

A New Genus and Two New Species in the Families Volutidae and Turbinellidae (Mollusca: Gastropoda) from the Western Pacific

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ABSTRACT: *Sigaluta pratasensis*, new genus, new species, in the family Volutidae is described from the South China Sea, off Hong Kong. *Phenacoptygma* Dall, 1918 is removed from the Volutidae and placed in the synonymy of *Surculina* Dall, 1908, which in turn is removed from the Turridae and assigned to the Turbinellidae near *Benthovoluta* Kuroda and Habe, 1950, on the basis of its radula. It is proposed that the families Turbinellidae (*olim* Xancidae) and Vasidae be of co-ordinate rank. A new species of *Benthovoluta*, *B. gracilior*, is described from the Sulu Sea, Philippines.

IN THE PROCESS of arranging the specimens of the family Volutidae in the Division of Mollusks, U. S. National Museum, two new species of deepwater mollusks from the western Pacific were found. These were dredged by the U. S. Bureau of Fisheries steamer "Albatross I" in the South China and Sulu Seas during her 1907-09 cruise in the Philippine Islands.

One of these species turns out to belong to the genus *Benthovoluta*, recently placed by Kuroda (1965:50-51) in the family Turbinellidae. For the other a new genus in the family Volutidae must be erected.

VOLUTIDAE

Sigaluta,² new genus

Shell moderately large, ovate with only few whorls (about 4); nuclear whorls large; shiny with glazelike surface. Aperture ovate; outer lip slightly flaring and somewhat thickened, with shallow rounded sinus at junction with body whorl; columella straight, bearing 2 strongly ascending spiral folds.

TYPE SPECIES: *Sigaluta pratasensis*, new species

This interesting new genus is represented in our collection by only two shells, and as the

soft parts unfortunately were not retained, the exact allocation of the genus must await the discovery of fresh living material. On the basis of the general appearance of the shell, nucleus, and columella plaits, I am placing this genus temporarily in the subfamily Cymbiinae, tribe Meloides, as defined by Pilsbry and Olsson (1954:16-17).

Sigaluta pratasensis, new species

Figs. 1-4

DESCRIPTION: Shell of moderate size (54-61 mm, 2 $\frac{1}{4}$ -2 $\frac{1}{2}$ inches long) and solidity, narrowly ovate; nuclear whorls 2 $\frac{1}{4}$, large, bulbous, smooth, shining; transition between nuclear and postnuclear whorls marked by faint line of demarcation and slight increase in diameter of first postnuclear whorl; postnuclear whorls 1 $\frac{3}{4}$ -2, smooth and shining as if glazed; body whorl rather strongly descending on penultimate whorl; suture glazed over; outer lip slightly thickened with a whitish callus and marked with a shallow sigmoid sinus below suture and a broad, very shallow sinus at obliquely truncate base. Aperture narrowly ovate, acuminate at top, broadly truncate at base; columella straight, bearing 2 strongly ascending spiral plaits. Color from light yellow-brown (#76) (with a slightly grayish cast) to light-gray olive-brown (#94) (ISCC-NBS Color Names, Kelly and Judd, 1965).

LOCALITY: West of Pratas Reef, South China Sea, in 208 fathoms (380 m); U.S.B.F. "Alba-

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² From the Greek *sigaleios* (glossy) + *Voluta*.

tross I" Sta. 5301, 20° 37' N, 115° 43' E, gray mud and sand bottom. August 8, 1908.

MEASUREMENTS:

SPECIMEN	LENGTH	WIDTH
Holotype (USNM 237018)	53.9 mm	28.5 mm
Paratype (USNM 637251)	60.95 mm	29.6 mm

TURBINELLIDAE Swainson, 1840

SYNONYMS: Ptychatractidae Stimpson, 1865; Xancidae Woodring, 1928

Benthovoluta Kuroda and Habe, 1950

Kuroda, T. and T. Habe, 1950:37.

Kuroda, T., 1965:50–52.

