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EDITOR: TOM RICE



PHUKET MAP ANDAMAN SEA THAILAND

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FROM THE EDITOR'S DESK

Well, I hope you think the extras wait for this issue was worth while! Just kidding - but isn't this a fantastic issue?! At a time when many shell-related publications, the latest being Vita Marina, are ceasing publications, I too had concerns regarding the continuation of Of Sea and Shore. Our subscription base has been shrinking for some time and the funds that were coming in are not enough to cover the printing and mailing the magazine. So, when two angels appeared- their names are Somnuek and Somwang Patamakanthin (father and son respectively) from Phuket, Thailand (where they operate one of the most, if not THE MOST, beautiful shell museums in the world) - and offered to help subsidize the continuation of our magazine, and, in addition, to arrange for its printing in Bangkok (with the resultant proliferation of color pages - as well as a majority of the photographs and material in this particular issue). I quickly agreed to their proposition.

So, not only has the magazine increased in the number of pages, but we've been able to add several dozen color pages to each issue. I hope you'll agree that the slight increase in subscription rates are more than offset by these additions and improvements. I plan to continue several features, which are missing in this issue due to space constraints, such as our review of newly described specie and the accounts of my wanderings, which, for some reason, have brought a good response from you readers. These will continue in our next issue. So, we start a new millenium in grand fashion.

I hope you all will help us continue along the course we have now set for ourselves and our magazine. Please contribute your articles - the most popular ones seem to be those describing collecting trips, but anything to do with shells, shelling and/or other denizens of our seas, rivers, lakes and their shores are urgently needed. The next issue will include an article on dredging for specimens, including drawings so you can construct your own dredge. Until the Spring issue then, enjoy the new look of "your" magazine and, hopefully, you'll encourage friends to start a subscription themselves (or give them one as a gift!) . Without a growth in the number of subscribers this new effort may not last as long as we hope it will.

Tom Rice

Tom Rice, Editor

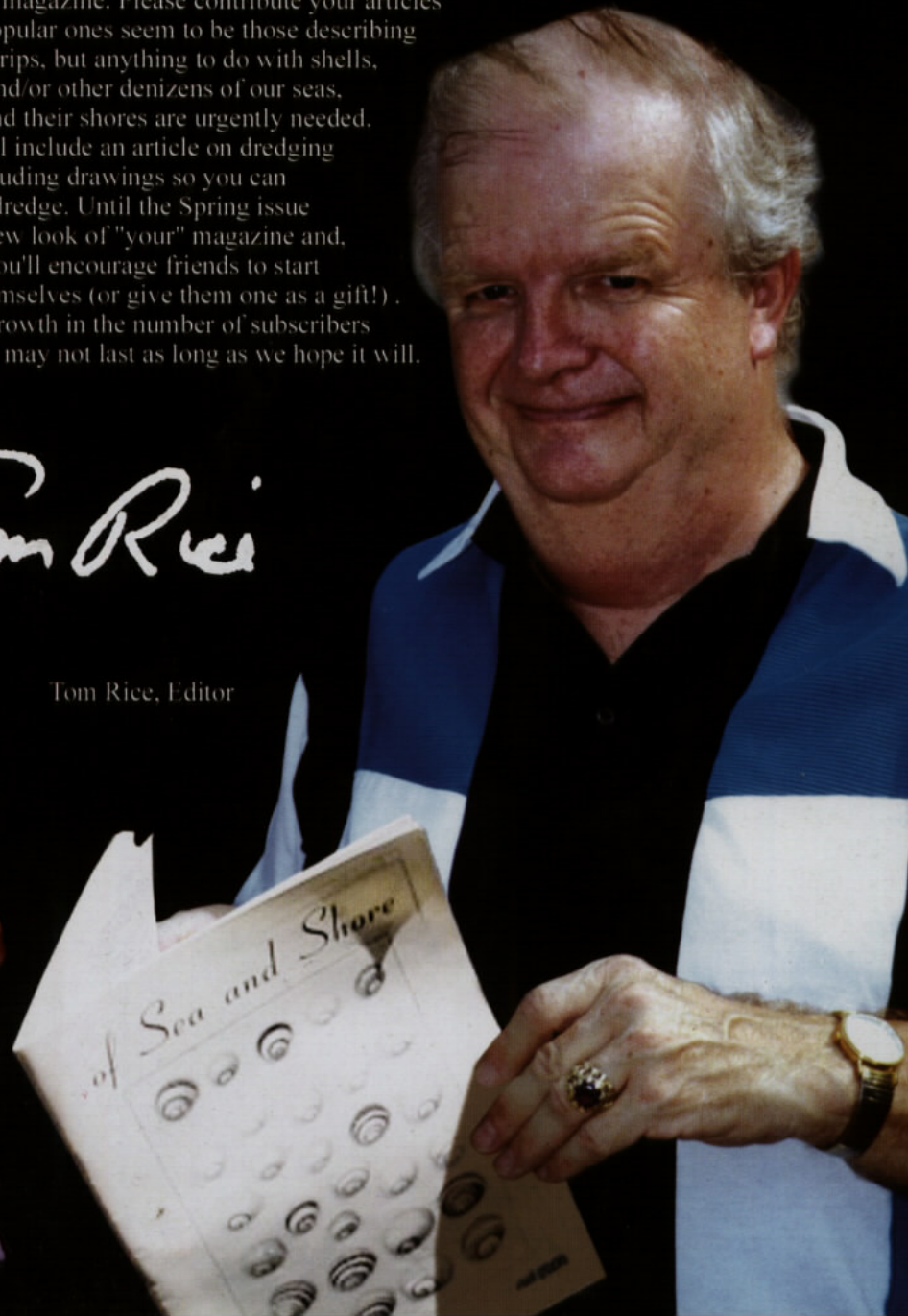




Plate 1 *Alycaeus somnueki* n. sp.

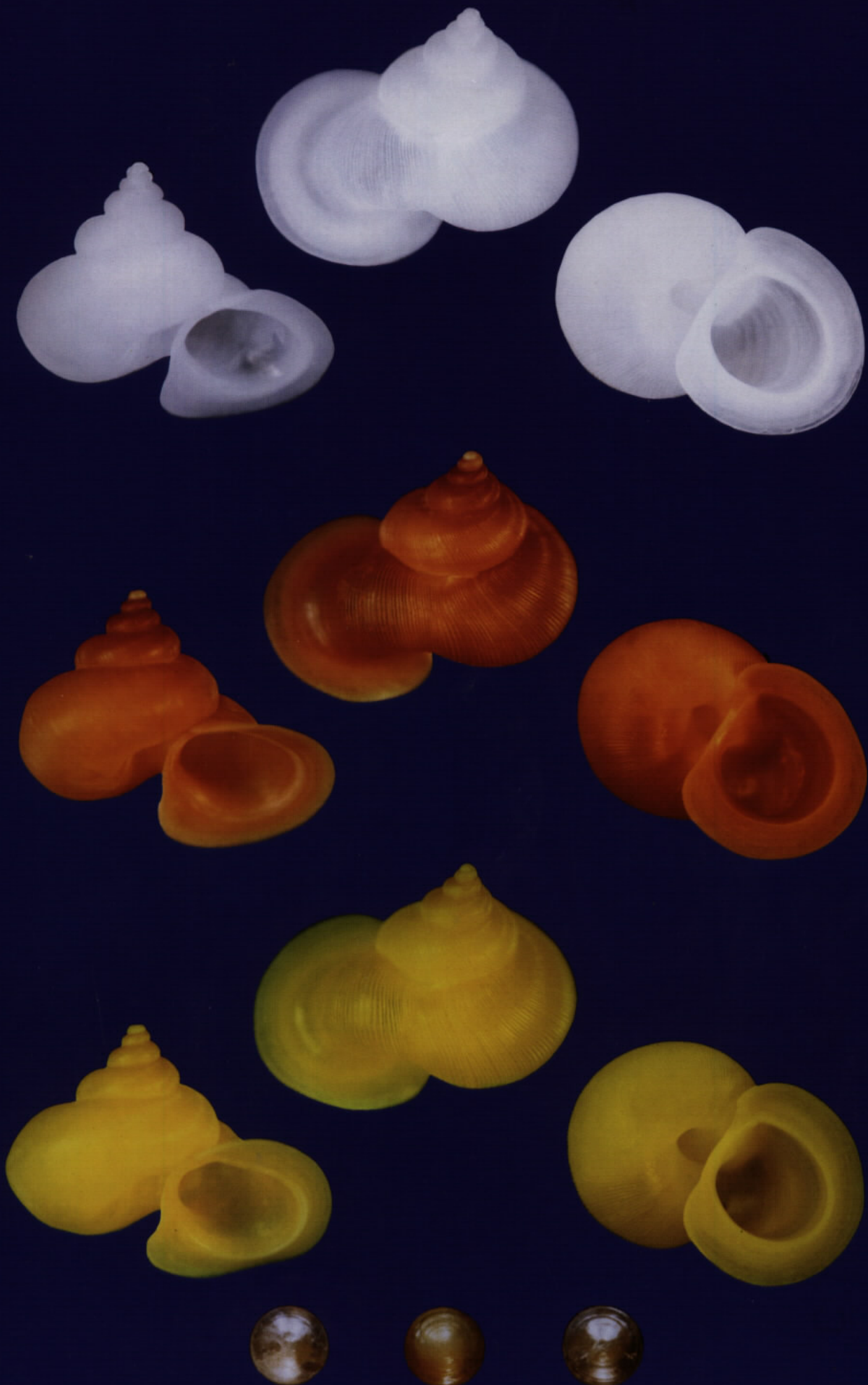


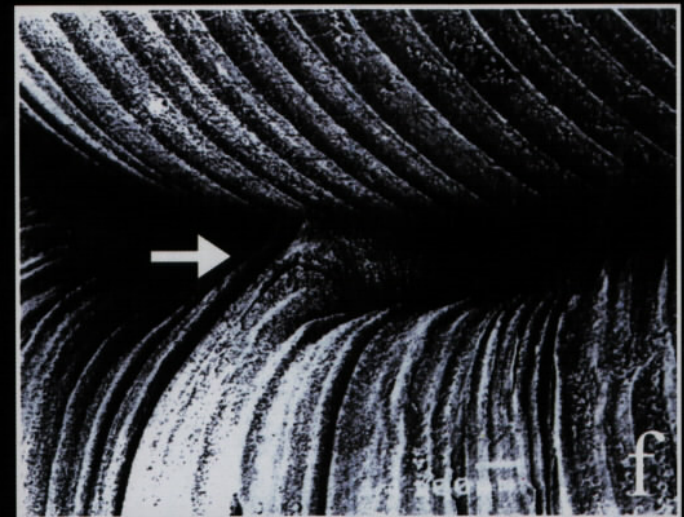
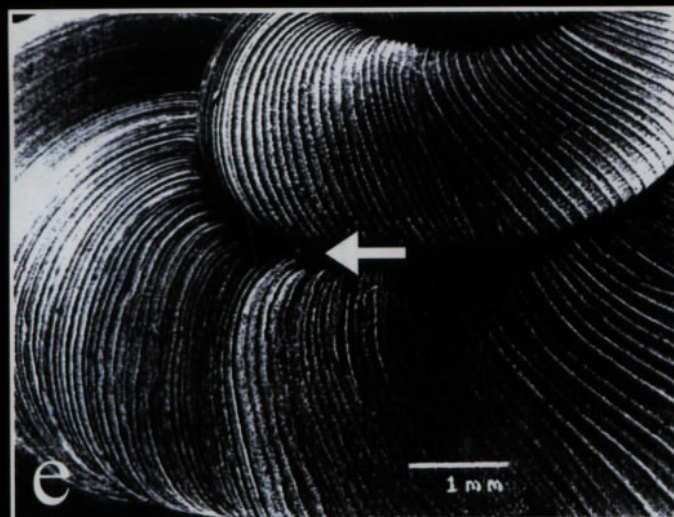
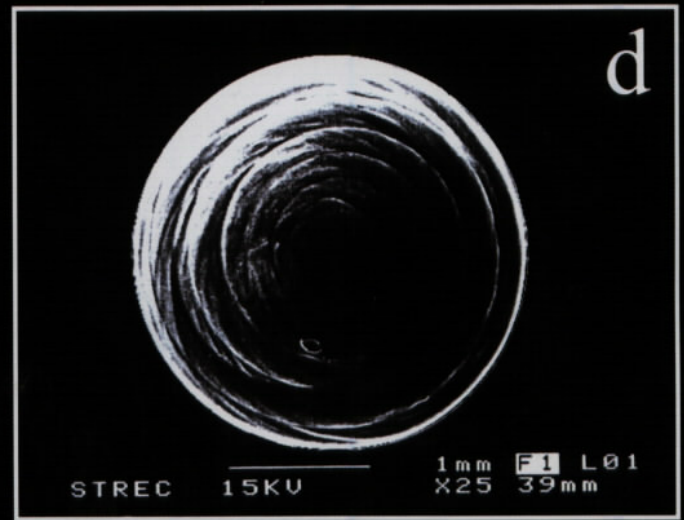
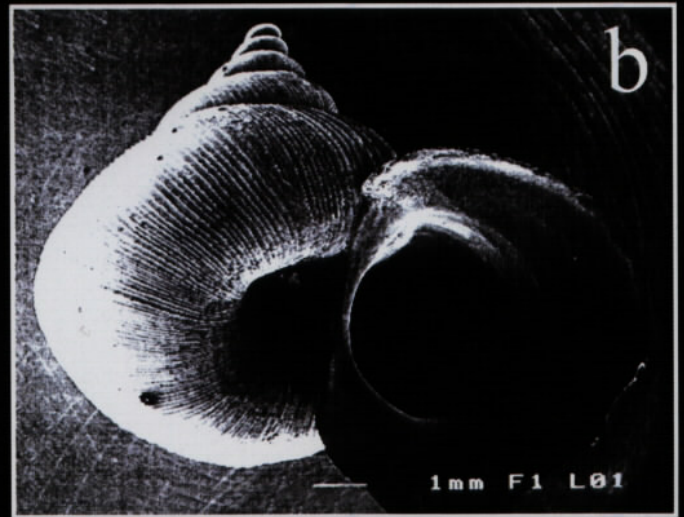
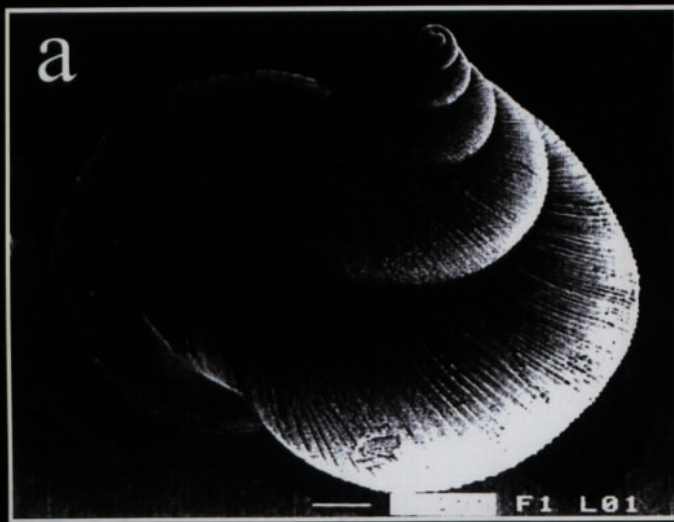
Plate 2 *Alycaeus somnueki* n. sp. (3 operculums undermost)



Plate 3 *Alycaeus somnueki* n. sp.
Live orange specimen in its natural habitat.



Plate 4 *Alycaeus somnueki* n. sp.
Live yellow specimen in its natural habitat.



Scanning electron micrograph of *Alycaeus somnueki* n. sp.
 a,b,c, holotype (CUIZM, Cy 007)
 d operculum, e,f sutural tube (arrow)

A new *Alycaeus* species from southern Thailand

(Prosobranchia : Cyclophoracea : Cyclophoridae)

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Keywords : *Alycaeus somnueki*, Prosobranchia, Cyclophoracea, Cyclophoridae.

Thailand

Abstract

Alycaeus somnueki n. sp. (Prosobranchia : Cyclophoridae) is described from a limestone hill near Krabi Province, Thailand. *A. somnueki* is compared to the closely related species, *A. anapetes* Panha & Burch 1998, differing in the three colour types within the population, there are white, yellow and orange types, the double expanding peristome is absent at umbilical position.

Introduction

There are many species of *Alycaeus* reported from Malaysia (Moellendorff 1891; Benthem Jutting, 1959) and from Sabah (Solem, 1964). Five species of *Alycaeus* were reported previously from Thailand, *A. distortus* Haines 1854, *A. canaliculatus* Moellendorf 1894, *A. roebeleni* Moellendorf 1894, *A. pratensis* Panha & Burch 1997 and *A. anapetes* Panha & Burch 1998.

During a snail survey in southern Thailand, a new species to *Alycaeus* was collected in May 1999 by Mr. Somnuek Patamakanthin. The snails were found on the limestone crevices at Ao Luk limestone areas, Krabi Province (Fig. 1). This is the sixth species of the genus found in Thailand. These specimens are described below.

Description of Holotype

(fig. 2)

Shell has axial ribs from the second whorl with conical spire and large. Last whorl inflated, about 5-6 mm from the aperture, there is a transverse constriction backwards a small sutural tube of about 1.5 mm in length lies along the suture. Shell 1.75 cm in width, 1.15 cm in height, moderately umbilicate, with 4 ? whorls. There are three colour types of shells in the same population collected; white, yellow and orange (Fig. 3). Aperture is almost circular. Peristome has continuous double expanding except at the umbilical position. The dimensions of the holotype and paratypes are shown in Table 1.

Type locality. Ao Luk limestone areas, Krabi Province (CUZM, Cy 007), 1999, Thailand (leg. S. Panha and S. Patamakanthin).

Etymology. The specific epithet *somnueki* is from the name of Mr. Somnuek Patamakanthin who is first discovered the new species.

Type material. The holotype (CUZM, Cy 007) is deposited in the Chulalongkorn University Zoological Museum together with twelve specimen paratypes (CUZM,

Cy 008). Other paratypes in total 17 specimens (CUZM, Cy 009) are stored in the University of Michigan Museum of Zoology (UMMZ), Ann Arbor (9 specimens) and The Field Museum of Natural History, (FMNH), Chicago (8 specimens).

Habitat and geographical distribution. *Alycaeus somnueki* n. sp. seem to be limited to southern Thailand. *A. somnueki* lives on limestone walls or in rock crevices with some vegetation. The following species were also found in this habitat; *Amphidromus atricallosus* (Gould 1894), *Syama diadema* (Dall 1897).

Diagnosis. *Alycaeus somnueki* n. sp. is similar in shell morphology to *A. anapetes* Panha & Burch 1998. In comparison *A. somnueki* has axial ribs, and the three colour shell types.

ACKNOWLEDGEMENTS

This research is supported by BRT/BIOTEC (BRT 139035)

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Table 1. Holotype and paratype dimensions (in mm) of *Alycaeus somnueki* n. sp.

(w, white type ; y, yellow type ; o, orange type)

| Type | Dimensions (mm) | | |
|-----------------|-----------------|--------|--------------------|
| | Height | Width | Height of aperture |
| Holotype | 11.5 w | 17.5 w | 8 w |
| Paratype number | | | |
| 1 | 11 w | 17.5 w | 8 w |
| 2 | 11 w | 17.5 w | 8 w |
| 3 | 11 w | 17.5 w | 8 w |
| 4 | 11.5 w | 17.5 w | 8 w |
| 5 | 12 o | 18 o | 8 o |
| 6 | 12 o | 18 o | 8 o |
| 7 | 12 o | 18 o | 8 o |
| 8 | 10.5 y | 16.5 y | 7.5 y |
| 9 | 10 y | 16 y | 7.5 y |
| 10 | 10 y | 16 y | 7.5 y |
| 11 | 10 y | 16 y | 7.5 y |
| 12 | 10 y | 16 y | 7.5 y |



Holotype
h 12.8, w 16.8 mm



Paratype 1
h 11.1, w 13.1 mm



Paratype 2
h 14, w 17.6 mm



Paratype 3
h 13.5, w 18 mm



Paratype 4
h 16, w 20.5 mm



Paratype 5
h 11, w 13.9 mm



Paratype 6
h 20.4, w 24.2 mm

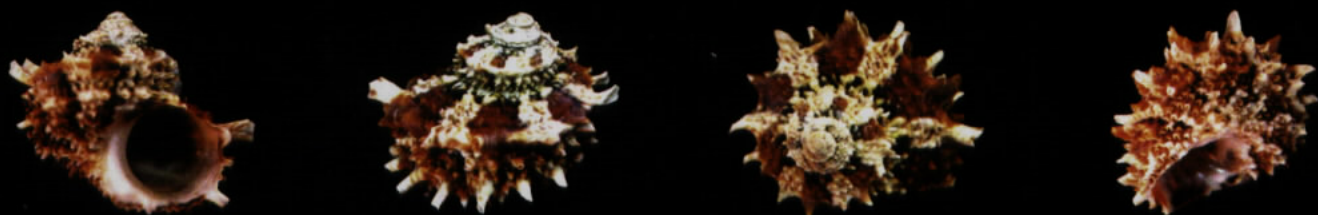


Paratype 7
h 9.3, w 11.4 mm

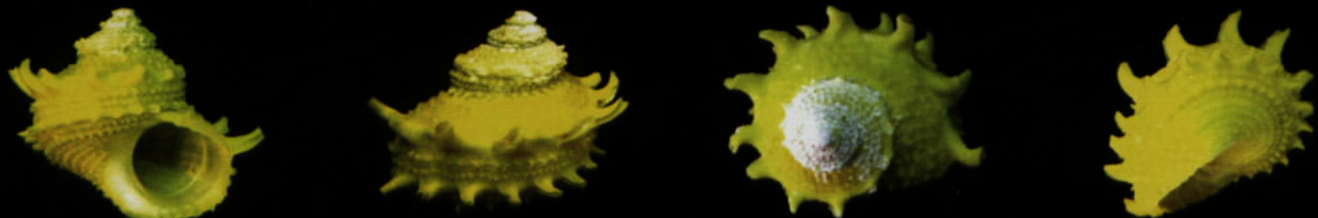


Paratype 8
h 18.1, w 19.9 mm





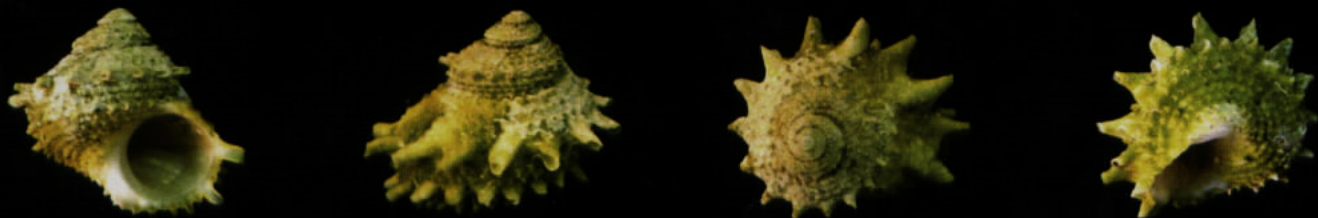
Paratype9 h 16.3, w 21 mm



Paratype10 h 14.1, w 18.2 mm



Paratype11 h 15.9, w 18.5 mm



Paratype12 h 13, w 16.4 mm



Paratype13 h 16.2, w 19.8 mm



Paratype14 h 13.2, w 15.4 mm

A new *Turbo* species from Thailand, Andaman Sea (Gastropoda: Turbinidae)

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Keywords : Gastropoda, Turbinidae, *Turbo*, Thailand, Andaman Sea, new species.

