

TWO NEW GASTROPODS FROM THE PLIOCENE  
PINECREST BEDS OF FLORIDA

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New species continue to be discovered from the mollusk-rich Pliocene Pinecrest Beds near Sarasota, Florida. Two new gastropods are described herein, each of which is a large-sized member of a genus not commonly found in the fossil record. The first, a *Morum*, appears to be an intermediate species between the Miocene *M. chipolanum* and the Recent *M. dennisoni*. The second, apparently a *Phenacovolva*, is perhaps the only representative of that genus, fossil or Recent, in the Western Atlantic. Both are known only from single specimens.

SYSTEMATIC PALEONTOLOGY

Class GASTROPODA

Family HARPIDAE Bronn, 1849

Subfamily MORUMINAE Hughes and  
Emerson, 1987

Genus MORUM Röding, 1798

*Morum* RÖDING, 1798, Museum Boltenianum,  
pt. 2, p. 53.

Type species: *Morum purpureum* Röding,  
1798 [= *Strombus oniscus* Linnaeus, 1767], by  
monotypy.

Subgenus ONISCIDIA Mörch, 1852

*Oniscidia* MÖRCH, 1852, Catalogus Conchylio-  
rum ... Comes de Yoldi, pt. 1, p. 111.

Type species: *Oniscidia cancellata* Sowerby,  
1824, by monotypy.

MORUM (ONISCIDIA) MEGANAE

Raymond, n. sp.

Plate 1, figure 1

*Description:* Shell triangularly ovate, large for genus, the single known specimen measuring 61 mm in height with protoconch missing; five postnuclear whorls; shoulder ramp initially flat, giving a stepped appearance to spire, but becoming more sloped on body whorl; spire ornamentation of 14 axial ribs crossed initially by one, and finally two, low flattened spiral cords on penultimate whorl; body whorl strongly cancellate, with 12 prominent spinose axial ribs and 12 strong, flattened spiral cords forming short, blade-like hooked spines at each juncture with axial ribs; intervarical areas with one weak spiral thread just below major cord, and

numerous fine axial growth lamellae, giving a linen-like texture to intervarical area; aperture elongate, strong posterior notch, large parietal shield flaring to top of penultimate whorl; well-defined sulcus at posterior commissure; parietal shield covered with variously sized pustules (up to 1 mm in diameter) and short (less than 3 mm) linear lirations; pattern of shield ornamentation distinctly lineate, paralleling underlying revolving cords, but also noticeable along underlying axial ribs; outer lip thickened, recurved abaperturally, covered by 35-40 fine lirae of varying lengths; siphonal canal slightly recurved dorsally.

*Holotype:* UF 70001; height 61.0 mm, diameter 41.4 mm.

*Type locality:* UF SO017; Pinecrest Beds, APAC pit, 4 miles east of Sarasota, Florida (E 1/2 Sec.12, T36S, R18E, Bee Ridge Quadrangle, U.S.G.S. 7.5' series).

*Etymology:* This species is named for the author's daughter, Megan, who, at the age of five weeks, was probably the youngest visitor ever to the Sarasota APAC Pit.

*Discussion:* This shell is similar to *Morum dennisoni* (Reeve, 1842) in both size and appearance, but is somewhat broader with a less sloping shoulder. The ornamentation of the parietal shield of *M. dennisoni* is also different, consisting of fine pustules, which in some specimens tend to be lineate adaperturally. The holotype of *M. dennisoni* Reeve (1842, pl. 253, figs. 5,6) discussed at length in Dance and Emerson (1967), is similar to *M. meganae* except for the above mentioned characteristic.

Comparisons to fossil specimens of *M. chipolanum* (Maury, 1925), *M. obrienae* (Olsson and Petit, 1964), and *M. macgintyi* (Smith, 1937), and to specimens of the Recent *M. dennisoni* at the Florida Museum of Natural History, were made by the author. Among the fossil species, *Morum meganae* most closely resembles *M. chipolanum*, sharing its low spire and sharply shouldered outline. *Morum chipolanum* also has a parietal shield that reflects the underlying sculpture. The pustules for *M. chipolanum* are coarser and

generally more elongate, and the outer lip of *M. chipolanum* has about half as many lirae as *M. meganae*. *Morum chipolanum* also lacks a well-defined sulcus at the posterior commissure. Typical specimens of *M. chipolanum* measure about 32 mm.

