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THREE BATHYAL PROSOBRANCHS (GASTROPODA) FROM THE SOUTHEAST ASIAN WATERS

by

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With 4 plates

The present report is based on three specimens of Prosobranchs from the southeast Asian waters. Two appear to represent each a species new to science, while the third specimen is assigned here with some doubt to a previously known species. One sample was collected by the Naval officer Land, and two samples were procured by Dr. J. Verwey during his participation in the "Java-South Africa Expedition 1929-30" organized by Dr. Th. Mortensen, Copenhagen.

The material is kept in the Rijksmuseum van Natuurlijke Historie, Leiden, the Netherlands.

I am greatly indebted to Dr. C. O. van Regteren Altena for entrusting the material to me for study and for useful information on the origin of the samples. The photographs were taken by Mr. G. Brovad and the English text was revised by Miss Susan Thorpe.

TROCHIDAE

Calliostoma Swainson

Dell (1956: 46) established the genus *Alertalex* to contain a new species of Trochid. He remarked that "it is obviously related to *Calliostoma* (s.str.), but is too different from the type species, *C. zizyphinum* (L.) to be usefully retained in that genus". *Alertalex* is distinguished from the latter genus by its silken, subnacreous surface and the strong spiral sculpture. Clench & Turner (1960: 78) believed that *Alertalex* belongs to *Calliostoma,* their assumption being based on the great similarity of radula characters.

The species described below would seem to be intermediate between *Alertalex* and *Calliostoma* as far as the two separating characters used by

Dell are concerned ("silken, subnacreous" and "strong spiral sculpture"). Dell (1956: 46) mentioned that *Alertalex* has four pairs of epipodial tentacles which can be seen on his figure 260 on page 233. The same number of tentacles is found in *Calliostoma zizyphinum* (Linnaeus) (see Fretter & Graham, 1962: 117, fig. 71). Therefore, I agree with the viewpoint of Clench & Turner (1960: 78).

Calliostoma altena n.sp. (pl. 1 A, B; pl. 2 A, B)

Material.

Near Pulu Tonijn, Makassar Strait, S.W. of Celebes, Indonesia, 5° 32′ S 118° 32′ to 38′ E; depth more than 900 m; collected by naval officer Land during sounding operations for a submarine telegraph cable; don. J. D. Pasteur; received November 1891. — One shell without the soft parts. The original label states that it was taken alive.

Diagnosis. — A *Calliostoma* having a very prominent spiral sculpture dominated by three primary cords; the uppermost one is about twice the size of the two others. The apical whorls have axial ribs giving the shell a cancellate sculpture. The abapical whorls have a fine spiral sculpture and a fine axial sculpture.

Description. — The shell consists of nearly nine whorls, including the well preserved protoconch. It is conical in outline with an apical angle of about 70° and a slightly convex base. The aperture is rounded rectangular in shape, oblique, forming an angle of about 40° with the shell axis. The parietal wall is slightly arched and has a reflected callus which completely covers the umbilicus. The shell is thin, semitransparent and whitish with irregular dark patches, particularly at the periphery and the base. It is nacreous, particularly at the inner surface. The teleoconch forms about eight whorls and is dominated by a prominent spiral sculpture, while the protoconch is without any sculpture.

The spiral sculpture is dominated by three primary cords. Only the two uppermost cords are completely visible on the whole of the teleoconch. The lowermost cord is located at the lower suture, and it is completely hidden on the apical whorls by the growth of the successive part of the shell. From the fourth whorl on it becomes partly visible, but it is not completely visible until the body whorl. The uppermost primary cord is considerably larger than the two lower ones and is located a little below the central part of the whorl. A much less distinct secondary cord appears at the third whorl of the teleoconch, and this cord gradually becomes more prominent. At the fifth whorl another secondary cord is added between the upper suture and the secondary cord just referred to. This cord gradually becomes more prominent than the secondary cord just mentioned. In addition there is

a fine spiral striation both on the primary and secondary cords and in the interstices between them. The body whorl has about eleven threads on the apical part between the primary cord and the two secondary cords. Between the uppermost and the central primary cord there are six threads. In addition both the primary and the secondary cords have spiral threads. On the body whorl the uppermost primary cord has seven threads, while the other primary cords and the secondary cords have four to five.