Abstract

A new species of *Turbo*, *Turbo somnueki* sp. nov., from the area between Phuket Island and the Racha Islands, Andaman Sea, Thailand is described.

Introduction

20 years ago, some small unknown specimens of *Turbo* shells were found by the research long-tail boats of Mr. Somnuek Patamakanthin, from the area between Phromthep Cape, Phuket Island (well known to the tourists as "Sunset Point") and Bon Island, in the south-west direction off Rawai Beach. Several years later some more interesting specimens with different vivid color of the same species had been collected from the same location. After careful comparison with other related species of the same genus, either from the same location or from abroad, it is now trusted that this species is new to science, adding a new member to the Turbinidae known from Thailand.

Abbreviations

HD : Henk Dekker collection, Winkel, the Netherlands

PMBC : Phuket Marine Biological Center, Phuket Island, Thailand

***Turbo somnueki* sp. nov.**

Pl. 1-2 ; all *Turbo somnueki* sp. nov., Pl.3 *T. crassus* and *T. argyrostomus* for comparison.

Description of holotype.

The shell is thick, width greater than height, apex rounded, sutures deep, base of columella thickened, no umbilicus. Spire whorls strongly keeled at periphery, scaly spiral cords bearing raised, hollow spines. The last whorl with two rows of these strong, hollow spines. The strongest one at the angular shoulder, the other at the periphery, between them two smaller scaly spirals and some minor scaly spirals. Between the peripheral row and the funiculus 7-8 scaly spirals, between the shoulder row and the suture 3-6 scaly spirals. Aperture silvery white, at the edge thin and outside colour shining through. Calcareous convex operculum circular, finely pimpled, pure white in colour.

The dimensions and colors of the holotype and some paratypes are shown in table 1.

Type material.

The holotype (PMBC, number 15759) and paratype 1 (PMBC, number 15760) are deposited in the Phuket Marine Biological Center, Phuket, Thailand.

Other paratypes, a total of 21 specimens, are stored in the author's collection (7 specimens, paratypes 2 - 8), in Mr. Somnuek Patamakanthin's collection (6 specimens, paratypes 9-14) and in the collection of Henk Dekker, the Netherlands (HD 949, 4 sp.; HD 3921, 3 sp.; HD 4649, 1 sp.).

Type locality.

The holotype originates from the area between the Phromthep Cape, Phuket Island and Bon Island, Thailand, Andaman Sea. Found at a depth between 8-15 metres by divers.

Habitat.

Turbo somnueki sp. nov. lives at locations where flowing oceanic currents pass through, at a depth of 8-15 m. The sea bottom where this species is found has mixed types of substrates, like plentiful amount of dead shells, small rocks, some kinds of corals and sponges. Together with this new *Turbo* species many kind of sponge-dwelling cowries can be found, like *Cypraea coloba* Melvill, 1888 and *Cypraea gangranosa* Dillwyn, 1817. *Turbo argyrostomus* Linnaeus, 1758 and *Turbo crassus* Wood, 1828 can be found in nearby habitats, at a shallower level of water.

Distribution.

Turbo somnueki sp. nov. seems to be limited in distribution to the area between the southern part of Phuket Island and the Racha Islands.

Etymology.

The specific epithet *somnueki* is from the name of Mr. Somnuek Patamakanthin, who is the first discoverer of this new species.

Discussion.

Turbo somnueki sp. nov. differs from the larger *Turbo chemnitzianus* Reeve, 1848 (see Dance, 1995: nr. 91) by the many different colors in the same population, while the *Turbo chemnitzianus* has pale, greenish to reddish brown color with some interrupted zigzag bands on along the body whorls. *Turbo somnueki* sp. nov. grows up to just of 20.4 mm in height and of 24.2 mm in width (paratype 6), while *T. chemnitzianus* can reach up to 40 mm in height. *Turbo somnueki* sp. nov. is also close to *Turbo tursicus* Reeve, 1848 (see Kaicher, 1988: 5312) and to the recently described *Turbo debesi* Kreipl & Alf, 2000 from Australia, but differs from them in details of sculpture.

References.

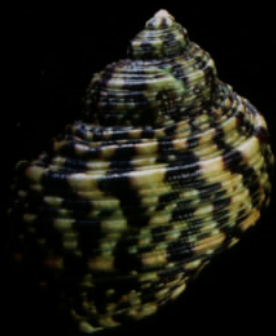
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 Kaicher, S.D., 1988. Card catalogue of world-wide shells. Pack 52, Turbinidae I. Cards: 5260-5365.
 Kreipl, K. & A. Alf, 2000. La Conchiglia 32(294-295): 119-122.

Table 1. Holotype and paratypes dimensions (in mm) of *Turbo somnueki* sp. nov.

| Type | Dimensions (in mm) | | Type of colors |
|--------------------------|--------------------|-------|--|
| | Height | Width | |
| Holotype (PMBC 15759) | 12.8 | 16.8 | : white with orange & green spiral bands. |
| Paratype number | | | |
| 1 (PMBC 15760) | 11.1 | 13.1 | : orange shell with some white spines. |
| 2 | 14 | 17.6 | : brownish shell. |
| 3 | 13.5 | 18 | : same with holotype. |
| 4 | 16 | 20.5 | : bright orange shell. |
| 5 | 11 | 13.9 | : same with holotype. |
| 6 | 20.4 | 24.2 | : cream color shell with brown & green fine bands. |
| 7 | 9.3 | 11.4 | : pure orange shell. |
| 8 | 18.1 | 19.9 | : pure cream shell. |
| 9 | 16.3 | 21 | : white shell with large reddish bands, with fine green patches. |
| 10 | 14.1 | 18.2 | : pure bright lemon-yellow. |
| 11 | 15.9 | 18.5 | : light brownish shell with fine brown patches. |
| 12 | 13 | 16.4 | : light greenish shell with dark green bands. |
| 13 | 16.2 | 19.8 | : white shell, brown bands. |
| 14 | 13.2 | 15.4 | : pure orange shell. |
| 15(HD949) | 8.7 | 9.3 | : similar to paratype no.3. |
| 16(HD949) | 11.6 | 12 | : similar to paratype no.3. |
| 17(HD949) | 13.3 | 13.9 | : similar to paratype no.3. |
| 18(HD949) | 14.5 | 15.9 | : similar to paratype no.9. |
| 19(HD392) | 11.5 | 12.1 | : similar to paratype no.3. |
| 20(HD392) | 12.5 | 13.5 | : similar to paratype no.3. |
| 21(HD392) | 18.7 | 17 | : similar to paratype no.3. |
| 22(HD4649) | 11.2 | 12.1 | : similar to paratype no.3. |

Notes : Holotype (PMBC 15759) and paratype 1 (PMBC 15760) are stored in PMBC,
 The paratypes 2-8 are stored in author's collection,
 The paratypes 9-14 are stored in Mr. Somnuek Patamakanthin's collection,
 Other paratypes (no. 15-22) are stored in Henk Dekker's collection
 (HD949, HD392 and HD4649) and are not shown here in the two plates.

Turbo crassus Wood, 1828



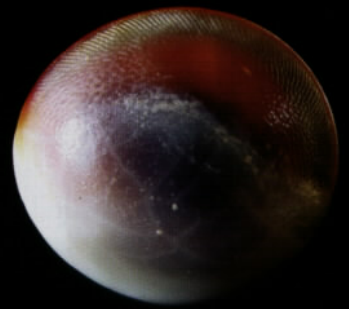
62 x 49 mm.



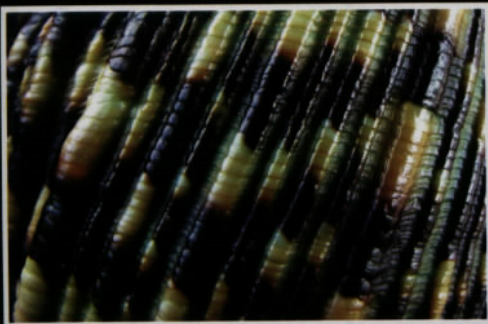
60.7 x 51.8 mm.



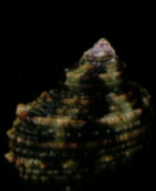
59 x 41.6 mm.



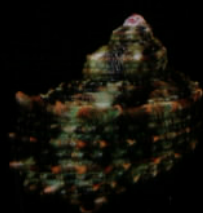
23.5 x 21.4 mm.



Turbo argyrostomus Linne', 1758



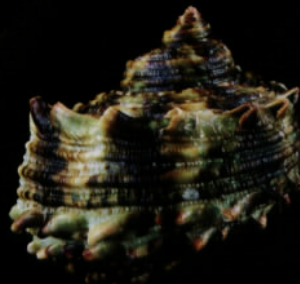
21.7x19.9mm.



29.5x29.7mm.



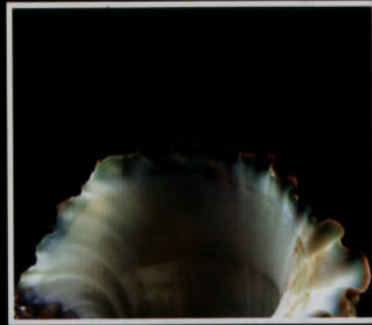
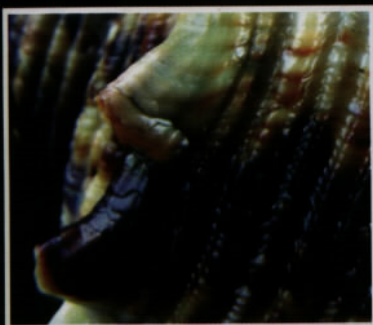
36 x 35.6mm.



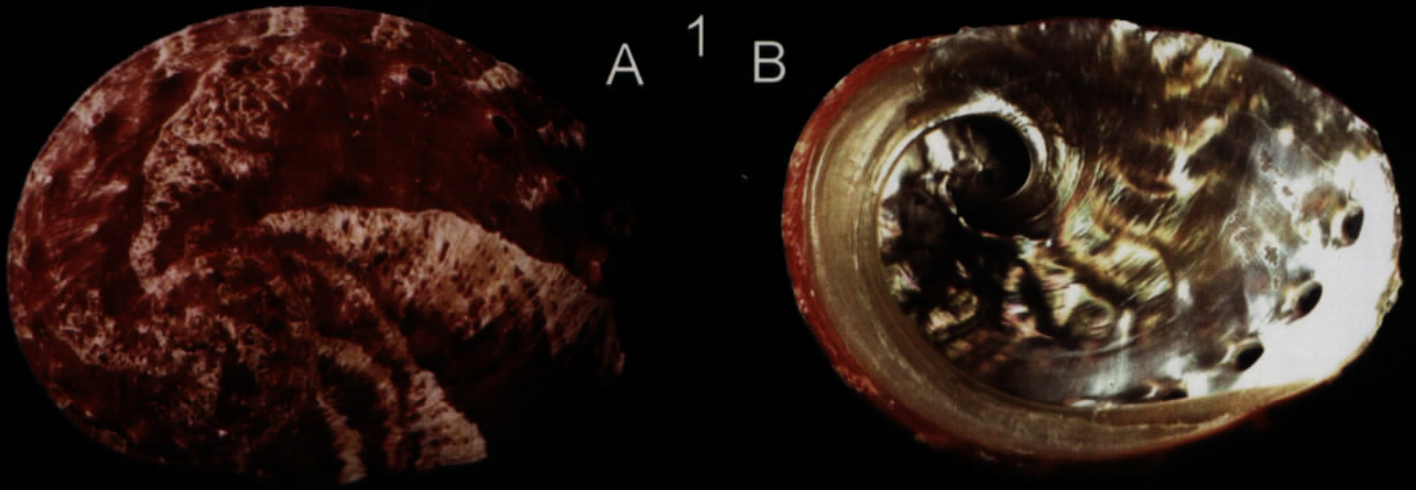
53.4 x 52.4mm.



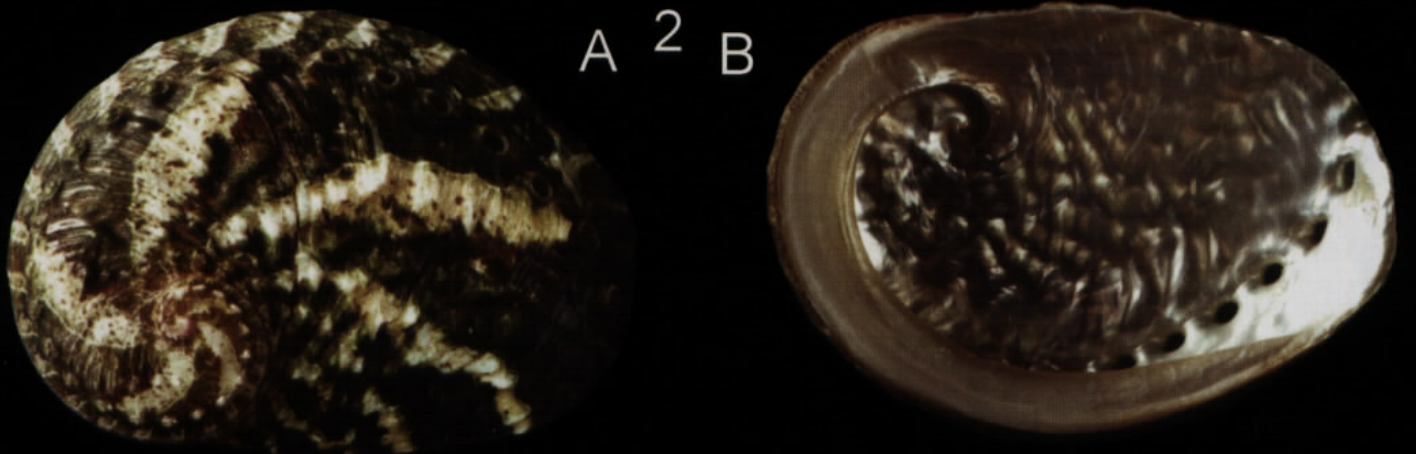
53.4 x 52.4mm.



25.4 x 23.2mm.



A ¹ B



A ² B



Fig. 3.a.

6

3.a.

3.b.

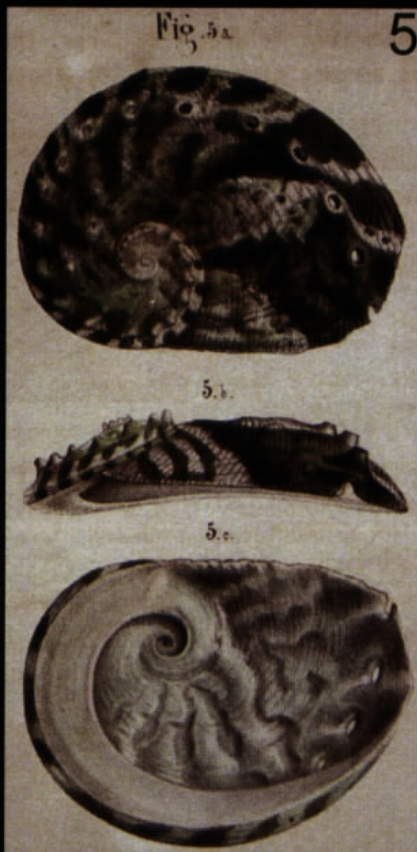
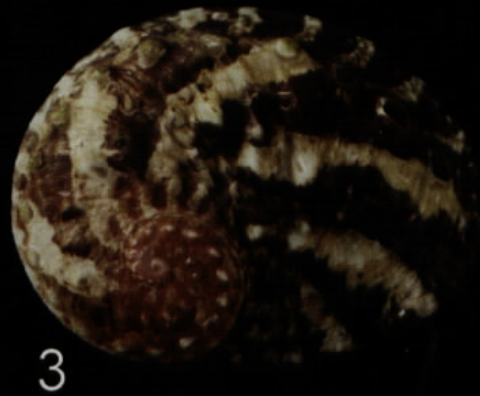


Fig. 5.a.

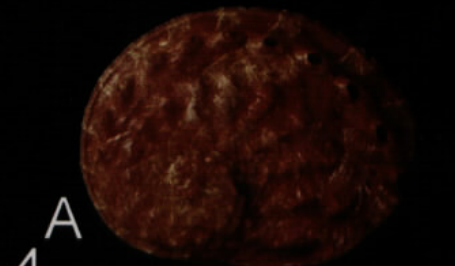
5

5.a.

5.b.



3



A



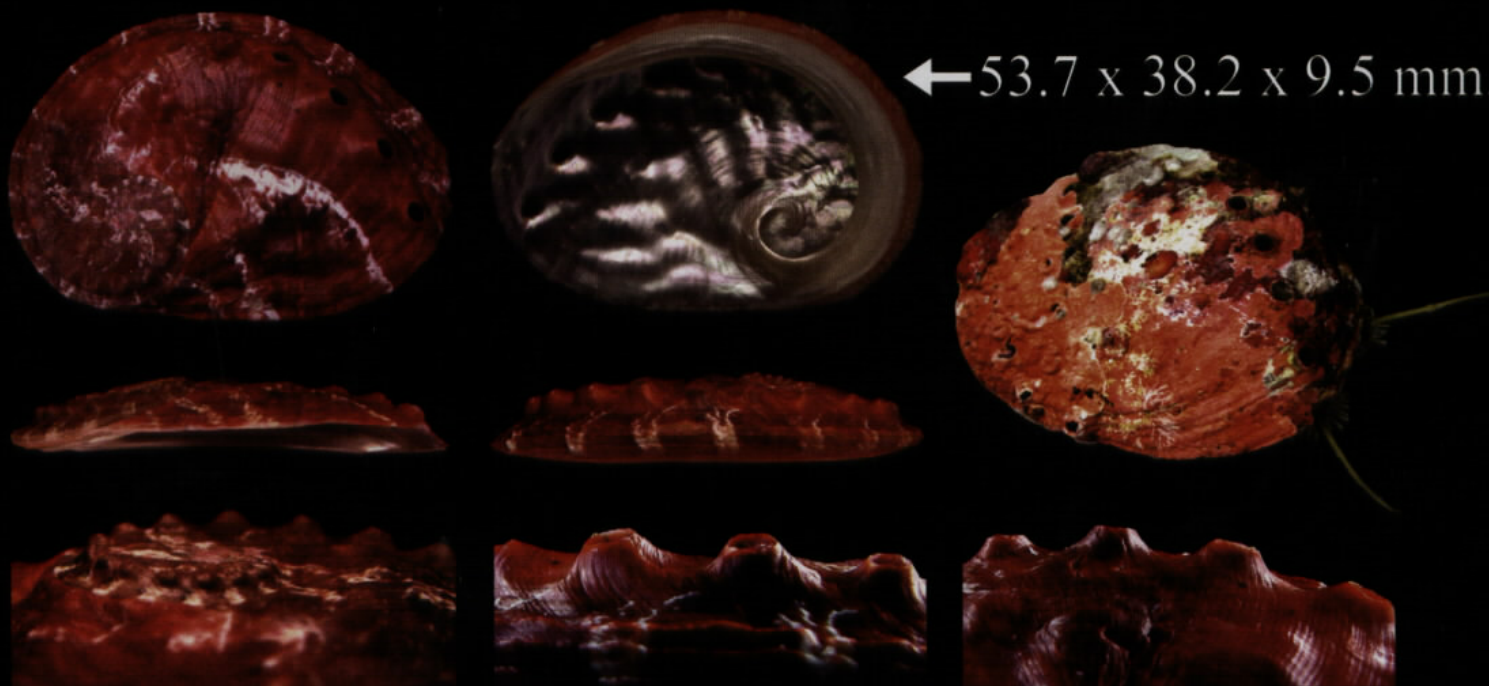
B

4

Plate 1 *Haliotis patamakanthini* sp. nov.



Haliotis ovina Gmelin, 1791 from Racha Is.

