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# REVIEW OF THE SUBGENUS *PTERYNOTUS* (GASTROPODA: MURICIDAE) IN THE WESTERN ATLANTIC

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## INTRODUCTION

The genus *Pterynotus* represents one of the oldest of muricine lineages, dating back to at least the Paleocene (Vokes, 1964, p. 15; 1970, p. 2). By the end of the Eocene, the genus had achieved a Tethyan distribution, with species ranging to Peru and New Zealand. However, it was in the warm, shallow Eocene seas of western Europe (Paris Basin) that a major radiation, which produced most of the lineages recognized today, occurred. Some of these lineages have been given generic or subgeneric status (*Pterochelus, Purpurellus, Marchia*), while others, although just as distinct, have been retained in *Pterynotus* s.s. In this paper, the supraspecific taxonomy of Vokes (1971, p. 53) is followed.

In a review of the Cenozoic *Pterynotus* of the western Atlantic region, Vokes (1970, pp. 1–17) reported that the subgenus *Pterochelus* first appears in the lower Oligocene of the area and is represented by a single Recent species, which is known only from the holotype; that the subgenus *Purpurellus* is presently known only from a single early Miocene species; and that the subgenus *Pterynotus* has been continuously represented since the Paleocene, with three deep-water species in the Recent fauna. These Recent species have since been synonymized by some workers (Abbott, 1974, p. 176; Radwin and D'Attilio, 1976, p. 100) but retained as distinct by others (Fair, 1976, pp. 28, 47, 67). Additionally, a "lost" species of shallow-water *Pterynotus*, erroneously believed for many years to come from the Indian Ocean, has been rediscovered in the Caribbean (Emerson and Old, 1972, pp. 350–354).

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In addition to the types, we were able to examine more than a hundred specimens of western Atlantic *Pterynotus*, some with soft parts partially preserved. Based on this material, a revision of the existing species is proposed; three new species are described; and the anatomy, ecology, and evolution of these species are discussed.

Abbreviations used within the text are as follows: AMNH, American Museum of Natural History; DMNH, Delaware Museum of Natural History; MCZ, Museum of Comparative Zoology; MHNG, Muséum d'Histoire Naturelle, Geneva; USNM, United States National Museum.

## Acknowledgments

We are grateful to the following people, who have assisted us with information, loans of types, and other material; K. J. Boss, Museum of Comparative Zoology, Harvard; W. K. Emerson, American Museum of Natural History, New York; R. S. Houbrick, United States National Museum, Washington, D.C.; G. L. Voss, Rosenstiel School of Marine and Atmospheric Sciences, University of Miami; C. J. Finlay; A. T. Guest; R. and D. Janowsky; J. R. H. Lightbourn; B. McCormack; E. J. Petuch; A. and T. Van Landingham.

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We also thank G. Kris Jensen for illustrating the protoconchs.

## SYSTEMATICS

Family MURICIDAE

Genus *Pterynotus*

Subgenus *Pterynotus* s.s.

TYPE SPECIES: *Murex pinnatus* Swainson, 1822 (is *Purpura alata* Röding, 1798) by subsequent designation, Swainson, 1833.

The Recent species presently assigned to the subgenus *Pterynotus* span at least four distinct lineages, three of which are represented in the western Atlantic. Although we are not presently advocating recognition of these lineages as subgenera, we feel that they do provide valuable insights into the evolution of the genus. These lineages will therefore be treated separately.

The first is the primitive *Pterynotus* line, which has remained virtually unchanged since the Paleocene. It is characterized by a tabled shoulder that leads to a channelled posterior spine on the varix. The aperture does not open into this channelled spine. During the middle Eocene, this group gave rise to the subgenus *Pterochelus*, in which the aperture does open into the channelled spine (Vokes, 1971, p. 42). Ponder and Wilson (1973, p. 395) have raised some questions as to the validity of *Pterochelus* as a subgenus.

The ancient *Pterynotus* line is represented in the Recent fauna by two relict, deep-water species, *P. vespertilio* (Kira, 1959) from off southeastern Japan and *P. guesti* n. sp. from the Straits of Florida.

***Pterynotus* (*Pterynotus*) *guesti* new species**

(Figures 6, 13, 14)

DESCRIPTION: Shell of moderate size (to 28 mm), fusiform, thin; spire angle 40–42°; protoconch with one and a half whorls, smooth, conical, light tan color; juncture with teleoconch poorly delineated, chiefly by change in surface sculpture; six post-nuclear whorls; first post-nuclear whorl with two nodes; first varix below protoconch-teleoconch juncture, adherent to protoconch; subsequently, three varices per whorl with single intervarical nodes on the first three or four post-nuclear whorls; thereafter, no axial sculpture between varices; spiral sculpture consisting of major spiral cord at shoulder, giving shell a tabulate appearance, and six minor spiral cords below shoulder, producing spines on winglike varices; major cord producing large, channelled shoulder spine; ventral surface of varices lamellate; aperture oval; inner lip smooth, attached posteriorly; outer lip with five to seven denticles; anal sulcus not opening into channelled shoulder spine; siphonal canal moderate in length, open, slightly recurved dorsally; shell color light tan with reddish brown blotches, especially on and around varices; aperture reddish brown; operculum, periostracum, and soft parts unknown.

TYPE SPECIMENS: Holotype–DMNH 122258, length 28.6 mm; paratype–USNM 783318, length 23.4 mm (broken canal).

TYPE LOCALITY: ESE of Key West, Florida, in 275 meters.

RANGE: Known only from the type locality.

MATERIAL EXAMINED: The two specimens in type lot.

