow*

## Touring Tahiti, Watch for P.K. 36

PAPEETE — Collectors visiting Tahiti will be pleased to learn that their traditional tour of this Polynesian isle now can include a stop at a genuine shell museum.

The Musee Ariitaimai of Pajara, housed in a brand-new *fare* near the townhall of Pajara, is part of the Artifact Centre of that commune. Visitors travelling around the island on its only coastal road pass close by it. The shorter route on leaving Papeete is to head westward. Stop at Poste Kilometrique 36 (P.K. 36).

You will get a warm welcome from Michel Boutet, the creator, curator and soul of the Musee. The institution is the result of many years of dedicated work, first in gathering the specimen shells now on display, then in convincing the local authorities the collection would be a valuable asset if made available to the public. Already, thousands of visitors have stopped to look.

The display area includes three aquarium tanks, each holding 2,000 liters of sea water in which colourful reef fish, crustaceans, urchins and molluscs make their home. It is all presented with good

taste, adequate lighting and attractive decoration. Flowers are everywhere.

Boutet's worldwide collection, displayed in glass cases around the museum walls, includes an array of fossils dating as far back as the Devonian era (some 400 million years ago) and a selection of river molluscs. In addition, there are shark jaws, turtles, crabs, skeletons of big fish, shell artifacts from all over the Pacific, and much more.

The focus, of course, is on the 1,200 species of shells found in French Polynesia — some 5,000 specimens. Some exceptional rarities have been placed, seemingly at random, among the more common reef dwellers. Keep an expert eye open for them.

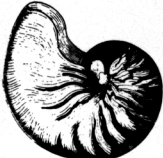
Musee Ariitaimai is something of a community project. Boutet received financial and other assistance in opening it from the French government, the Territory, the local natural conservation fund and a special tourism purse.

Formally opened by the lady mayor of Pajara, it receives visitors daily except Monday. Don't miss it. Aurora Richards

\*P.O. Box 234, Philipsburg, St. Maarten, Netherlands Antilles.



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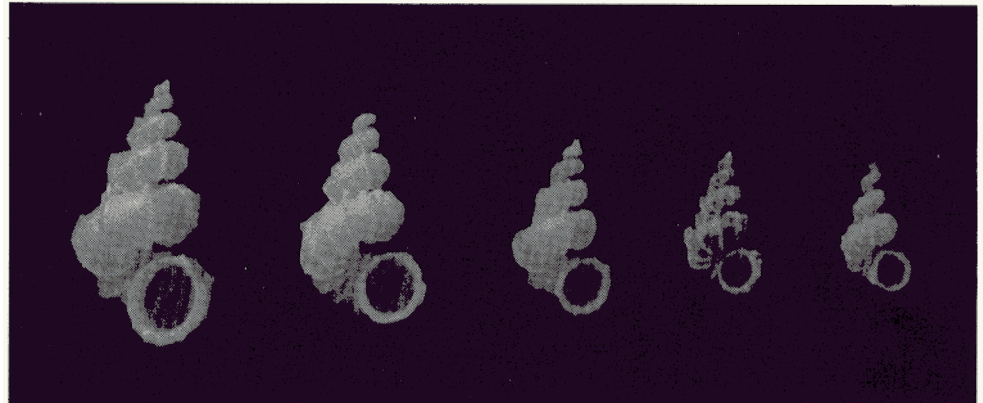
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**PASCHALL'S PREMISE:**

**Wandering Wentletraps**



From left to right: *Cycloscala mokuolensa* Pilsbry, 1921, Hawaii, *C. echinaticosta* d'Orbigny, 1842, Florida, *C. hyalina* Sowerby, 1844, Red Sea, *C. jacobiscala* Iredale, 1936, Australia and *C. hyalina* Sowerby, 1844, West Africa.

**By NORMAN PASCHALL\***

Dr. Richard Kilburn, in 1985, described several species of Epitoniidae from the Indo-Pacific that were found in South Africa. This plus my own distribution records for these same species enhances the "Paschall Premise" that these little critters do not adhere to man-made boundaries and do tend to go wherever they want. Epitoniid species have pretty much a worldwide distribution.

I have records of the species reported by Kilburn in South Africa from other localities as follows:

SPECIES	LOCALITY
<i>Opalia attenuata</i> (Pease, 1860)	Alaska, Japan, Tahiti
<i>Epitonium fucatum</i> (Pease, 1861)	Hawaii, Tuamoto, Yuo Mato (?)
<i>Epitonium millicostatum</i> (Pease, 1861)	Seychelles, Hawaii
<i>Epitonium minorum</i> (Iredale, 1936)	Australia, New Zealand
<i>Cycloscala hyalina</i> (Sowerby, 1844)	Red Sea, Australia, Hawaii

Let us take a look at *Cycloscala* Dall, 1889, with its type species, *Scalardia echinaticosta* d'Orbigny, 1842. Clench and Turner, 1951, considered this a subgenus of *Epitonium* and listed five synonyms by as many authors for the type species which is from the Western Atlantic. Kilburn, 1985, stated that *Cycloscala* "warranted full generic status" and listed eight species from the Indo-Pacific including a new species from off Port Grosvenor, South Africa. According to Kilburn, 1985, "*Scalardia latedis-juncta* deBoury, 1911 was distinguished from *E. hyalina* by its small size (5 mm) and more disjunct whorls," but "Neither characteristic is taxonomically significant."