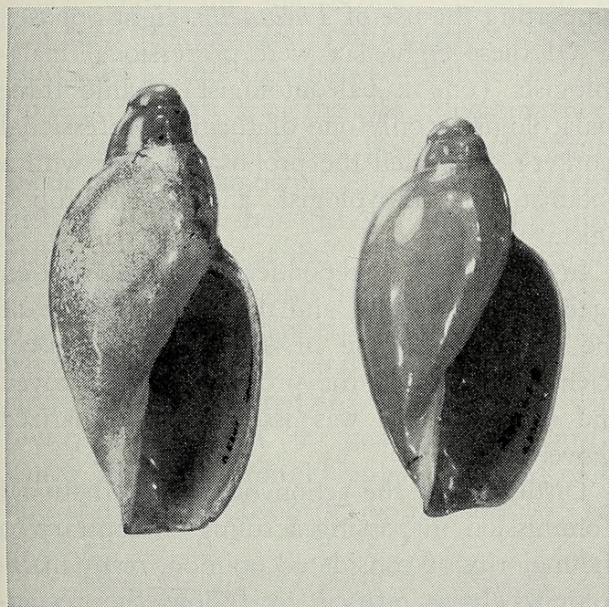
TYPE SPECIES, BY ORIGINAL DESIGNATION: *Phenacoptygma? kiiensis* Kuroda (= *Voluta hilgendorfi* von Martens, 1897).

Kuroda (1931:48) described the type species, under the name *Phenacoptygma kiiensis*, locating it doubtfully in that eastern Pacific genus and suggesting that "*Mitra*" *plicifera* Yokoyama (Yokoyama, 1920:48) from a Pliocene formation near Tokyo Bay was related. In 1950 Kuroda and Habe, in proposing the new genus *Benthovoluta*, placed *kiiensis* Kuroda in the synonymy of *Voluta hilgendorfi* von Martens, although designating *P. kiiensis* as the type species of the genus. At the same time they listed "*Mitra*" *plicifera* Yokoyama as an additional synonym of *hilgendorfi*. Judging from the figure and description of the Pliocene *plicifera*, I would suggest that it represents a distinct species, with more numerous axial ribs on the spire whorls, which are less convex than in *hilgendorfi*.

The species described below seems to represent a third species of this genus, although without a knowledge of its soft parts its allocation to this group must be largely speculative.

Habe (1952:132) depicted the radulae of a number of Japanese marine mollusks without comments. Among them was a figure of the teeth of *Benthovoluta hilgendorfi*. Kuroda (1965:50–51) called attention to the fact that Habe's figure is unlike that of any volutid radula and suggested that *Benthovoluta* be placed in the family Turbinellidae, near *Metzgeria* Norman, 1879, a monotypic boreal genus.

A comparison of Sars' figure (Sars, 1878, pl.



FIGS. 1 and 2. *Sigaluta pratasensis* n. gen., n. sp.; approx. $\times \frac{4}{5}$. 1, Paratype. 2, Holotype.

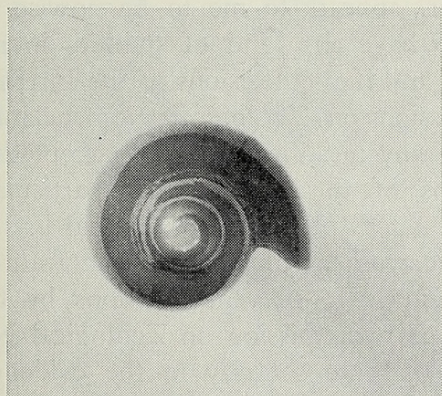


FIG. 3. *Sigaluta pratasensis* n. gen., n. sp.; apical view; approx. $\times \frac{4}{5}$.

