

A NEW SPECIES OF *PTERYNOTUS* (GASTROPODA: MURICIDAE) FROM THE  
EOCENE OCALA LIMESTONE OF FLORIDA

ROGER W. PORTELL  
FLORIDA MUSEUM OF NATURAL HISTORY  
GAINESVILLE, FLORIDA

and  
EMILY H. VOKES  
TULANE UNIVERSITY  
NEW ORLEANS, LOUISIANA

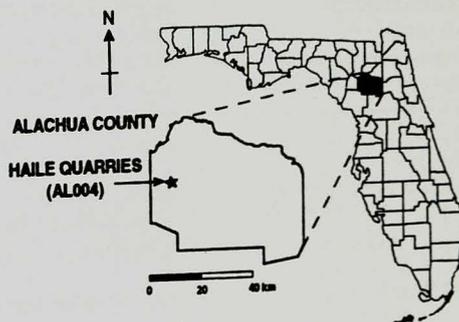
A new species of gastropod belonging to the genus *Pterynotus* is described herein from the middle to late Eocene Ocala Limestone of Florida. Vokes (1970, p.11) first reported the occurrence of *Pterynotus* from the Ocala Limestone based upon a single specimen, discovered in 1961 by R. D. Suttkus, from a quarry complex near the town of Newberry, Alachua County, Florida (Tulane University locality TU 449). Awaiting additional material, Vokes (1970) made a preliminary identification of the specimen. Intensive collecting at the University of Florida (UF) locality AL004 (see Text-figure 1) by the senior author and staff and volunteers of the Invertebrate Paleontology Division of the Florida Museum of Natural History (FLMNH), during the last ten years has yielded two additional Ocala Limestone *Pterynotus*. Together, these three exceedingly rare Eocene specimens provide the data upon which our new species is based. All three (UF 68400, UF 71286, and UF 71287) are deposited in the Type Collection at the FLMNH. At UF locality AL004 most limestone is dredged underwater and brought to the surface. Therefore, the exact stratigraphic placement of the above mentioned specimens within the lower, middle, or upper Ocala Limestone is not possible.

The middle to late Eocene Ocala Limestone (equals the Ocala Group) is exposed at the surface in northwestern peninsular Florida and a small portion of the Florida panhandle (along the border with Georgia and Alabama). The unit contains a diverse invertebrate fauna, especially molluscs, which have yet to be thoroughly studied. The lack of critical review of the molluscan fauna is primarily due to poor preservation. The aragonitic molluscs normally occur as casts and molds and the calcitic molluscs are typically thin and fragile. However, new techniques for collecting specimens and new laboratory techniques (e.g., producing silicone rubber peels of the

external molds) have greatly enhanced our ability to identify many of these previously unknown and currently undescribed taxa. The silicone peel technique was used to facilitate the description of the new *Pterynotus* species below. For a detailed discussion on the stratigraphic nomenclature of the Ocala Limestone (Ocala Group) see Oyen (1995) and Jones (1997).

#### ACKNOWLEDGMENTS

Greta and Andrew Murray, Bradenton, Florida, are thanked for collecting and donating the holotype specimen (UF 71286). Russ McCarty and Craig Oyen, Florida Museum of Natural History, provided assistance with the making of silicone peels and photography, respectively. Laurie Walz, University of Florida, kindly drafted Text-figure 1. This and additional studies (in progress), by the senior author and others, on the Florida Eocene macroinvertebrates have been facilitated by the transfer of materials from the Paleontological Research Institution (PRI), Tulane University Geology Department (TU), Florida State University Geology Department, Florida Geological Survey, and the Muriel Hunter Collection to the FLMNH. David Nicol, generously con-



Text-figure 1. Florida map showing collecting location of *Pterynotus rogersi*, n. sp. (UF locality AL004).

tributed \$1,000 to help defray the cost of packing and shipping the Florida Eocene mollusc collection of the late Katherine Palmer from the PRI to the FLMNH. Although not used in this study, David Campbell, University of North Carolina, Chapel Hill is thanked for sharing information about specimens of Eocene *Pterynotus* that he collected in South Carolina and North Carolina. This is University of Florida Contribution to Paleontology 495.