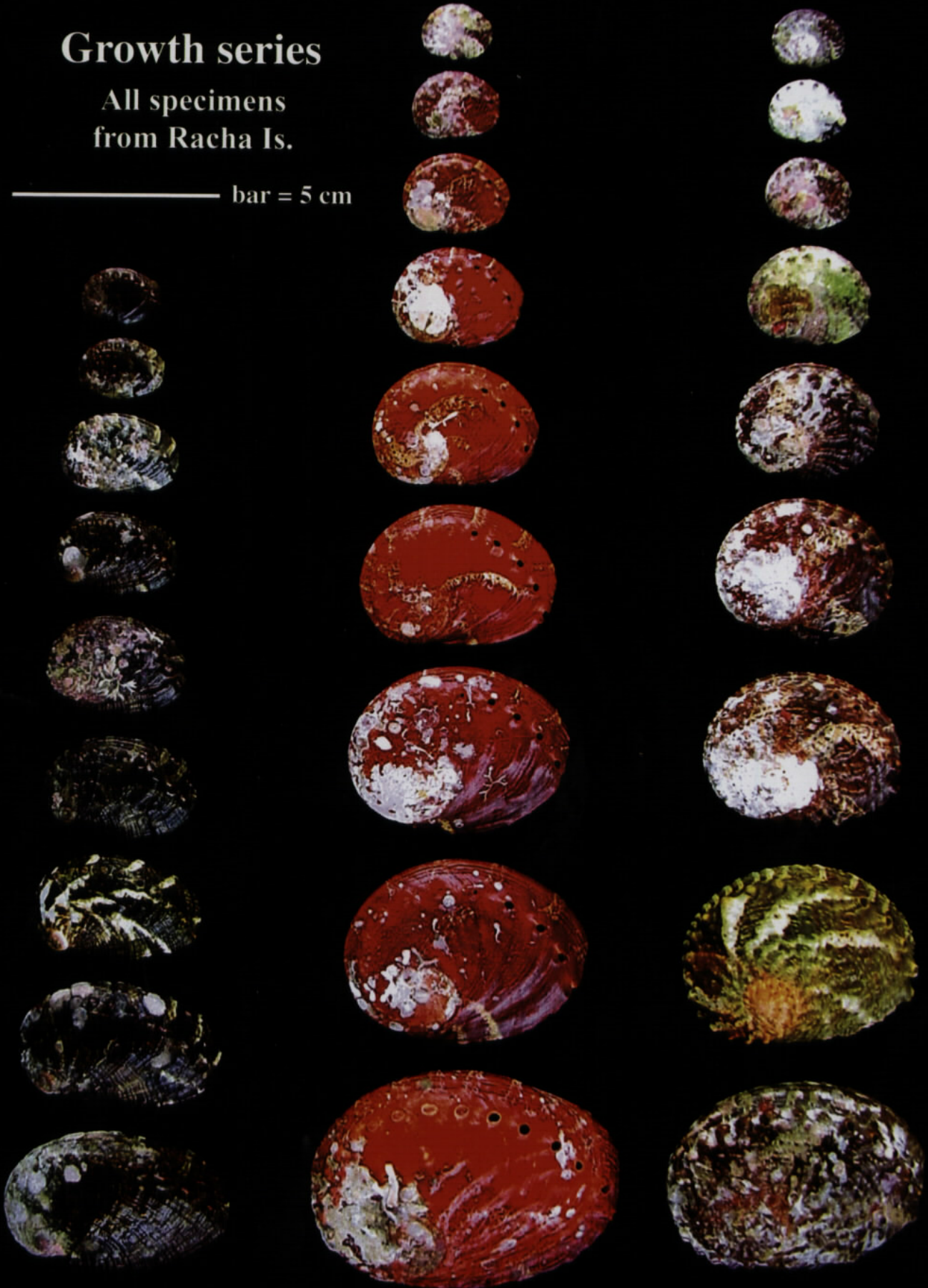


Haliotis patamakanthini sp. nov. from Racha Is.

Growth series

All specimens
from Racha Is.

———— bar = 5 cm



H. planata

H. patamakanthini sp. nov.

H. ovina

Description of a new *Haliotis* species from Thailand, Andaman Sea, with a note on the identity of *Haliotis latilabris* Philippi, 1848 (Gastropoda, Haliotidae)Henk Dekker¹, Wilco Regter² & Bavius Gras³

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Keywords. - Abalone, Gastropoda, Haliotidae, *Haliotis*, Thailand, Andaman Sea, Vietnam, new species

Abstract

A species of *Haliotis* from western Thailand, the Andaman Sea, is described as new to science. This new species, *Haliotis patamakanthini* sp. nov., is compared with the related species *Haliotis ovina* Gmelin, 1791 and *Haliotis latilabris* Philippi, 1848. These are considered to be three valid species. *H. ovina* has a wide distribution in the Indo-West-Pacific, whereas the other two species are only known from a limited area within the distribution range of *H. ovina*.

Introduction

Some twenty years ago a few old specimens were collected of an unknown *Haliotis* species from the Andaman Sea and came into the collection of Somnuek Patamakanthin, Thailand. Recently more specimens became available through the effort of Mr. Patamakanthin, who obtained the specimens from local divers at Rawai, Phuket Island. These specimens made a study possible which resulted in the recognition of them as a new species, with its closest relatives being *Haliotis ovina* Gmelin, 1791 and *Haliotis latilabris* Philippi, 1848. The latter is usually regarded as a synonym of *Haliotis ovina*, but it is here suggested that it is a separate species, which is now offered on the shell market originating from Vietnam.

Abbreviations

BG: Bavius Gras collection, Leeuwarden, the Netherlands

LACM: Los Angeles County Museum, L.A., USA

HD: Henk Dekker collection, Winkel, the Netherlands

WR: Wilco Regter collection, Hillegom, the Netherlands

ZMA: Zoological Museum, University of Amsterdam, Amsterdam, the Netherlands

***Haliotis patamakanthini* sp. nov.**

Textfigs. 1A-C, Pl. 1 fig. 1, Pl. 2 ; lower set of the plate (red shells), Pl. 3 ; middle row of growth series, red shells.

Haliotis patamakanthini Trakullertsathien, 2000: 8, fig. [nomen nudum]

Haliotis ovina [in part]- Geiger & Poppe, 2000: 69 ["very depressed form" from Thailand]

Description**Shell**

Shells of medium size, rather strongly built, outline oval, with rather low apex. The dorsal surface has some knobs, not very prominent and showing weakly on the inside of the shell as depressions. The spiral sculpture on the dorsal surface consists of some weak, medium broad ridges, but because of the weakness of these spirals the shells give a smooth impression. Growthlines clearly visible, but not prominent. The periphery, between the row of holes and the columella, bears 4-7 spiral ridges, which are not crenulated. Open holes about 4-5. Holes roundly ovate and only slightly raised. The upper dorsal surface is gradually bending towards the periphery, which gives the impression when seen from above that this species has a broad area between the row of holes and the margin. In smaller specimens below about 30 mm in length the margin is relatively stronger expanded, so making the distance between the row of holes and the margin relatively larger towards the apex. Color of shell usually dark red, but also some specimens have a more greenish basic color. The dorsal surface bears a varying number of prosocline white rays. These rays show often spots of red and green color towards the aperture. The apex is usually pink.

In ventral view shell with silvery nacre, muscle scar normally not discernible. Spire clearly visible. The columella has a very broad nacre part, covering about 80% of the margin.

Animal

Epipodium with two fringes of projections. The ventral fringe with short irregular thick lobes, which bear short projections. The dorsal fringe with small thin lobes which bear short projections in a handshaped way (fig. 1C). The dorsal side of the dorsal fringe bears at regular distances (3-4 mm) tentacles. The area between the two fringes bears warty tubercles. The dorsal surface of the epipodium is dirty white in color.

The mantle above the mantle cavity is deeply excavated and bears three tentacles (fig. 1A). The one on the left part is situated at some distance from the anterior end.

The radula was not studied, as the radula of related species are very similar and of little use for specific distinction (Geiger, 1999a: 76).

Size. - Maximum size of shells studied: length 78.1 mm, width 55.8 mm (ZMA coll., see this one as living image in plate 2, upper right of the lower set, red shell.), but probably a little larger size could be reached by this species.

Type material

Holotype: ZMA, Moll. 4.01.002, don. Patamakanthin, 2000, length 60.5 mm, width 46.4 mm, height 13.0 mm. Animal preserved in alcohol.

Paratypes (all from type locality):

- don. Patamakanthin, 2000: ZMA Moll. 4.01.004, 12 sp. (with animal preserved in alcohol); ZMA Moll. 4.01.003, 2 sp.; HD 3916, 3 sp.; WR 443, 3 sp.; WR 444, 2 sp. (with animal preserved in alcohol); BG 4427, 4 sp.; LACM, 1 sp.
- ex Jan Veerman, ex Zeemuseum Scheveningen, Jan. 2000: HD 4648, 1 sp.; WR 442, 6 sp.; BG 4647, 2 sp.

Other (non-type) material studied. - Several specimens in the collection of Somnuek & Somwang Patamakanthin, Rawai, Phuket, Thailand; two specimens in the Phuket Seashell Museum, Rawai, Phuket, Thailand.

Type Locality. - Thailand, Andaman Sea, Racha [= Raya] Islands [S of Phuket Island], between 7°36'N 98°20'E and 7°28'N 98°18'E.

Distribution. - Known so far only from the type locality.

Habitat. - In crevices, 10-20 m depth, in areas with strong currents. They occur on the part of the islands facing west towards the Indian Ocean, which are influenced by oceanic currents.

Etymology. - Named after Mr. Somnuek Patamakanthin, a well-known collector of shells, who is specialized in shells from Thailand.

Remarks. - The present new species co-occurs at the same Islands with *Haliotis ovina*. The present known small distribution of *H. patamakanthini* sp. nov. falls well within the large distribution area of *H. ovina*. Both species can be found together in the same habitat, according to information from Mr. Somwang Patamakanthin (Jan. 2001, pers. comm.).

Comparison with closely related species. - For differences with *Haliotis ovina* and *Haliotis latilabris* see below under these species.

***Haliotis ovina* Gmelin, 1791**

Textfigs. 1D-F, Pl. 1 fig. 6, Pl. 2; the upper set of the plate (green shells), Pl. 3; far-right row of growth series.

.... Chemnitz, 1788: 315, pl. 166 fig. 1609

Haliotis ovina Gmelin, 1791: 3691

Haliotis caelata R`ding, 1798: 13, nr. 157 [refers to Chemnitz, pl. 166 fig. 1609]

Haliotis ovina - Tantanasiwong, 1978: 4, fig. 5

Haliotis ovina [in part] - Geiger, 1998: 109 [excluding *H. latilabris* in synonymy]

Haliotis ovina - Geiger & Groves, 1999: 885

Haliotis ovina - Geiger, 2000: 82, figs. 31-33, 43

Haliotis ovina [in part] - Geiger & Poppe, 2000: 68-69, pls. 26-27 [excluding "very depressed forms" from Vietnam and Thailand, excluding *H. latilabris* in synonymy]

Geiger (1998: 109) recently treats this well-known Indo-Pacific species. In a subsequent paper Geiger (2000: 82-84, figs. 31-33, 43) gives a list of material seen by him, showing the distribution of this species. The distribution ranges from Mauritius [these records need confirmation; Geiger, pers. comm., Dec. 2000] and the Maldives in the west to Japan and N Australia and further eastwards into the Pacific to Tonga, Samoa and Tuamotus. Good pictures of this species are given in Geiger & Poppe (2000: 68-69, pls. 26-27). This species is also known as a fossil from the Pliocene-Pleistocene from Guam and Tonga (Geiger & Groves, 1999: 885). The habitat of this species is subtidal, living from below the low tideline to 20 m depth, attached to dead pieces of coral and rocks (Somwang Patamakanthin, Jan. 2001, pers. comm.). This information agrees fairly well with the habitat given by Geiger & Poppe (2000: 69): "In tropical reefs, between dead coral heads and in crevices, from the subtidal zone to 30 m."

Differences

This species differs from *Haliotis patamakanthini* sp. nov. by the following shell characters:

- The apex is higher in *ovina*
- The dorsal surface makes a clear angle towards the periphery at the location of the row of holes. This makes the part of the periphery seen from above much smaller than in *patamakanthini*, especially in small (< 30 mm) specimens
- The spiral sculpture is clearly developed in *ovina*
- The dorsal knobs in *patamakanthini* normally are present in *ovina* as prosocline ridges, covering the surface from the suture to about 2/3 the distance towards the row of holes. These ridges show more clearly on the inside as depressions because the shell in *ovina* is thinner than in *patamakanthini*
- The nacre part on the columella in *patamakanthini* is broad, covering about 80%. In *ovina* this nacre part is narrower, covering only about 65%
- The spirals on the outer surface most close to the columella are coarsely granulated in *ovina*, in *patamakanthini* these are nearly smooth

The animals of *H. ovina* and *H. patamakanthini* differ also:

- In *ovina* the dorsal surface of the epipodium has a blackish-green band (fig. 1F), the dorsal surface in *patamakanthini* is dirty white
- The projections on the upper fringe of the epipodium in *ovina* are long (fig. 1F), in *patamakanthini* these are short and more handshaped (fig. 1C)
- The area between the two epipodium fringes bear small knobs only in *ovina*, in *patamakanthini* this area bears warty tubercles
- In *ovina* the tentacle on the left mantle part is situated close to the anterior end, in *patamakanthini* it is situated more posteriorly

Material studied

About 100 specimens from different localities in ZMA, HD, WR, BG; only those from Thailand and Vietnam specified here to show sympatric occurrences.

Thailand: Racha Islands, HD 3917, 3 sp., don. Patamakanthin, 2000; Racha Islands, ZMA, 7 sp. (with animals in alcohol), don. Patamakanthin, 2000; Surin Islands, HD 4647, 2 sp., don. Patamakanthin, 2000; Phuket Island, Kalim Beach, HD 4610, 2 sp., leg. H. & S. Dekker & C. Dekker-Rentenaar, 1995; Phuket Island, Yanoi Beach, HD 4611, 1 sp., leg. H. & S. Dekker & C. Dekker-Rentenaar, 1996; Phuket Island, Rawai Beach (local fishery), WR 273, 2 sp., 1998; Phuket Island, Yanoi Beach, WR 276, 2 sp., 1997; Phuket Island, WR 362, don. Patamakanthin, 2000; Phuket Island, Rawai Beach (local fishery), BG 953, 2 sp., 1997; Phuket Island, BG 4426, 1 sp., don. Patamakanthin, 2000.

Vietnam: Nha Trang, Hon Tan, HD 4596, 3 sp., 2000.

***Haliotis latilabris* Philippi, 1848**

Pl. 1 ; figs. 2-5

Haliotis latilabris Philippi, 1848: 15-16 [no type locality mentioned]

Haliotis latilabris Philippi - Philippi, 1850: 23, pl. 9 fig. 5 [reference to fig. 4 in error !]

Haliotis ovina [in part]- Geiger & Poppe, 2000: 69 ["very depressed form" from Vietnam]

Comparison with closely related species

This species differs from *H. ovina* in its more flat form, the area between the margin and the row of holes is much less steep, the larger obtainable size (largest specimen seen 91 mm in length), the broad nacre rim along the columella, this nacre rim is rather horizontal orientated instead of pointing towards the apex. The spiral ridges on the periphery, between the row of holes and the columella, are in both species crenulated.

This species is much closer in shell features to *H. patamakanthini* sp. nov. than to *H. ovina*. The main differences between *H. latilabris* and *H. patamakanthini* sp. nov. are that the lowest spirals on the periphery, between the row of holes and the columella, are crenulated in *latilabris*. The spiral sculpture and especially the dorsal humps are often more developed in *latilabris* and this species also grows to a larger size.

Distribution. - Mentioned from Japan, Liew-Kiew Islands [= Ryu Kyu Islands] by Philippi, 1850. Recently, this species is offered on the shell market originating from Vietnam.

Remarks. - *H. latilabris* has been synonymized in the past with *H. ovina*. However, the differences between these two 'forms' seem to be large enough (in the same order as between *H. ovina* and *H. patamakanthini*) to recognize it as a valid species. Also, *H. ovina* and *H. latilabris* are both known to live sympatric in the Nha Trang area which excludes *H. latilabris* being a geographical variation of *H. ovina*. We are not sure if the locality Ryu Kyu Islands mentioned by Philippi (1850) is correct, as we did not find another record of this species from these islands.

The differences with *H. patamakanthini* are not very large, but the differences between the shells and the large gap in distribution between these two makes it likely that they are two different species. No animals were available to compare these two. The present supply of material from Vietnam on the shell market (mainly through Mr. N.N. Thach) makes this forgotten species available again.

Material studied.

VIETNAM: coll. Patamakanthin, 2 sp.; Nha Trang, July 2000, HD 4780, 10 sp., ex N.N. Thach; Nha Trang, April 1999, WR 360, 7 sp.; Nha Trang, April 1999, BG 4810, 2 sp.

ACKNOWLEDGEMENTS

We thank Mr. Somnuek and his son Somwang Patamakanthin for donating much of the study material and especially for organizing the collection of the specimens with preserved animals. Also their information on the habitat and distribution of the new species is greatly appreciated. Thanks go also to Somwang Patamakanthin for making our plate 2. We thank Mr. Rob Vink, Rotterdam, the Netherlands, for making the figure from Philippi, 1850 available for inclusion in this article. We thank Mr. S. Dekker for making the drawings of the animals. We thank Mr. Daniel Geiger for discussion and comments on the manuscript.

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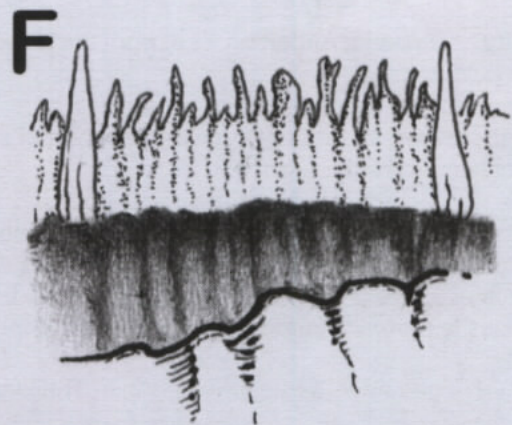
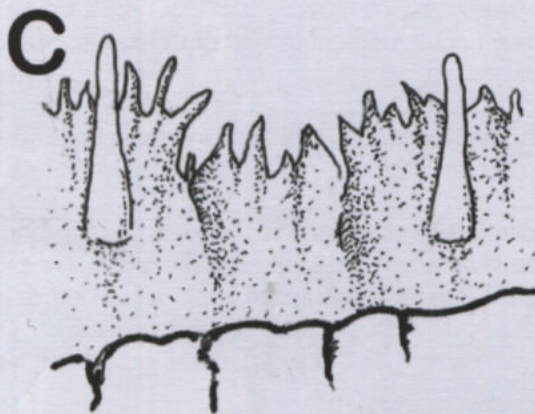
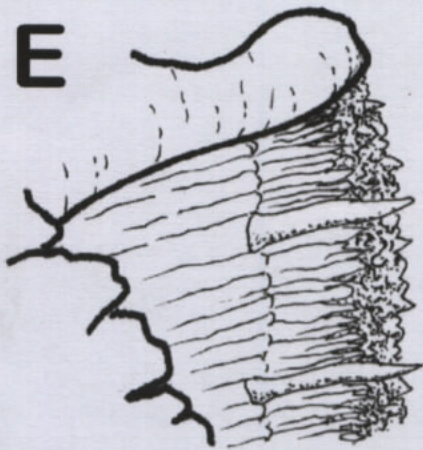
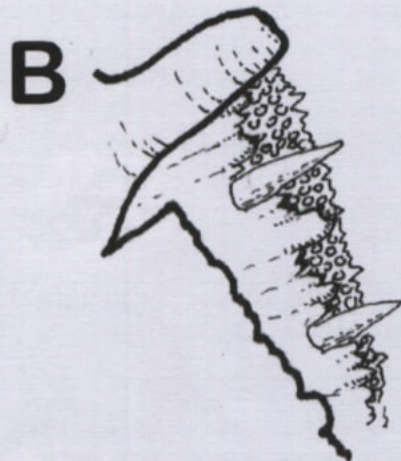
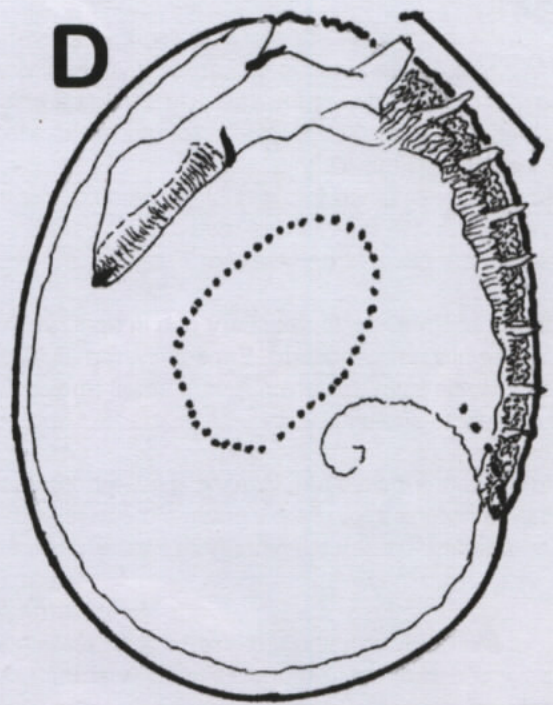
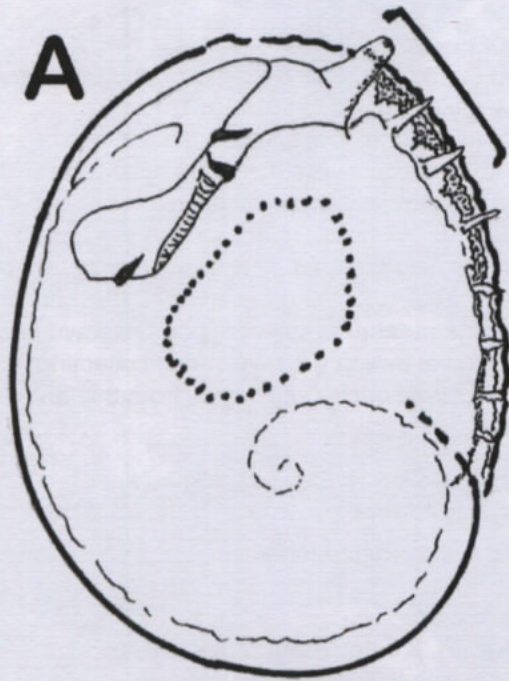
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Legends of plates and textfigure

Textfig. 1A-C. *Haliotis patamakanthini* sp. nov. **1D-F.** *Haliotis ovina*. A,D animal with shell removed, seen from above with foot muscle and mantle slit visible. B,E details of margin of animal, showing the epipodium. C,F details of the dorsal fringe of the epipodium, seen from above.