*Morum macgintyi* (= *M. obriena*) is a smaller shell with coarser and more elongate pustules ornamenting the parietal shield, fewer lirae, and only about eight revolving cords. *Morum domingense*, which has also been considered a fossil analogue of *M. dennisoni*, has a slightly higher spire and a more sloped shoulder. It also differs from *M. meganae* in the parietal shield ornamentation, which in *M. domingense* is made up of randomly placed pustules only slightly elongated in an adapertural direction, and the number of lirae on the outer lip, which number 24-30. *Morum domingense* reaches at least 38 mm. The Recent *M. lindae* (Petuch, 1987) has 16 axial ribs, and its parietal shield ornamentation is similar to *M. dennisoni*.

*Morum meganae* was found in spoil from the west-central portion of the south end of the APAC pit, slightly south of where the separator was located. It is very probable that the shell is from unit 7 (Petuch, 1982). Other material collected at the same time contained no shells marking units below 7. There is always a remote possibility that it came from a higher unit. The shell was found in 1983 by the author. Regrettably, APAC (known previously as the MacAsphalt, Newburn, or Warren Brothers pit), is now flooded.

The rareness of *M. meganae* is perhaps due to its probable habitat of deeper water (over 30 meters), assuming it lived as *M. dennisoni* does. This would place it on the border of the deepest water thought to have covered the Pinecrest beds (Allmon, 1993).

Lastly, the size of *M. meganae* is most remarkable, especially when one considers that the other fossil Western Atlantic species have heights which are about half that of *M. meganae*. The listed record for *M. dennisoni* is 64 mm, virtually equal to the *M. meganae* specimen if the missing protoconch is considered.

Family OVULIDAE Fleming, 1828

Genus PHENACOVOLVA Iredale, 1930

*Phenacovolva* IREDALE 1930, Mem. Qld. Mus.,

v. 10, no. 2, p. 85.

Type species: *Phenacovolva nectarea* Iredale, 1930, by original designation.

PHENACOVOLVA MARYPALMERAE

Raymond, n. sp.

Plate 1, figure 2

*Description:* Shell large for the genus, the single known specimen measuring over 50 mm in height; elongate fusiform, ventricose, convolute, equally attenuate and subacuminate at both ends; spire concealed; aperture narrowly crescent-shaped, longitudinal, slightly wider near anterior end, notched anteriorly and posteriorly; outer lip smooth, inflexed, slightly thickened, forming a somewhat flattened arc of about 70 degrees; body whorl smooth, with maximum diameter and depth slightly towards posterior end. No funiculum, fossula or carinal ridge apparent. Very slight swelling near posterior notch, possibly indicating obsolete funiculum.

*Holotype:* UF 75000; height 53.4 mm, diameter 12.2 mm.

*Type locality:* UF SO013; Pinecrest Beds, Quality Aggregates, Inc. pit, 5 miles east of Sarasota, Florida (Sec. 7/8, T36S, R19E, Bee Ridge Quadrangle, U.S.G.S. 7.5' series).

*Etymology:* This shell is named for Mary Palmer of Alva, Florida, a long time avid fossil collector.

*Discussion:* The assignment of this shell to the genus *Phenacovolva* must be considered tentative, and will raise eyebrows of others besides the author. According to Cate (1973), the genus primarily inhabits the Pacific Ocean, with a few species found in the Indian Ocean and *P. piragua* (Dall, 1889) possibly the only species in the Caribbean. *Phenacovolva piragua* was originally considered a *Simnia* by Dall (1889), a *Neosimnia* by Schilder (1932), and again a *Simnia* by Abbott (1974). It has not previously been reported from the Florida fossil record. However, the similar genus *Simnialena* does appear (Petuch, 1994).