#### SYSTEMATIC PALEONTOLOGY

Class GASTROPODA

Order NEOGASTROPODA

Superfamily MURICACEA

Family MURICIDAE Rafinesque, 1815

Genus PTERYNOTUS Swainson, 1833

*Pterynotus* SWAINSON, 1833, Zool. Illus., (Ser. 2) v. 3, expl. to pl. 100.

Type species: *Murex pinnatus* Swainson, 1822, by subsequent designation, Swainson, *ibid.*, pl. 122.

#### PTERYNOTUS (PTERYNOTUS) ROGERSI

Portell and Vokes, n. sp.

Plate 1, figures 1-3

*Description:* Earliest whorls not preserved but at least six teleoconch whorls, each ornamented by three winged varices, with one low axial node between each pair of varices; intervarical areas smooth except for spiral cords. Varices flaring, crenulated by spiral ornamentation; each varix joined to corresponding varix of previous whorl, forming a continuous, slightly curved line up spire. Abapertural varical faces festooned with multiple laminae, elaborately scalloped in harmony with spiral cords. Spiral ornamentation on earliest preserved whorls of two cords; one at shoulder, a second weaker one between shoulder and suture, and a third weakest cord sometimes on subsutural ramp. About

six spiral cords on body whorl, with an additional two cords on siphonal canal. Suture appressed, subsutural ramp concave inward. Aperture elongate-oval, inner lip smooth appressed at posterior end, probably free-standing at anterior end. Inner side of outer lip with about six strong denticles, corresponding to spaces between spiral cords. Margin of outer lip projecting in advance of varix, also scalloped by spiral cords, especially at shoulder with a small infolding onto shoulder spiral. Siphonal canal broad, open by a narrow slit; a lamellar extension of each varix along entire length; slightly recurved at distal end.

*Holotype:* UF 71286; partial external mold of dorsal side, maximum length of incomplete external mold 38.0 mm, maximum width of incomplete external mold 21.2 mm (Plate 1, fig. 1a).

*Type locality:* UF locality AL004, Dickerson Limerock Mines (Haile Complex), approximately 5.0 miles northeast of Newberry along State Road 235, near the now defunct town of Haile, Alachua County, Florida (Sec. 13, 23-26, T9S, R17E; Newberry Quadrangle, USGS 7.5' series, 1988).

*Paratype A:* UF 71287; maximum length of incomplete external mold 42.0 mm, width 21.9 mm.

*Paratype B:* UF 68400; maximum length of incomplete external mold 43.6 mm, width 23.0 mm.

*Occurrence:* Ocala Limestone, northwestern part of peninsular Florida; middle-late Eocene.

*Etymology:* Named for Mr. Larry Rogers, Limestone Products, Incorporated, Newberry, Florida, who for many years has allowed staff and volunteers of the FLMNH access to the quarries in the Newberry area, and on many occasions has given the FLMNH assistance with excavations of fossils in the quarries under his supervision.

*Discussion:* As was noted in Vokes

#### PLATE 1

##### Figures

1-3. *Pterynotus rogersi* Portell and Vokes, new species. Locality: UF locality AL004.

1A. UF 71286 (holotype); partial external mold of dorsal side, maximum length of incomplete external mold 38.0 mm, maximum width of incomplete external mold 21.2 mm.

1B. UF 71286 (silicone peel of holotype); maximum length 38.0 mm, maximum width 21.2 mm.