Plate 1. Fig. 1A-B. *Haliotis patamakanthini* sp. nov., holotype, ZMA Moll. 4.01.002, length 60.5 mm, width 46.4 mm. **Figs. 2-4.** *Haliotis latilabris*, Vietnam, HD 4780. fig. 2A-B length 83 mm, width 60 mm; fig. 3 length 63 mm, width 48 mm; fig. 4A-B length 45 mm, width 35 mm. **Figs. 5-6.** Reproduction of figures from Philippi, 1850, showing (his fig. 5) *Haliotis latilabris* and (his fig. 3, ours fig. 6) *Haliotis ovina*.

Plate 2. Upper set of greenish specimens ; *Haliotis ovina*, Racha Islands, Patamakanthin coll., upper right of this upper set is the living animal image of *H. ovina* from Racha Is.. **Lower set of reddish specimens ;** *Haliotis patamakanthini*, Racha Islands, Patamakanthin coll., upper right of this lower set is the living animal image of *H. patamakanthini* sp. nov., from Racha Is. (the largest specimen found, of 78.1 x 55.8 mm in dimensions, now stored in ZMA collection.)



Textfigures for *Haliotis patamakanthini* sp. nov.

Description of a small new *Haliotis* species from Thailand, Andaman Sea (Gastropoda, Haliotidae)Henk Dekker¹ & Somwang Patamakanthin²

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Keywords. - Abalone, Gastropoda, Haliotidae, *Haliotis*, Thailand, Andaman Sea, new species

Abstract

A small species of *Haliotis* from western Thailand, the Andaman Sea, is described as new to science.

Introduction

The area south of Phuket Island is very rich in species. A rather large number is still very poorly known and a number of them are not described. Especially, the local divers at Rawai Beach are involved in collecting many specimens of shells from this area. A very small (maximum size 18 mm) species of *Haliotis* from this area is described as new to science.

Abbreviations

HD: Henk Dekker collection, Winkel, the Netherlands

PMBC: Phuket Marine Biological Center, Phuket Island, Thailand

ZMA: Zoological Museum, University of Amsterdam, Amsterdam, the Netherlands

***Haliotis thailandis* sp. nov.**

Pl. 1 ; all specimens shown are *H. thailandis* sp. nov., Pl. 2,3 and 4 are other species of *Haliotis* from Indo-Pacific region for comparison with this small, new species.

Description.

Shells of small size for genus, maximum about 18 mm. Outline oval, with low apex. The dorsal surface has spirally orientated rows of nodules, which are relatively large. Usually 3-4 prominent spirals with nodules are present, but some of these might be reduced in strength. Growthlines weak. The area between the row of holes and the periphery is smooth and bears 1(-2) weak spirals. Open holes 3-5. Holes roundly and only slightly raised. Color of shells a mixture of red, pink, green and white. The area between the row of holes and the columella usually with white blotches, which have in the middle a reddish vertical line. The apex is usually pink. In ventral view shell with silvery nacre, muscle scar normally not discernible, spiral rows of nodules showing as depressions.

Type material.

Holotype: PMBC, Nr. 15761, length 17.8 mm, width 12.4 mm.

Paratypes (all from type locality): paratype 1, PMBC, Nr. 15762; paratypes 2-3, ZMA; paratypes 4-5, Of Sea And Shore Museum; paratypes 6,7,8, HD 5157; paratypes 9-10, Somnuek Patamakanthin Collection.

Other (non-type) material studied.

Thailand, Andaman Sea: Krabi, Ban Ko Kwang, 1996, HD 4615, 1 sp.; Phuket Island, Kalim Beach, 1995, HD 4614, 1 sp., 4 live specimens (as several images published in lower part of the plate 1.), now preserved in alcohol, Somwang Patamakanthin coll., these four specimens are not included as paratypes.

Type Locality. - Thailand, Andaman Sea, from the small islands off south and southwest of Phuket Is., collected by divers at 10-20 m depth.

Distribution. - Known so far only from western part of southern Thailand, from Phuket Island to its southward adjacent islets and to Krabi.

Habitat. - This species lives at the bottom of bays where sediments (silt) are deposited. Here a lot of bivalve species which cemented to rocks and corals are living. On these bivalves the present new species is living, grazing on the surface of shells and on other hard substrates. Empty shells can be rarely found beached (HD collection), but this species is normally found living at 10-20 m depth.

Etymology. - Named after the country of origin, Thailand.

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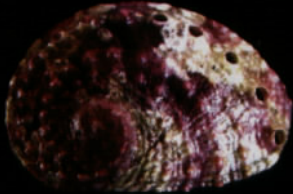
Holotype (17.8x12.4mm.)



Paratype1 (15.7x11mm.)



Paratype2 (16.1x11.1mm.)



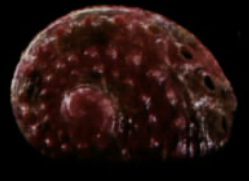
Paratype3 (14.2x9.7mm.)



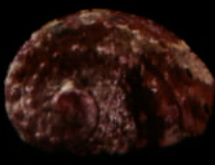
Paratype4 (12.6x8.7mm.)



Paratype5 (12x8.4mm.)



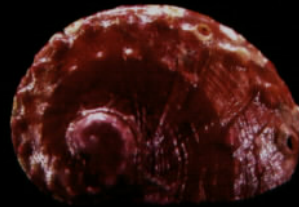
Paratype6 (11.4x7.8mm.)



Paratype7 (10.3x7.3mm.)



Paratype8 (13.4x9mm.)



Paratype9 (16x10.8mm.)



Paratype10 (13.2x9.3mm.)

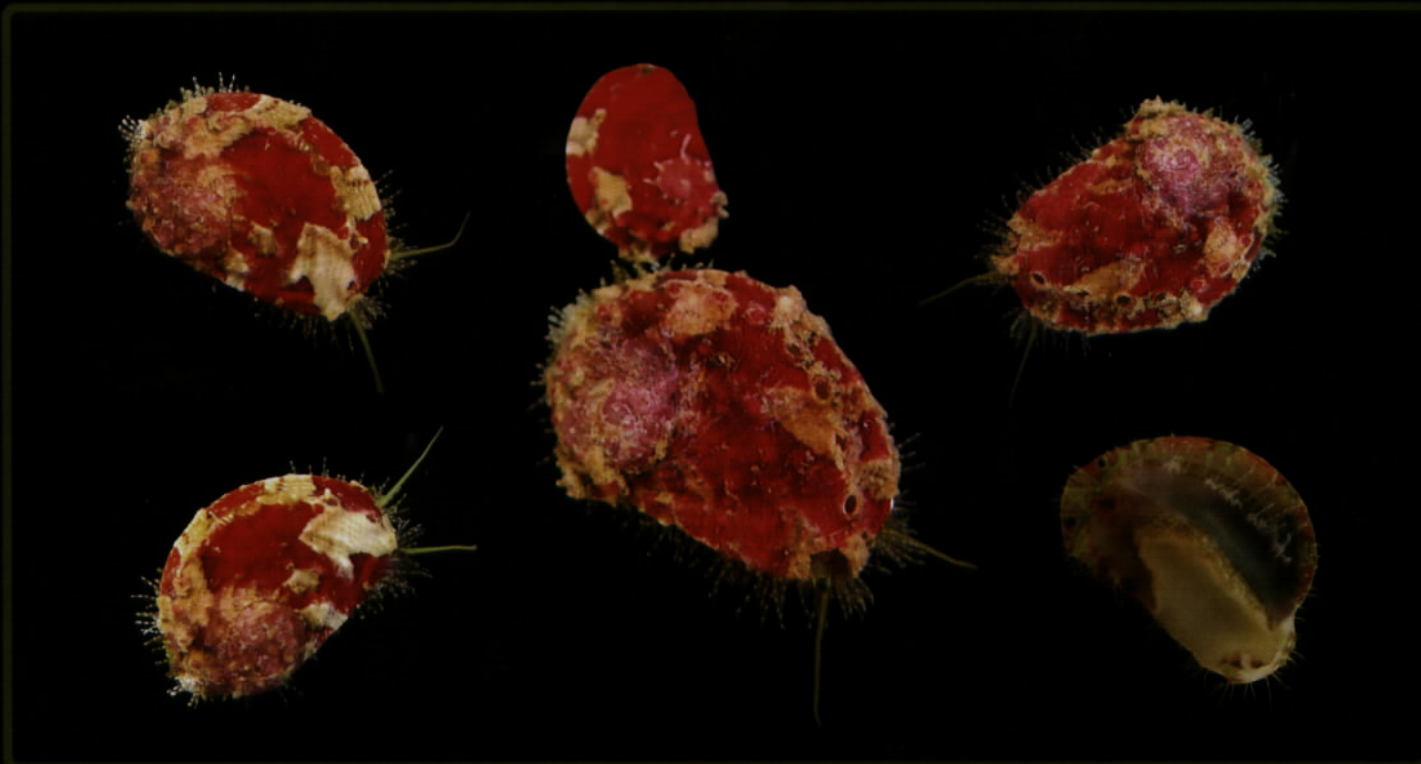
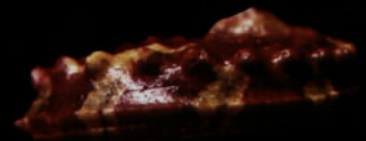
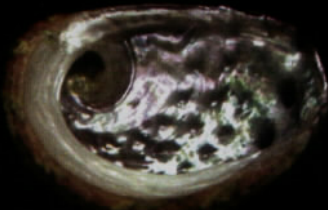
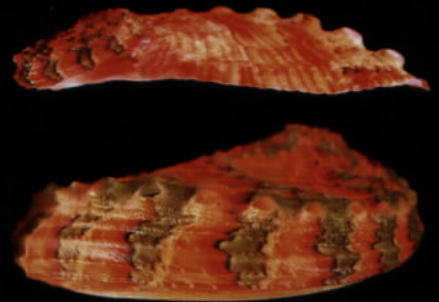
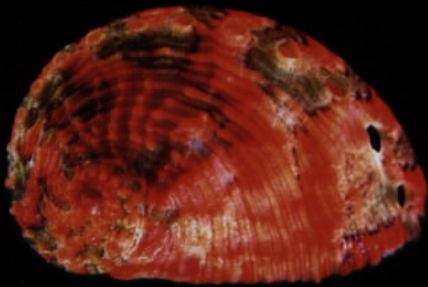


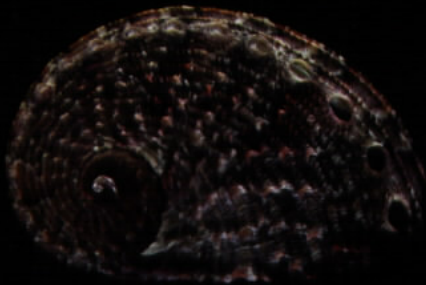
Plate 1 *Haliotis thailandis* sp. nov.



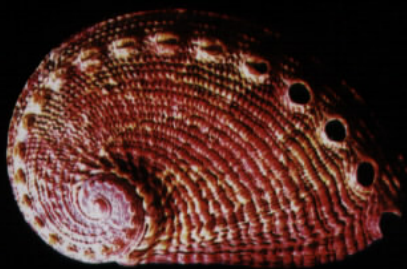
Haliotis clathrata Reeve, 1846 (size 25.6 x 16.2 mm.) New Caledonia



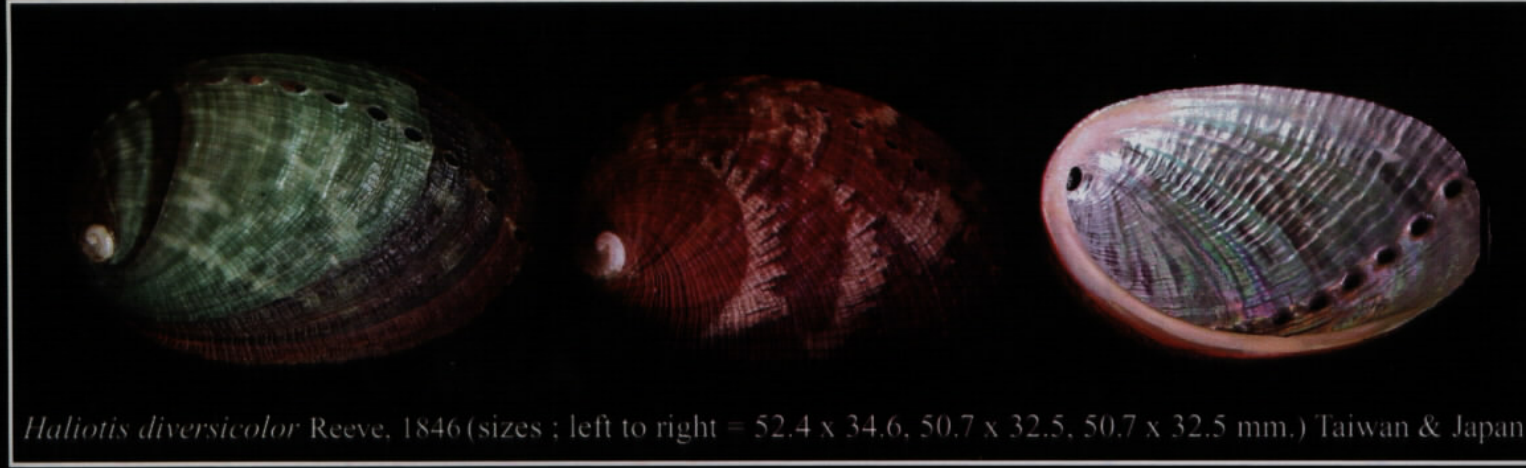
Haliotis clathrata Reeve, 1846 (size 35.8 x 22.7 mm.) Western Australia



Haliotis clathrata Reeve, 1846 (size 25.9 x 17.1 mm.) Stanage Bay, Queensland, Australia



Haliotis clathrata Reeve, 1846 (size 21 x 13.8 mm.) Racha Is., Phuket, new report from Thailand.





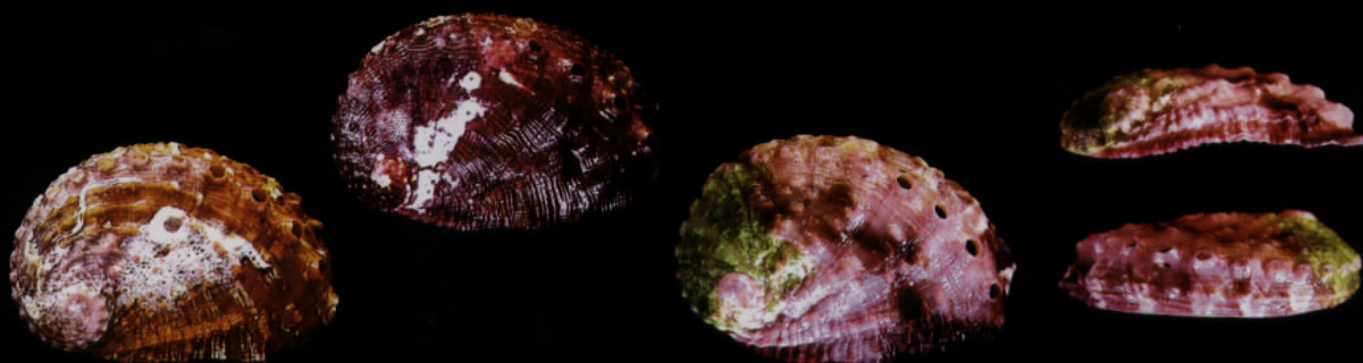
Haliotis jacnensis Reeve, 1846 (sizes : left to right, 27.4 x 18.8, 20.6 x 11.5, 13.4 x 8.4 mm.) from Cebu, P.I.



Haliotis varia L., 1758 large shell from Sri Lanka, size 53 x 38 mm, small specimen from Kilikarai, India, size 32 x 21.4 mm



Haliotis pulcherrima Gmelin, 1791 (size 17.5 x 14 mm.) from Rangiroa, Tuamotu



Haliotis dohrniana Dunker, 1863 (sizes : left to right, 23.8 x 15.9, 25.9 x 16.5, 21.2 x 13.8 mm.) from Cebu, P.I.

A VISIT TO THE FRIENDLY ISLANDS OF
TONGA ... and SAMOA, JULY 2000

E. Shary Almasi

(Photos by Jeanette Wolff)

In all the years that I've traveled with Trevor Roberts, he has consistently wished for a trip to Tonga. Many years before I met him, he and his wife had traveled to Tongatapu and Vava'u and he said that every time he flew over the Ha'apai Group - the "Middle" Islands - he ached to go shelling there. So when Emilio Garcia let us know that he was considering trip to Tonga ... Trevor jumped on Emilio's bandwagon.

Captain Cook named Tonga "The Friendly Islands" and made three voyages to the island groups. On the last trip the crew was treated to a great feast with dancing and entertainment. It was after this visit that Cook gave the islands the name of "Friendly". However, 30 years later it was learned that the feast had been part of a conspiracy on the part of the Tongan chiefs to raid Cook's two ships of their apparent wealth. Due to a disagreement among the chiefs the attack never came off and the islands are, indeed, friendly.

We flew in to Nuku'alofa by way of Los Angeles and Nadi, Fiji. From Nuku'alofa we headed for the Vava'u Group. We planned to spend two weeks traveling the three main groups of islands in Tonga and then moving on to Samoa for our last week of shelling. All was new territory for most of us.

Upon arrival at Nei'afu, our group of fourteen headed for the Paradise Resort Hotel only to be told that the local travel agent had not paid for our rooms - thus our arrival was unconfirmed, we had no rooms and, for an hour, chaos reigned. It turned out that our portion was paid to the hotel, but the hotel had a battle going with the local tour company and the money owing had nothing to do with us. However, we were told that we could only stay five days instead of the planned six. Later we guessed that we had been "bumped" because of a very large group of people coming in for a sailing marathon being sponsored by an American tobacco company.

Our old friends Mary Wold and John and Jeanette Wolff were on this trip and we remembered Bill Clendenin, Janet Gravis and Cecil and Helen Bankston from our Argentine trip to Patagonia. Old friends of Emilio, but new to us, were Debbie Duval, A.B. and Margaret Osborn and Joachim "Joe" Inchaustegui. Hopefully many of you have read Joe's article on the Tonga portion of the trip in the last issue of *Of Sea and Shore*. Since Joe did such a thorough job of listing shells found. I'm not going to mention many of the shells we found, but I will concentrate on shells that were not mentioned by him.

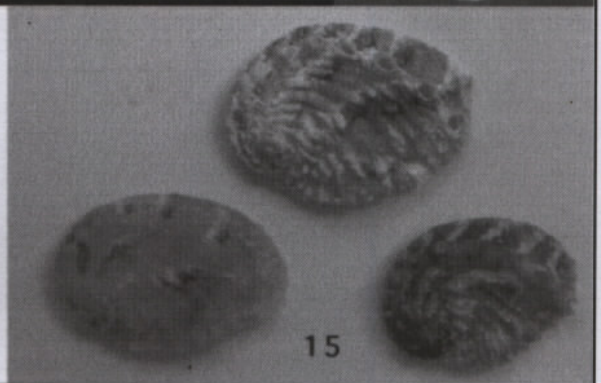
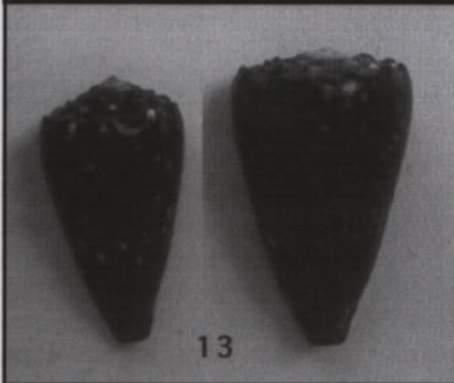
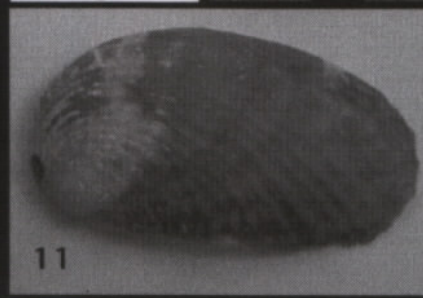
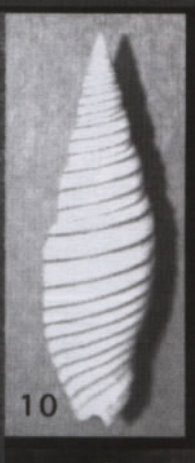
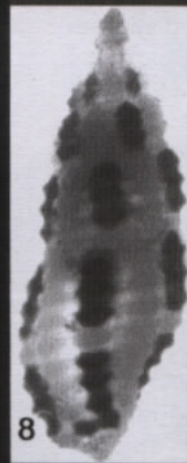
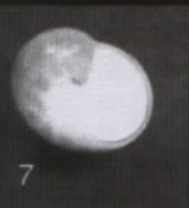
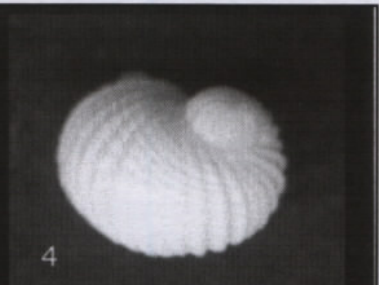
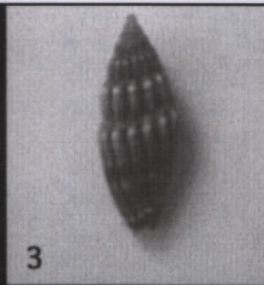
The first morning Emilio had arranged for a boat and it was a neat boat ... a small landing-barge which brought



Tongan lady wearing ta'pvala.

us right up on the beach. Our boatman, Ongi, played Abba music all the way out. I thought I was back in Australia. The first island we visited was Kenutu and the shelling was good. We found *Mitra nubila* Gmelin, 1791, and by fanning the sand we came away with *Eucithara crassilabrum* (Reeve, 1846). The *Lambis lambis* that were found throughout the trip had very delicate lavender-lined outer lips and exceptionally long digits. It was overcast with a light wind and after about two hours the group was cold and wet. The visibility in the water left something to be desired, but the shelling was good and several species were taken. We ate lunch on the boat, and everyone complained of the cold! Lots of show-and-tell. At the second island, Kakautamai, we found *Conus*, *Vexillum*, Turrids, *Terebra*. Another new, to me, miter came along, *Pterygia nucea* (Gmelin, 1791). Good stuff. In all the group found many species. Back at the boat we all ran to our rooms for hot showers!