Robertson, 1983, stated, "In this species (*E. echinaticostum*) the ribs are not consistently lined up from one whorl to the next (the whorls can be disjunct), which helps to explain why the number of ribs does not become nearly invariable from whorl to whorl." Even so he considered that Epitoniid rib counts were still good taxonomic characters.

In my collection of twenty-seven years, I have records of 45 specimens of *Cycloscala* Dall, 1889, as follows:

AREA	SPECIES	NUMBER SPECIMENS
Red Sea	<i>C. auquina</i>	7
	<i>C. hyalina</i>	2
	<i>C. echinaticosta</i>	10
Australia	<i>C. jacobiscala</i>	8
	<i>C. revolta</i>	7
	<i>C. hyalina</i>	4
Philippines	<i>C. hyalina</i>	
	<i>C. mokuoloensa</i>	
Hawaii	<i>C. mokuoloensa</i>	
	<i>C. revolta</i>	
West Africa	<i>C. hyalina</i>	2
Ellis Isle (?)	<i>C. revolta</i>	
Florida	<i>C. echinaticosta</i>	10

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Kilburn, R. N., 1985. "The family Epitoniidae (Mollusca: Gastropoda) in southern Africa and Mozambique." *Ann. Natal Mus.* vol. 27(1) pp. 239-337.  
Robertson, R., 1983. "Axial Shell Rib Counts as Systematic Characters in *Epitonium*." *Nautilus* vol. 97(3) pp. 116-118.

**DATA ON CONUS STINGS**

Dr. A. J. Kohn of the University of Washington in Seattle wants information on cone stings [see HSN January 1987 p. 2]. In case you have the distinction of being a victim here are the facts Kohn wants:

Your name, address, age, sex. Species, location, and length of cone responsible for the sting. Do you still have the shell?

Part of body stung. Immediate effects and duration of effects. Were there persistent after-effects? How long did they last?

Treatment of wound, including medical attention. Name and address of doctor or hospital. Was the incident reported in any periodical? If so, which, and date? If possible, attach photocopy.

Dr. Kohn asks to have the information sent to him at Dept. of Zoology NJ-15, University of Washington, Seattle, WA 98195.

\*2695 Frances Dr., Deland, FL 32724

## THOUGHTS ON RARITY:

## Passage of Time Makes Difference In Shell Scarcity

By PAUL F. PATCHICK\*

MONTEREY BAY — What determines the rarity of a seashell?

Many things, obviously. Most of them are variable with time or largely subjective — geographic distribution of a species, its habitat, its availability to the collector, history (is it a “new species?”), the particular shell’s attractiveness (color, pattern, luster, and condition) and its traditional desirability. Then, of course, there is the factor of price, a rough measure of apparent rarity.

HMS member William Fenzan of Monterey defines a rare shell as “one that is currently scarce in collections.” The definition, he admits, is transitory “since what is rare now may not remain so. Even if a shell is rare for 100 years, it can become readily available on the market virtually overnight.”

Fenzan is right, of course, but many factors contribute to a species’ being “currently scarce in collections.”

An example is *Conus pergrandis* Iredale. The first specimen known of this gigantic cone (its length can reach 173 mm = 7 inches) was dredged in 1895. But today, 92 years later, this genuinely rare shell has stood the test of time.

But what of the many other shells described as rare by eager dealers — species such as *Cypraea musumea* Kuroda and Habe, offered at scandalous prices when available? It was described a mere 26 years ago. Has enough time gone by to justify the term “rare?” I don’t believe so. But if you are a cowry enthusiast and “want to get them all,” you are going to have to lay out between \$300 and \$750.

*Cypraea midwayensis* Azuma and Kurohara, another “rare” shell, was discovered and named just 20 years ago. It may be purchased today for \$1,500 to \$1,800. Shouldn’t the prudent collector wait to see if one of those ubiquitous Taiwanese trawlers returns from some far-off reef with buckets full.

One more example is *Conus rogmartini* da Motta, a beautiful little cone named in 1982 for HMS member Roger Martin of Cebu and taken in 120 fathoms off Balut Island, south of Mindanao, in the Philippines. So far, it is known only from the type locality and is seldom offered (for \$125 in 1985) by dealers. Does the cone specialist want this exquisitely sculptured but small shell at that price? Given the Philippine proficiency with tangle-nets, my guess is it won’t remain elusive or rare for long.

