

DESCRIPTIONS OF NEW SPECIES OF MARINE MOLLUSKS FROM WEST MEXICO

By LEO G. HERTLEIN

Many collections of marine mollusks were assembled by Templeton Crocker during expeditions to tropical west Mexican waters on his yacht ZACA. Research on collections in the California Academy of Sciences which resulted from those expeditions has revealed that one bivalve and two gastropods are undescribed forms.

Specimens of a gastropod of the genus *Acmaea* collected by Mr. and Mrs. Harry R. Turver at Punta Peñasco, Sonora, Mexico, and presented to the California Academy of Sciences likewise represent an undescribed species. Specimens of another small *Acmaea* differing in some details from any described species were collected at San Felipe, Lower California, by Mrs. Faye B. Howard. These new species and subspecies are here described and illustrated.

The writer wishes to acknowledge the generosity of the late Templeton Crocker, and of Dr. William Beebe who accompanied Mr. Crocker on two expeditions, for making specimens collected on those expeditions available for study. Acknowledgments are also due Mr. and Mrs. Harry R. Turver for specimens of the new subspecies of that genus.

The photographs used for illustrations on the plate were made by Mr. Charles E. Crompton, photographer, California Academy of Sciences.

Cardita spurca beebei Hertlein, new subspecies

Plate 21, figures 3, 4, 12, 13, 14

Shell ovately oblong, moderately thick, sculptured with about 18 trigonal, finely nodulose, radial ribs, those on the anterior and posterior margins finer than the others. Shell differing from that of *Cardita spurca* Sowerby in that it is smaller, thinner, and has finer ribs. Dimensions: length, 18.2 mm.; height, 15.5 mm.; convexity, both valves together, 11 mm.

HOLOTYPE (Calif. Acad. Sci. Dept. Geol. Type Coll.), dredged off Manzanillo, Colima, Mexico, in Lat. 19°24'00" N., Long. 104°-22'00" W., in 35 fathoms (55 meters), gravelly sand; collected during the Eastern Pacific ZACA Expedition, November 22, 1937.

The shell here described as a new subspecies was cited by Hertlein and Strong¹ under the name of *Cardita spurca* Sowerby², although it was realized at the time that the specimens varied somewhat from the original description of *C. spurca* and from Reeve's illustration of that species.

A comparison of the present shells from west Mexico with those of *Cardita spurca* from Chile leads the author to conclude that these thinner, smaller northern forms are sufficiently distinct to merit subspecific status and therefore the name *beebei* is proposed for them in honor of Dr. William Beebe, director of the Eastern Pacific ZACA Expedition of the New York Zoological Society during which the type specimen was collected.

This subspecies is known to occur in the region between Carmen Island in the Gulf of California and Punta Arena, Costa Rica, in 25-35 fathoms.

Ocenebra sloati Hertlein, new species
Plate 21, figures 8, 9

Shell of medium size, white, with seven whorls, the earliest portion of the apex eroded; second whorl nearly smooth but with traces of fine, raised, axial striae; third whorl broadly rounded and with two spiral lirae, one nearly medial, the other between it and the suture, these are crossed by axial lines similar to those on the second whorl; strong axial riblets begin to develop on the third whorl, about six on the succeeding whorls, increasing to nine on the last whorl; the later whorls are subtabulate and bear about three faint spirals on the tabulation, with the same strong spiral cords as on the earlier whorls but with the development of an intercalary thread between the major cords and one between the anterior one and the suture; the last whorl is sculptured with about a dozen concentric cords which become finer on the canal and in each interspace a fine intercalary thread is present; the entire shell is covered with fine axial imbricating lamellæ; columella sinuously curved; interior of inner and outer lips smooth; a small siphonal fasciole present. Dimensions: length, 19.4 mm.; maximum width, 11.3 mm.; height of spire approximately 8.6 mm.

HOLOTYPE (Calif. Acad. Sci. Dept. Geol. Type Coll.), from Loc. 27587 (C.A.S.), dredged from off big rocks off Cape San Lucas, Lower California, Mexico, in 20-25 fathoms, during the Templeton Crocker Expedition of the California Academy of Sciences, August 6, 1932.

