

NOTES ON THE FAUNA OF THE CHIPOLA FORMATION - XXVII:
ON THE OCCURRENCE OF THE BIVALVE GENUS *NUCINELLA* WOOD

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Recently, sorting some fine-sieving from Tulane University locality TU 999 in the Chipola Formation (Farley Creek, a tributary of the Chipola River), the writer found a single left valve of a new species of the genus *Nucinella* Wood, 1851. Careful examination of material previously sorted from all of the 57 Tulane localities in the type area of the formation failed to reveal any additional valves. This scarcity is not unusual, however; of the 35 described species of the genus known to the writer, 11 were based upon single valves.

Family MANZANELLIDAE Chronic, 1952
Genus *NUCINELLA* Wood, 1851

Pleurodon WOOD, 1840, Mag. Nat. Hist., (N.S.) v. 4, p. 230 [non Harland, 1831, Jour. Acad. Nat. Sci. Phila., v. 6, p. 284 (Mammalia)].

Type species (by monotypy): *Pleurodon ovalis* Wood, 1840.

Nuculina D'ORBIGNY, 1844, Paleont. France, Cret. Lamell., p. 161 [non "Filippi" Poro, 1837, Bibl. Ital., v. 82, p. 65 (Crustacea ?)].

Type species (by monotypy): *Nucula miliaris* Deshayes, 1829; Eocene, Paris Basin, France.

Nucinella WOOD, "1850" [1851], Mon. Crag. Moll. (Paleontogr. Soc. Mon.), pt. 2, Bivalves, p. 72.

Type species: "*Nucula miliaris*, Deshayes" (not of Deshayes, 1829) = *Pleurodon ovalis* Wood, 1840; Pliocene, Coralline Crag, England (see discussion below).

Cyrrillona IREDALE, 1929, Rec. Aust. Mus., v. 17, p. 160.

Type species (by orig. designation): *Cyrrilla dalli* Hedley; Recent, New South Wales, Australia.

Neopleurodon HERTLEIN and STRONG, 1940, Zoologica, v. 25, p. 419.

Type species (by orig. designation): *Pleurodon subdolosus* Strong and Hertlein, 1937; Recent, Gulf of California.

Wood (1851, p. 72), in his discussion of the genus *Nucinella* and the sole species that he referred to it - "*Nucinella miliaris* Deshayes" (with *Pleurodon ovalis* listed as a synonym), noted that "there is reason to believe the species left in the Paris Basin is the true progenitor of our little shell. . . . As, however, some differences exist between the Crag Fossil, and what is here considered its specific parent, it may be

necessary to give a more detailed description and to point out what, perhaps, might be regarded by some Conchologists as of sufficient importance to keep them distinct.

"... In a specimen of the French Eocene Fossil in my own cabinet, the teeth do not appear to be quite so obtuse as in the Crag shell, and the umbo is somewhat sharper and more terminal, with a rather more angular outline, the posterior side is apparently more truncated or straight, while the shell is nearly transparent."

It should be noted that, as far as the writer has been able to discover, no subsequent authors have agreed with Wood's conclusions as to the specific identity of the Eocene and Pliocene forms, and generally have considered that there are two species included in the original description of the genus. In 1871, Stoliczka (p. xxi) designated *Pleurodon ovalis* as the type species. [For a more detailed discussion of the problem of the type species see Vokes, 1956, p. 653-655.]

NUCINELLA CHIPOLANA

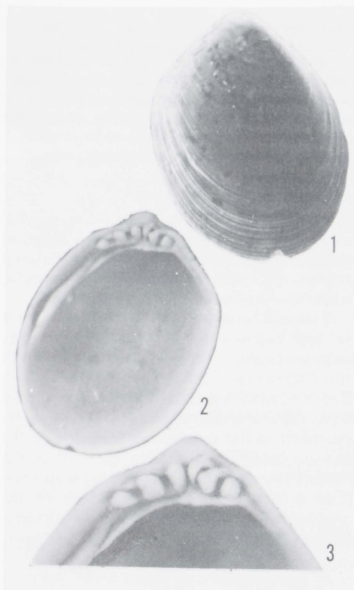
H. E. Vokes, n. sp.

Text figure 1

Description: Shell of average size for the genus; tumid, with greatest inflation at anterior third of valve height; umbo small, slightly prosogyrate, with a minute glassy protoconch; dorsal third of anterior margin of valve straight, with a strong antero-ventral slope that rounds rather sharply into a broadly convex ventral segment trending posteriorly at an angle almost equal to the anterior trend of the dorsal portion; ventral margin broadly and regularly rounded, passing gradually into the gently convex posterior side; dorsal margin relatively short and gently arched above and slightly sub-auriculate at anterior end, rounded at posterior one.

Exterior of valve smooth, marked by fine incremental lines developing ventrally into weak, inconspicuous undulations.

Hinge typical of genus, consisting of a sub-umbonal series of taxodont "cardinal" teeth located on a hinge plate, relatively flat transversally on the anterior area up to and immediately below the umbo, but then gradually trending down into the valve as it passes along the dorsal half of the inner posterior margin, bearing on its ventral half an erect triangular laminar lateral tooth;



Text figure 1. *Nucinella chipolana* Vokes, n. sp. USNM 398344; height 2.75 mm, length 2.1 mm; figs. 1, 2, $\times 16$; fig. 3, $\times 28$ (magnifications approximate).

