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The Gastropod Genus *Pterorytis*

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INTRODUCTION

The present paper reviews the taxa referable to the muricid genus *Pterorytis* Conrad (1862). As interpreted in this study, the genus includes five species from late Tertiary faunas of eastern United States and southern Mexico. The species are allocated to three subgenera, including a new subgenus, *Microrhytis*. A new species, *Pterorytis* (*Microrhytis*) *pecki*, is named in honor of Mr. Joseph H. Peck, Jr., Senior Museum Paleontologist in the University of California Museum of Paleontology.

I am indebted to Dr. J. Wyatt Durham of the Department of Paleontology, University of California, for permission to describe the new species of *Pterorytis* and to Dr. Horace G. Richards of the Academy of Natural Sciences of Philadelphia for the loan of paratypic specimens of *Pterorytis umbrifer* (Conrad, 1832). Dr. G. Arthur Cooper of the United States National Museum kindly provided the photographs for figure 1.

REVIEW OF THE GENUS

PTERORYTIS CONRAD, 1862

Pterorytis CONRAD, 1862, Proc. Acad. Nat. Sci. Philadelphia, ser. 2, vol. 6, p. 560.

Pterorhytis CONRAD, 1868, Amer. Jour. Conchol., vol. 4, p. 64, emendation of *Pterorytis* Conrad, 1862. DALL, 1890, Trans. Wagner Free Inst. Phila-

¹ The American Museum of Natural History.

delphia, vol. 3, p. 143. OLSSON AND HARBISON, 1953, Monogr. Acad. Nat. Sci. Philadelphia, no. 8, p. 252.

Pterorhythis COSSMANN, 1903, Essais de paléonchologie comparée, vol. 5, p. 205, emendation of *Pterorytis* Conrad, 1862.

DIAGNOSIS: Shell purpuroid, of medium size, possessing three to six varices per whorl; varices typically blade-like or, less commonly, as rounded ridges. Intervarical spaces smooth or ornamented by spiral cords or ridges. Apertural rim continuous, raised, possessing a prominent, anteriorly placed tooth on outer lip; tooth retained on older varices as a recurved spine. Siphonal canal short, closed. Operculum unknown.

TYPE SPECIES BY MONOTYPY: *Murex umbrifer* Conrad, 1832, Miocene of Virginia and North Carolina (Dall, 1890).

REMARKS: The genus *Pterorytis* was proposed by Conrad (1862) for *Murex umbrifer* Conrad, a purpuroid-like muricid gastropod possessing six foliated varices. The type species is known only from the Yorktown formation (late Miocene) of Virginia and North Carolina. Similar species with four varices were placed by Olsson and Harbison (1953) in the subgenus *Neurarhytis*, with *Pterorytis* (*Neurarhytis*) *fluviana* (Dall, 1903) from the Caloosahatchee formation (late Pliocene) of Florida designated the type species. Other species referable to *Neurarhytis* are *P. (N.) conradi* (Dall, 1890) from the St. Mary's formation (middle to late Miocene) of Maryland, and *P. (N.) marshalli* (Mansfield, 1930) from the Choctawhatchee formation (middle to late Miocene) of Florida. The subgenus *Microrhytis* is proposed below for *P. (M.) pecki*, a new species with three varices, from the ?Coatzacoalcos formation (middle Miocene) of Oaxaca, Mexico.

The known members of the *Pterorytis* group thus had become established in the Caribbean and east American districts by middle to late Miocene and were extinct by the end of the Pliocene epoch. The closely related west American complex that was traditionally placed in two now nomenclaturally unavailable taxa, *Purpura* (Martyn, 1784) and *Cerostoma* (Conrad, 1837), similarly had evolved by middle Miocene time, but constituents of the group have survived to the present time. Woodring (1945; in Woodring, Bramlette, and Kew, 1946) suggested that *Pterorytis* was applicable for these west American species.