¹Hertlein, L. G. and Strong, A.M., Zoologica, New York Zool. Soc., Vol. 31. Pt. 3, No. 8, p. 106, December 5, 1946.

²*Cardita spurca* Sowerby, Proc. Zool. Soc. London for 1832, p. 195, issued March 13, 1833. "Hab ad oras Peruviae." "Dredged among coarse sand and gravel, in from six to ten fathoms, at Iquiqui, in Peru."—Reeve, Conch. Icon., Vol. 1, *Cardita*, species 32, pl. 7, fig. 32, 1843.

The shell of this new species differs from that of *Ocenebra foveolata* Hinds, a species well known in southern California, in that it is broader, the spire is shorter, the columella is more sinuous and the inner and outer lips are smooth in shells of comparable size. The present shells are wholly white rather than brown as in the species described by Hinds.

This species is named for Lewis Warrington Sloat, pioneer conchologist in California, one of the founders and the first secretary of the California Academy of Sciences.

***Ocenebra sloati hambachi* Hertlein, new subspecies**

Plate 21, figures 10, 11

Shell with the general features of *Ocenebra sloati*, but with more rounded whorls, finer axial striae, and much finer, wavy, concentric sculpture. Dimensions: length, 21.3 mm.; maximum diameter, 10.6 mm.; height of spire, approximately 9 mm.

HOLOTYPE (Calif. Acad. Sci. Dept. Geol. Type Coll.), from Loc. 27574 (C.A.S.), dredged about 47 miles southeast of Manzanillo, Colima, Mexico, Lat. $18^{\circ}33'00''$ N.; long. $103^{\circ}45'00''$ W., in 52 fathoms; Templeton Crocker Expedition of the California Academy of Sciences, July 17, 1932.

This subspecies is named for Dr. Gustav Hambach, whose library and collections in the California Academy of Sciences have been an invaluable aid in research work.

***Acmaea strongiana* Hertlein, new species**

Plate 21, figures 1, 2

Shell small, thin, flattish, somewhat irregularly ovate in outline, the apex pointed, raised and situated at about the anterior fourth of the shell; the exterior surface grainy and irregularly ridged, the ground color is greenish-white with about six to seven broad, dark radial bands, and between these some fine radial irregular brown bands and spots; interior smooth, the black radial bands pronounced and separated by creamy-white to white bands, a brownish apical spot present, most pronounced posterior to the apex. Dimensions: length, 8.8 mm.; width, 6.2 mm.; height, 2 mm.

HOLOTYPE (Calif. Acad. Sci. Dept. Geol. Type Coll.), from Loc. 34041 (C.A.S.), Pelican Point, Punta Peñasco, Sonora, Mexico; Mr. and Mrs. Harry R. Turver, collectors.

The irregularly ridged exterior surface and broad black radial bands on the exterior of the shell of the present species are features quite different from those of any species of *Acmaea* known to occur in west American waters. These features, as well as the broad, shiny black radial bands and creamy-white intervening areas so prominent on the interior of the shell, easily serve to separate it from species such as *Acmaea strigatella* Carpenter,

which occurs in the same area. The latter is ornamented externally by numerous, somewhat irregular whitish radial stripes, and the interior is white with brown flecks along the margin. The shell of *Acmaea stipulata* Reeve, which has a somewhat similar shape, differs in the possession of many coarse radial ribs exteriorly which denticulate the margin interiorly, and there are differences in color as well.

Fifteen specimens collected by the Turvers, six specimens collected by Mr. E. P. Chace, San Diego Society of Natural History,

Explanation of Figures on Plate 21

Fig. 1. *Acmaea strongiana* Hertlein, new species. Holotype (Calif. Acad. Sci. Dept. Geol. Type Coll.), from Loc. 34041 (C.A.S.), Pelican Point, Punta Peñasco, Sonora, Mexico, Length, 8.8 mm.; width, 6.2 mm.; height, 2 mm. Apical view.

Fig. 2. *Acmaea strongiana* Hertlein, new species. Holotype. View of interior of specimen shown in Fig. 1.