If a species’ habitat is very deep water, from which shells must be dredged using heavy gear, that species may be more difficult to obtain, however plentiful the shell may be on the sea bottom. In other instances, shell dealers may label a species “rare” when they really mean it is difficult for them to obtain. At the source, the shell, in fact, may be



This may be the last picture taken of HMS member Arthur Boorman, a well known expert of Australian molluscan species, who passed away only a few days later. The occasion was one of the friendly parties thrown in honor of HMS corresponding editor Aurora Richards (third from left), who had just returned from a very enjoyable tour of shell beaches and shell rooms with two Italian friends. Also enjoying Aurora’s “shell gossip” are Blanche Boorman, editor of the Keppel Bay Tidings and Dr. Umberto Aubry, a Terebridae specialist of Sorrento, Italy.

Photo: Richards

plentiful, even available in village markets as food or as trinkets!

*Conus adamsonii* Broderip is rightly regarded as a very rare species. Nevertheless, as Walls noted in his *Cone Shells*, “in some areas it seems that *C. adamsonii* is not uncommon judging from the number of beach specimens.”

A live-collected *C. adamsonii* is seldom offered by dealers. When it does appear, this beautiful pink “rhododendron cone” usually is marked “POR” — price on request. If you see that, you know the shell is rare and is going to be expensive. But its habitat (medium shallow water) and range (Cook, Tonga, Gilbert and Society Islands, the Solomons and the Great Barrier Reef, extending to New Hebrides and New Caledonia) are becoming better known. It’s only a matter of time before some enterprising fishing boat skipper discovers its exact hiding place. Poof! No longer rare.

\*Suite 10, 1123 Los Palos Dr., Salinas, CA 93901.

## PERSONAL ADS

For sale: Very rarely seen in collections — *Conus* called *ocuturio cruzensis* in Lozet’s book, *Shells of Antilles*, No. 188a. Live caught, fine to gem. \$1 for photo & daucus XL. Write: Patrice Bou, 2 Anse Macabou, 97280 Vauclin, Martinique.

\* \* \*

Beautiful South African *Patella*, *Cypraea* and other shells for exchange. Interested in shells from Japan, China, Fiji, Tasmania or extra large shells from all over the world. Dirk Van Mierkerk, 38 High Street, Waterkloof, Pretoria, South Africa.

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# SHELLETTERS

BROOKLYN, NY

You mentioned in "Sanibel Baseline" [HSN Dec. 1986 p. 10] that the Astronaut Trail Shell Show will have "... a new feature for the club ... a shell auction on Sunday ..."

The auction is not really a club event, but is arranged through the Island Shell Group, a loose partnership of well-known mainland shell dealers, which operates shell auctions in several locations around the country.

We started with the auctions that used to be held only in the New York area, in the 1960s and 70s. Today these have evolved into a growing chain, offering rare and uncommon shells of very high quality. Our goal, in addition to the profit motive, is to revive the great conchological auctions of the 19th century. In addition to our Melbourne auction, we have already scheduled an event for the Philadelphia area on May 3, 1987, and tentative plans include Boston, Northern California, Washington, D.C. and Houston.

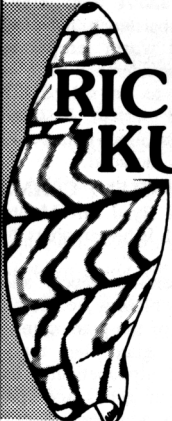
Anyone interested in more information, including catalogues and placement of outside bids, can contact me care of the Island Shell Group, 1306 East 48th St., Brooklyn, NY 11234.

Marty Gill

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BAGUIO

The stormy season that punished the western half of the Philippines throughout the summer seems to be at an end. The shelling news should pick up soon.

The political situation seems to change constantly, but somehow always remains the same.

Tourism generally is being played down, pending the political settlement. There are frequent demonstrations in Manila, mostly around the U.S. Embassy in the heart of the tourist belt. For the moment, the government is actually discouraging tourism.

James Barnett

BRISBANE

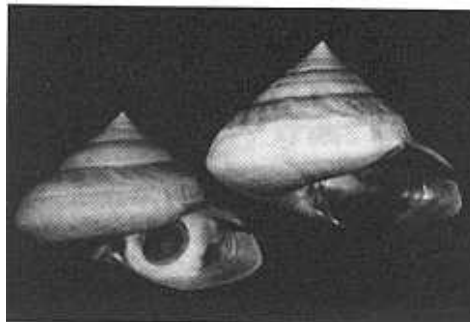
I just received my June HSN and noticed mention [p. 7] of *Pleurotomaria westralis* "one of the most recently discovered species (1983), from Port Hedland, North Western Australia." This is one new description I have not caught up with and I would be very grateful if some more enlightened HMS member would write in with the reference as to who described it and in what journal.