The appearance of large, heavy representatives of the *Purpura-Cerostoma* group in the Miocene of western North America suggests, however, that this complex is not congeneric with the smaller, more delicate, and more purpuroid-like forms from the Miocene of eastern

North America. Therefore, when the temporal, geographic, and morphological factors that serve to distinguish the two groups are considered, it seems advisable to retain *Pterorytis* for the eastern American species. Hall (1959) has recommended that "*Cerastostoma*" of Hermannsen be validated for the west American and Japanese species referable to the *Purpura-Cerastoma* complex.

Although Conrad (1868) eventually emended *Pterorytis* to the etymologically more correct *Pterorhytis*, the rules of the International Commission on Zoological Nomenclature require that the original spelling be retained.

Annotated synonymies of the subgenera and the recognized species of *Pterorytis* follow.

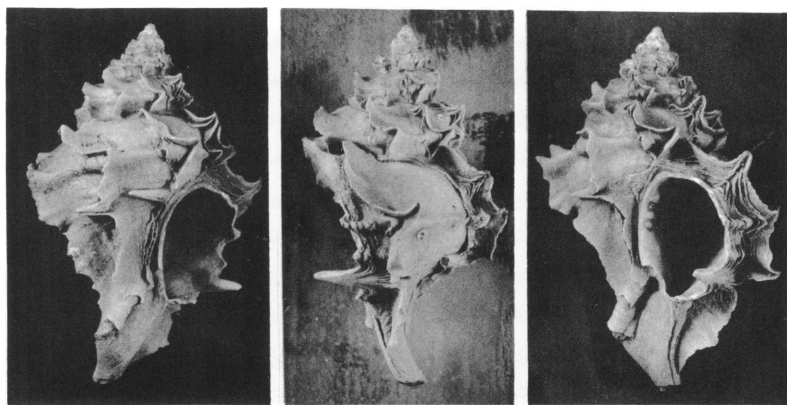


FIG. 1. *Pterorytis (Pterorytis) umbrifer*, paratypes, Academy of Natural Sciences of Philadelphia. $\times 1$.

SUBGENUS *PTERORYTIS*, SENSU STRICTO

DIAGNOSIS: Shell of medium size, with six thin, recurved, and foliated varices per whorl; apertural tooth large for genus.

Pterorytis (Pterorytis) umbrifer (Conrad, 1832)

Figure 1

Murex umbrifer CONRAD, 1832, Fossil shells of the Tertiary formations of North America, p. 17, pl. 3, fig. 1. EMMONS, 1858, Rept. North Carolina Geol. Surv., chap. 28, p. 247, fig. 104a.

Murex (Pterorhytis) umbrifer, CONRAD, 1868, Amer. Jour. Conchol., vol. 4, p. 64, pl. 5, fig. 7. DALL, 1890, Trans. Wagner Free Inst. Sci., vol. 3, p. 143.

Cerostoma umbrifer Conrad, TUOMEY AND HOLMES, 1856, Pleiocene [*sic*] fossils of South Carolina, p. 141, not pl. 28, fig. 14, nor locality cited.

Pterorhytis (Pterorhytis) umbrifer Conrad, OLSSON AND HARBISON, 1953, Monogr. Acad. Nat. Sci. Philadelphia, no. 8, p. 252, pl. 35, fig. 2, paratype.

Pterorhytis umbrifer Conrad, HALL, 1959, Jour. Paleont., vol. 33, p. 432, pl. 3, fig. 6.

Miocene of Virginia at Yorktown (Conrad, 1832) and Day's Point on the James River (Conrad, 1868), and Miocene of North Carolina at Cape Fear River (Emmons, 1858).

SUBGENUS *NEURARHYTIS* OLSSON AND HARBISON, 1953

DIAGNOSIS: Shell of medium size, heavy, with four wide, terminally recurved, finely foliated varices per whorl; apertural tooth present, but poorly developed.

