



## Explanation of Figures 18 to 32

Figures 18–26. *Acila (Truncacila) demessa* Finlay, 1927. Figure 18. Hypotype LACMIP 13228, LACMIP loc. 10835, left valve,  $\times 2.6$ . Figure 19. Hypotype LACMIP 13229, LACMIP loc. 17611, left valve,  $\times 2.6$ . Figure 20. Hypotype RBCM.EH2003.009.0001, Locality 1, left valve,  $\times 1.7$ . Figure 21. Hypotype LACMIP 13229, LACMIP loc. 17611, right valve,  $\times 2.6$ . Figure 22. Hypotype LACMIP 13230, LACMIP loc. 10832, right valve,  $\times 2.7$ .

County, southern California; Williams Formation, Pleasants Sandstone Member, Santa Ana Mountains, Orange County, southern California. LOWER UPPER CAMPANIAN: Jalama Formation, Santa Barbara County, southern California. UPPER UPPER CAMPANIAN TO POSSIBLY LOWER MAASTRICHTIAN: Rosario Formation at Punta San Jose and San Antonio del Mar, Baja California, Mexico.

**Discussion:** The above description is based on 847 specimens: 320 left valves, 356 right valves, and 171 with conjoined valves.

Our study revealed, for the first time, that on *A. (T.) demessa*, ribs commonly bifurcate into riblets near the ventral margin, the left-valve hinge has approximately 11 posterior teeth, and the right-valve hinge has approximately 18 anterior teeth.

Schenck (1936:48–50) reported *A. (T.) demessa* (from strata now referred to as the Rosario Formation) at Punta Banda and San Antonio del Mar, Baja California (Figure 1, locales 25 and 26, respectively). Only his San Antonio del Mar specimen is *A. (T.) demessa*. His Punta Banda specimen (hypotype CAS 6205) is *A. (T.) grahami*.

Whiteaves (1879, 1903) reported *Nucula (Acila) truncata* Gabb, 1864, from various localities, including the Nanaimo area, Vancouver Island, British Columbia, and Sucia Island, Washington. He provided no type numbers nor any illustrations of these specimens, and none is part of any known museum collection. Based on their geographic occurrences, however, it is possible that the Nanaimo area and Sucia Island specimens are *A. (T.) demessa*.

Page et al. (1951:1738–1739) mentioned that *Acila demessa* was found at four LSJU localities in beds in the Santa Ynez Mountains northeast of Santa Barbara, Santa Barbara County, southern California. These beds were later placed in the Espada Formation by Dibblee (1966: 17), which ranges in range from latest Jurassic or Early Cretaceous to Late Cretaceous age (Dibblee, 1966). He also mentioned that these *Acila* specimens were found associated with the rudist *Coralliochama orcutti* White, 1885. This rudist is known to be of late Campanian to early Maastrichtian age (Marincovich, 1975). An attempt to find these *Acila* and rudist fossils in the CAS collection was unsuccessful. If the identification of the rudist is ac-

curate, these *Acila* specimens could be *A. (T.) demessa*, *A. (T.) grahami*, sp. nov., or *A. (T.) rosaria*, sp. nov.

Haggart & Higgs (1989) reported *Acila (Truncacila)* sp. from the upper Santonian in marine shales apparently overlying the Honna Formation in the area of Skidegate Inlet, Queen Charlotte Islands, British Columbia. Although the geologic age of this bivalve is within the range of *A. (T.) demessa*, closer investigation of this Queen Charlotte bivalve revealed that its preservation is too poor to even allow generic identification (J. Haggart, personal communication).

*Acila (Truncacila) grahami* Squires & Saul,  
sp. nov.

(Figures 27–38)

*Acila (Truncacila)* cf. *demessa* Finlay, 1927. Schenck, 1936: 50.

*Acila (Truncacila)* sp. E. Schenck, 1943:65–66, pl. 9, figs. 2, 4.

?*Nucula (Acila) truncata* Gabb. Whiteaves, 1879:162 (in part).

**Diagnosis:** Shell small, trigonal to subquadrate. Chevrons bisected by line usually meeting ventral-margin anterior (rarely center). Total number of ribs on disk of each valve approximately 50; ribs (posterior of chevron-bisecting line) narrow to moderately wide, with interspaces approximately  $\frac{1}{2}$  to  $\frac{1}{2}$  as wide. Escutcheonal ribs continuous with ribs on disk.

**Description:** Shell small for subgenus (up to 13.1 mm in height and 16.5 mm in length, most specimens approximately 8 mm in height and 9 mm in length), longer than high, height/length ratio = 0.75 to 0.92. Trigonal to subquadrate, inequilateral, equivalved, valves moderately inflated. Anterior end broadly rounded. Antero-dorsal margin long and straight. Posterior end truncate and set off from escutcheon by weak rostration. Ventral margin convex. Umbones moderately low, located posteriorly; umbonal angle varying from 86° (most trigonal shells) to 114° (most subquadrate shells). Beaks pointed, incurved, opisthogyrate. Disk very broad, ornamented with abundant ribs diverging from umbo area and forming chevron-shaped (divaricate) pattern. Chevron angle varying from 38° (most trigonal shells) to 56° (most subquadrate

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Figure 23. Hypotype RBCM.EH2003.010.0001, Locality 2, right valve,  $\times 1.8$ . Figure 24. Hypotype LACMIP 13231, LACMIP loc. 22406, right valve,  $\times 2.7$ . Figure 25. Hypotype LACMIP 13232, LACMIP loc. 28780, left-valve hinge,  $\times 3$ . Figure 26. Hypotype LACMIP 13233, LACMIP loc. 10832, posterior view,  $\times 1.4$ . Figures 27–32. *Acila (Truncacila) grahami* Squires & Saul, sp. nov. Figure 27. Paratype RBCM.EH2003.012.0002, Locality 3, left valve,  $\times 4.4$ . Figure 28. Paratype RBCM.EH2003.014.0001, Locality 4, left valve,  $\times 2.8$ . Figure 29. Holotype RBCM.EH2003.011.0002, Locality 3, left valve,  $\times 3.8$ . Figure 30. Paratype RBCM.EH2003.012.0001, Locality 3, left valve,  $\times 3.9$ . Figure 31. Paratype RBCM.EH2003.013.0001, Locality 4, left valve,  $\times 2.8$ . Figure 32. Paratype CAS 69079, CAS loc. 69079, crushed specimen of left valve,  $\times 2.4$ .