DISCUSSION: This new species very closely resembles the Paleocene *Pterynotus mathewsensis* (Aldrich, 1886) (Vokes, 1970, pl. 1, fig. 1a,b) and the Eocene *P. stenzeli* E. H. Vokes, 1970 (Vokes, 1970, pl. 1, fig. 5a,b). It may be distinguished from all other Recent Atlantic species by the presence of a tabled shoulder and a channelled posterior spine. That *P. guesti* is very similar to the Japanese *P. vespertilio* (Kira) (Radwin and D'Attilio, 1976, pl. 9, fig. 2) is not surprising since there has been so little morphological change in this line since the Paleocene. *Pterynotus guesti* differs from *P. vespertilio* in having a more elongate shell with narrower varical webbing and by the presence of reddish brown color inside the aperture. This new species honors Arthur T. Guest of Bailey's Bay, Bermuda, in recognition of his assistance in our work on the mollusks of Bermuda.

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A second, slightly modified lineage can be traced to *P. tripteroides* (Lamarck, 1822) of the Paris Basin Eocene. This species group, which contains *P. phaneus* (Dall, 1889) and *P. leucas* (Locard, 1897) as well as the two new species described in the text that follows, may be recognized as having thin, delicate shells that lack scabrous surface ornament and are not buttressed on the apertural side of

the varices. The subgeneric name *Timbellus* (Type: *M. latifolius* Bellardi) was proposed for this group by de Gregorio (1885, p. 275). At present, we feel it is advisable to retain this group in the nominate subgenus of *Pterynotus*. All Recent species of this lineage, which first evolved in warm, shallow seas, are members of upper continental slope communities.

*Pterynotus* (*Pterynotus*) *phaneus* (Dall, 1889)

(Figures 1–5, 13, 16, 17)

SYNONYMY

1889 *Murex* (*Pteronotus*) *phaneus* Dall, Bull. Mus. Comp. Zool. Harvard, 18:201; 1889, Dall, Bull. U. S. Natl. Mus., 37:120, pl. 42, fig. 1; 1890, Dall, Proc. U. S. Natl. Mus., 12:330, pl. 11, fig. 1; 1934, Johnson, Proc. Bost. Soc. Nat. Hist., 40(1):115.

1889 *Murex* (*Pteronotus*) *tristichus* Dall, Bull. Mus. Comp. Zool. Harvard, 18:202, pl. 15, fig. 3; 1889, Dall, Bull. U. S. Natl. Mus., 37:120, pl. 15, fig. 3.

1893 *Murex* (*Pteronotus*) *pygmaeus* Bush, Bull. Mus. Comp. Zool. Harvard, 23:213, pl. 1, figs. 3, 4; 1934, Johnson, Proc. Bost. Soc. Nat. Hist., 40(1):115.

1927 *Pteropurpura tristica* (Dall), Dall, Proc. U. S. Natl. Mus., 70(2667):58.

1934 *Murex* (*Pteropurpura*) *tristichus* Dall, Johnson, Proc. Bost. Soc. Nat. Hist., 40(1):115.

1945 *Murex* (*Pterynotus*) *tristichus* Dall, Clench and Pérez Farfante, Johnsonia, 1(17):36, pl. 20, figs. 1–4.

1945 *Murex* (*Pterynotus*) *pygmaeus* Bush, Clench and Pérez Farfante, Johnsonia, 1(17):36, pl. 20, figs. 7, 8.

1945 *Murex* (*Pterynotus*) *phaneus* Dall, Clench and Pérez Farfante, Johnsonia, 1(17):37.

1964 *Pterynotus* (*Pterynotus*) *tristichus* (Dall), E. H. Vokes, Malacologia, 2(1):15.

1970 *Pterynotus* (*Pterynotus*) *havanensis* E. H. Vokes, Tulane Stud. Geol. Paleont., 8(1):13, pl. 3, figs. 1a,b, new name for *Murex tristichus* Dall *non* Beyrich; 1976, Fair, The Murex Book, p. 47, pl. 13, fig. 164.

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**Figures 1–5**: *Pterynotus* (*Pterynotus*) *phaneus* (Dall, 1889).

**Figure 1**: Holotype – *Murex pygmaeus* Bush, MCZ 6918, Blake Station 319, off Charleston, South Carolina, in 479 m (X2).