The axial sculpture: the apical whorls of the teleoconch have prominent, oblique ribs which become much less distinct on the abapical part of the whorl between the second primary cord and the lower suture. The spiral and axial sculptures give the three apical whorls a distinct cancellate appearance with well developed nodules at the junctions. The axial ribs become reduced towards the base of the shell, developing into an irregular close-set striation. The nodules both at the primary and the secondary cords persist and become divided into several individual nodules corresponding to the number of spiral threads on the cords.

The base of the shell has two prominent spiral cords near the periphery. A finer spiral sculpture consists of flat bands separated by narrow interstices. The spiral sculpture of the base, which consists of some 30 bands, gradually becomes coarser towards the umbilicus. One rounded spiral cord originates from the apical part of the parietal wall and two adjacent cords a little further down.

Dimensions in mm: height, 32.0; breadth, 29.0; height of body whorl, 18.4; height of aperture, 10.0.

Discussion. — The type of the genus *Calliostoma* is *C. zizyphinum* (Linnaeus, 1758) (see Clench & Turner, 1960: 11). The species occurs in shallow water in the northeast Atlantic from northern Norway (Finmark) to the Canary Islands as well as in the Mediterranean. *C. altena* differs from *C. zizyphinum* in the following respects: (1) *C. altena* has a much more delicate shell. (2) In *C. zizyphinum* the body whorl has five or six flattened spiral cords separated by narrow interstices. The peripheral cord is the largest one. The cords of the apical whorls of the teleoconch are more or less beaded, particularly those nearest to the upper suture. (3) The spiral sculpture in *C. zizyphinum* is much less prominent than in *C. altena.* (4) The conspicuous axial sculpture of the apical whorls of the latter species is absent in *C. zizyphinum.*

C. altena resembles *Alertalex* (= *Calliostoma*) *blacki* Dell, 1956. The latter is known from the region between the Chatham Islands and New Zealand at depths between 400 and 510 m. It has a spiral sculpture of two very prominent cords, the apical one located just below the suture and a stronger

one at the lower third of the whorl. Between these two is a less distinct cord. All three cords are nodulose. The body whorl has a strong tripartite cord. *C. blacki* lacks the distinct cancellate sculpture of the apical whorls found in *C. altena*.

FASCIOLARIIDAE

Dell (1956: 89) stated that the generic divisions within this family have never been properly analyzed on a world-wide basis and that there is still confusion in the usages of several generic names. The assignment of the present species is highly doubtful both at the generic and the specific level.

Pseudolathyrus cf. **discrepans** Kuroda & Habe, 1961 (pl. 3 A, B)

Material.

Bali Sea, Indonesia, 7° 33′ S 114° 36′ E; depth 200 m; bottom mud; gear: Sigsbee trawl; 3 April 1929; J. Verwey leg. (Th. Mortensen St. 2). — One specimen with the apical parts of the dry soft parts present. The protoconch is damaged.

Description. — The teleoconch has about 11 whorls. The body whorl forms about 66% and the aperture forms 52% of the total height. The apical angle is about 40°. The aperture has a rather long, straight and widely open anterior canal which is not distinctly marked off from the remaining part of the aperture. The outer lip is regularly curved and sharp. The faintly developed spiral sculpture of the body whorl reflects itself in seven faint notches with corresponding grooves on the interior of the outer lip. The parietal wall forms a well developed white callus. There are two faintly developed columellar folds and a thickened callus near the insertion of the outer lip.

The axial sculpture is very well developed on the apical whorls, but on the two abapical whorls it gradually disappears. It consists of prominent, rounded ribs, arranged in seven oblique rows down the apical whorls. Near the protoconch the interspaces between the individual ribs are about the breadth of a rib, but further down they become broader. In addition there is an irregular axial striation which becomes more distinct on the two abapical whorls and coarse towards the aperture. The spiral sculpture consists of four primary cords; the two central ones are more prominent than the upper and lower ones. The latter is nearly completely covered by the following whorl, but on the body whorl it becomes fully exposed. In addition the body whorl has 5 or 6 faint spiral cords in its basal part. On the apical part of the shell the space between the upper primary spiral and the suture has about

six secondary spiral cords and in the spaces between the primary spirals there are four to five secondary spirals. The secondary spirals are of varying sizes and their number increases gradually to about ten towards the body whorl. Both the primary and secondary spiral cords are more prominent across the axial ribs.

