

NOTES ON THE FAUNA OF THE CHIPOLA FORMATION — XXIV  
THE GENUS ASTARTE (MOLLUSCA: BIVALVIA)

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In 1936 Gardner reported the presence of the bivalve genus *Astarte* in the fauna of the Chipola Formation of Calhoun County, Florida. Based upon a single, worn, right valve that had been sent her by the Florida Geological Survey, and said to have been collected from "one-fourth mile below Bailey's Ferry, Chipola River, Calhoun County, Florida;" the form was described and figured (1936, p. 20, pl. 4, fig. 1) as "*Astarte (Ashtarotha)* species." As noted by Gardner this was the "first record of this typically cold-water genus in the Chipola of Florida."

The Tulane University collections presently include 137 single valves, all from localities within the lower part of the Chipola Formation; 123 of these are from the beds exposed along Tenmile Creek and 12 from the Chipola River outcrops. Only a single small valve has been found from the Farley Creek section. Five of the 12 specimens from the Chipola River area are from TU 810, which is approximately one-fourth mile below the site of the old Bailey's Ferry and presumably the site from which the specimens reported by Gardner was collected. All five specimens are much worn, as are the majority of the specimens in the collection, and apparently had been subjected to pre-burial transportation.

Family ASTARTIDAE d'Orbigny, 1844

Genus ASTARTE J. Sowerby, 1816

*Astarte* J. SOWERBY, 1816, Mineral Conchology of Great Britain, v. 2, p. 85.

*Crassina* LAMARCK, 1818, Hist. Anim. s. Vert., v. 5, p. 554\* [monotype: *Crassina danmoniensis* = *Venus danmoniensis* Montagu, 1807 = *V. scotica* Maton and Rackett, 1807].

Type species, by original designation: *Venus scotica* Maton and Rackett (= *Pectunculus sulcatus* Da Costa, 1778, var. *scotica* Maton and Rackett, 1807). Recent; coast of Scotland.

\*Through an obvious typographical error pages 551 through 560 are repeated in volume 5 of Lamarck's work; the genus *Crassina* is described on the first usage of the number 554.

Subgenus ASHTAROTHA Dall, 1903

*Ashtarotha* DALL, 1903, U.S. Natl. Mus., Proc., v. 26, p. 936.

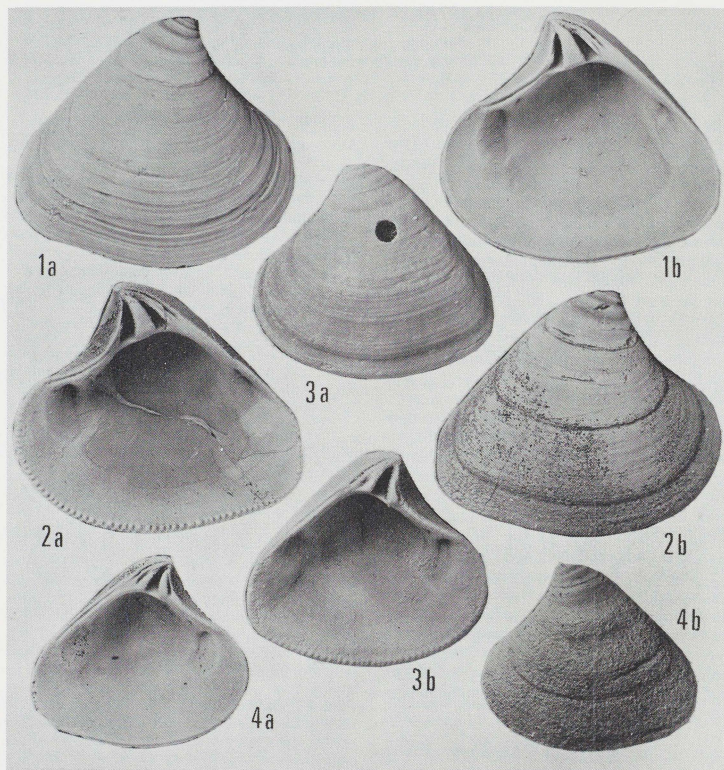
Type species, by original designation, *Astarte undulata* Say, 1824. "Maryland" [= Pliocene, Yorktown Formation, mainly Virginia and North Carolina; see Gardner, 1948, p. 57, pl. 12, figs. 25, 31].