My most recent reading on this species was in *The Chiribotan* Vol. 16 No. 2 (the magazine of the Japanese Malacological Society). Okutani and Goto published an article titled "A New Locality of *Petrotrochus tangaroana*" stating that they find the shells from Pt. Hedland to be identical with *P. tangaroana* Bouchet and Metivier, 1982 from off New Zealand. Further, they show a strong similarity to *P. teramachii* supporting the view that *P. africana*, *P. teramachii*, and *P. tangaroana* (NZ and NWA) "will exhibit geographical cline."

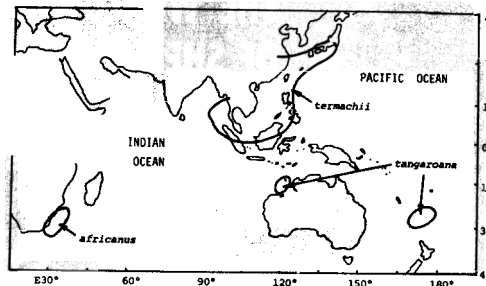
If all do eventually prove to be one species, *P. africana* Tomlin, 1948 is the earliest name.

Thora Whitehead

[Okutani and Goto did not mention Port Hedland in their article which is in Japanese except for an English abstract but since Port Hedland is only about 240 miles west of Broome, Thora presumably considered that *Pleurotomaria westralis* from off Port Hedland is conspecific with *Petrotrochus tangaroana* from off Broome. TB]



*Petrotrochus tangaroana* Bouchet and Metivier, 1982 from off New Zealand from *The Chiribotan* July 1985.



Map showing distribution of *Petrotrochus* species from *The Chiribotan* July 1985.

ABU DHABI

I collected several live specimens of *Cypraea lentiginosa* Gray in Abu Dhabi surroundings during the past years and all of them showed the banded pattern and rather pyriform shape clearly seen on the Sana'a shell illustrated on the left in John Orr's picture [HSN November 1986 p. 9]. I was wondering if this variation is endemic to the Persian Gulf and if it deserves subspecific ranking. I raised the question when I mailed pictures of the live animal and of the cleaned shell to [Dr. C. M.] Burgess for his cowry book. I did not get any reply on the subject, but he published my picture of the live shell in *Cowries of the World* without comment. I therefore concluded the Abu Dhabi variation was a well known form of *C. lentiginosa*! If more information is made available on the range of this clearly distinct variation, it could become another interesting subject for arguing among malacologists!

I will be glad to be of further help on the matter if anybody is interested.

Stephane Pras  
c/o TOTAL ABK,  
P.O. Box 4058,  
Abu Dhabi, U.A.E.

KIMBE

If you intend to visit the Rabaul Market in the near future, you may find yourself confronted with bewildering shell problems. Many of the specimens for sale at the 'shellmeris' stalls are species that have NEVER been reported from the New Guinea islands before! Some of the keener collectors will not fail to get carried away when they find some endemics from the Tuamotus, New Zealand or South Australia offered at the Rabaul market — at inflated prices. The shellmeris of course swear the specimens have only just been taken out of the Matupit waters with 'meat still inside!'

The story is quite simple. Gwen Cornfield (HMS member) was touring the Pacific and collecting a lot of shells from all the regions she visited. So many did she gather that her yacht *Loreley* became cluttered up with a lot of spares. During a short stay in Rabaul, she sorted them all out and dumped the bulk of unwanted specimens at the market, to the great delight of the 'shellmeris.' The same shells from all over the Pacific are now causing confusion to the collectors who buy them!

Aurora Richards

PORT MORESBY

I thought it might be of interest to you to have the statistics on some rather large sized shells. We do not expect to have record breakers but it is always interesting to hear of other shellers' finds.

Collected by Diane Morrison:

*Conus marmoreus* Linnaeus 102 mm, Taurama Beach;

*Conus textile* Linnaeus 93.5 mm, Taurama Beach;

*Cypraea lynx* Linnaeus 55 mm, Taurama Beach.

Collected by Meg van Gelderen:

*Cypraea asellus* Linnaeus 23 mm, Gabutu;

*Conus striatus* Linnaeus 90.5 mm, Taurama;

*Mitra mitra* Linnaeus 116.5 mm, Tubuseria.

Collected by Ann Meaden-Kendrick:

*Cypraea clandestina* Linnaeus 21.5 mm, Gabutu;

*Cypraea talpa* Linnaeus 58 mm, Taurama.

Collected by Roy Ealson:

*Oliva sericea* Roeding 82.5 mm, Port Moresby.

All of these localities are in and around Port Moresby and apart from the *Oliva* were found either reef combing or snorkeling. They were measured and verified by Roy Ealson, our past president, and a new member, John Schofield. The measuring was witnessed by at least half a dozen other members so they are quite correct.

Mrs. Diane Morrison  
President, Niugini Shell Club

## SPEAKING OF BOOKS

**ATLAS OF THE LIVING OLIVE SHELLS OF THE WORLD.** By Edward J. Petuch and Dennis M. Sargent, 1986. 253 + xiii pages, 39 color plates, 37 b/w figures and maps, 5 tables. Coastal Education and Research Foundation (CERF), Charlottesville, VA. \$68.50 plus \$2.50 postage.