Dimensions in mm: height, 73.8; breadth, 22.5; height of body whorl, 48.6; height of aperture, 39.7.

Discussion. — The present specimen seems to be very closely related to, and possibly conspecific with *Pseudolathyrus discrepans* Kuroda & Habe, figured and briefly described in Japanese in Habe (1961: 66, pl. 33 fig. 6). Habe (1964: 102, pl. 33 fig. 6) gave a description in English and reproduced the original color photograph of the type (and only known specimen?). The specimen originates from Tosa Bay, Shihoku, southwest Japan at a depth of 200 m, and is of the same size and has the same shell proportions as the present specimen. The color of the periostracum, and the sculpture of the abapical whorls are practically identical in the two specimens. It appears that the axial sculptures are similar but the finer details cannot be observed in the figure mentioned.

A cirriped with a calcified base (12 × 8 mm) is attached to the columellar side of the anterior canal. The columellar callus covers part of the periphery of the base. Some of the skeletal plates were found loose in the sample.

Mitridae

Cernohorsky (1965: 70 et seq.) stated that in this family variation within the species has been greatly underrated. Thus, for instance, the length of the aperture can differ as much as 18%. The number of columellar folds is possibly the least reliable feature of the shell and the number of labral lirae is another highly unreliable diagnostic feature. Cernohorsky found that the form and sculpture of the whorls prove to be fairly reliable characters in a great number of species, but by no means in all. The sculpture of the outer lip, however, is the only constant shell character which can be relied upon with confidence. Finally, Cernohorsky expressed the opinion that several generic assignments may have to be revised once the anatomy and radula become known. These viewpoints are reinforced by Cernohorsky in a more recent paper (1966: 101).

On the basis of these statements the generic assignment of the present species remains uncertain. The sculpture of the apical whorls and particularly that of the outer lip, however, is so characteristic that the establishment of a new species seems to be justified.

Mitra verweyi n.sp. (pl. 4 A-C)

Material.

Bali Sea, Indonesia, 7° 33′ S 114° 36′ E; depth 200 m; bottom mud; gear: Sigsbee trawl; 3 April 1929; J. Verwey leg. (Th. Mortensen St. 2) — One specimen with the apical parts of the dry soft parts present. The protoconch is lacking and the upper part of the teleoconch is somewhat corroded.

Diagnosis. — A *Mitra* having a distinct cancellate sculpture of the apical whorls, and a faintly developed spiral sculpture on the abapical whorls. The outer lip is slightly curved, strongly reflected, and devoid of crenulations.

Description. — The shell is large and solid. The teleoconch has about 8½ whorls. The body whorl forms about 60 % and the aperture about 52 % of the total height of the shell. The apical angle is 37°. The shell is brown, being somewhat lighter towards the apical part. The suture is deeply impressed. The profile of the apical whorls is nearly straight, and that of the abapical two whorls is slightly convex. The shape of the outer lip is slightly convex. It has a distinctly reflected, white edge and the interior is completely without crenulations. The anterior canal is very short and wide. The parietal wall has four oblique folds of which the abapical one is indistinct. The parietal wall expands into an extensive, whitish, semitransparent callus which has a rounded angle at its apical part.

The five apical whorls have a distinct cancellate sculpture, while in the three and a half abapical whorls the sculpture is dominated by the rather faintly developed spiral sculpture. The axial sculpture of the apical whorls consists of flat, rounded ribs which number about 20 on the most apical whorls and increase to about 30 towards the abapical part. The axial ribs are unequal in size; some are bipartite. The axial ribs gradually disappear and are transformed into an irregular striation which becomes distinctly coarser near the aperture. The spiral sculpture of the apical whorls consists of five distinct grooves plus one much less distinct groove near the upper suture. The spiral grooves increase gradually in number and at the same time become less distinctly marked. There are about 15 on the penultimate whorl and 40 on the body whorl.