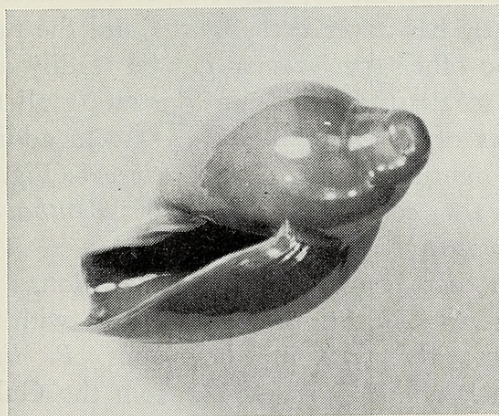


FIG. 4. *Sigaluta pratasensis* n. gen., n. sp.; view showing columella fold; approx. $\times \frac{4}{5}$.

IX, fig. 13; Thiele, 1929:343, fig. 409) of the radula of *Metzgeria alba* (Jeffreys, 1873) (syn. *Meyeria pusilla* 'M. Sars' G. O. Sars, 1878) with the figure given by Habe reveals indeed a very close similarity; while the radulae of *Turbinella fusus* Sowerby, 1825, as published by Dall (1885:346, pl. XIX, fig. 1; Abbott, 1950:202, pl. 89, fig. 2) and of *T. laevigata* Anton, 1839 (Thiele, 1929:342; Abbott, 1950:202, pl. 89, fig. 3) also show a similarity, although the relationship is less close.

A more strikingly close relationship is revealed by a study of the radulae of what Dall described as *Daphnella* (*Surculina*) *cortezi* (Dall, 1908:292) from off San Diego, California, and ?*Leucosyrinx galapagana* (Dall, 1919:5, pl. 3, fig. 2) from the Galapagos Islands. The type species of *Surculina*, *Daphnella* (*Surculina*) *blanda* Dall (1908:291, pl. 3, fig. 1) is certainly congeneric with *S. cortezi*, for which Dall in 1918 proposed the generic name *Phenacoptygma* (Dall, 1918:138), placing it in the family Volutidae. This genus was placed in the subfamily Calliotectinae by Pilsbry and Olsson (1954:19).

The genus *Surculina* Dall, 1908 (Dall, 1908:260-261), with its synonym *Phenacoptygma* Dall, 1918, therefore also must be placed in the family Turbinellidae.

Surculina was considered to be a subgenus of *Leucosyrinx* by Grant and Gale (1931:509-510), who assigned both *blanda* and *galapagana* to this subgenus. Powell (1942:21) follows this allocation, placing the group in the subfamily Cochlespirinae.

In order to make this relationship more clear, and because the type species of *Surculina* apparently has never been figured and the figures of the other species may not be readily accessible to all students, I am illustrating all three species of *Surculina* (Figs. 7-9). In addition, I am figuring the radula of *S. cortezi* (Fig. 10) and, for comparison, that of *Benthovoluta hilgendorfi* (Fig. 11).

Another genus that probably belongs here is *Ptychatractus* Stimpson (1865:59) with three species: the type of the genus, *P. ligatus* Mighels and Adams, 1842, from the Gulf of Maine; *P. occidentalis* Stearns, 1873, from Alaska; *P. californicus* Dall, 1908, from Monterey Bay to San Diego, California. A rather

poor figure of the radula is given by Stimpson (1865: pl. 8, fig. 8).

I have used the family name Turbinellidae instead of Xancidae or Vasidae for the following reason.

In 1957, in Opinion 489 of the International Commission on Zoological Nomenclature, the generic name *Turbinella* Lamarck, 1799 was validated and placed on the Official List of Generic Names, and *Xancus* Röding, 1798 was suppressed and placed on the Official Index of Rejected and Invalid Names. Concurrently, the family name Turbinellidae Swainson, 1840 was placed on the Official List of Family Group Names in Zoology. A perusal of the history of this case (Hemming, 1957:155-178) reveals the fact that whereas six persons are cited as supporting the use of *Turbinella*, eight opposed it. Of these eight, six were professional malacologists (one a paleontologist), while three malacologists (only one of them a professional worker) supported the proposal, siding with a botanist, an ichthyologist, and an anthropologist.