ASTARTE (ASHTAROTHA) PANSYRTA

H. E. Vokes, n. sp.

Text figures 1-4

*Description:* Shell relatively small, subtrigonal in outline, with prominent, flattened, acute and slightly prosogyrate umbones; shape of the dorsal half of the valve profoundly affected by the moderately narrow, elongate-lanceolate and deeply excavated lunule and the straight, flattened escutcheon; anterior dorsal slope concave, broadly and regularly rounding through the anterior end into the ventral margin. Latter more convex anteriorly, becoming almost straight posteriorly and subangulately rounding into the short, slightly convex posterior end. This, in turn, curving sharply into the almost straight posterior dorsal margin, which is, however, broadly arched in the umbonal area. External sculpture, confined to flattened surface of the umbones, of three to eight, usually five, subequal and subequally spaced rounded concentric elevations, with dorsal slope steeper than ventral one; remainder of valve surface marked only by concentric growth lines and, in some specimens with inconspicuous, low, rounded undulations near the ventral margin. Ligament marginal, short, approximately as long as the adjacent low and feeble posterior cardinal tooth of the right valve, and separated by a low nymphal ridge from the shallow corresponding socket on the left valve; median right cardinal stout, projecting, cuneiform; right anterior cardinal obsolete; left valve with relatively strong and subequal anterior and median cardinals divergent on each side of a deep sub-umbonal socket for the reception of the median right cardinal; left posterior cardinal obsolete. Margins of hinge teeth of both valves transversely striated. Anterior lunular margin of the right valve and posterior escutcheonal margin of the left feebly grooved to receive the corresponding beveled edges of the opposite valves. Adductor scars moderately large, well-marked and impressed, especially at their dorsal ends, the anterior reniform, the posterior ovate in outline; small, pit-like depressions for the reception of the retractor muscles on the inner, sub-lunular



Text figures (all  $\times 3$ )

1. USNM 298645. Holotype (right valve); height 14.6 mm, length 16.3 mm, diameter 3.8 mm; form with smooth ventral margin.
2. USNM 298646. Paratype A (right valve); height 14.4 mm, length 16.9 mm, diameter 4.1 mm; form with crenulate ventral margin.
3. USNM 298647. Paratype B (left valve); height 12.8 mm, length 14.0 mm, diameter 3.9 mm; form with crenulate ventral margin.
4. USNM 298648. Paratype C (left valve); height 11.3 mm, length 12.8 mm, diameter 3.0 mm; form with smooth ventral margin.

(All specimens from locality TU 830)

surface; pallial line simple, distant from the valve margins which may, or may not, be crenulate.

*Type locality:* TU 830. Tenmile Creek, north bank at power line crossing, about 1.3 miles west-northwest of mouth of creek at Bailey's Ferry (SE $\frac{1}{4}$ SW $\frac{1}{4}$  Sec. 12, T1N, R10W), Chipola Formation, Calhoun County, Florida.

*Remarks:* In her original presentation Gardner noted that the Chipola specimen seemed to be "related to the Choctawhatchee forms rather than to those from the later Alum Bluff." The additional, better preserved specimens now available confirm this observation and the writer is of the opinion that the Chipola species is probably ancestral to *Astarte (Ashtarotha) floridana* Dall, 1903 [p. 1493, pl. 57, fig. 19: as "*Astarte (distans* var. ?) *floridana*"]. The latter is a much larger species (specimens in the Tulane University collections attain lengths up to 29 mm) and has a much less concave antero-dorsal margin adjacent to the lunule, resulting in a broader and less attenu-

ated umbone. In addition, the posterior margin is proportionally shorter and sub-angulate rather than slightly convex as in the present new species.

The specific name is derived from the Greek term "pansyrtos" (swept together, accumulated) and is applied in allusion to the fact that specimens in the collection show much evidence of having suffered pre-burial transportation.

#### LITERATURE CITED

- DALL, W. H., 1903, Contributions to the Tertiary Fauna of Florida, . . . : Wagner Free Inst. Sci., Trans., v. 3, Part 6, p. i-xiv, 1219-1654, pls. 48-60, 2 tables.
- GARDNER, JULIA, 1936, Additions to the molluscan fauna of the Alum Bluff Group of Florida: Florida Dept. Conserv., Geol. Bull. no. 14, 82 p., 10 pls.
- GARDNER, JULIA, 1948, Mollusca from the Miocene and lower Pliocene of Virginia and North Carolina. Part 1. Pelecypoda: U.S. Geol. Surv., Prof. Paper 199-A, iv + 169 p., 23 pls., 4 text figs., 2 tables.

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#### REVIEW

THE CHEROKEE EXCAVATIONS: Holocene Ecology and Human Adaptations in Northwestern Iowa, edited by Duane C. Anderson and Holmes A. Semken, Jr. Published by Academic Press, New York, London, Toronto, Sydney, and San Francisco, 1980, xvi + 277 pp., illus., index, \$23.00

The Cherokee (Iowa) Project revealed the presence of three major mid-Holocene cultural horizons in stratified fan deposits. Minor changes in the tool assemblages and subsistence patterns of the hunting cultures of each horizon represent the cultural shift from Late Paleo-Indian to the Prairie Archaic tradition. An inter-disciplinary team of archaeologists, geologists, and paleontologists, funded by National Science Foundation grants to The University of Iowa, the

Iowa Geological Survey, and The University of Wisconsin, investigated this site and formed the basis for this volume. One chapter is devoted to the geology of the Cherokee Site, defines and describes the stratigraphic units within the alluvial fan sequence, presents absolute and relative time relationships, and interprets the sedimentary environments. Also, a model of humid alluvial fan sedimentation is proposed. Three other chapters are concerned with climatic interpretations and reconstructions based on faunal and floral content and on other environmental factors revealed by the studies of the team of scientists. The main value of this volume to geologists is as a model of how geological and archaeological interpretations can be interrelated and advantageous to both disciplines.

--H.C.S.