Dimensions in mm: height, 67.3; breadth, 22.0; height of body whorl, 40.4; height of aperture, 35.1.

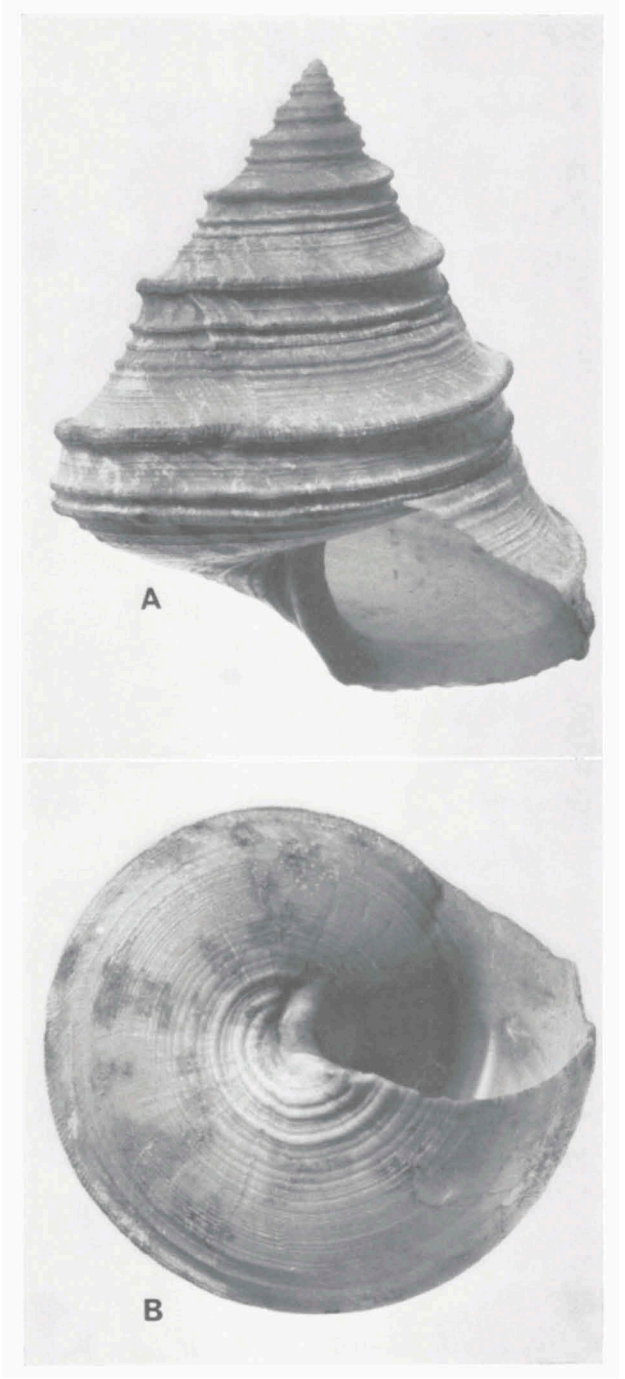
Discussion. — *Mitra verweyi* seems to be similar to *Proximitra banksi* Dell, 1951. The latter species is described by Dell (1951: 54, pl. 1 fig. 7); later Dell (1956: 88, fig. 170) added some details to the original description and published an illustration of a better preserved specimen. *P. banksi* is known from the region between New Zealand and the Chatham Islands at

depths between 170 and 365 m; live specimens have been obtained. It appears to be similar in the shell proportions and the sculpture of the apical whorls. It differs, however, from *M. verweyi* in the shape of the aperture, the lack of reflection of the outer lip, and the absence of an extensive columellar callus.