### Reviewed by WALTER SAGE

In this systematic review of the genus *Oliva* the authors recognize 144 species, 32 subspecies, and numerous named and unnamed color forms for a total of over 300 "recognizable" taxa in this popular marine gastropod family Olividae. Ten subgenera, 28 species and 18 subspecies are described as new to science, and replacement names are given to three preoccupied species-level taxa. It is important to state at the outset of this review that this book discusses only the shells of these molluscs. No anatomical data are presented.

The book begins with listings of contents and illustrations, and a paragraph of acknowledgements. The text consists of eight chapters, followed by the color plates and plate captions, a glossary, brief bibliography and systematic index. Chapter 1 (Introduction) gives the basis for the author's research, stating that shell morphology and geographical distribution are the important criteria in olivid systematics, and concluding that "by combining zoogeographic patterns (see Chapter 6) with aspects of the shell form and color, unknown olives may be classified at the subgenus and species level."

Chapter 2 elaborates on the morphological characteristics. Chapters 3 and 4, respectively, discuss the fossil record and ecology of the genus *Oliva*. Chapter 5 covers the position of *Oliva* in the systematic arrangement of the family Olividae. Chapter 6 covers the zoogeographic regions recognized by the authors.

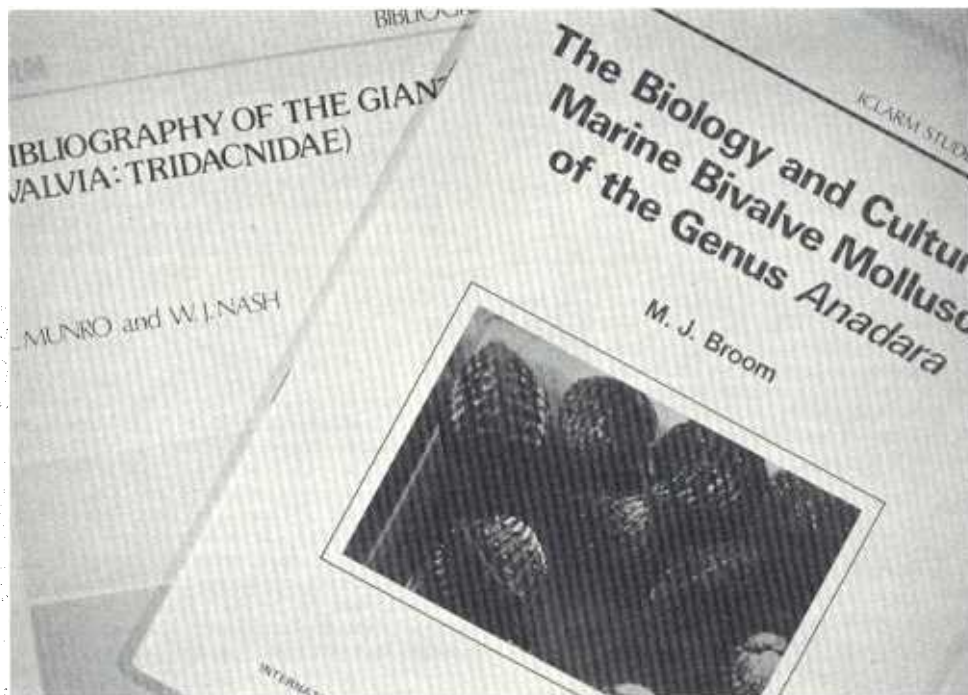
Chapter 7 provides listings of the new taxa described in Chapter 8, and explains the format of the systematic section.

The systematic treatment is undertaken in Chapter 8, ranging from a single sentence for some color forms to several paragraphs for some of the new species. Genus, subgenus, author, date of publication, description, discussion, and size are given for each species and subspecies. For each new species-level taxon, details of the holotype, etymology, and brief comparison is made to related taxa.

Petuch and Sargent's book is the first recent attempt at revision of the genus *Oliva*. For several reasons, it does not live up to its potential. First, there is no information about the olive animal; the conclusions of the authors would have been on firmer ground if anatomical data supported their morphological and zoogeographical analysis. Very little comparison is made between species and subspecies placed in the same subgeneric grouping. There is no mention or illustration of type material, save that of the new taxa introduced here.

The book itself is very hard to use. The reader must continually flip back and forth between text, plates, plate caption, and index in trying to compare species descriptions or specimens with the text. The plates are small and color rather poor, making the morphological characteristics hard to discern. A number of spelling and typographical errors, as well as incorrect citations in the index, raise questions about less obvious points.

For all its flaws, the *Atlas of the Living Olive Shells* will be used by collectors and malacologists, as there is a wealth of information here. The descriptions of new taxa alone will ensure this book a place in every comprehensive conchological library. This volume provides a base from which much additional study can be undertaken.