The last major systematic revision of Ovulidae was done by Cate (1973), who based his work on Schilder and Schilder (1971). Considerable ambiguity remains among the distinguishing characteristics of several similar genera. A key characteristic is the presence or absence of a funiculum. It is present in *Simnialena* Cate, 1973, *Subsimnia* Cate, 1973, and

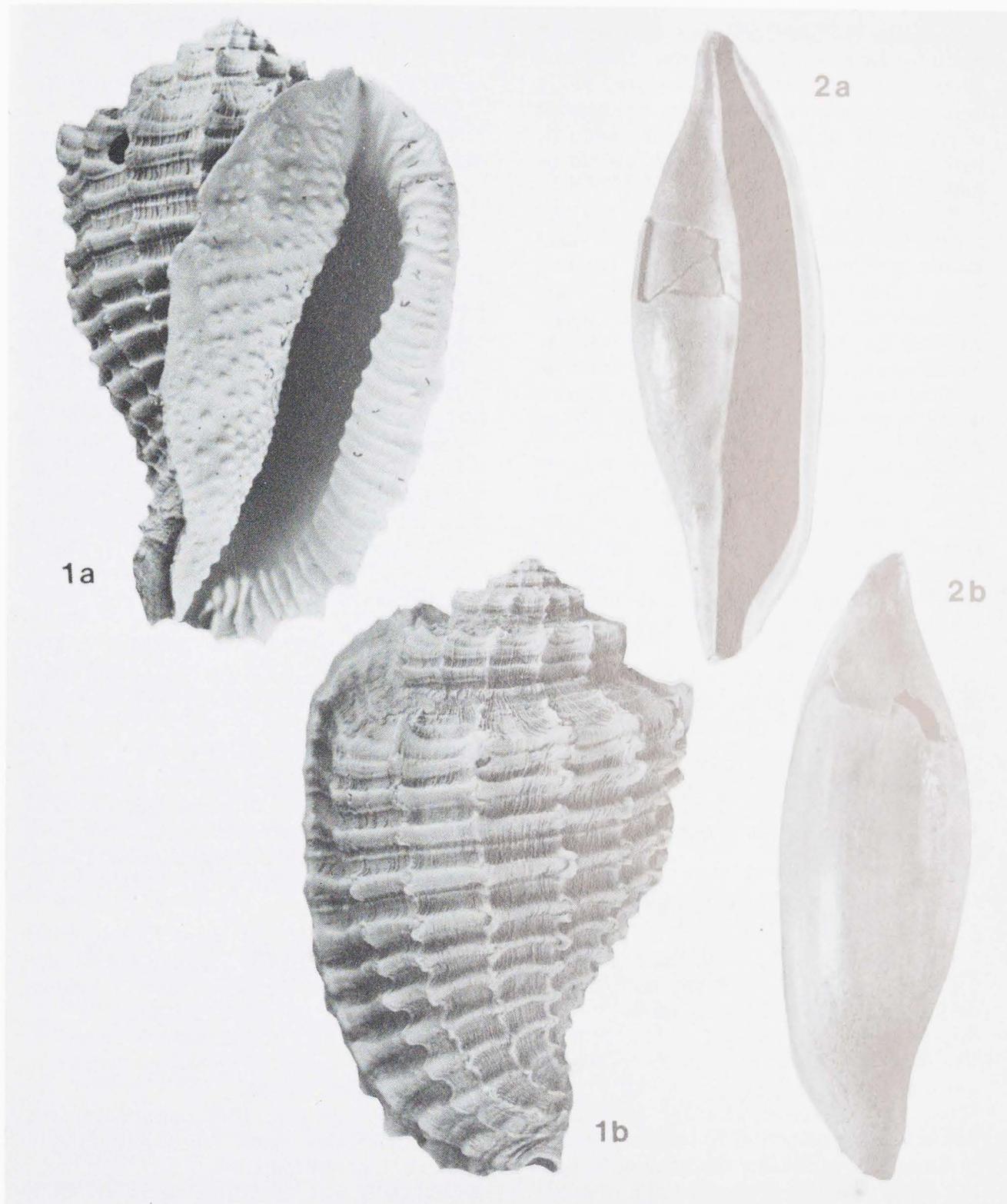


PLATE 1

1. *Morum meganae* Raymond, n. sp. (x 1-1/4)  
 UF 70001 (holotype); height 61.0 mm, diameter 41.4 mm.  
 Locality: UF SO017, Sarasota, Florida; Pinecrest beds.
2. *Phenacovolva marypalmerae* Raymond, n. sp. (x 1-1/2)  
 UF 75000 (holotype); height 53.4 mm, diameter 12.2 mm.  
 Locality: UF SO013, Sarasota, Florida; Pinecrest beds.