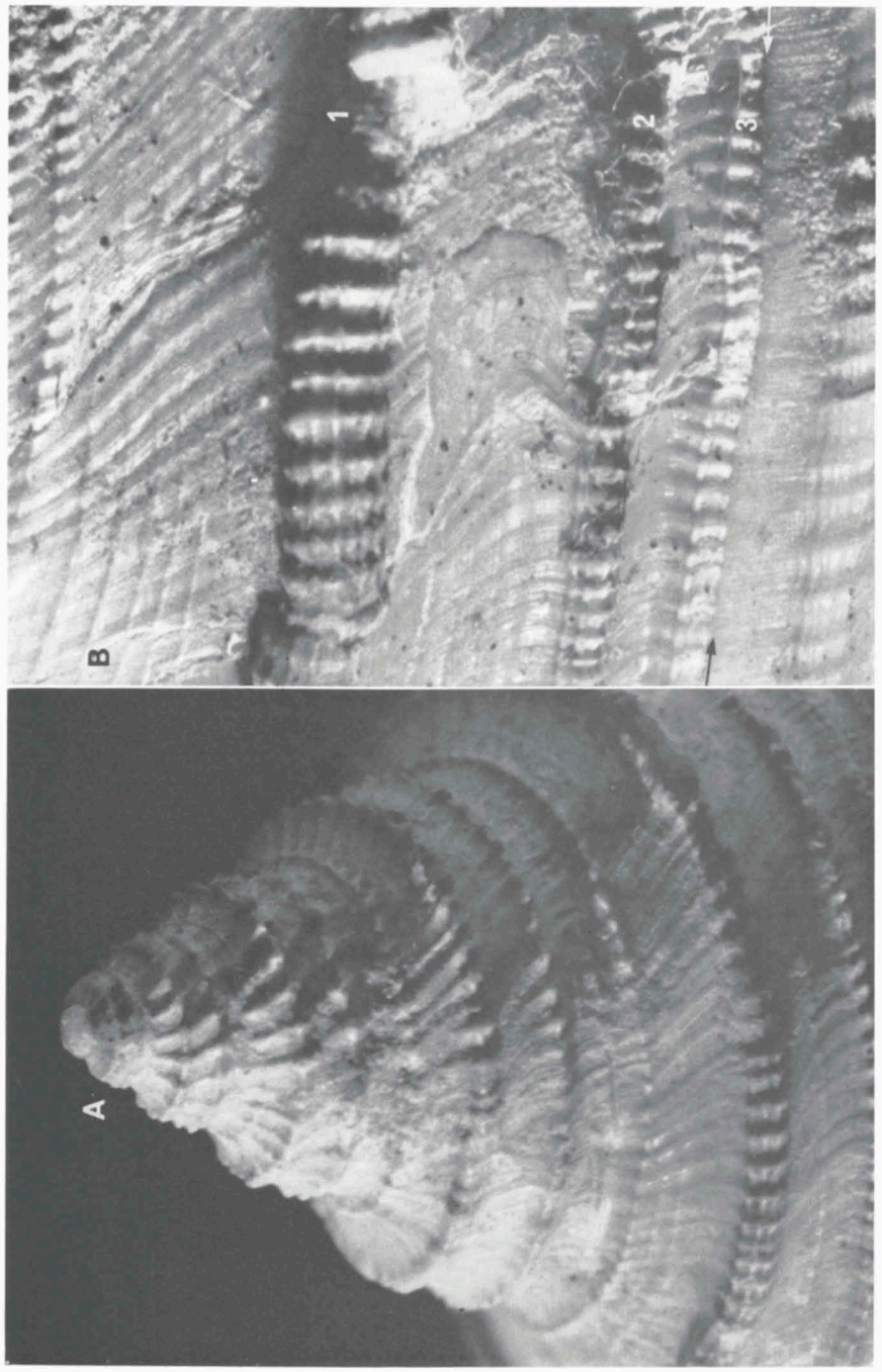
The penultimate whorl has a living colony of a bryozoan (approximately 10 × 10 mm) extending a little across the suture to the body whorl. I am indebted to Mrs. K. Bille Hansen Ph. D. for referring the bryozoan to *Calyptotheca* sp.. In addition, the calcified base of a cirriped, about 5 mm diameter, is located on the body whorl near the anterior canal.