2. UF 68400 (silicone peel of paratype B); maximum length 43.6 mm, maximum width 23.0 mm.

3. UF 71287 (silicone peel of paratype A); maximum length 42.0 mm, maximum width 21.9 mm.

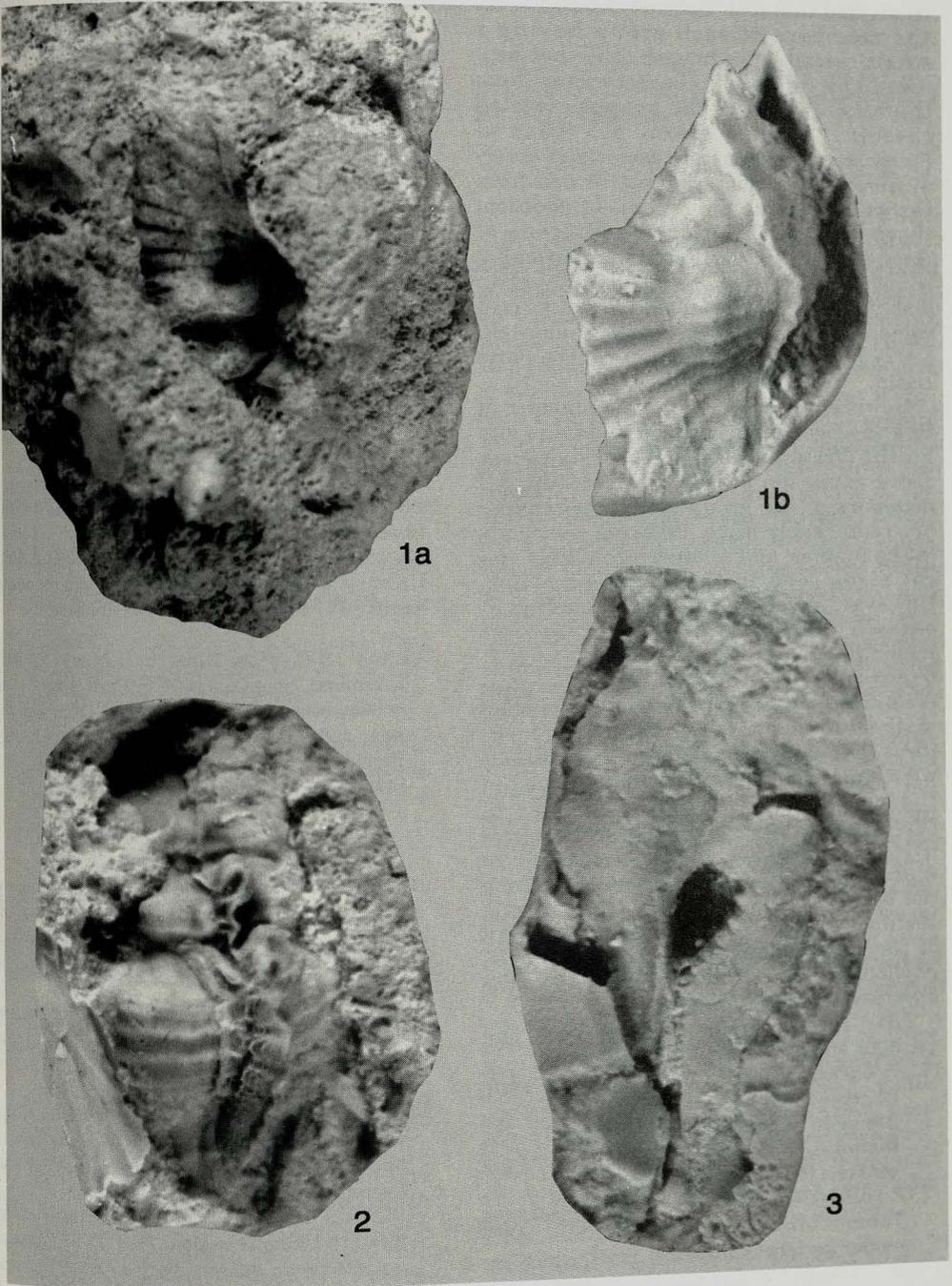


PLATE 1

(1992, p. 4), the species of *Pterynotus* may be divided into five "Species-Groups," with the members of each group having a strong resemblance to each other but having slightly different characteristics from the others. One of the groups, termed therein "Species group 5," (that of *Pterynotus phyllopterus*), consists of several American species ranging in age from early Oligocene to the Recent. In addition, there are species from the Miocene of Italy, as well as the Recent of Australia. All of these species are remarkably alike and all have been presumed to be derived somehow from *P. tripteroides* (Lamarck, 1822), from the Middle Eocene of the Paris Basin.