The next morning we set out to explore the islands in an old school bus, heading down roads so muddy and rutted I'd never have guessed we could reach any destination without getting stuck. But, somehow, we managed to push on, going through several villages, all very clean. Saturday must be wash day as everyone's was out on clothes-lines, bushes and fences. Pigs with piglets are all over the place. They are either black or pink with black and white mottled spots, lovely white goats, chickens with chicks and all the people are handsome! Men were working in fields of taro, cassava, coconut palm, papaya and bananas. Flowers were in bloom everywhere. The South Pacific is truly a paradise.



Figures on opposite page.

1. Village life, Upolu Island (Western) Samoa
2. Waterfall in highlands of Upolu Island
3. *Vexillum turrigerum* (Reeve, 1845)
4. *Vanikoro distans* (R?cluz, 1844)
5. *Naticarius lineozona* Jousseume, 1874 - between Foa and Lifuka Islands, Ha'apai Group, Tonga
6. *Natica* (*Tectonatica*) *bouge* Sowerby, 1908 - as #5
7. *tanea areolata* R?cluz, 1844 - Mulinu'u Peninsula, Upolu Island (Western) Samoa.
8. *Kermia barnardi* (Brazier, 1876), northern Upolu Island, Samoa.
9. *Conus cylindraceus* Broderip & Sowerby, 1830 - Foa Island, Ha'apai Group, Tonga
10. *Domiporta praestantissima* (R?ding, 1798) - SE Upolu Island, Samoa
11. *Haliotis dissona* (Iredale, 1929) - Foa Island
12. *Conus boeticus* Reeve, 1844 - Atata Island, Tongatapu Group, Tonga
13. *Conus bandanus nigrescens* Sowerby, 1858 - Mulinu'u Peninsula, Upolu Island, Samoa.
14. *Lienardia balteata* (R?ding, 1798) - northern Upolu Island, Samoa
15. *Haliotis jacnensis* Reeve, 1846 - Foa Island



Market at Nuku'alofa. Taro in pandanus baskets.

Our first stop was Enu'io Beach ... it was sandy and we turned large and medium rocks. The area seemed to be a breeding ground for *Mitra cucumerina*. Our second stop was Ano Beach - here we had a small lava wall running into the sea, which yielded a mess of crabbed shells. Only thing that I didn't find that should have been in the area were *Strombus* and *Lambis*. I did pick up a crabbed *Heliacus variegatus* (Gmelin, 1791). The *Cypraea vitellus* were deeply colored - as were many of the shells we found throughout Tonga. Colors just seemed to be a bit more vibrant than usual. At Ano we added to our inventory a new *Nassarius*, *N. glans* (L., 1758), as well as *Nerita signata* Macleay in Lamarck, 1822, *Imbricaria punctata* (Swainson, 1821) and *Ptygeria nucea* (Gmelin, 1791). Our third stop was Tarihau Beach where several species of *Cypraea* and *Conus* were found. A young woman came out on the beach with a very handsome woven tray of pandanus leaf and a large tapa cloth, which she was selling. Bought the tray. It would be a

good memory jogger! The sun finally came out at Mala Island, our last stop at about 4:00 p.m., and it was a welcome change from the cool overcast weather we had experienced for the most part of the day.

Sunday and, due to rain, the boat was cancelled. At 10, the rain stopped! Mary and Debbie, and a couple of others in the group, went down to the hotel dock and under the docks did some shelling. they found a huge colony of *Chicoreus torrefactus* and some totally orange *C. torrefactus* were taken by Debbie, Cecil and Margaret Ann. What a treat! There must have been over a hundred in that one small area. Later in the afternoon we went out on a small bus and hit two beaches. The first was Rorutahi and to get to it we walked through a large coconut plantation. Sand and grasses and slim pickings, but found *Eucithara crassi-labrum* again. Our second stop was at a bridge south of the Paradise Hotel and here we found a half-mile of exposed sand and small volcanic rock. More Turrids, including, new to me, *Daphnella terina* Melvill and Standen, 1896, which I found in very shallow water. John found *Cassidula nucleus* (Gmelin, 1791) and was pretty excited as it looked to exotic and, a bit later, he came away with a deeply melanistic *Cypraea tigris* and Cecil found a melanistic *Polinices* with a black operculum. Trevor and I each found two different specimens, both dead, of *Pterygia crenulata* (Gmelin, 1791).

Our last morning on Vava'u, Trevor and I found we had been robbed! Our thief left enough money in our wallets that it appeared that none was missing unless you had counted it, but he happily left the bulk of our money intact! And we had a pretty good idea which local had done the dastardly deed. Of we headed for Nuku'alofa for an overnight, then the next morning we headed for the Ha'apai Group - the middle islands. That evening, before heading for Ha'apai, during dinner, we found out that John also had money taken - about the same amount and in the same manner. He though he was getting senile and was relieved that he wasn't! We all feel fortunate that this is/was an uncommon experience.

Tongatapu is not nearly as rural as Vava'u and there are not NEARLY so many handsome pigs and chickens. The roadways were decorated with banners and colorful decorations ... celebrating the 82nd birthday of King Taufa'agau Tupou IV on 4 July. The King is well known throughout the world - at one time he was the heaviest monarch ... weighing in at about 425 pounds, but in these past years has been on a regimen of exercise and healthy diet and is a slim 300, or so, pounds. I found a wonderful postcard of His Majesty bicycling on one of the airport runways - with several attendants in tow. A great keepsake!

Upon arrival in Ha'apai, while in the little airport, we noticed a family gathered at the gate. All were in mourning, dressed in black with woven mats, called ta'ovala, wrapped around their middles. They made a very handsome picture, but looked mighty uncomfortable. Later, while talking to a Tongan couple, they assured me that the ta'ovala was indeed very uncomfortable and the younger people avoided wearing them whenever possible. When there is a death in the family they have a mourning period which lasts a year. When the King dies the whole country mourns for a year and only religious music can be played. No dancing. No parties. This is a very religious country and we found churches in every small village. On Sunday shops are closed. Everyone goes to church and spends time visiting with family and friends. We boarded a local bus and before leaving the airport area, had to wait at the runway's edge for our plane to take off. The main road crosses the runway! Seemed odd to sit and watch the plane we just came in on take off just a few feet in front of us.

The area is lush with coconut palms and the usual tropical plants. There is much pandanus grown as they use it extensively for craft work. They cut the pandanus, boil it, roll it into coils and dry it in the sun. You see it laying in the grass, hanging on bushes and fences. It looks rather festive. Ha'apai is very rural with small villages here and there, chickens and pigs scurrying to get out on the road. We almost had a collision coming from the airport to Sandy Beach Resort with a defunct old pickup parked in the middle of the road, but four people pulled it back into a driveway as our bus came to a screeching halt. Well, Sandy Beach Resort is run by Sigi and Jurgen. Lovely grounds and great view, right on the water. Sigi sat us all down on the patio and her first words were, "Vell, I know that this is a shelling group, but you must understand that there are to be NO LIVE SHELLS taken from this reef!" Man, you talk about DEAD silence. Fourteen shell collectors who can't shell? Then she continued her lecture. Later, Emilio talked to her, showing the letter from a Tongan official giving us permission to take five live species per person per day (as if we could find that many shells) and they came to a sort of understanding. We were to be very careful, shelling only in the sandy areas and staying off the reef. We were the tidiest, most discreet group of shellers I've ever traveled with. Each day the shells collected were put out of sight so the cottages showed no sign of seashells, other than beach drift and there was NO ODOR! The bungalows were clean and well cared for and the food was good. A cool breeze was always blowing and it made for chilly swimming and few mosquitoes. Found on the beach, in front of our cabins were *Mitra fraga rubiginea* A. Adams, 1855, *Neocancilla papilio* Link, 1807, and, at the base of a large dead coral block I found a large *Chicoreus ramosus* Linnaeus, 1758, sitting, waiting for me, calling my name. The *C. ramosus* brought tears to



Shary doing the "Foa stoop".

Debbie's eyes ... it was on her big wish list of three shells she wanted to take home. This made me feel terribly guilty for finding it (it was my first), but not guilty enough to give it up! Out front, in sand, Trevor found several *Oliva xerulens* R?ding, 1798 and Margaret Ann found a *Harpa major* R?ding, 1798.

The next morning Jurgen took us on a bush walk. We ended up hiking to a beach with beautiful drift. Found were *Haliotis crebrisculpta* Sowerby, 1914, *H. dissona* Iredale, 1929 [Fig. 11] and *H. jacnensis* Reeve, 1846 [Fig. 15], *Emarginula dilecta* (Adams, 1851), *Heliacus dorsuosus* (Hinds, 1844), *Nerita squamulata* LeGuillou, 1841, *Nassarius pauperatus* (Lamarck, 1822), a new to me Trichotropidae, *macteola interrupta* (Reeve, 1846), *Cypraea childreni* Gray, 1825, *C. felina* Gmelin, 1791, *C. ursellus* Gmelin, 1791. Emilio found *Vanikoro distans* (R?cluz, 1844) and *Vexillum turrigerum* (Reeve, 1845) [Fig. 4], *Conus cylindraceus* Broderip and Sowerby, 1830 [Fig. 9] and *Pupa alveola* (Souverbie, 1863). We had a 45 minute walk back to the resort through jungle for about 1 kilometer, then we walked through the villages of Fotua and Faleola to get to THE one and ONLY road on the island of Foa. Walking through the villages we saw plenty of pigs, a black hen with 8 black chicks, goats, horses, friendly children. Coming from the city, I guess I really notice the livestock. The people live up to the islands "Friendly" reputation. The walk turned out to me about two miles and I was wearing booties which turned out to be a bad choice of footwear.



Hiking home on the main road Foa Island, Tonga, after a successful day of shelling.

That evening I ventured out on the rocks with John and Cecil. Night shelling is not my forte, but the moon was bright. There were tons of *Nerita albicilla* Linnaeus, 1758 and that was almost the size of it until I found a small adult *Cypraea mauritiana* L., 1758 in the lava rock. This was my first *C. amuritiana* in 18 years ... the last one found in Nauru ... also on lava rock. This should tell me something. Heading back to the resort, I found we were walking down a strange road by the light of the moon half way around the world. For this pleasurable evening I ended up with blisters on the outer sides of both heels. Too much walking in booties. Yep, those booties ain't made for walkin'.

Like homing pigeons, several of us headed back to that same beach with the wonderful drift. The sun was out for a change and it was great, lying on the beach, going through the drift. Found an *Epitonium - Cirсотrema varicosa* (Lamarck, 1822) [actually found 2, but lost 1]. This one literally walked over to me. Honest! A few of us snorkeled in about two feet of water ... but there was very rough wave action and had to keep looking for rocks to hold on to as each large wave came in. There were lots of *Conus* and I took a few, several small *Cypraea microdon* Gray, 1828, live *Stomatella auricula* (Lamarck, 1816), found *Maculotriton serriale* (Deshayes in Laborde de Linant, 1834) under a slab and, new to me, *Vexillum cancellaroides* (Anton, 1839). Walking back through the village I got a nice shot of a man carrying a basket of banana leaves, but when I got home I found my camera had malfunctioned and four rolls of film were devoid of anything, so I came away with no photos of Tonga or Samoa.

One morning, after breakfast, I sat out on the office patio and listened to Mozart piano concerti. My idea of heaven. Beautiful blue sky and, in the distance to the west, I saw a volcanic shape. This is Kao, which reminds me of our new grandson Koa. Kao is next to the island where the film "Mutiny on the Bounty" was filmed. Today we will try a new location about two kilometers from our resort. It is a causeway between Foa

and Lifuka Islands. As we started to spread across a vast expanse of tide flats, I noticed a woman sitting near the road. She had a pitchfork and was loosening a particular type of grass, shaking it out, cutting the grass tops off and putting the roots and ends into a pandanus basket. I asked if it was to eat and she shook her head no and pointed to her hair. Then she showed me the grass root and there was a bulb or corm on the root. She cleaned it, cut into the corm and held it up to me to smell. It was quite fragrant. Then she motioned that she/you would rub it on the body. Later I asked a young man from the resort about it and he said they crush it for the oil, often adding coconut oil to it. He ran and got his bag and brought a container of it, poured some into my hand and I rubbed it on my skin. It had a delicate fragrance and felt good. It is called Lolo Tonga. Ask and ye shall learn. This lady is another photo I will have to keep in my shrinking memory bank, thanks to camera malfunction.

The shelling was good. Lava rock with pockets of sand and of course the tiniest stuff was attached to the under-sides of dead coral heads; shells such as *Pseudostomatella maculata* (Quoy and Gaimard, 1834), a *Melanella* species, *Spinidrupa (Morula) spinosa* (H. and A. Adams, 1853), *Kermia barnardi* (Brazier, 1876) [see Fig. 8], *K. tessellata* (Hinds, 1843), *Eucithara stromboisedes* (Reeve, 1846). We hand-dredged *Oliva*, *Vexillum deshayesi* Reeve, 1844, *Lophiotoma acuta* (Perry, 1811), *Pupa alveola* (Souverbie, 1863), *Otopleura mitralis*, *Nassarius globosus* Quoy and Gaimard, 1833, *Mitrella ligula* Duclos, 1840, *Vexillum exasperatum* (Gmelin, 1791), *Macteola interrupta* (Reeve, 1846), *Mastonia ustulata* (Hervier, 1897) and four tiny *Donax faba* Gmelin, 1791. Emilio added *Naticarius lineozona* (Jousseume, 1874) and *Natica (Tectonatica) bougei* Sowerby, 1908 [Figs. 5 & 6].

The following day we headed back to the same spot. After shelling for a few minutes I noticed a Tongan family hiking down the beach. They started setting up a picnic area just where most of our group had dumped gear.



Some call these the "fishing" pigs of Tonga, but they are actually looking for shellfish. Tongatapu, Tonga,



**Trilithon - full name: Ha'amonga'a Maui
Trilithon! Eastern side of Tongatapu.**

I came up to move the gear so it would be more convenient for them and got into a conversation with one of the men. He asked where I was from and I answered the United States. "Oh," he said, "I'm from Seattle". I stared at him and said "I live on Capitol Hill". he said "I live on beacon Hill"! Well, we laughed and hugged each other and his wife came over to see what the heck was going on. Thus I met Teia and Fatafehi Tuifua. Teia is originally from Tongatapu and Fatafehi is from Ha'apai. We laughed at how small this world is. Turns out that Fatafehi's uncle owns the land where Sandy Beach is located and they told me they know of no shelling restrictions on her uncle's land.

Sunday in Tonga is a very quiet day and especially so on a quiet island like Foa. No use of cars, except for travel to church! We walked, at least eight of us did, back to the leeward side of the isle to our beach drift. Arrived mid morning and it was fun to see everyone with their nose to the ground. The "Sanibel Stoop" on Foa. It began to rain, which was no surprise to anyone as it had looked ominous and we observed the frigate birds winging their way over land ... often a sign of inclement weather. After a couple of hours we were all soaked except Cecil who had brought a poncho. Emilio, Debbie and I walked back together leaving Cecil - to continue collecting, Trevor, John, Jeanette and A.B. had already headed back about an hour ahead of us. It became a tropical downpour and yet it was still a pleasant walk. We hung everything to dry and the wind dried our clothing quickly. All this activity was in preparation for our next jaunt to Atata Island (off Tongatapu) by way of Nuku'alofa in the morning.

After our flight we drove into town and caught a boat to Atata Island which is about a 45 minute ride from Nuku'alofa and arrived at the Royal Sunset Resort. The dining room, bar and public areas are lovely and open. The support beams of the building are all hand wrapped with cord and are really handsome. The bungalows are spacious, musty and run down dark and dank, but roomy and the mosquitoes abound. Trevor

and Debbie immediately headed for the beach and pronounced the shelling to be good.

The first morning on Atata started with French toast for breakfast in the beautiful open dining room. We had a 45 minute wait for breakfast and there was much joking about the weak, weak coffee. Debbie and Mary got a small pitcher of catsup for their French toast ... instead of syrup. This makes for interesting dining and teaches us patience. Well, some of us! Later we walked out to the reef and snorkeled. There is much coral, but the pickings are very slim. Closer to shore it got a bit better, but no where have we collected where it was "rife" with molluscan life. You earn what you find. Mary, Janet, Emilio and A.B. took the resort boat over to a small nearby island and snorkeled. Mary found a stunning *Lambis crocata* (Link, 1807) on the beach. Those of us who stayed behind found *Pitar prora* (Conrad, 1837), a small yellow *Conus boeticus* Reeve, 1844 - see Fig. 12 - which was new to me, buried in the sand under rocks. There were the usual sand and grass habituates to be found. Three and a half hours in the water and I was shaking so badly I could hardly walk and a hot shower was a necessity not a luxury. This afternoon I found out that Margaret Ann actually sings hymns while snorkeling, and it isn't even Sunday! Dinner was a two hour affair. My mango crepes turned out to be canned cling peach crepes! Rambling Wonder what the average rainfall is here. This is supposed to be the dry season in Tonga and I'd sure hate to be here during the rainy season. We've had more than our share of gray, windy and wet days. And this coming from a Seattleite!!

This morning we are beginning the day with sunshine and plenty of wind. Does not look like it will last, the sun that is. The whole group took a short boat ride to Tufaka (Honeymoon) Island this is the small island others went to yesterday. It was great as it had different habitats. I started collecting tiny stuff from undersides of rocks and deal coral. Then, in another area, from eel grass. Emilio reached down just ahead of me and brought up a lovely *Lambis crocata* in rubble in about one to two feet of water and JOY, gave it to me. Debbie got her *Chicoreus ramosus* with many loud shrieks of joy heard all over the island. Well, it's a small island. Trevor found a stunning *Oliva mineacea* R?ding, 1798 while out on an exposed sandbar. Mary found *Cypraea clandestina* and John and I came away with *Cypraea mauritiana* plus some smaller *Cypraea*. Emilio kept picking up sea cucumbers and said they would immediately turn into large *Conus generalis* Linn?, 1767. Or so he said! At one point Debbie called for me to come and see a wonderful Spanish Dancer. This is one large and showy nudibranch. It was just stunning. She teased it with her fingertips and it really danced for us. The highlight of my day. We all went back to the resort, frozen still again, but all of us were very happy with our finds. Tomorrow we move on.

During the night a real storm came ashore. Woke about 3 a.m. and when I got up much of our gear was wet and there were puddles on the bath and living room floors. Moved suitcases and tried to close the broken louvered windows with little success. Got dressed and stayed under the covers to warm up my damp clothing!

After breakfast we watched our luggage put aboard one of Royal Sunset's boats and it was still sitting there an hour later waiting for the wind to die down a bit. Trevor spotted a butterfly while we waited and I said, "Imagine if you had a life span of two days and today was one of those days!" Well eventually we took off and it was memorable. All on the same boat with the luggage. It was rough with six foot (or more) swells, some breaking over the cabin (on my side, of course). We were all drenched and most luggage had some water damage. One engine conked out and the other started overheating. It was dicey there for about ten minutes, but we finally limped into the docks at Nuku'alofa, a wet and ratty looking bunch.

Later in the afternoon, after we had dried out, we walked in to town to the market, then on to a craft center - Queen Salota Women's Center, run by and for women (this co-op was started by the present King's mother who was much loved) and we visited the post office. Then we walked to a shell shop which was a real bust, but the exercise was good.

Most of the women here wear a woven wrap and ta'ovala and practically all of the men wear a long skirt called a vala. The businessmen usually wear either a gray or a blue vala and it looks very handsome with a short sleeve dress shirt.