References

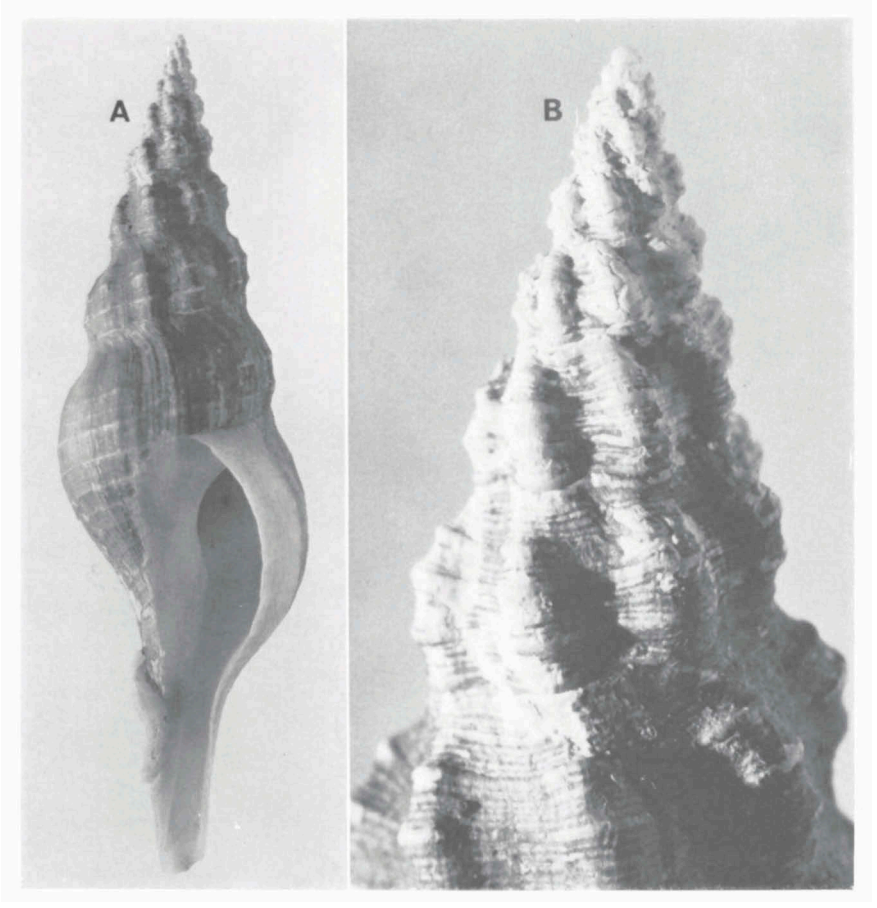
CERNOHORSKY, W. O., 1965. The Mitridae of Fiji. — The Veliger, 8 (2) : 70-160, pls. 1-11.
——, 1966. A study of Mitrid radulae and a tentative generic arrangement of the family Mitridae. — The Veliger, 9 (2) : 101-126.
CLENCH, W. & R. TURNER, 1960. The genus Calliostoma in the western Atlantic. — Johnsonia, 4 (40) : 1-80.
DELL, R. K., 1951. A deep water molluscan fauna from off Banks Peninsula. — Rec. Canterbury Mus., 6 (1) : 53-60, pl. 1.
——, 1956. The archibenthal mollusca of New Zealand. — Dominion Mus. Bull., 18 (1) : 1-235, pls. 1-25.
FRETTER, V. & A. GRAHAM, 1962. British prosobranch molluscs. — Ray Society, London : 1-755.
HABE, T., 1961. Coloured illustrations of the shells of Japan, 2 : 1-239, pls. 1-66.
——, 1964. Shells of the western Pacific in color, 2 : 1-233, pls. 1-66.