However, discovery of a new member of this Species Group from the middle to late Eocene Ocala Limestone of Florida causes a re-evaluation of this relationship. All members of the group of *P. phyllopterus* are remarkably alike, differing primarily in the number and relative strength of spiral cords seen in the various species. However, all of the species (including *P. bednalli* Brazier, 1878) differ in one very important character from the French *P. tripteroides*. This distinction is the presence in the latter of a sinuous fold of shell material at the posterior end of the apertural lip, which extends onto the previous whorl and creates a small anal channel in the manner of the oldest species of *Pterynotus* [such as *P. matthewsensis* (Aldrich, 1886), from the Paleocene of Alabama, and *P. stenzeli* Vokes, 1970, from the early Eocene of Texas], thereby suggesting that this is a primitive feature. All of the other members of the group of *P. phyllopterus* have the posterior end of the aperture broadly rounded.

This new species differs from the younger species in the following ways:

- (1.) *P. burnsii* (Aldrich, 1894), from the early Oligocene Red Bluff Formation, Mississippi, has more numerous (about 13) spiral cords, including about three relatively strong cords on the subsutural ramp;
- (2.) *P. postii* (Dall, 1896), from the late Oligocene Tampa Limestone, Florida, has more numerous (about 15) spiral cords, which are much weaker in the intervarical areas;
- (3.) *P. hoerlei* Vokes, 1970, from the early Miocene Chipola Formation, Florida, has about the same number of spiral cords (seven, plus two very weak cords on subsutural

ramp), which are essentially absent in the intervarical areas, and which are much broader, causing the varical margins to be more strongly undulating;

- (4.) *P. phyllopterus* (Lamarck, 1822) (including probable synonyms *P. perlongus* and *P. rovasendae*, both of Bellardi, 1872, from the Miocene of Italy) has about the same number of spiral cords (nine), which like *P. hoerlei* are poorly developed in the intervarical areas, but which even more strongly undulate the varices; in addition, there are two intervarical nodes in this species, unlike all of the earlier forms.
- (5.) *P. bednalli* (Brazier, 1878), from the Recent off northwestern Australia, has about 16 spiral cords and two to three weak intervarical nodes.

#### LOCALITY DATA

The following is a collecting locality of the Invertebrate Paleontology Division, Florida Museum of Natural History (FLMNH), University of Florida (UF). Tulane University locality TU 449 is equivalent to this locality:

AL004 Dickerson Limerock Mines (Haile Complex), approximately 5.0 miles northeast of Newberry along State Road 235, near the now defunct town of Haile, Alachua County, Florida (Sec. 13, 23-26, T9S, R17E; Newberry Quadrangle, USGS 7.5' series, 1988).

#### LITERATURE CITED

- JONES, D. S., 1997, The marine invertebrate fossil record of Florida, in *The Geology of Florida* (A. F. RANDAZZO and D. S. JONES, eds.): University Press of Florida, Gainesville, pp. 89-117.
- OYEN, C. W., 1995, Biostratigraphy and paleobiogeography of Eocene crinoids from Florida: *Tulane Studies in Geology and Paleontology*, v. 27, no. 1-4, pp. 153-164.
- VOKES, E. H., 1970, Cenozoic Muricidae of the western Atlantic region. Part V - *Pterynotus* and *Poirieria*: *Tulane Studies in Geology and Paleontology*, v. 8, no. 1, pp. 1-50.
- VOKES, E. H., 1992, Cenozoic Muricidae of the western Atlantic region. Part IX - *Pterynotus*, *Poirieria*, *Aspella*, *Dermomurex*, *Calotrophon*, *Acantholabia*, and *Attiliosa*; Additions and corrections: *Tulane Studies in Geology and Paleontology*, v. 25, no. 1-3, pp. 1-108.