Today has been set aside for touring the island. We first stopped at the Royal Palace, which is worlds only Royal Palace built entirely of wood. Then we moved on to the Royal Tombs. On the way we stopped at the National Museum, but the exhibits and pictures were in very poor condition. There were handsome crafts for sale though. We stopped at Captain Cook's landing spot (in 1777). There we made a quick 15 minute beach stop and found *Truncatella guerinii* A. & J. Villa, 1841, and *Bittium zebrum* (Kiener, 1841), crabbed under rocks. Still, a new species for me. Visited the Trilithon - an ancient monument constructed in the 13th Century. Reminded one of Stonehenge, but on a much smaller scale. Then on to the west side of the island where the Houma (Mapu'a 'a Vaca) blowholes are located. That was a beautiful picture. Five kilometers of lava rock with the ocean "blowing" through the holes. We were not there at high tide which is supposed to be spectacular, but this was pretty great. Saw a collared kingfisher eating fruit - a surprise as they are supposed to live only on fish. We made a short stop at



Mapu'a 'a Vaca Blowholes, Tongatapu. Also referred to as Houma Blowholes.

the Kolovai Flying Fox Sanctuary. Happily, they were home. On Kanukukolu Beach, I found a tiny *Lienardia compta* (Reeve, 1845), a *Clavus unizonalis* (Lamarck, 1822), *Clypeomorus zonatus* (Wood, 1828), a *Peristernia* sp. and a very nice little *Pisania gracilis* (Sowerby, 1859). Later we went in to a resort bar and most of us had a drink or a soda. We decided to put two round tables together for the group and Emilio and Trevor picked up the tables - with cloth - moved it over and positioned it and slowly lowered it. It went lower and lower - all of a sudden we all burst out laughing. The bamboo base had been left behind! It was like a scene from a Laurel and Hardy movie. We then moved on to the Good Samaritan Resort for a lovely buffet - the seaweed was bright and tasty, but salty; the roast pig divine. Then we watched a show on Tongan dances. Back to the International Dateline Hotel to pack for an early morning departure for Samoa via Fiji. The moon was beautiful and golden as we drove into town from the countryside.

And so we headed off on a two hour flight to Nadi, Fiji. We were scheduled for a ten hour layover which none were looking forward to, but Emilio suggested we chip in and get a couple of day rooms at the Raffles Gateway Hotel near the airport and that was great. Then he arranged for rental of three taxis for the afternoon.

After lunch we joined John and Jeanette in a cab and headed for Lautoka, which is 32 km from Nadi. Saw a lot of cane fields, mountains and stopped at two check points where the army really slows you down ... guns and all. Reminded us that all was not completely happy on this island paradise. All kinds of trucks, filled with cane, were headed for the refinery. In Lautoka we spent an hour in the large covered public market. Prices for vegetables were similar to those back home, which means the Fijians pay dearly for their vegetables. Ninety percent of the market sellers were East Indian. We talked to one who was selling kava, which is a drink made from the airy, delicate looking root of the pepper bush. They pound it, cook it and drink it. Anyway, they serve it in the market. Sort of like a Starbuck's coffee house! Since the "trouble" he said his business had gone from \$500 Fijian per day to about \$120 a day. That's quite a drop. A lady in the handicrafts section, whose mother-in-law lives in Bothell



While touring Tongatapu, John and Emilio check for landsnails.

(near Seattle), says that business is about ? of what it was before. All the craft people are Fijian, so it appears that there is a definite division of occupations.

After leaving Lautoka we drove back toward Nadi, but took a short detour out to Vuda Point, where First Landing Resort is located. We spent two hours beach walking and came up with *Chlamys albolineata* (Sowerby, 1887), four new (to us) Triphoridae - *Mastonia cingulifera* (Pease, 1861), *M. rubra* (Hinds, 1834), *Viriola incisa* (Pease, 1861) and *Iniforis violaceus* (Quoy & Gaimard, 1834) - *Lienardia apiculata* (Montrouzier, 1864), and *Conus boeticus* Reeve, 1844. Also found a *Leptopoma* species I can't I.D.

Before giving up our day rooms, we had a light snack - a BLT sandwich, with the thinnest tiny, mean slice of tomato and bacon I've ever experienced. The lettuce was so thin it was translucent! Should have ordered a bowl of noodles! Walked over to the airport at 7 p.m. after saying goodbye to Joe, who was headed back to the states and Mary, who stayed three days in Nadi and then joined Glen Duffy's group headed for Vanuatu.

The flight northeast to Apia takes approximately two hours and as we crossed the International Dateline on the way to Samoa, we arrived just past midnight

on the main island, Upolu, Samoa, on the same Saturday we'd just spent in Tonga and Fiji! Confusing. A 45 minute drive to Kitano Tusitala Hotel in Apia and we were "home" for another week.

Our hotel is situated just a block from Apia Harbor. It is hot here - at least ten to fifteen degrees warmer than Tonga and we are all thoroughly enjoying it. For the next few days we did most of our shelling on Mulinu'u Point on Mulinu'u Peninsula just outside Apia.

First I spent time looking for tiny stuff on the rocks and then I headed out to a grassy area where I found *Conus bandanus* f. *nigrescens* Sowerby II, 1859 (Fig. 13). This was a really exciting find and occasionally we would find this species almost completely black with maybe just a dot or two of white on it. They were usually under rocks, partially buried in sand. The *C. bandanus* are smaller than their relative *C. marmoreus* with a few exceptions - as I found a particularly large one. I was really excited to find a new cone to add to my collection. We all were! Nearly everyone came away with one or more of the "black" *C. b. f. n.* ... The *Cypraea caurica* f. *elongata* Perry, 1811 we found were particularly beautiful and Jeanette found her very first *Cypraea mauritiana* in some big black rocks. Near the area where we got down to the water we found the ear-shaped remains of *Aplysia (Dolabella) auriculata* (Lightfoot, 1786), a Sea Hare. They eat them here and this is obviously the spot where the women clean them. There were hundreds of the shells lying about. *Vanikoro distans* (R?cluz, 1844), *Euchelus clathratus* (A. Adams, 1853), *Monilea philippiana* (Dunker, 1871), *Rissoina tornatilis* Gould, 1861, *R. lamberti* (Souverbie, 1870) and an *Anachis* species, *Tanea areolata* R?cluz, 1844 (Fig. 7) and *Lienardia balteata* (R?ding, 1798 - Fig. 14 - were also taken from the same area. As is usual on trips like this, much of what others collected I didn't see so this list is by no means complete - nor is it intended to be!

The next morning eager beaver Trevor was away by nine. The rest of us wandered out as we pleased. Debbie went into the water about ten a.m. and didn't come out



Debbie waiting for lunch on Upolu Island, Samoa

til six! For her enthusiasm, she always came away with wonderful "finds". Snorkeling, I found *Vexillum pacificum* (Reeve, 1845) buried in sand under rocks, *Clavus unizonalis* (Lamarck, 1822), then I came across the largest *Terebra maculata* (Linn?, 1758) I have ever found. Picked it up, thought about cleaning it, and put it back. What a whopper! Trevor spotted a stunning Lionfish with a wing/fin span of about twelve inches. Well!!!. You know how everything looks larger in the water. Several of us spotted the *Conus bandanus* f. *nigrescens* laying white ruffles of eggs on the undersides of large rocks. John, while hand dredging found a perfect *Epitonium alatum* (Sowerby, 1844) live. I believe he was using Jeanette's goody bag as a dredge! This area was great for snorkeling - not too deep and it had several habitats. We spent the better part of three days working through it and the only drawback was a morning after we had experienced a good rain during the night. The large culverts that carry the rainwater into the harbor made for poor visibility. Four types of *Nassarius* were found and Debbie came up with a *Conus textile* Linn?, 1758. Also several species of *Terebra* were taken. A tiny striped shell I thought was a *Nassarius* turned out to be *Planaxis lineatus* (da Costa, 1776). What do I know? Not enough, obviously! One memorable evening we all had dinner together and Emilio ordered an appetizer of rabbit and ended up with a whole roasted rabbit! Part of the fun of travel has to be the varied surprises that meal time brings.

One morning we decided to be adventurous and hired a van to take us to the other side of Upolu. Even with our "Indy 500" driver (he had lived in California as a young man and thought he was still on the LA freeways!), we didn't make it in time for the low tide, but several of us shelled in a cove north of Lalomanu Beach on the southeast corner of the island. We came up with *Pyramidella dolobrata* (Müller, 1774) and *P. sulcata* (A. Adams, 1854), *Imbricaria olivaeformis* (Swainson, 1821) and *I. conularis* (Lamarck, 1811), *Otopleura mitralis* (A. Adams, 1855, dwarf *Strombus mutabilis* Swainson, 1821 and species of *Terebra*, *Nassarius* and *Mitra*. Emilio added *Domiporta praestantissima* (R?ding, 1798) - see Fig. 10 - to our shell "life" list. We then stopped at an overlook to Sopoaga Falls - a spectacular falls with an 180 foot drop (see Fig. 2). We traveled back over Mala Pass and on to the north side of Upolu. We stopped at Falefa Waterfall which drops down to the ocean and one last stop was made at the Pula Cave Pool. This is a pool at the opening of a cave that continues from the ocean inland for 40 meters. The greater part of the Pula Cave Pool is actually underneath a seminary. No one went swimming though it looked inviting. All too tired. Neglected to mention that we had a picnic lunch on the beach, complete with barbecue - it would have



Touring Upolu Island, Samoa

been even better if we hadn't had to battle the wind, which was daunting.

Our last day of shelling and seven of us took two taxis and headed out of Apia, stopping in the vicinity of Lauli Village. At three spots we turned rocks for the whole time and came away with more small species - *Leptothyra nanina* (Souverbie, 1864), *Liotina peronii* (Kiener, 1839), *Cerithiopsis* sp., *Rissoina andamanica* Weinkauff, 1885, *R. fimbriata* (Souverbie, 1872), *R. sculptilis* Garrett, 1873, *R. turricula* Pease, 1861, *Rissoina* sp., *Cerithiopsis* sp., *Colubraria antiquata* (Hinds, 1844), *Cytharomorula eximia* (Reeve, 1844), *Anachis troglodytes* (Souverbie, 1866), *Engina alveolata* (Kiener, 1836), *Lienardia (Hemilienardia) apiculata* (Montrouz, 1864), *Kermia (Pseudodaphnella) tincta* (Reeve, 1846), *Eucithara crassilabrum* (Reeve, 1846), *Viriola elegans* (Hinds, 1834), *Iniforis formosulus* (Hervier, 1897) and *Atys ooformis* (Habe, 1964). Altogether I collected approximately 130 shells and they took up about half a film canister. Our driver, Leo, was nice and informative. We traveled at a much more leisurely pace than we had while transversing the island. He informed us that the speed limit throughout Samoa is 40 m.p.h. Samoa became independent in 1962 and he said that the first government was quite fair, but he feels successive governments have gone down hill. Sound familiar? He feels that it's very hard to make a living because the minimum wage of 1.5 tales is set by the government and he feels that this government and the past ones have "given away" a good part of Samoa. Banks, for instance, have been sold to non-Samoans. Leo said that China built Samoa's new Parliament Building - importing Chinese workers who even grew their own food and contributed nothing to the Samoan economy. The Samoans pay school fees and the average family pays three different types of taxes, twice a year. The figures that he quoted seemed to me to be quite a lot of money for the people here. It takes almost 3 tales to the U.S. dollar and wages are not high.

Right after we got back, Emilio found out that Polynesian Air had cancelled our flight to Fiji due to increasing problems there. The leader of the guerrillas, George Speight and a few of his leaders were caught in one of the road blocks and "unrest" had temporarily closed the airport at Nadi. Emilio hurried downtown to the main tour office before most tourists knew about the change and scheduled us to leave the following morning at nine a.m. instead of seven p.m. In the morning we flew to Auckland, then on to Sydney, then to Los Angeles and Seattle. Trevor and I were in transit for over 34 hours. We all felt fortunate just to get back to the good ol' USA within hours of our initial scheduled arrival.

After you have been shelling for a good many years, it's always nice to get home and unpack all those treasures. If you get a few new species you are usually thrilled. On this trip I concentrated on smaller shells than I'd ever taken before and I came away with many new additions to my small collection. Every trip is a new learning experience and I still have a lot to learn. What is that saying? The more you learn the less you know. I owe a great debt of gratitude to Emilio for helping in my "education" and another to Trevor for taking me along on these exciting jaunts. Having great company always helps and this trip was special in that respect. Thank you all.



Epitonium alatum Sowerby, 1844
photo by John Wolff

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THREE DAYS IN THE FIELD**Willem Krommenhoek****First Day - July 28, 1991**

That morning it was quiet as usual in the teak forest when we passed it in our small minibus heading for the coast at the extreme tip of east Java. Occasionally a wild boar was seen, and a few men with piles of firewood on the back of their bicycles, packed to such a height that the vehicle could turn over at any moment on the narrow forest road.

When we finally reached Triangulasi Beach, we were welcomed by the roaring thunder of crashing waves, in rows of three or four, just in front of us. The water was a perfect green-blue and the saltspray hit our faces. The tide would soon go down and we started our two-mile walk to the working site at Pancur, a protruding rock where a small stream reached the coast. The sand was hard under our feet and showed traces of nightly visitors. Curly trails dragged by varanas and monkey feet, all as usual, but this morning our attention was drawn by a huge trail, as if a tank had passed. The trail ended in a chaotic display of sand, like a battlefield. A sea turtle had laid her eggs. Not far from there, where the rainforest that fringed the teak forest reached out to the beach, a group of monkeys was watching us from a branch. They are always there and seemed to be used to our presence by now. Then we reached the spot where a couple of fish-eagles had circled above our heads on previous days. And again, all of a sudden, silently, there were there.

By now the tide was falling and the beach widened to over a hundred or more meters. In the distance the rock of Pancur became visible - the place of another day's work. Only at this place along the 40km long crescent-shaped bay was there a small reef, undisturbed, majestic. It slowly becomes visible in the distance, a darker mass on the sea surface. Shells are washed up in large quantities, untouched by human hands, living a life of their own on the shining white beach between the now dark blue ocean and the green forest at the other side. We felt hot.

The work done, we retraced our path. The sun was already low and would soon disappear behind the distant cliffs of Meru Betiri, 60 km away. By now the tide was at its lowest, leaving a very wide beach, still wet and soft. Snails were crawling everywhere, leaving all kinds of hieroglyphic trails behind them. Suddenly, when we reached the place where the monkeys had been, we heard a shot, and another. The thundering crashing waves and the salt spray had gone by now and we heard some shouting in the distance, coming out of the forest. Then there was another shot, and finally a fourth. We walked a bit faster now and, passing the place where the sea turtle had laid her eggs

the night before. I saw human footprints. A lot of sand had been displaced, hands had been digging all over the place. When we finally left the beach and came to the entrance gate of the reserve, halfway to the teak forest, we were told that poachers had been seen that day!

Second Day - July 30, 1994

In the middle of the night I woke up to the sound of heavy rain drumming on the iron roof. I realized that the small paths we had to follow next morning would be very slippery if this downpour continued. But, when we finally got up, the sun was shining in a clear sky. We hurried to the Zodiac which would bring us from Peucang Island to the Ujong Kulon mainland. It was a nice trip, the eight kilometers taking only about twenty minutes. We could have gone faster, but the waves we hit splashed over the boat so we had to slow down a bit.

Then we had one hour to walk, crossing the peninsula. We went through flat and swampy terrain first, then came into a hilly area with large trees and all sorts of noises, mainly from various insects. This is real tropical rainforest, still damp and humid from the previous night's rains. Occasionally large hornbills were heard high in the canopy.

When crossing one of the small rivers that ran from the hills, there was a clear footprint of a rhino. It was a very exciting idea to be very close to one of the rarest mammals on earth. In the end the path narrowed and in some places rotan sprouts with fishhook-sharp spines were hanging over it. But then, all of a sudden, the path gave way to a splendid beach. Of course I had heard the sound of breakers on a beach for a while, but the deep and yet clear blue of the ocean was thrilling.

Now the green jungle was behind me, and I had entered a different world. The tide was low and tracks of all kinds of nightly visitors were still on the beach, including those of a leopard. It makes one feel small.

Some huge dark rocks, supposed to be remnants of the Krakatoa eruption a century ago, were in lively contrast with the glistening beach. On one of these rocks sat an exhausted booby, unable to move when approached. And, although the breaking waves made a thundering sound, it was a very silent place for a human being. The harmony of colors and sounds was of a kind unknown in normal life. Exploring the beach, we passed a river mouth and, at one side, an accumulation of shells was found and here we started our work.

The work done, we rested a while in a ranger's shelter before returning the same way we had come. The light in the later afternoon made the forest look different - colors deeper and the air heavier. We went in silence and when we finally broke through the Nipa swamp, the Zodiac was there to pick us up. The light started fading now and in the final moments of twilight, groups of fruitbats crossed over our heads from the island to the mainland as silent witnesses. Silent too at this time of day was the sea, her waves reduced to small movements of dark water, as if she was impressed by what had passed that day.

Day Three - December 21, 1998

The road from Tangalle to Ranna, a small place along the coastal road to Hambantota in southern Sri Lanka, has many faces. First there are the patches with dense forest, alternating with magnificent views over the Indian Ocean, and a few houses with bright red Hibiscus flowers out front. But, all of a sudden, the green foliage gives way to a wide plain with swamps and pools with bathing buffalo and rice fields. And a wonderful birdlife - storks, egrets, herons, plovers, ibises and kingfishers are everywhere. To the north the silhouette of the central mountain plateau makes an irregular and hazy skyline.

Then we enter a dry zone. At first the road is lined by old and shady tamarind trees, but soon we are amidst a dry and hot shrub with a few cows looking for edible foliage and occasionally huge elephant droppings. After a while we reach Ranna, and here we enter a small road that leads to the coast and ends in a small fishing village. The last part of the journey we go by foot.

The bay is quiet, a few fishing boats are lying in the hot sun on the fine sand beach. A few "hello's" are heard from nearby children. At the end of the bay we pass a group of promontory rocks and enter a small secluded bay, uninhabited and untouched. This is the place we will collect today. The only living creature here is a beautiful yellow-blocked warana, hiding under a screw-palm. Silently a fish eagle glides over our heads. The sound of the breaking waves and the colors of the sea and the screw-palms with their orange fruits mix so perfectly that for a while you do not feel the heat. Only after hours on a tropical beach with neither shade nor wind we realize our limitations. Dripping from sweat we sit for a while and drink luke-warm water.

What we find here is incredible. Washed-up layers of shells and debris contain cowries by the thousands, from perfectly fresh to all stages of wear. Then, for the last round that day, we pick and pick and enjoy life to the extreme. When the tide comes in again we have to return.

On the far horizon the occasional big freighter moves slowly along the coast, symbolizing human presence at a distance. Returning to the village, the screaming voice of an old lady trying to sell me a gourd - definitely an end of our days in the field!



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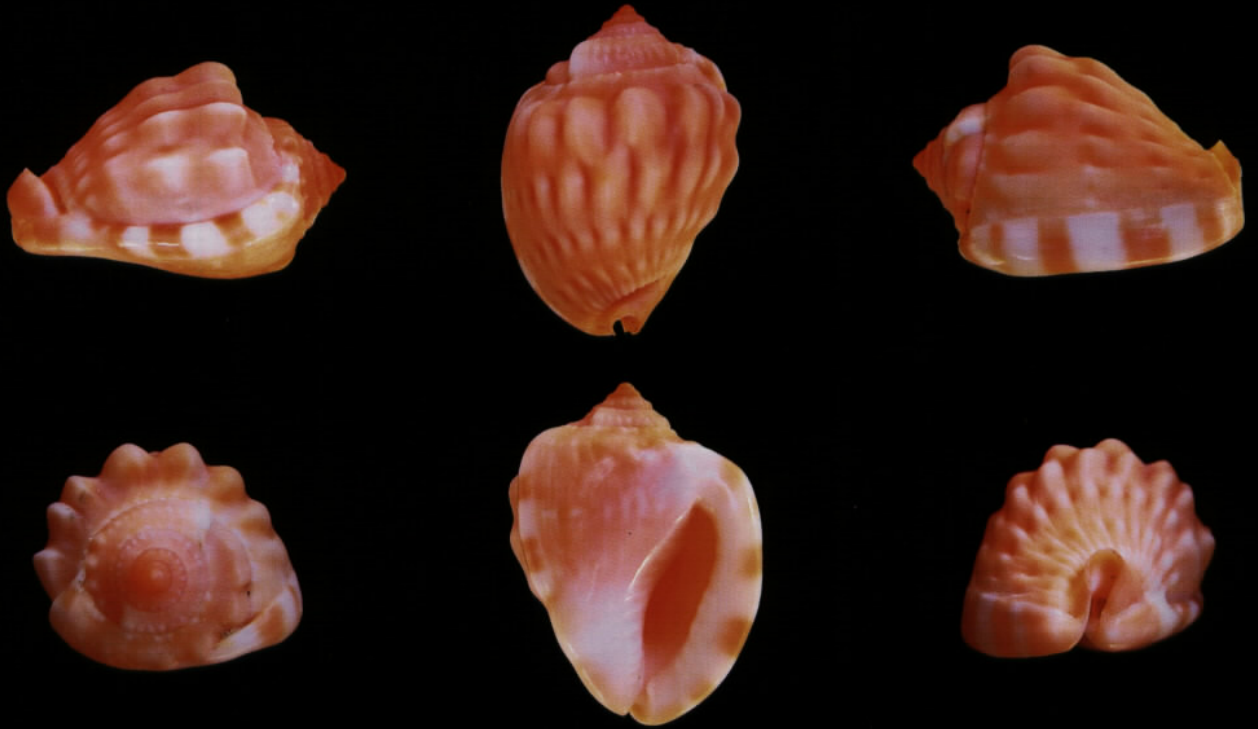
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***Cassis (Hypocassis) patamakanthini* sp. nov.**

A new species of *Cassis* from off Perth, Western Australia was described by Manfred Parth in the latest issue of *La Conchiglia* magazine, issue n.294-295, year XXXII, p. 87-93.

This new *Cassis* had been brought to Mr. Somnuek Patamakanthin by Antonio Nora of "Atlantic" 7 years ago, and was named after Mr. Somnuek recently



Rhiostoma from Thailand and Malaysia

Somwang Patamakanthin

From the last several years, I have been impressed by a small, strange group of operculate land shells in the Genus *Rhiostoma*, members of the family Cyclophoridae. They have their specific characters in creating the distinctive siphonal tube or tube-less but with distorted apertural whorl. Here I wish to present some of their species and variations found from Thailand and Malaysia, with my special thanks to Jens and Christa Hemmen, & La Conchiglia magazine who have always been so kind, supporting me great knowledge on these snails.

Figures on opposite page.