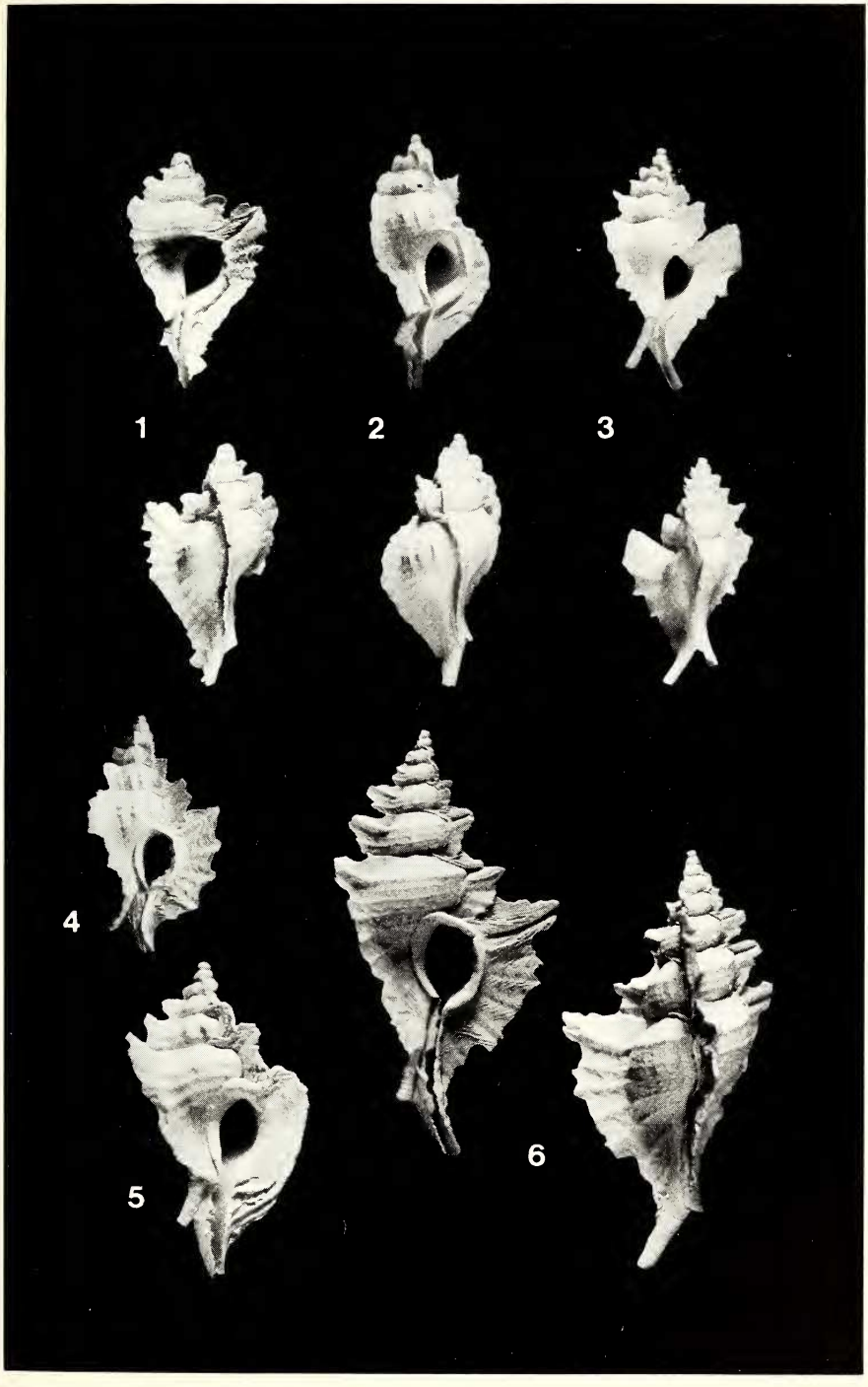
**Figure 2**: Holotype – *Murex phaneus* Dall, USNM 93256, Albatross Station 2662, off St. Augustine, Florida, in 794 m (X2).

**Figure 3**: Holotype – *Murex tristichus* Dall, MCZ 7308, Blake Station 51, off Havana, Cuba, in 732 m (X2).

**Figure 4**: USNM 416663, off Key West, Florida, in 174 m (X2).

**Figure 5**: DMNH 122423, R/V Pillsbury Station P-587, Arrowsmith Banks, off Isla Mujeres, Quintana Roo, Mexico, in 245–250 m (X2).

**Figure 6**: *Pterynotus* (*Pterynotus*) *guesti* new species. Holotype, DMNH 122258, ESE of Key West, Florida, in 275 m (X2).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1970 *Pterynotus* (*Pterynotus*) *bushae* E. H. Vokes, Tulane Stud. Geol. Paleont., 8(1):13–14, pl. 3, figs. 2a,b, new name for *Murex pygmaeus* Brush *non Muricites pygmaeus* Schlotheim; 1976, Fair, The Murex Book, p. 28, pl. 13, fig. 163.

1970 *Pterynotus* (*Pterynotus*) *phaneus* (Dall), E. H. Vokes, Tulane Stud. Geol. Paleont., 8(1):14–15, pl. 3, figs. 3a,b; 1974, Abbott, American Seashells, second edition, p. 175, fig. 1856; 1976, Fair, The Murex Book, p. 67, pl. 13, fig. 165; 1976, Radwin and D'Attilio, Murex Shells of the World, p. 100, pl. 9, fig. 3.

DESCRIPTION: Shell small (to 20 mm), fusiform, thin; spire angle 33–44°; protoconch with one and a half whorls, smooth, translucent, slightly bulbous, ending in thin varix; teleoconch with five slightly convex whorls; three thin, flaring winglike varices per whorl; axial sculpture consisting of none, one, two, or three intervarical nodes (number may vary on single specimen); spiral sculpture of fine threads, barely discernible, except on dorsal surfaces of varices where four to nine raised ribs may be produced; laminae on ventral surfaces of varices pronounced to barely noticeable; aperture oval; inner lip smooth, attached posteriorly; outer lip may be smooth or may bear four to six denticles; siphonal canal moderate in length, open, slightly recurved dorsally; shell and aperture color uniformly white; periostracum very thin, light yellowish brown, generally abraded away; operculum corneous, light amber, elongate, with terminal nucleus.

SOFT PARTS: A single, partially preserved female specimen (see Figure 5) was examined; animal uniformly cream-yellow; mantle edge smooth; osphradium unequal, right side 1.5 times as wide as left; about 35 leaflets per side of osphradium; ctenidum of about 85 leaflets tapers anteriorly and posteriorly; large, purplish hypobranchial gland; capsule gland enlarged, suggesting specimen was ready to spawn; radular ribbon long and narrow, consisting of 142 rows; rachidian five cusped, laterals scythe shaped (see Figure 17); ratio of radular length to shell length 0.136; large valve of Leiblein; paired salivary glands; large, amber-colored gland of Leiblein.

TYPE SPECIMENS: *P. phaneus*: holotype–USNM 93256, length 16.9 mm. *P. tristichus*: holotype–MCZ 7308, length 15.3 mm; paratype 1–MCZ 7309, length 7.0 mm; paratype 2–USNM 87084, length 18.5 mm. *P. bushae*: holotype–MCZ 6918, length 16.0 mm.