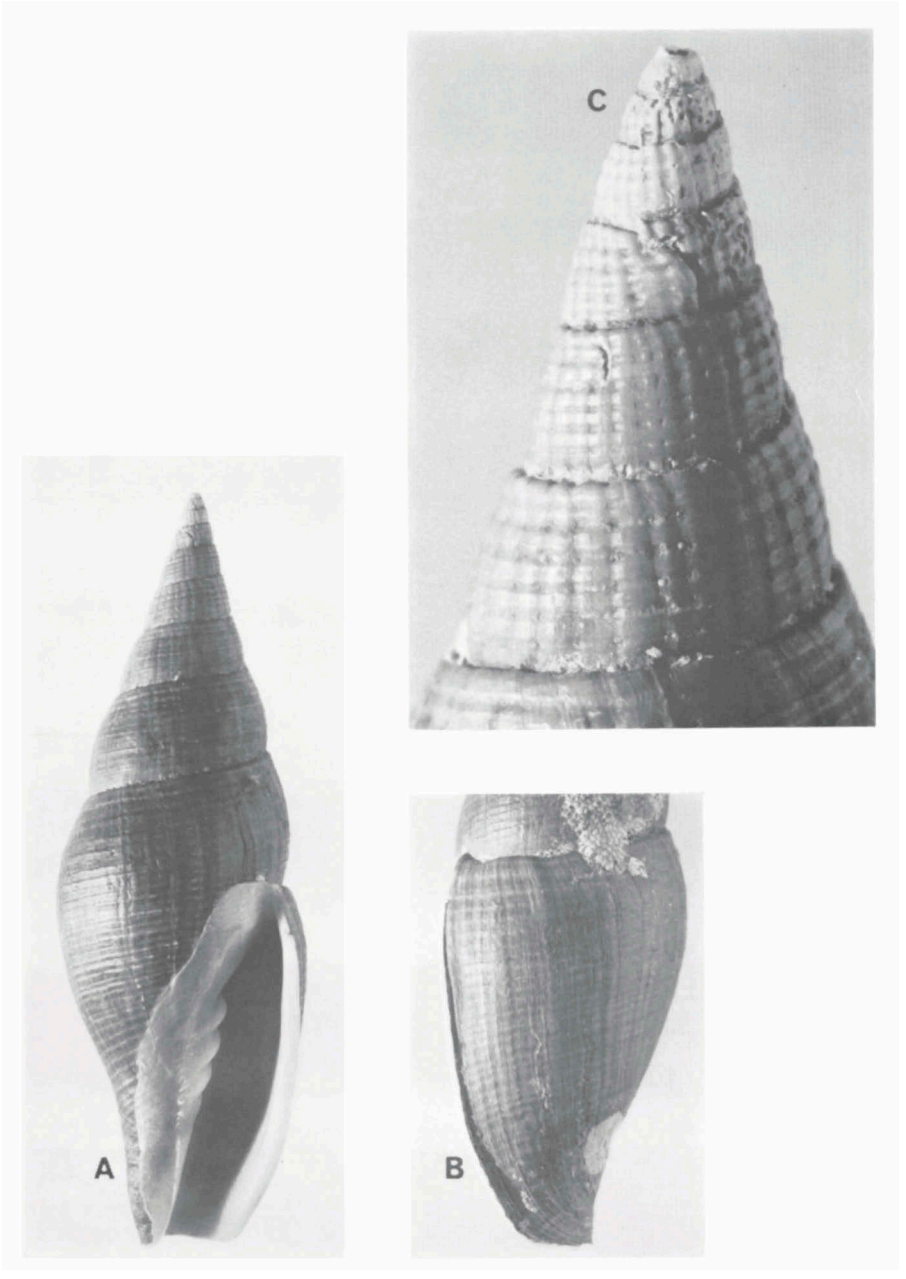
Calliostoma altena n. sp. A, apertural view of the type; B, basal view of the type. A, B, × 2.5.



Calliostoma altena n. sp. A, apical whorls; B, details of shell sculpture of the penultimate whorl and body whorl at some distance from the outer lip (1, 2, and 3 are the upper, central and lower primary spiral cords. The suture is at the arrows below). A, B, × 15.



Pseudolathyrus cf. *discrepans* Kuroda & Habe. A, apertural view; B, apical whorls. A, × 1.5; B, × about 6.2.



Mitra verweyi n. sp. A, apertural view of the type; B, body whorl; C, apical whorls. A, B, × 1.5; C, × about 6.2.