Fig. 3. *Cardita spurca beebei* Hertlein, new subspecies. Holotype (Calif. Acad. Sci. Dept. Geol. Type Coll.), from Loc. 17815 (C.A.S.), dredged off Manzanillo, Colima, Mexico, Lat. 19°24'00" N., Long. 104°22'00" W., in 35 fathoms (55 meters). Length, 18.2 mm.; height, 15.5 mm.; convexity (one valve), 5.5 mm. View showing interior of right valve.

Fig. 4. *Cardita spurca beebei* Hertlein, new subspecies. Holotype. View of interior of left valve.

Fig. 5. *Acmaea turveri fayae* Hertlein, new subspecies. Holotype (Calif. Acad. Sci. Dept. Geol. Type Coll.), from San Felipe, Lower California, Mexico. Length, 8.9 mm.; width, 7.6 mm.; height, 3 mm. Lateral view.

Fig. 6. *Acmaea turveri fayae* Hertlein, new subspecies. Holotype. Apical view.

Fig. 7. *Acmaea turveri fayae* Hertlein, new subspecies. Holotype. View of interior.

Fig. 8. *Ocenebra sloati* Hertlein, new species. Holotype (Calif. Acad. Sci. Dept. Geol. Type Coll.), from Loc. 27587 (C.A.S.), dredged off big rocks off Cape San Lucas, Lower California, in 20-25 fathoms. Length, 19.4 mm.; maximum diameter, 11.3 mm.,

Fig. 9. *Ocenebra sloati* Hertlein, new species. Holotype. Another view of specimen shown in Fig. 8.

Fig. 10. *Ocenebra sloati hambachi* Hertlein, new subspecies. Holotype (Calif. Acad. Sci. Dept. Geol. Type Coll.), from Loc. 27574 (C.A.S.), dredged about 47 miles southeast of Manzanillo, Colima, Mexico, Lat. 18°33'00"N., Long. 103°45'00"W., in 52 fathoms. Length, 21.3 mm.; maximum diameter, 10.6 mm.

Fig. 11. *Ocenebra sloati hambachi* Hertlein, new subspecies. Holotype. Another view of specimen shown in Fig. 10.

Fig. 12. *Cardita spurca beebei* Hertlein, new subspecies. Paratype (Calif. Acad. Sci. Dept. Geol. Type Coll.), from the same locality as the holotype shown in Fig. 3. Length, 17.9 mm.; height, 14.8 mm.; convexity (both valves together), 12 mm. View of anterior end.

Fig. 13. *Cardita spurca beebei* Hertlein, new subspecies. Holotype. View of exterior of right valve.

Fig. 14. *Cardita spurca beebei* Hertlein, new subspecies. Holotype. View of exterior of left valve.