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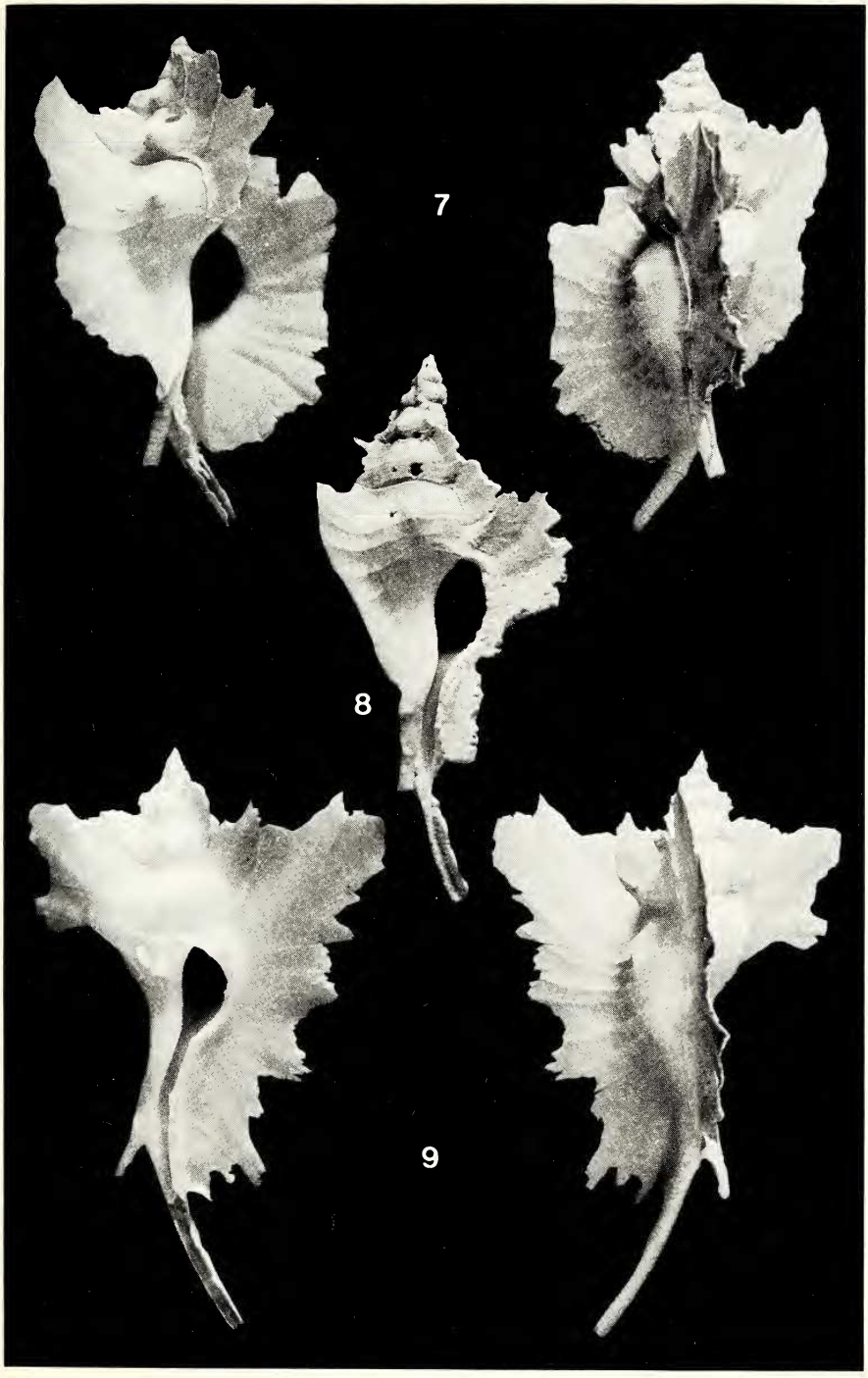
**Figures 7–9**: *Pterynotus* (*Pterynotus*) *lightbourni* new species.

**Figure 7**: Holotype, DMNH 122259, off St. David's, Bermuda, in 275 m (X2).

**Figure 8**: Paratype 2, A. T. Guest collection, off St. David's, Bermuda, in 275 m (X2).

**Figure 9**: Paratype 1, USNM 652787, off St. David's, Bermuda, in 600 m (X2).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TYPE LOCALITY: Albatross Station 2662, off St. Augustine, Florida, in 434 fathoms (794 meters).

RANGE: Outer continental shelf and upper continental slope from off Charleston, South Carolina, down the east coast of Florida, along both sides of the Straits of Florida to off the Arrowsmith Banks, Yucatan, Mexico, in 165 to 800 meters.

MATERIAL EXAMINED: Off Charleston, South Carolina, 479 m depth (type locality of *P. bushae*), MCZ; off Brunswick, Georgia, 485–530 m depth, MCZ; off Fernandina, Florida, 794 m depth, USNM; off Key West, Florida (13 specimens, 174–274 m depth), AMNH, DMNH, USNM, Finlay coll., Janowsky coll.; off Sand Key, Florida (4 specimens, 165–232 m depth), USNM, Janowsky coll.; off Sambo Reef, Florida (22 specimens, 216–247 m depth), USNM; off West'n Dry Rocks, Florida, 174 m depth, USNM; off Dry Tortugas, Florida, 192 m depth, Janowsky coll., Lightbourn coll.; off Havana, Cuba (type locality of *P. havanensis*), (5 specimens, 320–823 m depth), MCZ, USNM; off Arrowsmith Banks, Yucatan, Mexico, 245–250 m depth, DMNH.

DISCUSSION: *P. phaneus* is the most widely distributed and variable species in this lineage. Our examination of 50 specimens supports the conclusion that *P. havanensis* and *P. bushae* are forms of *P. phaneus*. The chief characters used to distinguish these forms had been the presence or absence of three intervarical nodes and the relative degree of varical webbing. We have found varical webbing to be variable. The number of intervarical nodes can range from none to three on a single specimen! Specimens from both the northern and southern ends of the range have heavier shells, greater spire angles, and a higher incidence of intervarical nodes.

In addition to the type specimens of *Murex tristichus* discussed by Vokes (1970, p. 13), a second paratype from Blake Station 5, which was referred to by Dall (1889, p. 202), has been located at USNM.