## Help and Information on Mariculture

### By BEATRICE L. BURCH

The International Center for Living Aquatic Resource Management (ICLARM) is an independent, nonprofit, international scientific and technical center organized to conduct and accelerate research on all aspects of fisheries and other living aquatic resources. It was incorporated in 1977 and is based in Manila with primary interest in tropical developing countries worldwide.

ICLARM is not a funding agency, but an operational organization. Its purpose is to assist in resolving critical technical and socioeconomic barriers to increased production by aquaculture and traditional fisheries. This is accomplished by resource assessment and management through cooperative research with institutions in both developing and developed countries. The center has active education, training and information programs.

The scientific staff is recruited world-wide in biology and social sciences. There are also visiting fellows and consultants. The core program and core staff are supported by private foundations and governments.

The following are two of 37 papers on mollusks that they had published by 1986. These may be obtained by writing ICLARM, MDK P.O. Box 1501, Makati, Metro Manila, Philippines. (Charges are unknown.)

### THE BIOLOGY AND CULTURE OF MARINE BIVALVE MOLLUSCS OF THE GENUS ANADARA.

By M. J. Broom, 1985, ICLARM Studies and Reviews 12, pp. 1-37, 1 pl., 12 tables.

This article reviews the general biology, ecology, and populations, as well as reproduction and culture methods of the subfamily Anadarinae, family Arcidae. Three ark shells, *Anadara granosa* (Linnaeus), *A. subcrenata* (Lischke), and *A. broughtoni* (Silenk) are harvested on a subsistence basis in many tropical, subtropical and warm temperate areas. While hatcheries solve considerable year to year variability, other problems to be solved are predation by gastropod drills and starfish. In some areas hatcheries have also produced more than could be utilized. A fine bibliography is included.

### A BIBLIOGRAPHY OF THE GIANT CLAMS (BIVALVIA: TRIDACNIDAE).

By J. L. Munro and W. J. Nash, 1985. ICLARM Bibliographies 5, pp. 1-26.

This is a compilation of scientific papers and reports on material dealing with biology, ecology, exploitation of the living species of the giant clams, and papers which are relevant to giant clam mariculture. References are arranged alphabetically by author. There is a subject index of genus and species by country on topics from adductor muscle anatomy to zooxanthellae including biochemistry, cultivation, morphology, physiology, and populations.



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Peter Ryall, P.O. Box 584, Takoradi, Ghana, writes that he has Ghanaian *Murex bajadoreensis* which he will exchange for your unusual worldwide muricids or volutes.

\* \* \*  
Adam Galganski, Chrobrego 2/4 85-047 Bydgoszcz, Poland says he is having difficulty gathering American dollars to maintain his HMS membership. Would any member like to help him out? Write him directly and make whatever arrangement seems best.

**News of New Species**

By WALTER SAGE

*Calliostoma takujii* Kosuge, 1986, [Trochidae] and *Bolma kiharai* Kosuge, 1986, [Turbinidae] were described from off the Ogasawara Islands, Japan, (Bulletin of the Institute of Malacology, Tokyo 2 (4): 61-62). *Morum ninomiyai* Emerson, 1986, (The Nautilus 100 (3): 96-98) [Volutacea] was described from specimens taken in the Andaman Sea off Thailand, and was distinguished from related species by the distinctive sculpture of the parietal shield and other shell characters. *Mitromorpha (Mitrolumna) kilburni* Drivas & Jay, 1986, and *Anarithma maesi* Drivas & Jay, 1986, were named for specimens taken off Reunion Island, Indian Ocean (La Conchiglia 18 (208-209): 8-9) [Turridae].

In a study of the New Zealand and southeastern Australian members of the deep water limpets of the family Acmaeidae, five new species were described by Marshall (New Zealand Journal of Zoology 12: 273-282, 1985) — *Pectinodonta komitica*, *P. waitemata*, *P. aupouria*, *P. morioria*, and *P. kapalae*. Reviewing the Cocculinidae and Pseudococculinidae of New Zealand and New South Wales, Marshall (New Zealand Journal of Zoology 12: 505-546, 1986) described the following new species and new genera, as well as a new subfamily Caymanabyssiinae: *Cocculina pristina*, *Coccopigya* [new genus], *Coccopigya otaiana*, *Coccopigya komitica*, *Coccopigya hispida*, *Coccopigya crinita*, *Coccopigya crebrilamina*, *Coccopigya barbatula*, *Pseudococculina gregaria*, *Pseudococculina gradata*, *Notocrater maxwelli*, *Notocrater gracilis*, *Notocrater ponderi*, *Kaiparapelta* [new genus], *Kaiparapelta singularis*, *Tentaoculus lithodicola*, *Tentaoculus neolithodicola*, *Tentaoculus haptricola*, *Mesopelex* [new genus], *Mesopelex zelandica*, *Kurilabyssia antipodensis*, *Caymanabyssia rhina*, *Caymanabyssia sinespina*, *Colotrachelus* [new genus], and *Colotrachelus hestica*.