- A1-4, *Rhiostoma* sp., 43mm, from Suratthani, Southern Thailand.
 B1-2, *Rhiostoma chupingense* Tomlin, 1938, 26mm, from Perlis, West Malaysia.
 C1-3, *Rhiostoma chupingense* Tomlin, 1938, 27mm, from Songkhla, Southern Thailand.
 D1-3, *Rhiostoma samuiense* Tomlin, 1931, 19.5mm, from Samui Is., Gulf of Thailand.
 E = *Rhiostoma speleaotes* Tomlin, 1931, 19mm, from Batu Caves, Selangor, Malaysia.
 F1-3, *Rhiostoma smithi* Bartsch, 1832, 34mm, from Phang-Nga, Southern Thailand.
 G1-2, *Rhiostoma asiphon* Moellendorff, 1893, 23.8mm, from Kangar, Perlis, West Malaysia.
 H1-2, *Rhiostoma jousseaumei* De Morgan, 1885, 14.5mm, from Gunong Rapat, Perak, West Malaysia.
 I1-4, *Rhiostoma smithi* Bartsch, 1832, 25mm, from Tiger Cave, Krabi, Southern Thailand.
 J1-3, *Rhiostoma smithi* Bartsch, 1832, 37mm, from Phang-Nga, Southern Thailand.
 K1-2, *Rhiostoma jousseaumei* De Morgan, 1885, 11mm, from Tambun, Kinta, Perak, West Malaysia.
 L1-3, *Rhiostoma smithi* Bartsch, 1832, 20mm, from Phang-Nga, Southern Thailand.
 M1-3, *Rhiostoma smithi* Bartsch, 1832, 37.5mm, from Khao Sabab, Janthaburi, Eastern Thailand.







PLATE 1: A NUMBER OF FREAK SHELLS FROM VIETNAM

DISTRIBUTION OF VALVES OF THE COCKLE
Cardium edule
ON SANDY BEACHES IN SW HOLLAND

Willem Krommenhoek

In previous issues of this magazine (23:2, 23:3), I described some aspects of the distribution of valves of lamellibranchiates on a sandy beach in the nature reserve Kwade Hoek in southwest Holland. Among other things it was noticed for the cockle (*Cardium edule*) that the average weight of un-broken valves increased when the valves found in the low tide zone were compared to ones collected in the high tide zone. At the same time however, when unbroken valves and fragments of valves were taken together it was noted that the average weight of both valves and particles decreased by about 50%. The percentage of unbroken valves among all cockle remains decreased from 97% to a mere 27% from the low to the high tide zone. Obviously, small particles are favored in the process of transport up the beach slope, while at the same time bigger valves tend to be washed-up to a higher level on the slope than smaller ones. In this contribution I will look into some more details.

Method

In early August 2000, I selected two locations for collecting cockle valves on the sandy beaches of Kwade Hoek Nature Reserve in southwest Holland. Each of these locations had a marked slope with plenty of washed-up valves both at the bottom and the top of the slope. At one place the beach sloped 0.5 m over a distance of 10 m; at the other 1.25 m over 40 m. Four samples of valves were taken: at the top and bottom of the slope at each location. All valves were measured with calipers to the nearest 0.1 mm and the results presented in size-distribution curves.

From a series of valves I measured weight and surface in order to determine how these factors develop with size. For an estimation of the surface of the valve, it was put on a sheet of paper whereupon its outline was drawn. The surface of the projection of the concave valve on paper was measured. In this way two curves were produced showing weight and surface development of the valve with size. Size of the valve may be considered as an indication of age, because bivalves grow continuously for a long time, gradually decreasing with age, a process resulting in a sigmoidal growth curve which takes years to complete.



Results

Fig. 1 shows the relation between size (expressed as width of the valve in mm) and weight. Small valves weigh less than half a gram, big ones as much as 14 grams.

Fig. 2 shows the relation between size and surface. Small valves measure about 1cm^2 , bigger ones to over 10cm^2 . At the bottom of the first slope, the average width of the valves measures 20.1 mm (s.d. = 4.6 mm), the majority being between 16 and 20 mm. At the top of that slope the average width of valves had increased to 23.0 mm (s.d. = 4.7 mm), the majority of valves being between 20 and 24 mm wide. At the second slope the same situation was found. Here the average size of the valves at the bottom of the slope was 23.4 mm (s.d. = 5.9 mm), the majority being between 18 and 24 mm; at the top the average size of 26.1 mm (s.d. = 6.2 mm), the majority being between 20 and 26 mm. So, there is a marked increase in size of valves going from bottom to top of the slope.

Next we have to consider how these figures can be accounted for. When it is observed that the size of the valve increases from an average of 20.1 to 23 mm, it means that its average weight increases from 0.75 grams to 1.2 grams and its surface from 2.6 to 3.3cm^2 . In other words, an increase in size of 14% results in an increase in weight of 60% and in surface of 27%. At the other location the results were about the same.

If we look at the majority of the valves at both slopes, we can say that at the top of a slope both weight and surface is about 40% bigger than at the bottom of it. At the same time the average particle weight of cockle remains is on top of the slope only 50% from that at the bottom (1.32 grams versus 2.25 grams). These facts can be interpreted as follows -

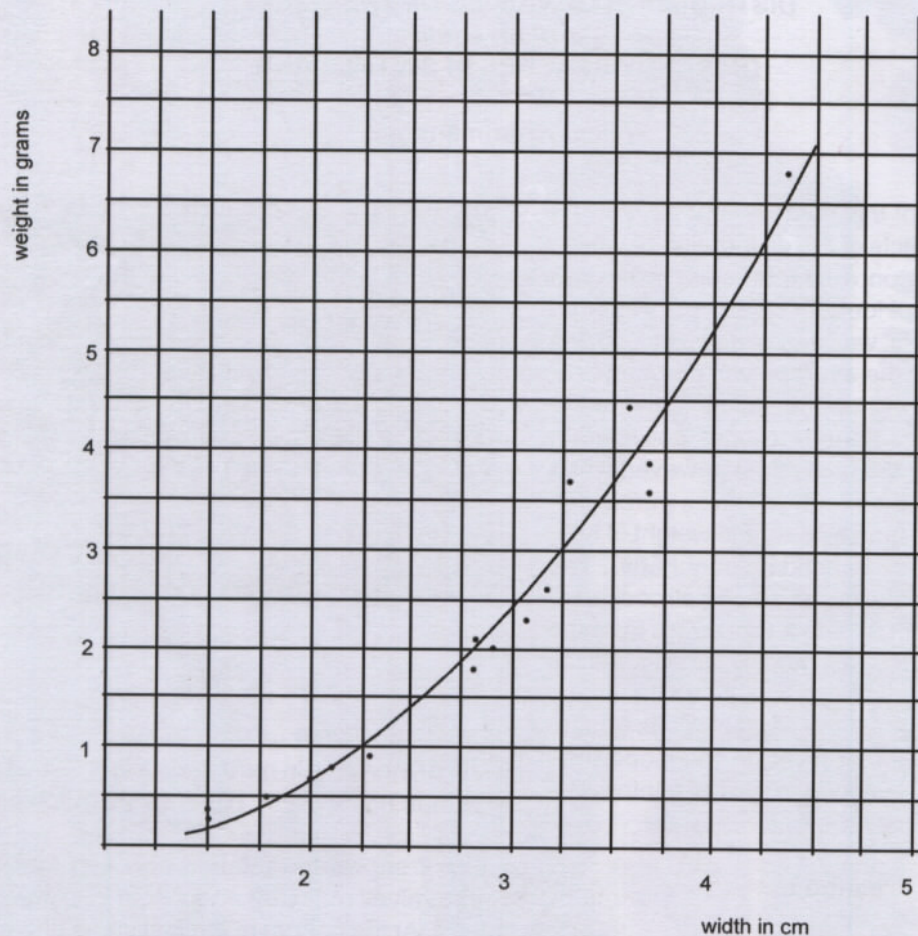


Fig. 1. Relation between size and weight for *Cardium edule* valves. Size is expressed as width of the shell in cm; weight in grams.

When waves move towards shallower water, the seafloor begins to interfere with the circular motion of the water and the movement of particles becomes more elliptical, at the same time sand and debris is taken up. With further decreasing water depth the wave height increases and the wave steepens, finally breaking with its crest crashing forwards as surf. The remaining water, loaded with sand and debris moves up the shore as swash. Gradually the pushing force of the swash decreases, bringing a majority of valves and fragments to a halt on the beach slope. Only smaller fragments with little weight and valves with a relative large surface will be pushed further on the slope. After a while the swash loses its force completely, resulting in the deposition of all particles still carried by the water. Then, after a moment of complete stand-still, the reverse water movement takes place. Gravity pulls the water back as backwash mainly taking lighter valves, the bigger ones being too heavy to be affected by the pull of the water which only gradually gains force.

Small fragments remain in numbers at the highest level of the swash, because in the moment between the end of the swash and the beginning of the backwash, a lot of water percolates down into the sandy beach, resulting in

a backwash starting at a lower level of the slope, not affecting the deposition of the upper swash.

These two factors, the little force of the beginning backwash and the time gap between the end of the swash and the start of the backwash, results in a relative abundance of smaller fragments and larger valves higher on the beach slope. After a while the backwash gains enough power to pull all valves and debris back to the sea, leaving most of the beach slope free of shells and debris. When the backwash reaches the sea, its force diminishes, as a result of which all particles come to rest again.

Literature

Krommenhoek, W. 2000. Patterns of erosion and distribution of valves and fragments of lamellibranchiata on a Dutch coast. *Of Sea and Shore* 23(2): 106, 117.

Krommenhoek, W. 2000. More about distribution of lamelli-branchiate valves on a Dutch beach. *Ibid.* 23(3): 132-134.



Fig. 2. Relation between size and surface for *Cardium edule* valves. Size is expressed as width of the shell in cm; surface is expressed as the number of square cm in the drawing of the outline of the shell on a piece of paper.

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A NUMBER OF FREAK SHELLS FROM VIETNAM

Dr. N. N. Thach

Vietnam is a tropical country located in Southeast Asia with than 2,200 species of shells including gastropods, bivalves and land snails. During 25 years of collecting, 1975 to 2000, we collected many interesting freaks and some are presented here.

Plate 1 - Figs. 1 to 15

1. *Murex pecten* Lightfoot, 1786. 95mm. Collected off Phan Rang on sandy bottom at 30 m depth. The siphonal canal is curved to the left side at the anterior part.
2. *Murex trapa* Roding, 1798. 89mm. Collected off Phan Ri on sand at 20 m depth. The shell has two siphonal canals!
3. *Murex troscheli* Lischke, 1868. 116mm. Collected off Phan Rang on sandy bottom at 40 m. The siphonal canal is curved to the left from the aperture.
4. *Pila ampullacea* Linnaeus, 1758. 50mm. Collected in rice fields of the delta of the Mekong River (South Vietnam). The shell is sinistral (with the aperture turning to the left when apex is upward).
5. *Conus betulinus* Linnaeus, 1758. 62mm. Trawled off Nha Trang on sand at 30 m. Spire is elongated and stepped.
6. *Strombus aratum* (Roding, 1798). 81mm. Collected off Phan Thiet on sandy bottom at 10 m. Posterior lip projection is branched into two.
7. *Strombus aratum* (Roding, 1798). 101mm. Collected off Nha Trang near coral reef. Posterior lip projection is twisted then turned at 90°.
8. *Strombus aratum* (Roding, 1798). 87mm. Collected off Quang Ngai among rocks. Specimen has no posterior lip projection.
9. *Strombus aratum* (Roding, 1798). 78mm. Collected off Nha Trang on sand at 15 m. "Fingerlike" projection is curved inward.
10. *Linatella caudata* (Gmelin, 1791). 64mm. Collected off Nha Trang on sand at 40 m. Aperture is deformed.
11. *Linatella caudata* (Gmelin, 1791). 66mm. Trawled off Phan Thiet on sand at 30 m. Shell is damaged at suture.
12. *Cymatium pileare* (Linnaeus, 1758). 71mm. Collected off Nha Trang at 20 m, near coral reef. Suture is deformed.
13. *Ficus gracilis* (Sowerby, 1825). 93mm. Trawled off Quang Ngai at 50 m. Siphonal canal is shortened and curved to the right.
14. *Ovula ovum* (Linnaeus, 1758). 80mm. Collected off Phan

Rang on coral at 10 m. Body whorl deformed (not regularly convex as usual) with prominent axial ridge.

15. *Cymatium pileare* (Linnaeus, 1758). 83mm. Trawled off Quang Ngai on sand at 30 m. Spire is curved.

Plate 2 - Figs. 16 to 28

16. *Cymatium gutturnium* (Roding, 1798). 86mm. Collected off Quang Ngai on sand at 30 m. Siphonal canal is wavy (not straight as usual).
17. *Haustellum haustellum* (Linnaeus, 1758). 127mm. Collected off Nha Trang on sandy bottom at 20 m. Specimen bears two parallel siphonal canals!
18. *Cymatium gutturnium* (Roding, 1798). 74mm. Collected off Quang Ngai on sand at 40 m. Specimen with 2 (instead of 1) siphonal canals which are crossed.
19. *Strombus urceus* (Linnaeus, 1758). 52mm. Collected off Nha Trang on rubble at 30 m. Spire is elongated and has formed strangely.
20. *Volva volva* (Linnaeus, 1758). 78mm. Trawled off Nha Trang on sandy mud at 60 m. Anterior and posterior canals are not equally long.
21. *Strombus canarium* (Linnaeus, 1758). 62mm. Collected off Van Gia on sand at 5 m. Specimen has unusual spire.
22. *Cymatium lotorium* (Linnaeus, 1758). 80mm. Collected off Quang Ngai on rocky bottom at 15 m. Siphonal canal is curved leftward from the aperture.
23. *Strombus canarium* (Linnaeus, 1758). 64mm. Collected off Nha Trang on sandy bottom at 10 m. Body whorl is unusually banded by a broad yellow spiral band on a light brown background.
24. *Gemmula speciosa* (Reeve, 1843). 59mm. Collected at Van Gia on sand at 80 m. The spire is curved rightward.
25. *Gemmula speciosa* (Reeve, 1843). 64mm. Collected at Phan Rang on sandy bottom at 100 m. The siphonal canal is curved leftward.
26. *Harpa major* Roding, 1798. 85mm. Collected off Nha Trang on sand at 20 m. The outer lip is not arcuate as usual.
27. *Phalium glaucum* (Linnaeus, 1758). 80mm. Trawled off Nha Trang on sandy bottom at 50 m. Not the strange shape of the dorsum.
28. *Harpa major* Roding, 1798. 70mm. Collected off Phan Rang on sandy bottom at 15 m. The body whorl is twisted and axially extended.

Plate 3 - Figs. 29 to 42

29. *Fusinus longissimus* (Gmelin, 1791). 216mm. Trawled

off Quang Ngai on sand bottom at 50 m. A prominent knob is located at siphonal canal.

30. *Fusinus salisburyi* Fulton, 1930. 226mm. Collected off Nha Trang on sandy bottom at 40 m. The spire and siphonal canal are not rectilinear.

31. *Fusinus colus* (Linnaeus, 1758). 154mm. Collected off Nha Trang on sandy bottom at 20 m. The siphonal canal is branched into two parts.

32. *Fusinus nicobaricus* (Roding, 1798). 144mm. Trawled off Quang Ngai near rocky bottom at 70 m. The siphonal canal widening anteriorly and directed to the left side.

33. *Fusinus forceps* (Perry, 1811). 135mm. Collected off Phan Rang at 70 m. The siphonal canal is branched.

34. *Fusinus nicobaricus* (Roding, 1798). 89mm. Trawled off Phan Rang at 80 m. The siphonal canal is curved towards the dorsum.

35. *Fusinus nicobaricus* (Roding, 1798). 99mm. Collected off Nha Trang at 60 m. The siphonal canal is branched and one of the branches turned leftwards.

36. *Fusinus forceps* (Perry, 1811). 132mm. Collected off Quang Ngai on fine sand at 60 m. Typical specimen.

37. *Fusinus forceps* (Perry, 1811). 139mm. Trawled off Nha Trang on sandy bottom at 80 m. The siphonal canal is curved to ventral surface,

38. *Fusinus nicobaricus* (Roding, 1798). 110mm. Collected off Phan Rang near rocky area at 90 m. The siphonal canal is branched into two parts in a different manner.

39. *Fusinus undatus* (Gmelin, 1791). 141mm. Collected off Quang Ngai on sandy bottom at 10 m. The spire is curved rightward.

40. *Fusinus undatus* (Gmelin, 1791). 170mm. 170mm. Collected off Phan Rang on sand. The siphonal canal is branched.

41. *Fusinus undatus* (Gmelin, 1791). 167mm. Collected off Quang Ngai on sandy bottom at 15 m. The spire is curved toward ventral surface.

42. *Fusinus undatus* (Gmelin, 1791). Collected off Phan Rang on sand at 20 m. The siphonal canal is extremely strange!

Plate 4 - Figs. 43 to 51

43. *Lambis scorpius scorpius* (Linnaeus, 1758). 148mm. Trawled off Nha Trang near coral reef at 30 m. More digitations than usual and four anterior digitations are closely located.

44. *Strombus sinuatus* Humphrey, 1786. 111mm. Trawled off Nha Trang on reef area at 15 m. The "finger-like" projections at outer lip are branched.

45. *Lambis scorpius scorpius* (Linnaeus, 1758). 143mm. Collected off Nha Trang at 40 m. The siphonal canal is branched into 3 parts!

46. *Lambis crocata crocata* (Link, 1807). 150mm. Collected off Phan Rang at 10 m. The posterior digitation (located near apex) is missing.

47. *Lambis chiraga chiraga* (Linnaeus, 1758). 200mm. Collected off Phan Thiet near rocky areas at 15 m. The specimen lacks one digit, while the middle digit of the outer lip is branched.

48. *Lambis crocata crocata* (Link, 1807). 133mm. Collected off Nha Trang on coral reef. The siphonal canal is strangely branched.

49. *Lambis lambis* (Linnaeus, 1758). 177mm. Collected off Nha Trang on sand at 10 m. The digitations are branched many times.

50. *Lambis lambis* (Linnaeus, 1758). 139mm. Collected off Quang Ngai on sandy bottom at 15 m. One digitation is branched at its extremity.

51. *Lambis lambis* (Linnaeus, 1758). 170mm. Collected off Phan Rang at 20 m with only one digitation!

Plate 5 - Figs. 52 to 64

52. *Cypraea tigris* Linnaeus, 1758. 87mm. Collected at Quang Ngai on sand at 5 m. A spiral ridge is located at the middle of the dorsum.

53. *Cypraea tigris* Linnaeus, 1758. 111mm. Collected at Nha Trang near shipwrecked area. Dorsum entirely red.

54. *Cypraea tigris* Linnaeus, 1758. 97mm. Collected at Phan Rang near seaweed area at 8 m. A large black blot covers most of the anterior part of the dorsum.

55. *Cypraea tigris* Linnaeus, 1758. 96mm. Collected at Binh Tuy near rocks. Two nodules are located at the anterior part of the dorsum.

56. *Cypraea tigris* Linnaeus, 1758. 96mm. Collected at Phu Quoc. Specimen with elongated posterior extremity.

57. *Cypraea tigris* Linnaeus, 1758. 97mm. Collected at Phan Thiet along rocky shore. Albinistic specimen with a prominent nodule at the right side of dorsum.

58. *Cypraea tigris* Linnaeus, 1758. 96mm. Collected at Nha Trang by diver at 10 m. Melanistic specimen with dorsum almost black.

59. *Cypraea tigris* Linnaeus, 1758. 93mm. Collected at Truong Sa Islands. Albino with dorsum almost white.

60. *Cypraea tigris* Linnaeus, 1758. 86mm. Collected intertidally at Long Hai. Ventral surface with no labrum.

61. *Cypraea tigris* Linnaeus, 1758.