"cardinal" teeth divided into anterior and posterior segments by a narrowly subtrigonal tooth projecting from valve margin immediately below the umbo; this tooth, broader at its dorsal extremity and narrowing ventrally to a thin lamina that terminates slightly above the ventral ends of the adjacent, more broad, anterior and posterior teeth; dorsal ends of two lateral sets of "cardinal" teeth trending ventrally, as the slightly raised hinge margin parallels the arched valve margin; this results in the dorsal sides of the intermediate tooth sockets being raised and appearing as if projecting from the lateral margin of the adjacent, more centrally located, tooth giving these teeth a distinctly chevron-shaped appearance; two "cardinals" lying in front of the median subtrigonal tooth and three behind it, the most posterior one lacking the chevron

shape and essentially only a transversely elongated node.

Inner margin smooth; pallial line entire; posterior adductor scar relatively large, slightly impressed and situated immediately below the lateral tooth; anterior adductor not well delineated.

Holotype: USNM 398344; height 2.75 mm, length 2.1 mm, diameter (left valve) ca. 0.8 mm.

Type locality: TU 999; Farley Creek, south bank ca. 900 feet west of bridge on Florida Highway 275 (SW $\frac{1}{4}$ Sec. 21, T1N, R9W).

Discussion: *Nucinella chipolana* is the fourth species of this genus to be reported from the Tertiary faunas of the eastern Atlantic region. *Nucinella allenii* Vokes (1966, p. 38, text fig. 1), from the Cook Mountain Formation (Claibornian, Middle Eocene) of Louisiana, is a much smaller form, with but two "cardinal" teeth; *N. gunteri* (Mansfield) (1932, p. 37, pl. 2, figs. 4, 6, as *Pleurodon*), from the Late Miocene "Arca zone of the Choctawhatchee Formation" (= Red Bay Formation of Choctawhatchee Group) of Florida, is approximately the same size as *N. chipolana* but has a distinctly broader medial "cardinal" tooth, with but one anterior and two posterior teeth; in addition, the valve seems proportionately narrower with a longer straight, dorsally-sloping segment on its anterior valve margin; *N. woodii* (Dall) (1898, p. 600, pl. 24, fig. 10, as *Pleurodon*), from the Caloosahatchee Formation, Late Pliocene of Florida, is marked by the possession of three relatively narrow anterior "cardinals" that traverse the hinge plate in a diagonal row from a point near the antero-ventral margin of the plate to its dorsal side immediately in front of the umbo. Mansfield (1932, p. 37, pl. 2, figs. 1,3) reported a right valve that he identified with Dall's Caloosahatchee form from the "Cancelaria zone" (= Jackson Bluff Formation) from Jackson Bluff, Florida. Comparison of his illustrations with that of Dall seems, as earlier noted by the present writer (1956, p. 663), to indicate that the Jackson Bluff form is proportionately shorter than the Caloosahatchee one, that the posterior lateral is slightly more distant from the "cardinals" and that the arrangement of the latter teeth is completely different, particularly with respect to the anterior series. On the whole, the Mansfield form seems

more closely related to the present Chipola species, especially the arrangement of the "cardinals" with the anterior and posterior series being separated by a narrowly sub-trigonal median tooth, which is situated higher on the hinge-plate than any of those on either side.

LITERATURE CITED

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NOTES ON THE FAUNA OF THE CHIPOLA FORMATION - XXVIII:
ON THE OCCURRENCE OF THE NON-MARINE GENUS *MYTILOPSIS*
(MOLLUSCA : BIVALVIA)

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Material collected from the Chipola Formation, Early Miocene, at Tulane locality 459 on the east bank of the Chipola River, Calhoun County, Florida, has yielded seven valves of *Mytilopsis*, a genus primarily known from the lower reaches and mouths of rivers within the tropical zone of the Western Hemisphere. Associated with these valves in the collection are more than 100 specimens of a small species of the fresh-water gastropod *Planorbis*, plus many valves of what appears to be a new species of the estuarine genus *Mulinia*, abundant donacids, and other forms indicative of a shallow-water environment adjacent to the mouth of a small fresh-water stream. This is the only locality in our Chipola collections with a fauna suggesting such a depositional environment.

Family DREISSENIDAE Gray in Turton,
1840 [ICZN Direction 41, 1956]

Genus MYTILOPSIS Conrad, 1858

- Mytilopsis* CONRAD, 1858, Acad. Nat. Sci. Phila., Proc., v. 9, p. 167.
- Praxis ADAMS and ADAMS, 1857, Genera Recent Mollusca, v. 2, p. 522 (non Guenée, 1852, Lepid.).
- Mytiloides* CONRAD, 1874, Acad. Nat. Sci. Phila., Proc., v. 26, p. 29 [err. pro *Mytilopsis*, fide Conrad, supra p. 83] (non Brongniart, 1822, Inoceramidae).
- Type species, by subsequent designation, Dall, 1898 : *Mytilus leucopheatus* Conrad, 1831; Recent, southeastern United States.
- "Shell mytiliform, attached by a byssus; hinge with a septum, beneath which on the cardinal side is a triangular cup-shaped process; cartilage groove rather deep." (Conrad, 1858)