*Tapes sericeus* Matsukuma, 1986 (*Venus* 45(1):19-22) was named from a series of specimens from various Indo-Pacific localities.

In *Bollettino Malacologico*, Supplement 1, 1985, Bouchet & Waren, in their continuing revision of the northeast Atlantic bathyal and abyssal Gastropoda, have described the following species and compared these new taxa to their closest related species:

- Pterynotus atlantideus* (Muricidae), 21 mm
- Buccinum kjennerudae* (Buccinidae), 26 mm
- Turrisipho voeringi* (Buccinidae), 77 mm\*
- Colus terraenovae* (Buccinidae), 58 mm\*
- Microvoluta superstes* (Volutomitridae), 5.5 mm
- Metzgeria gagei* (Turbinellidae), 28 mm
- Admete azorica* (Cancellariidae), 7.6 mm
- Iphinopsis fuscoapicata* (Cancellariidae), 9.5 mm
- Iphinopsis alba* (Cancellariidae), 14.5 mm
- Marginella aronnax* (Marginellidae), 29 mm
- Volvarina ingolfi* (Marginellidae), 14.5 mm

\*replacement name

Hawaiian Shell News accepts worldwide shell dealers' advertising in good faith, assuming that they will deal fairly with their customers. Inclusion of advertising in HSN, however, does not imply an endorsement of the advertiser. If you are in doubt, investigate first.

**The Other Shell Clubs**

The annual Shellers Meeting of Lutry near Lausanne (Switzerland) will be held Saturday 20 and Sunday 21 June 1987.

This is one of the best opportunities to meet amateurs as well as professional collectors from all over Europe and enlarge your collection and the number of your friends.

This meeting is organized for the sixth time by the Societé Internationale de Conchyliologie, and as in the previous years the most beautiful and rarest shell specimens will be displayed for exchange or sale.

Three trophies will reward the best exhibitions!

For further information and registration, contact Dr. Ted W. Baer, president of the S.I.C., CH-1602 La Croix (Switzerland). Phone (0)21 39 37 71.

The Sanibel-Captiva Shell Club slate of officers for their annual election in March was:

- President ..... Beverly Deynzer
- First Vice President ..... Alice Anders
- Second Vice President ..... Bat Renz
- Secretary ..... Mary McHarg
- Corresponding Secretary ..... Betty Scott
- Director for 3 years ..... Margorie Kerner

**CARD CATALOGUE OF WORLD-WIDE SHELLS** Pack No. 47 — Neritidae Part I. Sally Diana Kaicher. St. Petersburg, FL. 100 cards. \$10.00 + 98¢ postage.

The indefatigable Sally Diana Kaicher is approaching her 5,000th molluscan identification card with distribution of her 47th pack, dealing with the Neritidae. She promises pack No 48, Part III on the Buccinidae, will be ready soon.

Particular gratitude is directed to HMS members William K. Emerson of the American Museum of Natural History in New York and Robert Robertson of the Academy of Natural Sciences, Philadelphia, who came to the rescue in her struggle with a taxonomic problem. They didn't solve it, she writes, but they did make it plain there is "a very real problem" that Ms. Kaicher will try to resolve in the months ahead.

The new cards include a warning about collecting fresh-water nerites in the tropics where parasitic schistosomes may occur. This applies to parts of the Caribbean. S.L.

**Recent Finds**

By LYMAN HIGA

David Woodman got a live *Mirapecten mirificus* in 185 feet of water off Kailua, on the Windward side of Oahu. On the Honolulu side of the island, my diving buddy, Arthur Kunimitsu, found a gem 16-inch *Charonia tritonis* 70 feet down in Maunaula Bay.

That dedicated diver-collector, Chris Takahashi, reports he got a live *Murex elongatus* at 90 feet off Makaha, near the western end of Leeward Oahu. It was just sitting there, exposed, on the sand, he says. On his second dive that day, he found a gem *Strombus vomer hawaiiensis* in a pile of coral rubble at 30 feet. It apparently had been put there by an octopus while fortifying its den.

# SANIBEL CANTICLE

By ANDERSON BUTLER\*

HONOLULU — Sanibel Island is in the same latitude on the Gulf Coast of Florida as Ft. Lauderdale is on the Atlantic, and lies at approximately the same latitude as Baja California and Okinawa. About 12 miles long and two to three miles wide and in the shape of a boomerang, Sanibel lies at a right angle to the Florida Coast. This accounts for the fact that at each low tide live shells by the hundreds litter its beaches.

I was born in Sarasota, Florida, and grew up in Montgomery, Alabama. My parents were avid salt water fans, avoiding the large nearby lakes that were popular with Montgomerians. At every opportunity they would spend the weekend on the Florida Coast or, if they had more time, drive 600 miles to Sanibel Island.

On our numerous trips to Sanibel my sister and I had to learn to amuse one another. Our parents preferred an exclusively family vacation, so our Montgomery chums did not go along.