### *Pterynotus* (*Pterynotus*) *lightbourni* new species

(Figures 7–9, 13, 15)

DESCRIPTION: Shell large (to 39 mm), fusiform, delicate; spire angle 35–37°; protoconch with one and a half whorls, conical, glassy, translucent, ending in a thin varix; teleoconch with seven slightly convex whorls; first 1⅓ whorls bear

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**Figure 10**: *Pterynotus* (*Pterynotus*) *radwini* new species. Holotype, DMNH 122424, R/V Pillsbury Station P-610, east of Turneffe Islands, Belize, in 296–329 m (×2).

**Figure 11**: *Pterynotus* (*Pterynotus*) *phyllopterus* Lamarck, 1822, Finlay collection, off Malendure Beach, Guadeloupe, in 6 m (×1).

**Figure 12**: *Pterynotus* (*Perynotus*) *phyllopterus* Lamarck, 1822, Van Landingham collection, off Guadeloupe in 10–12 m (×1).

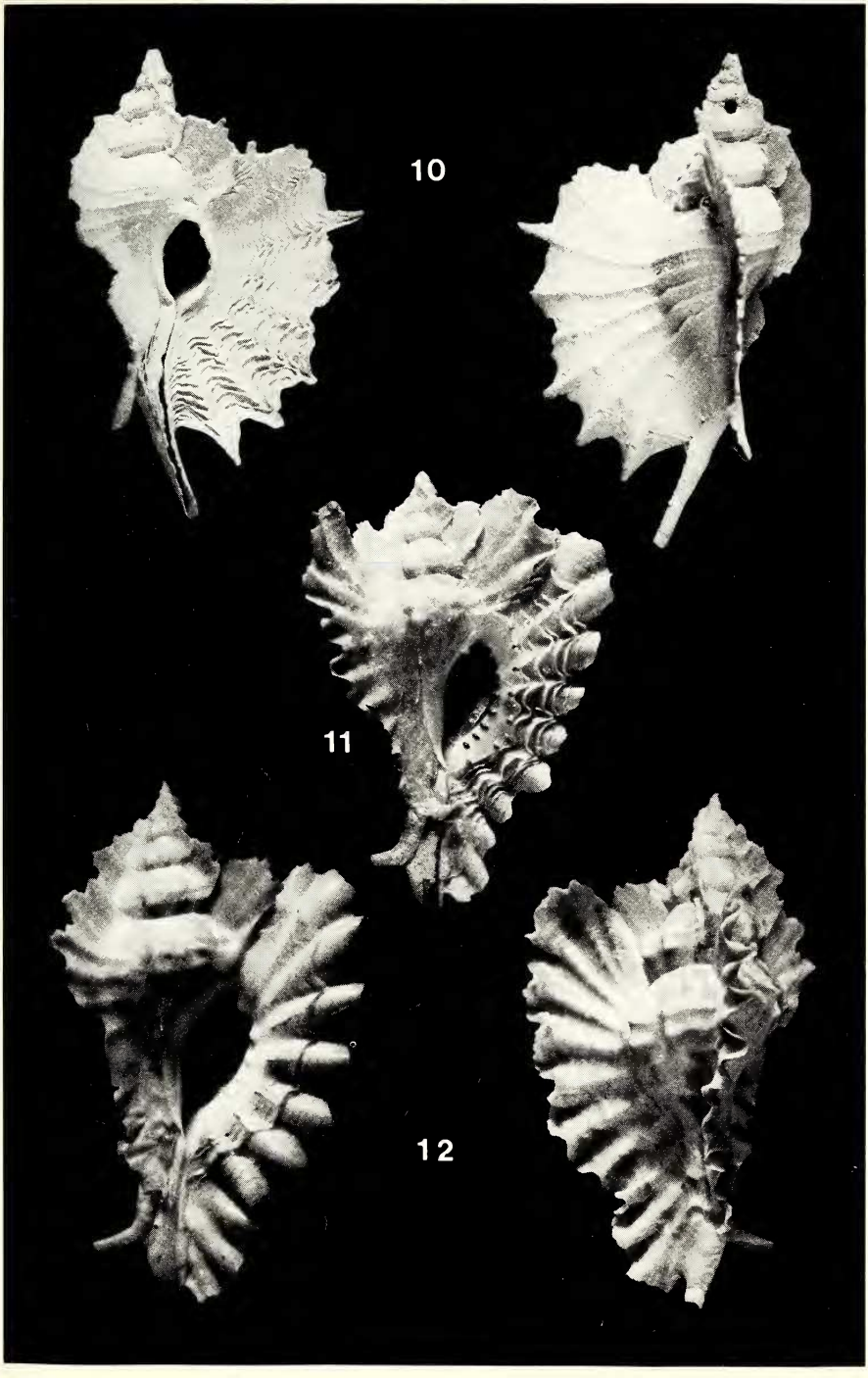
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**Figure 13**: Geographical distribution of species assigned to *Pterynotus* s.s. in the western Atlantic.

six varices per whorl; subsequently, three varices per whorl with single, prominent intervarical node between varices; spiral sculpture of 10 to 12 faint cords, producing thin ribs on dorsal surfaces of wide, thin varical webs; ventral surfaces of webs faintly lamellate; aperture oval; inner lip smooth, appressed posteriorly; outer lip may be smooth or may bear prominent anal sulcus and six denticles; siphonal canal long, open, curved to animal's right, but not recurved dorsally; shell and aperture color white, except for three faint golden tan patches on outside of aperture, one at edge of siphon, one medial, and one at posterior margin; operculum, periostracum, and soft parts unknown.

TYPE SPECIMENS: Holotype–DMNH 122259, length 33.8 mm; paratype 1–USNM 652787, length 38.6 mm; paratype 2–Arthur Guest collection, length 37.0 mm.

TYPE LOCALITY: Off St. David's, Bermuda, in 275–600 meters.

RANGE: Known only from the type locality.

MATERIAL EXAMINED: The three specimens in type lot.