In spite of the preponderance of opposition against the proposal, and the clear evidence of the very limited use of *Turbinella* in recent scientific literature, the proposal was approved and Opinion 489 was issued as summarized above.

Disturbed by the action of the International Commission in passing a ruling so contrary to the majority of considered opinion, many malacologists have refused to follow the recommendation, and have continued to use *Xancus* and Xancidae, apparently hoping for an eventual reversal of this Opinion. This procedure, however, appears to me to be unwise. If we wish to have any kind of stability in nomenclature, and if the decisions of the International Commission on Zoological Nomenclature are to have any meaning, we must accept the final decisions of the Commission, particularly as regards names placed on the official lists. What scientific workers must do in the future is to act promptly to prevent decisions by the International Commission on Zoological Nomenclature that are contrary to the evidence and majority opinion.

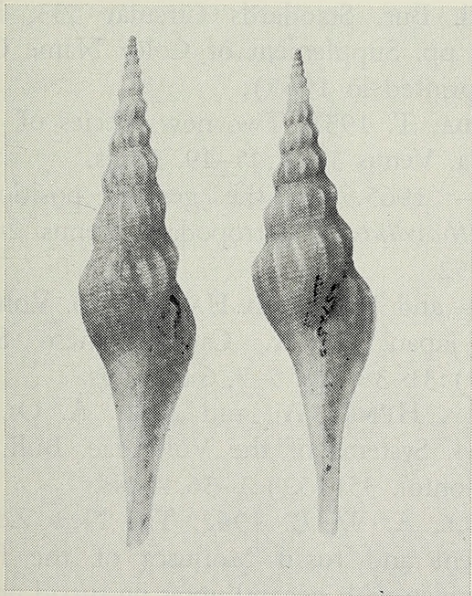
In his monograph of several genera of the family Vasidae in the Indo-Pacific, Abbott

(1959:15) proposed to divide the family into two subfamilies, Vasinae and Xancinae, on the basis of differences in the radula and shell characters. On the basis of the rather fundamental differences in the radula, and in order to minimize to some extent the disturbance to nomenclature caused by the action described above, I suggest that these subfamilies be raised to the rank of families. In this way we can retain the well-known family name Vasidae H. and A. Adams, 1853.

Benthovoluta gracilior, new species

Figs. 5 and 6

DESCRIPTION: Shell of moderate size (50–60 mm, about 2 inches long), fusiform, white, with a thin, light or straw yellow periostracum which under the microscope is seen to be minutely rough and lamellately scabrous, especially in the area between suture and peripheral angulation of the ribs. Nuclear whorls $1\frac{1}{4}$, smooth, bulbous; postnuclear whorls about $10\frac{3}{4}$ in holotype and largest paratype; first 5 whorls show about 8 strong ribs, markedly angulate at the periphery and crossed by 3 or 4 spiral cords below the periphery; area above the periphery smooth in earliest whorls, but showing spiral threads that gradually increase in strength; later whorls with more ribs (13–14 in penultimate whorl), which are less strongly angulated, and with fine spiral cords over the entire surface; last



FIGS. 5 and 6. *Benthovoluta gracilior* n. sp.; approx. $\times 1$. 5, Paratype. 6, Holotype.

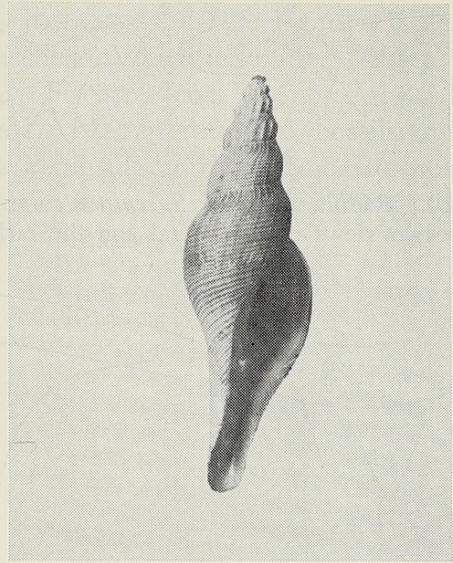


FIG. 7. *Surculina blanda* (Dall, 1908). Holotype; $\times 2$.