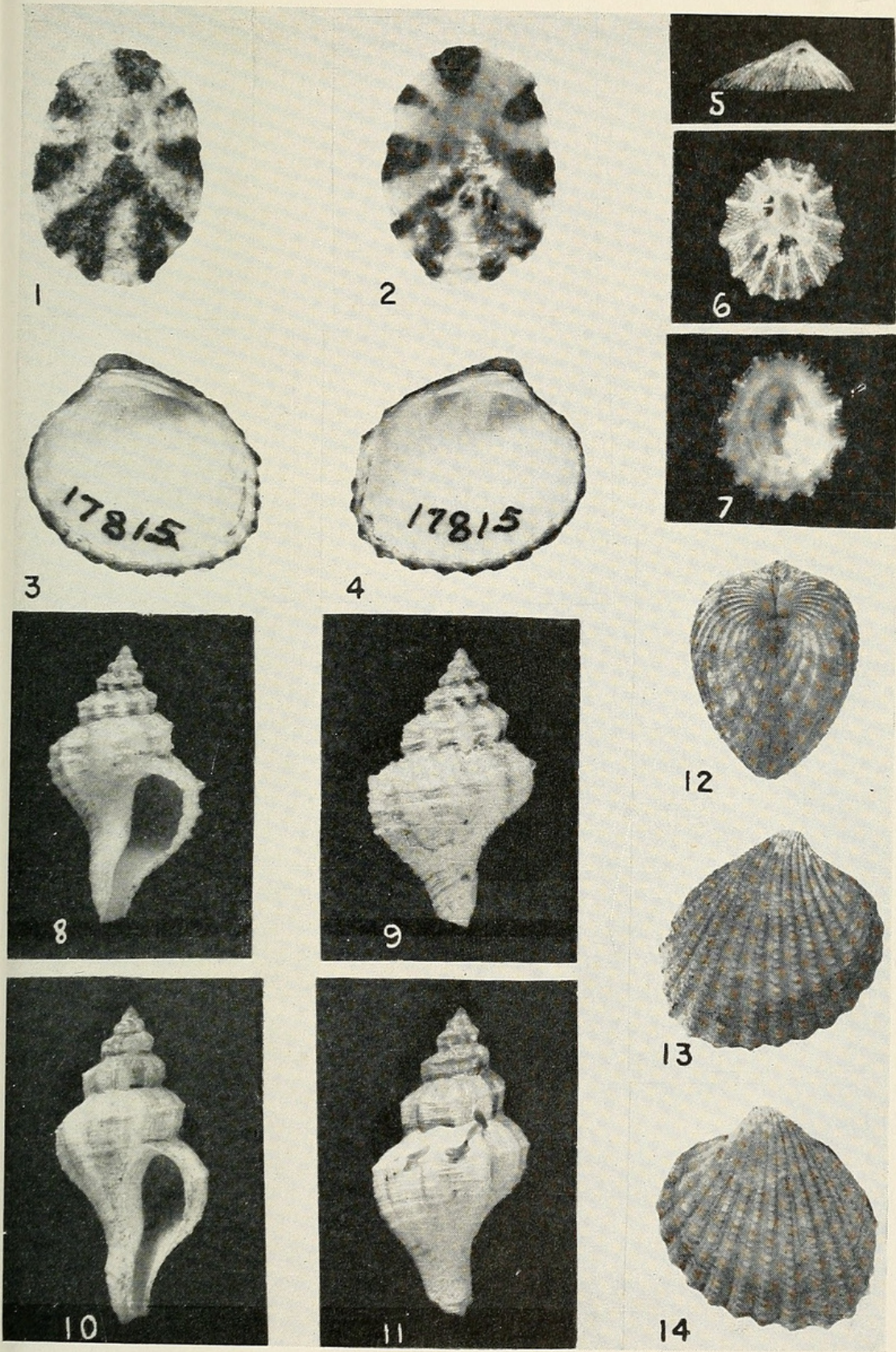


PLATE 21

and six collected near the type locality by Mrs. Faye B. Howard of Ocampo, California, have been available for study. The largest of these is 9.8 mm. in length. These shells appear to be quite different from the young of any known species and it appears that they are probably adult.

This new species is named for the late A. M. Strong, whose many contributions added so much to the knowledge of west American conchology.

Acmaea turveri fayae Hertlein, new subspecies

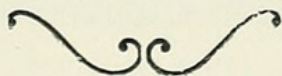
Plate 21, figures 5, 6, 7

Shell small, thin, ovate, moderately elevated, the apex situated decidedly anteriorly; sculpture consists of 14 rather fine, raised radial ribs; area between the ribs ornamented with ovate to elongately diamond-shaped areas formed by brown lines on a gray ground. Interior, opalescent white with traces of blue, the margin with fine brown dots separated by wider white areas corresponding to the ribs. Dimensions: length, 8.9 mm.; width, 7.6 mm.; height, 3 mm.

HOLOTYPE (Calif. Acad. Sci. Dept. Geol. Type Coll.), from San Felipe, Lower California, Mexico; Mrs. Faye B. Howard, collector. Two additional specimens are in the collection of Mrs. Howard.

The present shells bear a close resemblance to *Acmaea turveri* Hertlein & Strong³, which also occurs in the northern portion of the Gulf of California, in coloration of both the exterior and the interior. They might be a variant of that species but the shells are more elevated and the radial ribs are decidedly finer than those observed on any specimens of *A. turveri*. In the character of the ribs they resemble that of *Acmaea conus* Test. In view of the uncertainty concerning the relationship of this form, the conservative course is followed and it is here described as a subspecies of *A. turveri*.

³*Acmaea turveri* Hertlein & Strong, Bull. South. Calif. Acad. Sci., Vol. 50, Pt. 3, p. 152, pl. 51, figs. 1, 2, 3, September-December (issued December 27), 1951. "Punta Colorado near Guaymas, Mexico."





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