DISCUSSION: The three apertural color patches, as well as shell size and shape, serve to distinguish this species from other western Atlantic taxa. It resembles *P. leucas* from the eastern Atlantic but differs in having a proportionally smaller aperture, wider varices, and a single intervarical node. It is also similar to Recent

specimens of *P. flemingi* Bue, 1967 (Beu, 1970, pl. 2, figs. 23–26) from off New Zealand. *Pterynotus flemingi* also has the color patches outside the aperture, as well as a single intervarical node, but differs from *P. lightbourni* by having a much larger aperture and a greater spire angle.

We take pleasure in naming this species in honor of John R. H. Lightbourn, of Bailey's Bay, Bermuda, in recognition of his contributions to the studies of the deep-water mollusks of Bermuda.

***Pterynotus* (*Pterynotus*) *radwini* new species**

(Figures 10, 13, 18)

DESCRIPTION: Shell large (31 mm), fusiform, thin; spire angle 33°; protoconch unknown; adult shell of six slightly convex post-nuclear whorls; three varices per whorl; no axial sculpture between varices; spiral sculpture of eight equally prominent cords, producing raised ribs on dorsal surfaces of webbed varices, these raised ribs projecting as spines beyond edges of varices; ventral surfaces of varices complexly lamellate; aperture oval; inner lip smooth, attached posteriorly; outer lip with pronounced anal sulcus and six denticles; siphonal canal long, open, curved to animal's right, but not recurved dorsally; shell color pale coffee, cords and ribs slightly darker; aperture white; periostracum thin, yellowish, but generally abraded away; operculum corneous, light amber, elongate, with terminal nucleus.

SOFT PARTS: Holotype, a partially preserved female specimen; animal uniformly cream-yellow; mantle edge smooth; osphradium roughly symmetrical, with 68 leaflets per side; ctenidium of 90 branchial leaflets tapers posteriorly but remains broad anteriorly; large purplish hypobranchial gland; capsule gland not enlarged; radula of 110 rows with five cusped rachidian, sicklelike laterals (see Figure 18); ratio of radular length to shell length of 0.051; pronounced valve of Leiblein and gland of Leiblein, salivary glands paired.

TYPE SPECIMEN: Holotype–DMNH 122424, length 30.9 mm.

TYPE LOCALITY: R/V Pillsbury station P-610, east of Turneffe Islands, Belize, in 296–329 meters.

RANGE: Known only from the type locality.

MATERIAL EXAMINED: The holotype.

DISCUSSION: At first glance, this species more closely resembles the ocenebrine *Pteropurpura macroptera* (Deshayes, 1839) than any *Pterynotus*, but closer examination reveals typically muricine radula and operculum. It can readily be distinguished from *P. lightbourni*, its nearest congener, by its coffee color, lack of apertural color patches, lack of axial sculpture, prominent spiral sculpture, and strongly digitated varices.

This species is named in honor of George E. Radwin, who would have described it were it not for his untimely death.

A third lineage is represented in the western Atlantic by *P. phyllopterus* (Lamarck, 1822). This line has been traced to the middle Eocene of the Paris Basin by Vokes (1970, p. 13) and is characterized by its large size (60–100 mm), crenulated varices, flanged outer lip with pronounced denticles, and presence of medial and siphonal color patches on the varices. This shallow-water group reached its peak in the Miocene faunas of Europe and North America but is represented in the Recent fauna by two relict species, *P. bednalli* (Brazier, 1878) of northwestern Australia and *P. phyllopterus* of the Antilles.

*Pterynotus* (*Pterynotus*) *phyllopterus* (Lamarck, 1822)

(Figures 11–13, 19)

SYNONYMY

1822 *Murex phyllopterus* Lamarck, Anim. sans Vert., 7:164; 1829, Schubert and Wagner, Martini and Chemnitz, Neues Systematisches Conchylien-Cabinet, 12:19, pl. 219, figs. 3042, 3043; 1842, Kiener, Coq. Viv., 7:103–104, pl. 24, fig. 1; 1843, Deshayes and Milne-Edwards, Anim. sans Vert., second edition, 9:577 (in part, references to Schubert and Wagner, 1829, and Kiener, 1842, only); 1856, Küster and Kobelt, Systematisches Conchylien-Cabinet von Martini and Chemnitz, 3(2):43–44, pl. 18, figs. 1, 2; 1880, Tryon, Manual of Conchology, 2:114, pl. 34, fig. 373 only; 1883, Poirier, Nouv. Arch. Mus. Hist. Nat., 10:97; 1971, Cernohorsky, The Veliger, 14:189, fig. 5.

1846 *Murex rubridentatus* Reeve, Conch. Icon., vol. 3, *Murex*, pl. 36, figs. 186a,b; 1879, Sowerby, Thes. Conch., 4:22, pl. 11, fig. 105; 1880, Tryon, Manual of Conchology, 2:85, pl. 40, fig. 507; 1883, Poirier, Nouv. Arch. Mus. Hist. Nat., 10:96; 1971, Cernohorsky, The Veliger, 14:189, fig. 8.

1970 *Pterynotus* (*Pterynotus*) *phyllopterus* (Lamarck). E. H. Vokes, Tulane Stud. Geol. Paleont., 8:13; 1971, Emerson and Old, The Veliger, 14:350–354, figs. 1–13; 1974, Abbott, American Seashells, second edition, p. 176, pl. 8, fig. 1862; 1976, Fair, The Murex Book, pp. 67–68, pl. 13, fig. 157; 1976, Radwin and D'Attilio, Murex Shells of the World, pp. 100–101, pl. 7, fig. 8; 1977, Lozet, Shells of the Caribbean, p. 73, fig. 88.

Not *Murex phyllopterus* "Lamarck" of authors: 1828, Sowerby, The Genera of Recent and Fossil Shells, 2(30), pl. 224 [is *Ceratostoma nuttalli*

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**Figure 14**: Protoconch of *Pterynotus* (*Pterynotus*) *guesti* new species. Holotype, DMNH 122258.

