A NEW SPECIES OF _NERITOPSIS_ (MOLLUSCA: GASTROPODA)

ROBERT C. HOERLE
WEST PALM BEACH, FLORIDA

Collections from the Chipola Formation made by the writer and friends at two localities along the Chipola River were found to contain rare specimens of _Neritopsis_, an unusual genus heretofore unknown in the New World. This genus apparently originated in Europe during the Mesozoic Era and attained its maximum development in the Jurassic Period, assuming many forms of ornamentation. Cossmann (1925, p. 89) stated that “formes sillonnées, formes treillisées, formes variques et épineuses, à côtes écartées” all occur at the same time, showing the extreme initial variability of this genus. However, by the end of the Cretaceous Period the sculpture had more or less stabilized to that of granulated spiral cords. In addition to the shells, workers have based taxa on the calcareous, trapezoidal opercula, which also occur in the fossil state.

The advent of the Eocene epoch resulted in a marked decline in the number of _Neritopsis_ species. Prior to the Eocene over fifty species had been described but, according to Cossmann, investigation of European Eocene beds have yielded only six species: _N. parisiensis_ Deshayes; _N. acutispira_ Cossmann; _N. pustulosa_ Bellardi; _N. vidali_ Doncieux; _N. agassizii_ Bayan; and _N. radulaeformis_ Oppenheim. Differences in strength of the granulations on the spiral cords, width of interspaces, height of spires, and overall size of adult specimens are the characters used for the separation of these species. There are no recorded Oligocene forms. _N. radulaeformis_ Oppenheim from Monte Grumi was originally considered to be of Oligocene age, but the Priabonian beds, formerly considered Oligocene, have been reassigned to the upper Eocene. Another species, described as _Neritopsis lorioli_ Cossmann and Lambert, from the Oligocene is actually a _Nerita_. The Miocene forms are _N. moniliformis_ Grateloup, _N. subpustulosa_ Sacco and perhaps another as yet unnamed species. Some workers feel that these latter species are so similar that the genus is represented in the Miocene by but a single variable species.

The genus has disappeared from the European area since Miocene time and the only known Recent species, _N. radula_ (Linne), is uncommon in the Indo-Pacific region. It should be noted that although Cossmann (1925) gave the genotype as _N. radula_ (Linne) this is incorrect, as the original description by Grateloup included only the fossil species _N. moniliformis_, making it type by monotypy. The figure of _N. radula_ used by Wenz (1938, p. 412, fig. 1001) and copied in the *Treatise on Invertebrate Paleontology* (v. 1) is decidedly inaccurate as it does not show the peculiar apertural notch, which is the important distinguishing morphological feature of the genus.

The Recent _Neritopsis_ is a coral reef dweller in the tropical Indo-Pacific seas. The type locality of the new species from the Chipola Formation was also at the time a coral reef. However, it cannot be assumed as a scientific fact that the Old World fossil species required a similar habitat. Nevertheless, geological changes in the Old World resulted in migration of the genus to other areas, relocations involving thousands of miles distance and not explainable by the theory of “ocean basin spreading” or other types of continental drift. Perhaps the most reasonable explanation of this problem is that of larval drifting as advanced by Vokes (1965, p. 206). _Neritopsis_ being a warm water, shallow dwelling, primitive marine gastropod with larvae capable of remaining pelagic for long periods of time, might have migrated in this manner.

Order _ARCHEOGASTROPODA_ Thiele, 1931
Superfamily _NERITACEA_ Rafinesque, 1815
Family _NERITOSIDAE_ Gray, 1847
Subfamily _NERITOPSISINAE_ Gray, 1847
Genus _NERITOPSIS_ Grateloup, 1832

_Neritopsis_ GRATELOUP, 1832, Actes Soc. Linn. Bordeaux, v. 5, p. 129; [1847] Conchyl. Foss. Bassin Adour, Neritines, pl. 1 [pl. 5], figs. 36-38. Type species: _Neritopsis moniliformis_ Grateloup, by monotypy, [= Radula Gray, 1842; and (based on opercula) _Peltarion_ Deslongchamps and
Deslongchamps, 1858; *Cyclidia* and *Scaphandia* Rolle, 1862; *Rhynchidia* Laube, 1868).

**NERITOPSIS VOKESORUM**
R. C. Hoerle, n.sp.

*Text figure 1*

**Diagnosis:** Shell heavy, globose. Nucleus of about one and one-half smooth whorls; three and one-half rapidly enlarging post-nuclear whorls in adult.

Seventeen to nineteen finely beaded, narrow, spiral cords cover the entire shell, commencing immediately with the first post-nuclear whorl. Wide interspaces between spiral ribs, ornamented by scabrous incrementals. Aperture circular; outer lip sharp, crenulated by spiral ribs, thickened interiorly and with numerous short lirations. Inner lip heavily calloused with an elongated excavation in central area. Slight suggestion of an umbilicus.

Dimensions of holotype: height 14.0 mm, diameter 12.8 mm.

*Holotype:* USNM 646934.

*Type locality:* TU 555, east bank of Chipola River, about 1000 feet above Four Mile Creek (SW ¼ Sec. 29, TIN, R9W), Calhoun County, Florida.

**Occurrence:** Chipola Formation, Florida; late lower Miocene.

*Figured specimen:* USNM 646934 (holotype). Other occurrence: TU locality no. 547.

**Discussion:** *Neritopsis vokesorum* shows a greater affinity to *N. moniliformis* Grateloup than to the Recent species *N. radula* (Linné).

The resemblance of *N. moniliformis* to *N. radula* has led numerous authors in the past to synonymize the two species but other authors have disagreed. Recently Seiber (1958, p. 128) referred the Tortonian form to *N. radula* but Glibert (1962, p. 96) stated that a clear separation of the two species was evident, basing his conclusion on the wider interspaces between the beaded spiral cords on the fossil species. The writer concurs with Glibert’s observation.

The first representative of the genus *Neritopsis* in the New World, although closely related to the Old World fossil species, is distinguished from *N. moniliformis* by the beading being more closely set on the spiral cords and by the slight umbilicus. Several criteria distinguish *N. vokesorum* from *N. radula*. Specimens of *N. vokesorum* have consistently higher spires. The more finely beaded spiral cords are narrower, with this ornamentation commencing on the first post-nuclear whorl, as opposed to the smooth spiral cords on the corresponding whorl of *N. radula*. Also, the interspaces are wider on *N.*

**LITERATURE CITED**


November 28, 1972