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PLATE 2: A NUMBER OF FREAK SHELLS FROM VIETNAM



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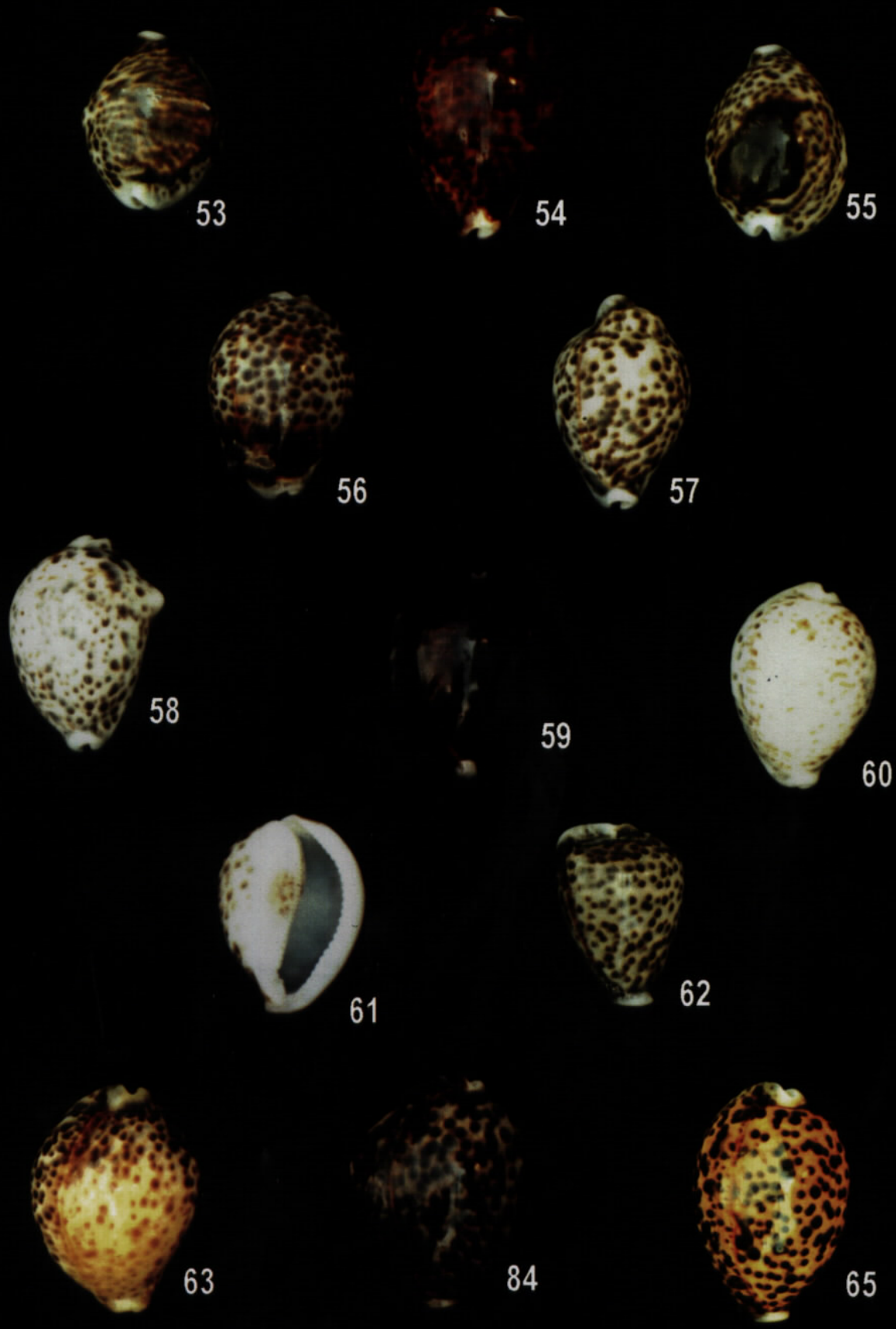


PLATE 5: A NUMBER OF FREAK SHELLS FROM VIETNAM

Reflections of My Friend Charles "Chuck" Cardin

Jim Gossweiler

It was with great sadness that I learned on my friend Chuck Cardin's passing. Chuck battled a variety of cancers over a period of several years that originated as a rare form of breast cancer. Because Chuck was a tough guy, and to my knowledge never sought pity, I am sure he wouldn't mind me sharing that information with you. I just wanted to take a moment to share my memories of Chuck whom over a period of a very few years I came to call my friend.

I collected shells as a little kid and teenager (1960's and 70's), but was never able to pursue the interest with the same resources I can now as an adult. So, in 1994, I revisited my earlier interest in shells. I contacted all of the old clubs, dealers and magazines which I had noted on snippets of paper some two and a half decades earlier. The ones I can remember included Mal de Mer Enterprises, Hawaiian Shell News and Of Sea and Shore magazine. It was at this time that I contacted Chuck, who advertised in Of Sea and Shore. I told Chuck I was interested in collecting cones. I took an immediate liking to Chuck because his interest and enthusiasm was infectious and his scientific interest was compatible with my own. That was about 3,000 specimens and 350 species ago. Although I have obtained top quality specimens from a number of respected dealers, the majority of the specimens I have were hand-picked by Chuck from overseas shipments and personally while he was in the Philippines.

The aspect of Chuck's personality I liked the most was his consummate salesmanship. It was quite common for Chuck to call me on the telephone with "something special" that he was going to let me have "first crack at". His excitement was punctuated with quick breaths and giddy giggling that broke up my workday and really got my attention. Chuck would also follow up with a little story to go along with the shell, like where he got it and what he had to go through to get it. I found these little tales really quite entertaining and engaging. Naturally, some of the stories were edited and embellished for interests sake, but I nonetheless loved them. I still have a cone specimen he told me he bought from a man on a dock in Cebu who had it rolled up in a handkerchief in his pocket. This was a typical tale that accompanied many of the shells I got from Chuck. In this regard, and in many others, Chuck had a somewhat ebullient character, however, Chuck was very well planted in his shell dealings. He was quite a challenge to haggle or debate with, and could be moody and grumpy like anyone else. However, I never regretted any specimen I got from Chuck. I will miss hearing him say, "I've never seen one nearly this big" or any number of other exclamations to get my attention. They worked!

I visited Chuck and his wife Su several times at their former home in Daytona Beach, Florida. Their home was very tastefully furnished and appointed. One noteworthy feature was a good-sized glass display case of shells at the corner of their living room. In this way Chuck has his own little shell shop for shell collectors who stopped by. Chuck finished one room of his home as a "shell room" with multiple shelves and bins spilling over with shells in plastic bags like a small scale explosion. In the middle of the room was Chuck's desk with an older computer system on which he brought order to his inventory and all things molluscan. Like most dealers, Chuck had a special coding system so he could tell where particular shells were stored. In later years Chuck modified a huge amoire with two dozen or more large shelves that could be pulled out and removed for viewing. These were not the particularly exciting aspects of visiting the Cardin home. Chuck maintained a special drawer he called the "desert drawer" in which he put shells of special interest for their size, color or shape. Opening the dessert drawer was another time when Chuck could be described as at his best. He had several cone specimens that were quite bizarre and unidentifiable that he enjoyed "tormenting" me with. He also prided himself on quite a few antique and otherwise rare books dealing with a number of shell related topics.

Chuck would share tales of his trips to the Philippines and indicated that he "had a reputation" among the dealers in Cebu. I think Chuck saw himself as kind of a shell big shot, and I guess, in a way, he was. He said that within hours of his arrival it seemed that every dealer in Cebu knew that he was in the area. Chuck once told me his Philippine nickname was "shellman" and that he once gave away a T-shirt with the name "shellman" on it to a local youth. Several years later, upon returning to Cebu, he saw someone wearing the shellman shirt he had given away years earlier. Chuck also had experiences to share regarding other areas of the Indo-Pacific. He lived in Japan and Tonga for several periods of time.

Because he had an intimate knowledge of the people, he was interesting to discuss "shell politics" with. Any serious collector of shells knows exactly what I mean. Chuck and I had quite a few great discussions on the relative value of shell collecting and many matters unrelated to the pursuit of specimen shells. Chuck told me that I was the youngest serious specimen shell collector he knew and that I should "take my time" collecting shells to savor the experience. It appears that I have been savoring the personal relationship just as much or more than the shell collecting. I will really miss him.

I will continue collecting shells with the same vigor as before, but I am forever changed because of my friendship with Chuck Cardin. I wish him peace and rest. And shells.

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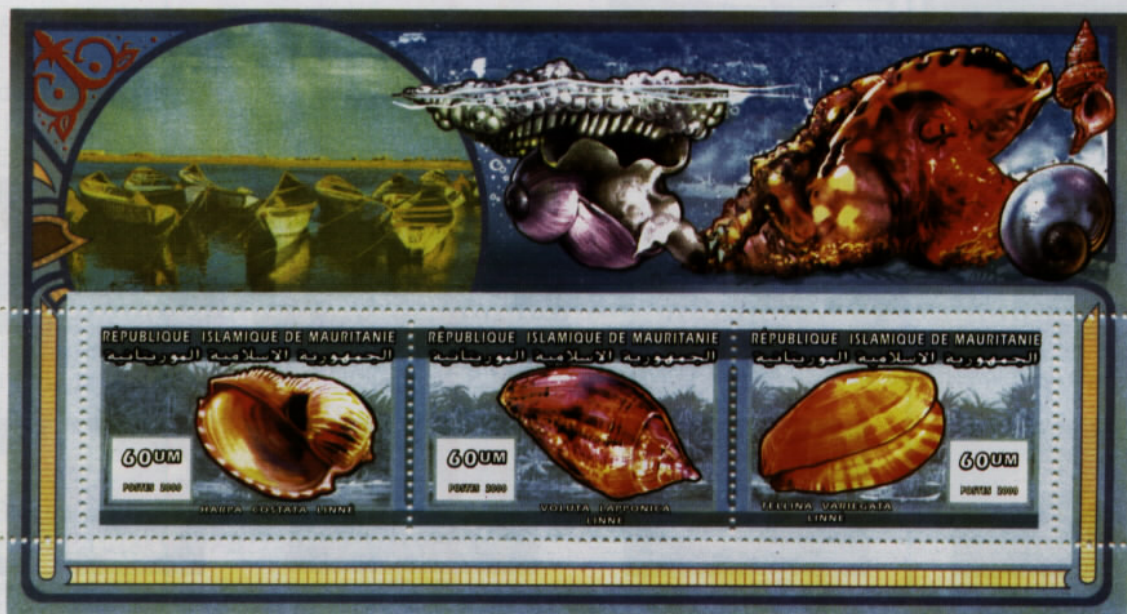
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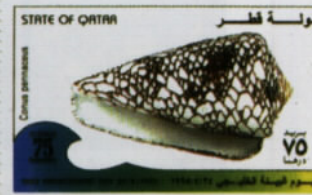
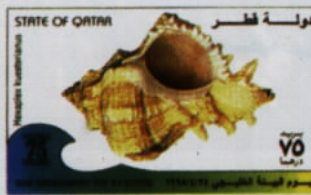
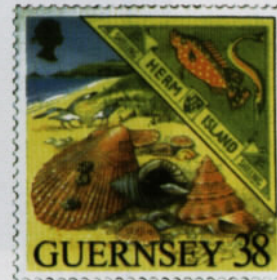
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May 5-6. **Central Florida Shell Show.** Orlando, Florida
Central Florida Fairgrounds, Phyllis Gray, 1212 S. Eola
Dr., Orlando, FL 32806 USA. (407) 422-0253

June 9-10 **XX^{me} Salon International du Coquillage**
Lutry, Switzerland. Dr. Ted W. Baer, CH-1602 La Croix,
Switzerland. 41 (21) 791-3771; FAX 792-1411

June 13-17, 2001. **Societe Italiana di
Malacologia 4th International Workshop of
Malacology.** Menfi, Italy "Systematics,
Phylogenesis and Biology of Polyplacophora".
Conference Hall, Torre Federiciana. Vanna Rotolo,
Tel: +39.0925.78175; Fax: +39.0925.74304
E-mail: vannarotolo@futorialink.it
<http://www.vannarotolo.it>

June 26 - July 1, 2001 **North American Paleon-
tological Convention 2001.** Berkeley, California
[www.ucmp.berkeley.edu/napc/addNAPCprereg
.html](http://www.ucmp.berkeley.edu/napc/addNAPCprereg.html)

July 7-11, 2001 **Conchologist of America. 2001
Shell Odyssey.** Port Canaveral, Florida
Radisson Resort at the Port, Bobbi Cordy,
385 Needle Blvd., Merritt Id., FL 32953 USA.
(321) 452-5736. e-mail: cordy@yourlink.net

July 21, 22. **Keppel Bay Shell Club Shell Show.**
Yeppoon, Queensland, Australia. Hon Sec. Box
5166, Central Queensland Mail Centre,
Queensland, 4702 Australia

July 2001. **9th International Congress on In-
vertebrate Reproduction & Development.**
Rhodes University, Grahamstown, South Africa.
Organizer: Prof. Alan Hodgson; Dept. Zoology &
Entomology, Rhode University, Grahamstown
6140, South Africa. Fax: (46) 622 4377.
E-mail: zoah@giraffe.ru.ac.za
details: [http://www.rhodes.ac.za/conferences/
icird2001](http://www.rhodes.ac.za/conferences/icird2001)

August 19-25, 2001. **14th International Congress
of Unitas Malacologica.** Vienna, Austria.
[www.univie.ac.at /WCM2001/index.htm](http://www.univie.ac.at/WCM2001/index.htm) or
Luitfried Salvini-Plawen, Inst. Zool., Univ. Vienna'
Althanstr. 14, A-1090 Vienna, Austria. Tel. +43 1
31336 1264; Fax: +43 1 31336 778. luitfried.salvini-
plawen@univie.ac.at or gerhard.steiner@univie
.ac.at

March 23-24, 2002. **4th Australian National Shell
Show.** Brisbane, Queensland, Australia.
E-mail: callum.woodward@transport.qld.gov.au

Information from various sources. Including:
Donald Dan, Conchologists of America Award
Chairman; 6704 Overlook Dr.; Fort Myers, FL
33919. USA. e-mail: donaldan@aol.com

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http://www.evolver.it/ALSO New Shell Books
AND BACK ISSUES of *La Conchiglia***FOR MY UNCLE TOM RICE**

As one of the shell lovers, one thing that I always wish to do is to give a very big thank to Uncle Tom Rice who has joined the small parts of our shell world together.

Tom always express his dream to create the magazine that belongs to every readers, he wish to present his readers' stories from all the different countries.

I believe that it's now a good occasion to celebrate the new year 2001, by adding colors to this new issue of "Of Sea and Shore Magazine" which has served us lots of knowledgeable and impressive stories from its beginning.

Tom always say that this magazine 'd not be able to grow and develop itself without the support from all readers, and those are all of you here.

He wish that everyone 'll send in any interesting shell articles, and I am convinced that all readers 'll help him, as Tom is "our" man, and this magazine is "yours".

Somwang Patamakanthin



Pandora ceylanica Sowerby, 1835

Caught by crab net, muddy bottom, 8 - 10 m depth
from Satul, Thailand, Andaman Sea

NEW REPORT FROM THAILAND



Conus patamakanthini Delsaerdt ,1997

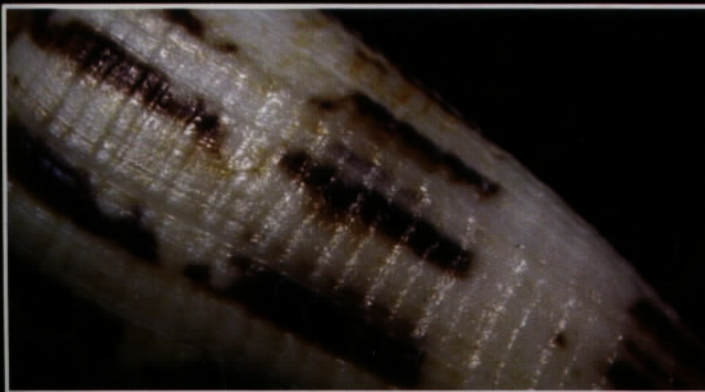
Shell elongated ; last whorl encircled with about 40 flat ribbons on which brown, axial, short streaks appear,two irregular bands of brown blotches appear at mid body and towards the anterior end of the body whorl.

Teleoconch sutural ramps with 3-4 spiral grooves, axially and finely striated.Pattern of the spire axially veined.

The third dark brown specimen from the left on this plate is the mysterious specimen, shell was trawled from the same location and depth of the *Conus patamakanthini*, it needs further studies from specialists, it is,for the moment,

placed into the same complex of its closely related species,*Conus patamakanthini*.

Trawled, 80 - 120 m. depth, off Racha Is., Phuket, Andaman Sea.



Conus australis Holten, 1802

Shell oval oblong, with a rough, pointed and turreted spire with tuberculate postnuclear whorls. Numerous spiral grooves on the sides; axial sculpture in grooves between ribs and with swollen shoulders. Color white with 3 interrupted reddish brown bands; aperture white.

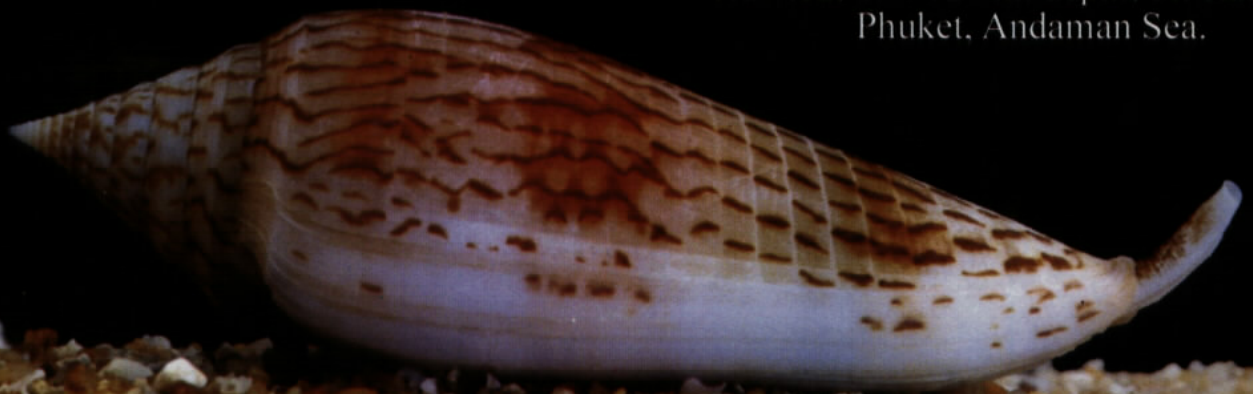
Trawled, 80 - 120 m. depth, off Racha Is., Phuket, Andaman Sea.



Conus ranonganus da Motta, 1977

Shell cylindrical, straight, with gradual tapering sides; nearly smooth, with fine spiral incisions; body color pink, marked profusely with vertical short strokes of reddish brown with three bands formed with interrupted patches of smearings of the same shade, otherwise the same stubby strokes persist in regular rows in-between each revolving groove covering its entire surface; shoulder subangulate, with spire elevated to a fine point; aperture pinkish to white, widening somewhat toward the anterior.

Trawled, 80 - 120 m. depth, off Racha Is., Phuket, Andaman Sea.





Conus ranonganus da Motta , 1977 "GOLDEN FORM"

All the seven shells shown in this plate are another rarer form of the rare *Conus ranonganus*.

At first period discovered from the depth, it was believed that they might be another new species,

but they all have the main characteristics similar to the *Conus ranonganus*,

except they rarely form their interrupted patches of reddish brown, just the three pinkish brown bands appear.

The first specimen on the uppermost left displays the evidence that this specific form is also able to produce the same pattern with *Conus ranonganus* where the growth scars take place.

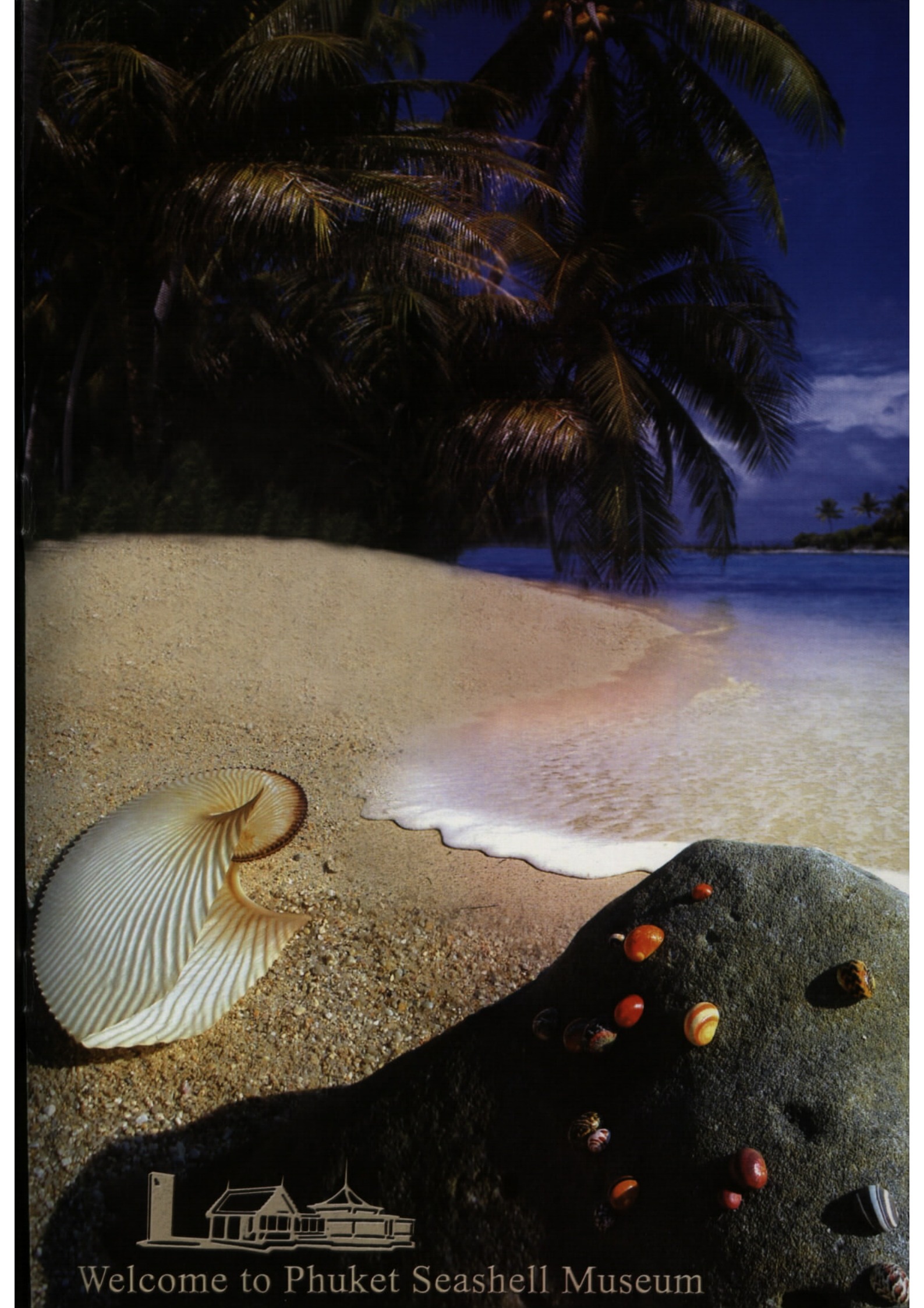
Trawled, 80 - 120 m. depth, off Racha Is., Phuket, Andaman Sea.



Conus phuketensis da Motta, 1978

The shell is glossy, elongately turbanate; spirally incised; cream to fawn, with 3 interrupted bands of slanting smears resembling short strokes of lightning; spire turreted and acuminate; aperture purplish cream.

Trawled, 80 - 120 m. depth, off Racha Is., Phuket, Andaman Sea.



Welcome to Phuket Seashell Museum