There were two hotels on Sanibel Island, the Island Inn Hotel and the small Casa Ybel. My father was a stockholder in the Island Inn; we usually stayed in a hotel cottage (actually a house) and took our meals in the hotel. We kept the hotel supplied with fish.

On many evenings my father and mother took my sister and me in our large car for shelling. Father had little regard for car paint. He would tear down the narrow shell-paved roads, the branches on bushes and trees flailing the car like whips. It was great fun. (He would do the same in our Alabama farm pastures, where we picked up fossil mollusks from an ancient sea bed.)

We knew all of the good shelling spots on Sanibel. Generally, a rocky shoreline trapped more mollusks on the outgoing tide. Father knew the habitat of large, heavy-shelled clams, scallops and where the live angel wings and *Murex* lived in the bay. My mother, who loved to shell, spent hours admiring them.

The island in those days was only accessible by ferry boat. There was no bridge as there is today. The prize shells were *Voluta junonia*, lions paws (*Pecten nodosus*) and a golden variety of olive. Sanibel residents had collections of albino shells with most species represented. There were miles of windrows of shells along the beaches, usually with a second windrow inshore of the first. The shells in these windrows were principally fighting conchs, *Strombus gigas*, fig shells, and *Pinna*.

On the glass-enclosed side porch of our Montgomery home were two tables with glass recessed into their tops. They were lined with Gulf-green cloth and painted the same shade of blue-green. They were filled with representative Sanibel mollusks and festooned with tiny horseshoe crabs and seahorses. My mother was especially fond of the hinged yellow and orange pectens. She had painted

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Island Inn Hotel, Sanibel Island, 1930. Photo: Butler

a large, thick square of wood the same shade of creamy blue-green to which she glued hundreds of miniature mollusks and hung it on a brick wall.

We became known in Montgomery for our shells. The editor of the *Montgomery Advertiser* and his wife who edited the social page were our next door neighbors. Shells were rather exotic in our not so large town. The publicity made the shells more fun.

Our family walked many a mile of Sanibel beach, bending countless times and exclaiming excitedly over our finds. Usually a few other shellers roamed the beach. *New Yorker* magazine once described the Sanibel sheller as "halt, bent and lame."

At the hotel there was always much shell talk, exhibiting of unusual finds, and visiting back and forth to admire others' shells. It was common knowledge that the best of all shelling was after a hurricane. To most, this was a mixed blessing!

Sanibel in the 1940s and 1950s had a small resident population. Baileys General Store was the only store on the island.

The island was settled in the 1880s by the Matthews and Bailey families from New England. Winter tomatoes were originally grown until a hurricane salted the soil. The Island Inn Hotel came into being as an attempt by the Matthew family to remain on the island. Charlotta Matthew, daughter of the founder, ran it for many years. The original two-story building had charm. Built of cypress, it had large, airy rooms and wide verandas both front and back. Huge, gnarled "Australian pines" carpeted the rough shell-littered ground with soft needles. Coconuts were scattered throughout the shell rubble. The island is composed of ancient shells and shell rubble with a mixture of white sand.

An old unpainted wooden bridge connected Sanibel with Captiva Island where Anne Morrow Lindberg wrote her *Gifts From The Sea*. We used to look into the water around the pilings of the piers on Captiva and frequently found large whelks and Florida drills. The bridge was a favorite fishing spot. The current rushed through the pass and hungry fish waited for the small fish.

Sanibel is and was a game refuge. The interior of the island is a brackish swamp with only a rim of sand. The interior was the home of alligators, snakes and turtles, as well as many birds including the roseate spoonbill. I especially liked the alligators' red eyes that shone at night like reflectors on bicycles. One day my sister and I started to swim to a log in the Gulf; when we were almost there, the log became an alligator. We had believed the myth that the alligators didn't swim in the Gulf!

There was a story about a visitor from Chicago who left her two boxers out overnight and never saw either again. There was also the one about some biologists who were capturing and tagging 'gators. They would put a section of rubber inner tube over their jaws before tagging. One escaped with the inner tube intact. It was recaptured a year later, inner tube in place and only slightly thinner. As a child, I had a pet alligator that spent the winter hibernating in the basement near the furnace.

In my father's construction business, one of his employees was an ex-Navy pilot. On his honeymoon he flew to Sanibel. While the plane was on the ground there, a coconut fell through the wing. After his patch job he took the portly hotel cook for his first plane ride.



Andy's mother collecting at Sanibel Island, 1930.

Photo: Butler

Our family was one of the few Southern families that visited Sanibel and the Island Inn. The island was primarily a destination for Easterners and Mid-Westerners. Kimball, the piano maker, was president of the Island Inn. Sanibel was an unusual place for me. We came in contact with few Yankees in Montgomery. My sister and I enjoyed mimicking them and rolling our r's.

With the advent of the bridge, Sanibel changed. Now people are out before dawn looking for shells by flashlight. The large empty beaches are no longer empty. In my mind's eye, however, I remember it the way it was — unpopulated and remote with a tangible magic.