*Neosimnia* Fischer, 1884, but may or may not be present in *Simnia* Risso, 1826, and *Phenacovolva*. *Delonovolva* Cate, 1973, does not mention a funiculum, although it is present in all species of *Delonovolva* he lists, as well as in all species of *Simnia* he lists.

*Phenacovolva* is a rather widely varying genus, and allows all of the characteristics shown by *P. marypalmerae*, which has neither a funiculum nor a carinal ridge, although the faint swelling near the posterior end may be the vestige of a funiculum. Additionally, *Phenacovolva* is known to include several species larger than 50 mm, while other similar genera rarely exceed 25 mm.

There are few comparisons to be made to other species in the fossil record. Petuch (1994, plate 33, figures L, P and S) illustrates three examples of *Simnialena*, of which *S. donovanae* from the Pinecrest Beds is closest in overall form. Its holotype (13 mm) has both a funiculum and fossula, as does *S. digelae* (17 mm).

*Phenacovolva marypalmerae* was found in 1995 in spoil at phase six of the Quality Aggregates, Inc. pit (also known as Richardson Road shell pit and Wendell Kent pit). The anonymous finder believes it is most likely from unit 10, although material from units 7 through 11 was exposed at the time.

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#### LITERATURE CITED

- ABBOTT, R.T., 1974, American Seashells, Second Edition. Van Nostrand Reinhold Co., New York. 663 p., 24 color pls., 6405 text-figs.
- ALLMON, W.D., 1993, Age, environment and mode of deposition of the densely fossiliferous Pinecrest Sand (Pliocene of Florida): Implications for the role of biological productivity in shell bed formation: *Palaios*, v. 8, no. 2, p. 183-201, 10 text-figs.
- CATE, C.N., 1973, A systematic revision of the Recent Cypraeid family Ovulidae (Mollusca: Gastropoda): *The Veliger*, v. 15 supplement, 116 p., 251 figures.
- DALL, W.H., 1889, Reports on the dredging, under the supervision of Alexander Agassiz, in the Gulf of Mexico (1877-78) and in the Caribbean Sea (1879-1880), by the U.S. Coast Survey Steamer "Blake", Lieut.-Commander C.D. Sigsbee, U.S.N., commanding. XXIX. Report on the Mollusca; Part II. Gastropoda and Scaphopoda: *Harvard Mus. Comp. Zool., Bull.*, v. 18, p. 1-492, pls. 10-40.
- DANCE, S.P., and W.K. EMERSON, 1967, Notes on *Morum dennisoni* (Reeve) and related species (Gastropoda: Tonnacea): *The Veliger* v. 10, p. 91-98, pl. 12.
- PETUCH, E.J., 1982, Notes on the molluscan paleontology of the Pinecrest Beds at Sarasota, Florida, with the description of *Pyruella*, a stratigraphically important new genus (Gastropoda: Melongenidae): *Acad. Nat. Sci. Philadelphia, Proc.*, v. 134, p. 12-30, 3 pls., 3 text-figs.
- PETUCH, E.J., 1994, Atlas of Florida fossil shells (Pliocene and Pleistocene marine gastropods). Chicago Spectrum Press, Evanston, Illinois, 394 p., 100 pls., 20 text-figs.
- REEVE, L.A., 1842, *Conchologia Systematica*, or complete system of conchology. London, v. 2, p. 1-337, pls. 130-300.
- SCHILDER, F.A., 1932, The living species of the Amphiperatinae: *Malac. Soc. London, Proc.*, v. 20, no. 1, p. 46-64, pls. 3-5.
- SCHILDER, F.A., and MARIA SCHILDER, 1971, A catalogue of living and fossil cowries; taxonomy and bibliography of Triviacea and Cypraeacea (Gastropoda: Prosobranchia): *Inst. Royal des Sci. Nat. Belgique, Memoirs*, (second series), fasc. 85, 246 p.