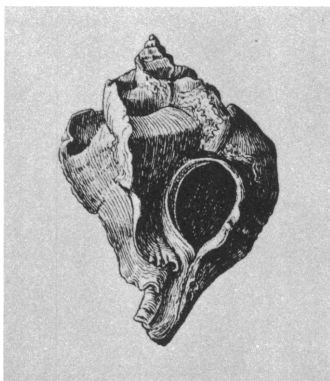


FIG. 2. *Pterorhytis (Neurarhytis) fluviana* (after Dall, 1903, pl. 60, fig. 21).
×1.15.

TYPE SPECIES BY ORIGINAL DESIGNATION: *Purpura (Pterorhytis) fluviana* (Dall), Pliocene of Florida (Dall, 1903).

Pterorhytis (Neurarhytis) fluviana (Dall, 1903)

Figure 2

Pterorhytis (conradiana Dall, var.?) *fluviana* DALL, 1903, Trans. Wagner Free Inst. Sci., vol. 3, pt. 6, p. 1633, pl. 60, figs. 20, 21.

Purpura fluviana Dall, MANSFIELD, 1930, Bull. Florida State Geol. Surv., no. 3, pp. 83, 84, pl. 11, fig. 7.

Pterorhytis (Neurarhytis) fluviana Dall, OLSSON AND HARBISON, 1953, Monogr. Acad. Nat. Sci. Philadelphia, no. 8, p. 253, pl. 35, fig. 3.

RECORDS: Pliocene of Shell Creek, Florida (Dall, 1890); Pliocene of St. Petersburg, Florida (Olsson and Harbison, 1953).

Pterorytis (Neurarhytis) conradi (Dall, 1890)

Figure 3

Cerostoma umbrifer "Conrad" TUOMEY AND HOLMES, 1856, Pleiocene [sic] fossils of South Carolina, pl. 28, fig. 14, not p. 141. Not Conrad, 1832.

Murex (Pterorhytis) conradi DALL, 1890, Trans. Wagner Free Inst. Sci., vol. 3, p. 143, pl. 12, fig. 11.

Ocenebra (Pterorhytis) conradi Dall, COSSMANN, 1903, Essais de paléoconchologie comparée, vol. 5, p. 43, fig. 3.

Murex (Pterorhytis) conradi Dall, MARTIN, in Clark, 1904, Maryland geological survey, Miocene, text, pp. 200, 201; atlas, pl. 50, figs. 9a, 9b.

RECORDS: Miocene of Maryland, St. Mary's River, (Dall, 1890) and Miocene of South Carolina at Goose Creek (Dall, 1890).

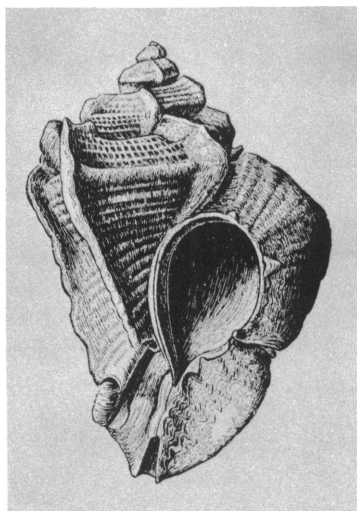


FIG. 3. *Pterorytis (Neurarhytis) conradi* (after Dall, 1890, pl. 12, fig. 11).
×1.57.

Pterorytis (Neurarhytis) marshalli (Mansfield, 1930)

Purpura marshalli MANSFIELD, 1930, Bull. Florida State Geol. Surv., no. 3, p. 84, pl. 11, fig. 4.

RECORDS: Miocene of Florida, near Jackson Bluff and at Hosford (Mansfield, 1930).

REMARKS: According to Mansfield (1930), "This species differs from *Purpura fluviana* Dall in having a much shallower and more appressed suture and more erect and thinner varices."

SUBGENUS **MICRORHYTIS**, NEW SUBGENUS

DIAGNOSIS: Shell purpuroid, small for genus, with three low varices per whorl; ventral surface of each varix weakly sculptured with lace-like lamellae. Spinose apertural tooth retained by varices of the body whorl; apertural tooth small, anteriorly located on nodose inner lip.