**Figure 15**: Protoconch of *Pterynotus* (*Pterynotus*) *lightbourni* new species. Paratype 1, USNM 652787.

**Figure 16**: Protoconch of *Pterynotus* (*Pterynotus*) *phaneus* (Dall, 1889), off Key West, Florida, in 274 m, DMNH 124417. Scale bar equals 1 millimeter for all drawings.

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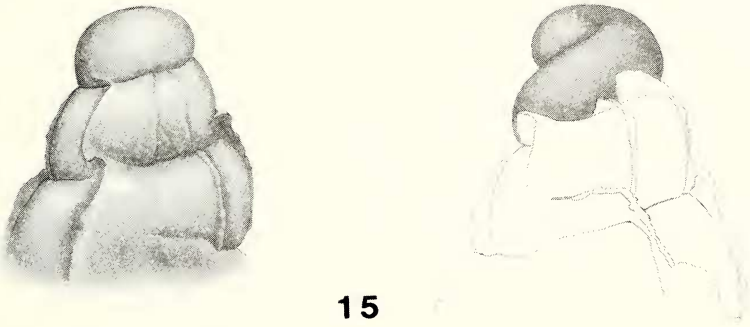

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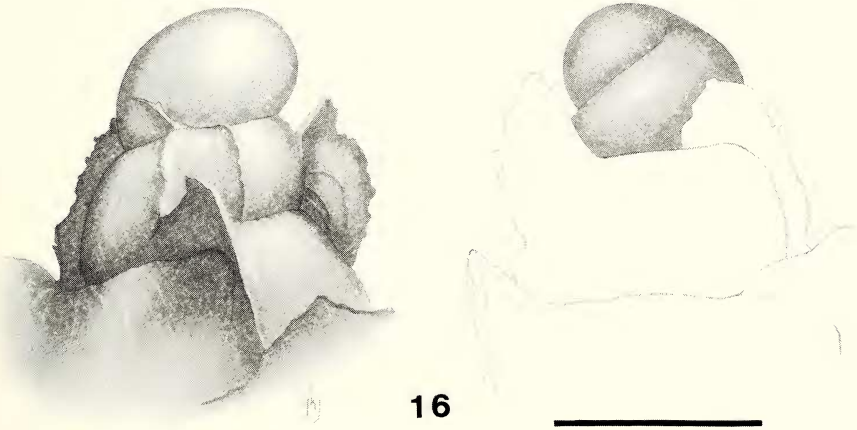

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(Conrad, 1837)]; 1845, Reeve, Conch. Icon., vol. 3, *Murex*, pl. 16, fig. 63 [is *Pteropurpura trialata* (Sowerby, 1841)]; 1879, Sowerby, Thes. Conch., 4(33–34):24, pl. 11, fig. 107 [is *Pteropurpura trialata* (Sowerby, 1841)].

DESCRIPTION: Shell large (to 100 mm), fusiform, moderately heavy; spire angle 40–42°; protoconch of one and a half whorls, smooth, conical; teleoconch with eight slightly convex whorls; three crenulated, flaring varices per whorl; two pronounced intervarical nodes between varices; spiral sculpture of nine to 12 cords, extending onto varices, producing dorsal fluting; ventral surfaces of varices lamellate; aperture lenticular; inner lip smooth, attached posteriorly; outer lip flanged, appressed to ventral surface of varix; six to eight denticles on outer lip; siphonal canal straight, open, slightly recurved dorsally; shell color typically tan, but may be brick-red, white, yellow, lavender, or chocolate-brown; two brown patches on outside of aperture, one at edge of siphon, one medial; aperture white; denticles purplish red; periostracum thin, brownish; operculum corneous, brown, elongate, with terminal nucleus; soft parts unknown except for radula (see Figure 19), which has five cusped rachidian and scythelike laterals (D'Attilio, personal communication).

TYPE SPECIMEN: Holotype–MHNG 1099/27, length 83.4 mm.

TYPE LOCALITY: Martinique, Windward Islands (subsequent designation, Emerson and Old, 1972).

RANGE: Known only from the islands of Martinique and Guadeloupe, in 6 to 30 meters. Sand and coral rubble bottom.

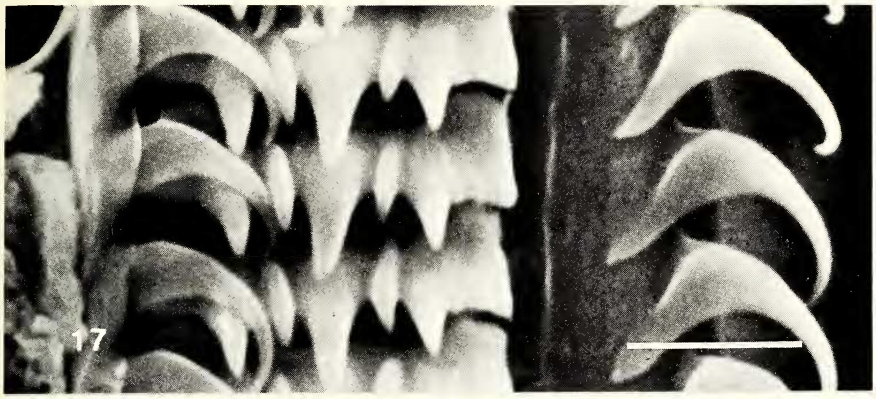
MATERIAL EXAMINED: Off Guadeloupe (8 specimens, 6–20 m depth), Finlay coll., Janowsky coll., Van Landingham coll.; off Martinique (7 specimens, 15–30 m depth), AMNH, DMNH, Janowsky coll.

