

NOTES ON THE FAUNA OF THE CHIPOLA FORMATION - VI

ON THE OCCURRENCE OF *PTERYNOTUS PINNATUS* (GASTROPODA: MURICIDAE),
AND THE PROBLEMS OF DISPERSALEMILY H. VOKES
TULANE UNIVERSITY

This short note is solely to record the unlikely occurrence, in the Chipola Formation, of a single specimen that can be referred only to the otherwise Indo-Pacific species *Pterynotus pinnatus* (Swainson). (Actually the valid species name is *alatus* Röding, 1798. However, an appeal to the International Commission on Zoological Nomenclature to conserve the well-known species name *pinnatus*, in place of the older objective synonym *alatus*, is pending. Prior to 1960 the taxon *Purpura alatus* Röding, 1798, was used only as a synonym of *Murex pinnatus* Swainson, 1822, because it was thought to be pre-occupied by *Murex alatus* Gmelin, 1791. However, it is no longer so considered and thus has become available to replace the commonly used "*Murex*" *pinnatus*. By any definition *Purpura alatus* should be considered a *nomen oblitum* and thus it seems unwise to introduce it into the literature until a final decision as to its status is reached by the Commission.)

By whatever name it is called, the discovery in the Chipola Formation of the specimen here figured is noteworthy. Collected at TU 830 by that extraordinary collector Robert C. Hoerle, of West Palm Beach, Florida, it is appropriate that this note should accompany a paper by Mr. Hoerle on the occurrence in the Chipola of another otherwise Indo-Pacific form, *Neritopsis*. As has been noted on previous occasions, the Chipola Formation is fraught with unusual species, but these two Indo-Pacific forms are especially remarkable. With the exception of the Chipola occurrences here reported, neither is otherwise known in the New World, either fossil or Recent. (There are other species of *Pterynotus* in the New World but they are totally unlike *P. pinnatus*, being extremely smooth on the shell surface.)

As is also the case in *Neritopsis*, the nearest approximately contemporaneous relative to *P. pinnatus* is to be found in the Aquitaine Basin of France. "*Murex*" *granuliferus* Grateloup, from the classic locality of Saubrigues, near Dax, is most nearly akin to our species, differing primarily in having a com-

pletely straight siphonal canal in contrast to the definitely recurved canal of *P. pinnatus*. The beds at Saubrigues, formerly thought to be Tortonian, are now considered on the basis of planktonic foraminifera to be basal Langhian in age (Szots, 1968, p. 303), or just a bit younger than the Chipola (see Akers, 1972, fig. 3). Other muricine forms in common between the Chipola and the Aquitaine area were discussed by the writer in a previous paper (Vokes, 1965) and it was suggested then that the similarities formed a basis for correlation between the Chipola and the Helvetian of Aquitaine. However, more recent work on the planktonic foraminifera (Akers, 1972, p. 10) has convincingly disproved this hypothesis.

The extreme similarities of fauna between the two disjunct areas is more likely a function of facies kinship than it is of precise time correlation. Both the Chipola and the Aquitaine faunas are truly tropical, much more so than any other found in the southern United States. On the basis of planktonic foraminifera, which to this writer are the first true inter-continental correlators, the Chipola is somewhat older than the formations of the Aquitaine Basin that carry the similar fauna.

Nevertheless the similarities of fauna cannot be attributed solely to facies. There must have been some communication between the two areas. The species are too much alike, and too much unlike the preceding Paleogene ancestors for their similarities to be attributable to parallel evolution *in situ*. It is probable that some species developed in Florida (or at least in the New World) and moved across to Aquitaine and others evolved in southern Europe and moved across to Florida.

The problems of communication between these two areas cannot be ignored. One can only wonder at the means of dispersal for these shallow-water, tropical animals which, in the Recent at least, have no pelagic larval stage. The Indo-Pacific dispersal is perhaps less of a problem, for the remnants of the Tethyan Sea survived long enough to permit

free movement from the Aquitaine Basin into that region. However, this does not help explain how *P. pinnatus* made its way from Florida to its upper Miocene first appearance in the Pacific without leaving a trace of its passing through Europe. A direct trans-Pacific route is highly unlikely but by Miocene time not even the most dedicated "plate-tectonist" would suggest that the Atlantic Ocean did not exist. And yet for the numerous species that are so markedly alike between the Chipola and the Aquitaine area there almost has to be some explanation besides random "rafting" via floating debris. The writer can offer no positive suggestions as to the means of dispersal, but can only call attention to the problem.

LITERATURE CITED

- AKERS, W. H., 1972, Planktonic foraminifera and biostratigraphy of some Neogene formations, northern Florida and Atlantic Coastal Plain: Tulane Stud. Geol. Paleont., v. 9, p. 1-139, pls. 1-60, figs. 1-4, 1 map.
- SZOTS, E., 1968, Les foraminifères planctoniques et la position stratigraphique des affleurements Miocènes de Saubrigues (Les Landes, France): *Giornale di Geologia*, (Ser. 2) v. 35, fasc. 3, p. 303-306.
- VOKES, E. H., 1965, Note on the age of the Chipola Formation (Miocene) of northwestern Florida: *Tulane Stud. Geol.*, v. 3, no. 4, p. 205-208.

November 28, 1972

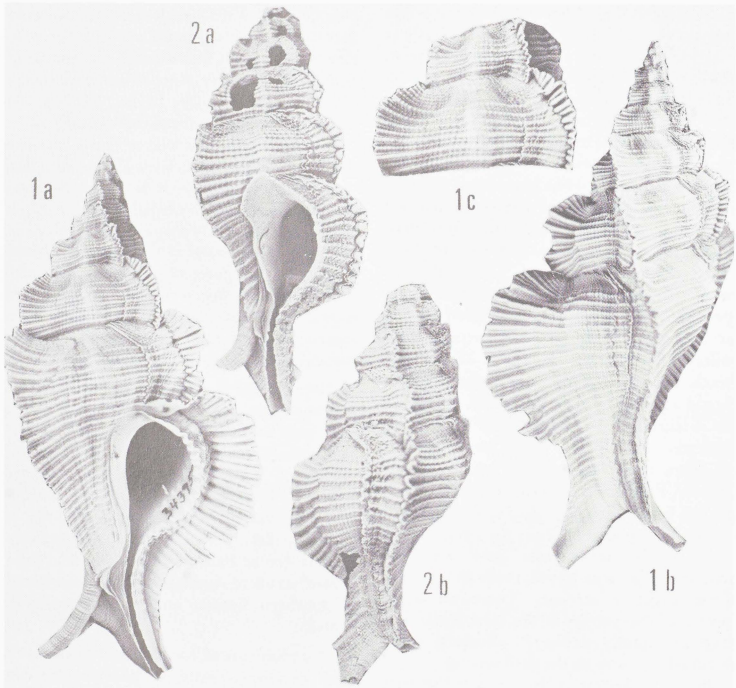


Figure 1, USNM 343958; height 63 mm, diameter 26.5 mm; Recent, Kii, Japan. Figs. 1a, 1b, X 1¼; fig. 1c, X 2 for comparison of surface ornamentation with Chipola specimen. Figure 2, USNM 646949; height 34.4 mm, diameter 16.2 mm; TU 830, Ten Mile Creek, Calhoun County, Florida; Chipola Formation, X 2.