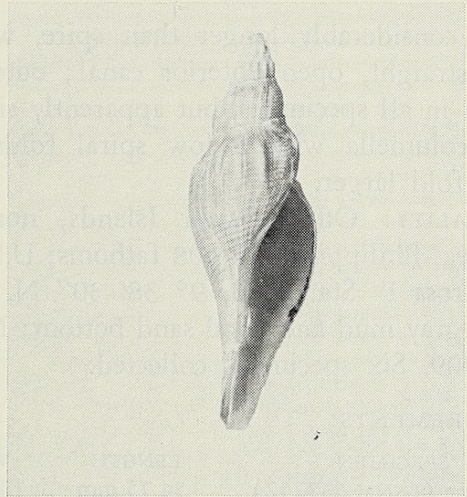


FIG. 8. *Surculina cortezi* (Dall, 1908). Holotype; $\times 1$.

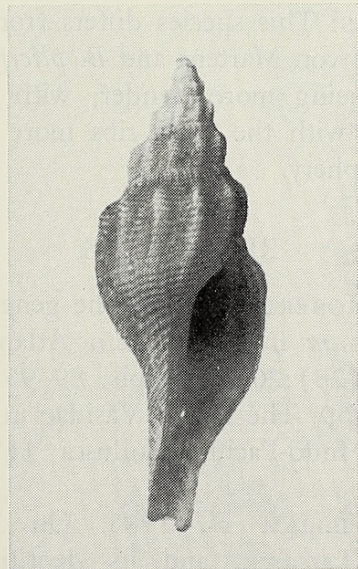


FIG. 9. *Surculina galapagana* (Dall, 1919). Holotype; $\times 3$.

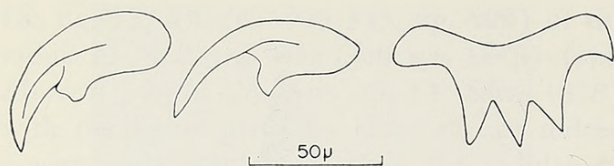


FIG. 10. Radula teeth of *Surculina cortezi* Dall, showing two views of the lateral and the rachidian.

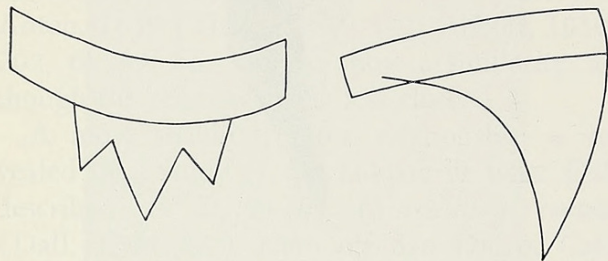


FIG. 11. Radula teeth of *Benthovoluta hilgendorfi* (von Martens, 1897). Copied from Habe, 1952.

whorl considerably longer than spire, with a long, straight, open anterior canal; outer lip broken in all specimens, but apparently simple, thin; columella with 2 low spiral folds, the upper fold larger.

LOCALITY: Off Cagayan Islands, northern Sulu Sea, Philippines, in 508 fathoms; U.S.B.F. "Albatross I" Sta. 5423, 9° 38' 30" N, 121° 11' E, gray mud and coral sand bottom; March 31, 1909. Six specimens collected.

MEASUREMENTS:

SPECIMEN	LENGTH	WIDTH
Holotype (USNM 637252)	54.75 mm	13.4 mm
Figured Paratype (USNM 238408)	57.75 mm	12.9 mm

REMARKS: This species differs from both *B. hilgendorfi* von Martens and *B. plicifera* Yokoyama in being more slender, with a thinner shell, and with the axial ribs more angulated at the periphery.

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