TYPE SPECIES, HERE DESIGNATED: *Pterorytis* (*Microrhytis*) *pecki*, new species, from the Miocene of Rio Jaltepec, Oaxaca, Mexico.

REMARKS: The appearance of the type species of this taxon in the Miocene of the Mexican Caribbean together with the occurrence of species of *Pterorytis*, *sensu stricto*, and *Neuraryhtis* in the Miocene of southeastern America indicates that this genus was morphologically well differentiated and widely dispersed in these areas by late Miocene time.

***Pterorytis* (*Microrhytis*) *pecki*, new species**

Figure 4

Pterorytis n. sp. DURHAM AND OTHERS, 1955, Bull. Geol. Soc. Amer., vol. 66, p. 984.

Shell small for genus, with four plus, post-nuclear whorls, nuclear whorls not preserved. Spire small, less than one-third of the height of shell. Body whorl ornamented with three prominent, rib-like varices and a low, rounded nodule centrally located on the weakly spirally sculptured intervarical surface. Ventral surface of varices minutely foliated; single apertural spine preserved on varices of body whorl. Aperture subovate, commonly closed, interior of outer lip with pustules or lirations. Apertural tooth small.

TYPES: Holotype, University of California Museum of Paleontology No. 37690 from type locality; paratypes, University of California Museum of Paleontology, three specimens, Nos. 37691 to 37693, from locality A-8124, same as type locality but stratigraphically lower in the section and 2.4 kilometers south of Rio Jaltepec, Oaxaca, Mexico.

TYPE LOCALITY: University of California Museum of Paleontology locality A-8125, Miocene, Veracruz, Mexico, from gray silty shales exposed in road cut along trans-isthmian highway from Salina Cruz to Coatzacoales, about 2.6 kilometers south of Rio Jaltepec; J. Wyatt Durham and Joseph H. Peck, Jr., collectors.

MEASUREMENTS: Holotype, No. 37690, height 23.02 mm., width 16.04 mm.; paratype No. 37691, height 23.01 mm., width 15.08 mm.; paratype No. 37692, height 21.01 mm., width 15.02 mm.; paratype No. 37693, height 13.05 mm. (incomplete), width 9.07 mm.

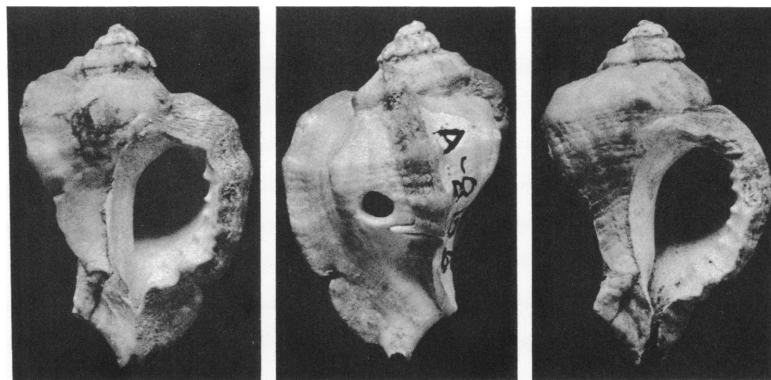


FIG. 4. *Pterorytis* (*Microrhytis*) *pecki*, new species. Holotype (left and center) and paratype (right). $\times 2$.

REMARKS: This species superficially resembles in outline *Pterorytis* (*Neurarhytis*) *fluviana* Dall from the Pliocene of Florida, but possesses only three non-recurved varices per whorl. Some species of "*Ceratostoma*," especially certain growth forms of "*C.*" *nuttalli* (Conrad), resemble somewhat the present species, but are proportionally narrower and have higher spires.

The four specimens that form the basis for the description of this species were found associated in a megafossil assemblage with definite Caribbean faunal affinities. Woodring (*in* Durham and others, 1955) considered the collections to be of late Miocene age and probably an equivalent of the fauna from the upper part of the Gatun formation of Panama.

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