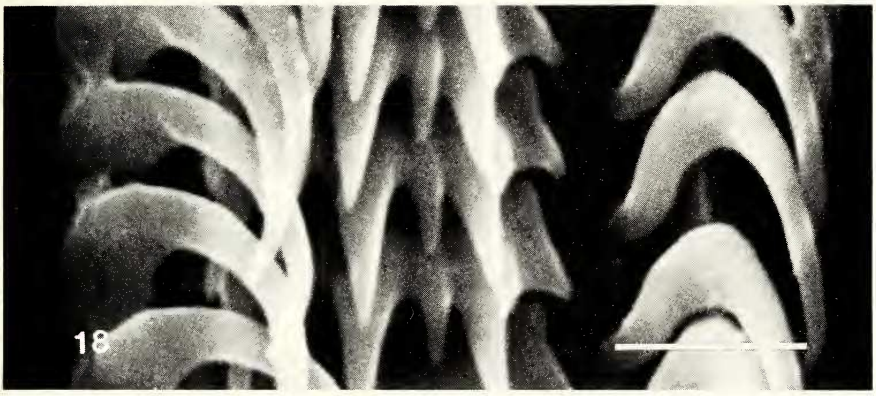
DISCUSSION: Although this is one of the largest species of *Pterynotus*, it has only recently been rediscovered in the Caribbean, previously having been believed to come from the Indian Ocean. This relict species more closely resembles the Miocene species *P. hoerlei* E. H. Vokes, 1970, of Florida and *P. rovasendae* (Bellardi, 1872) of Italy than any Recent species.

Western Atlantic taxa erroneously referred to *Pterynotus*:

*Murex* (*Pteronotus*) *macropterus* "Deshayes" Dall, 1889, Bull. Mus. Comp. Zool. Harvard, 18:201; Dall, 1889, Bull. U. S. Natl. Mus., 37:120 is *Pteropurpura bequaerti* Clench and Pérez Farfante, 1945 (Clench and Pérez Farfante, 1945, p. 40).

*Murex abyssicola* Crosse, 1865, had been placed in *Pterynotus* by Clench and Pérez Farfante, 1945, p. 38 and reassigned to *Dermomurex* by Vokes, 1970, p. 15; 1975, p. 148, pl. 4, figs. 2, 3.



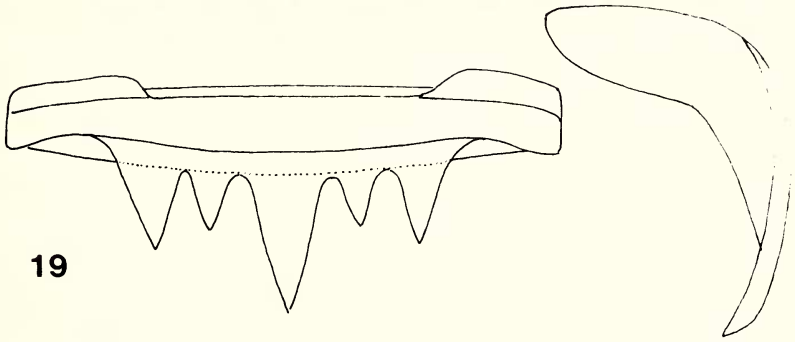




**Figure 17**: Scanning electron micrograph of radula of *Pterynotus* (*Pterynotus*) *phaneus* (Dall, 1889), taken from specimen shown in Figure 5. Scale bar equals 20 μm.

**Figure 18**: Scanning electron micrograph of radula of *Pterynotus* (*Pterynotus*) *radwini* new species. Holotype. Scale bar equals 20 μm.

**Figure 19**: Drawing of radula of *Pterynotus* (*Pterynotus*) *phyllopterus* (Lamarck, 1822) (courtesy A. D'Attilio).

## BIBLIOGRAPHY

Abbott, R. T.

1974 American Seashells, second edition. Van Nostrand Reinhold Company, N.Y.

Beu, A. G.

1970 New Zealand Gastropod Molluscs of the Genus *Pteropurpura* Jousseaume. Trans. R. Soc. N.Z., Biol. Sci., 12(12):133–143.

Clench, W. J., and I. Pérez Farfante

1945 The Genus *Murex* in the western Atlantic. Johnsonia, 1(17):1–56.

Dall, W. H.

1889 Reports on the Mollusca, Part II – Gastropoda and Scaphopoda: Reports on the results of dredging, under the supervision of Alexander Agassiz, in the Gulf of Mexico (1877–78) and in the Caribbean Sea (1879–80), by the U.S. Coast Survey Steamer "Blake," Lieut.-Commander C. D. Sigsbee, U.S.N., and Commander J. R. Bartlett, U.S.N., Commanding. Bull. Mus. Comp. Zool. Harvard, 18:1–492.

Emerson, W. K., and W. E. Old

1972 On the identity of *Murex phyllopterus* Lamarck, 1822, a tropical western Atlantic species (Gastropoda: Prosobranchia). The Veliger, 14(4):350–354.

Fair, R. H.

1976 The Murex Book: an illustrated catalogue of the recent Muricidae (Muricinae, Muricopsinae, Ocenebrinae). Ruth H. Fair, Honolulu.

de Gregorio, A.

1885 Studi su talune conchiglie mediterranee viventi e fossili con una revista del gen. *Vulsella*. Bull. Soc. Malac. Ital., 10:36–288.

Ponder, W. F., and B. R. Wilson

1973 A new species of *Pterynotus* (Gastropoda: Muricidae) from western Australia. J. Malac. Soc. Aust., 2(4):395–400.

Radwin, G. E., and A. D'Attilio

1976 Murex Shells of the World: An illustrated Guide to the Muricidae. Stanford University Press, Stanford, California.

Vokes, E. H.

1964 Supraspecific groups in the subfamilies Muricinae and Tritonaliinae (Gastropoda: Muricidae). Malacologia, 2(1):1–41.

1970 Cenozoic Muricidae of the western Atlantic region, Part V – *Pterynotus* and *Poirieria*. Tulane Stud. Geol. Paleont., 8(1):1–50.

1971 The geologic history of the Muricinae and the Ocenebrinae. The Echo, 4:37–54.

1975 Cenozoic Muricidae of the western Atlantic region, Part VI – *Aspella* and *Dermomurex*. Tulane Stud. Geol. Paleont., 11(3):121–162.