

margins, teeth, and base are white, except for a few large brown lateral spots extending into the margin.

Cypraea ostergaardi differs from *C. helvola hawaiiensis* Melvill, with which it compares favorably, by the definitely large and distinct brown spots, the finer teeth, and the pure white color of base, teeth, and margins. The heavier teeth, the constant pattern quality, and the ferruginous base, teeth, and margins of *C. helvola hawaiiensis* constitute a very conspicuous separation of these two species.

We extend our grateful thanks to Mrs. Mary Eleanor King of Honolulu, sponsor of the Pele Expedition, for making it possible to clarify the relative positions of these two shells; also to our many kind friends for their support and encouragement,

including Professor Jens Ostergaard, Dr. Myra Keen, Dr. Rudolf Stohler, Dr. Leo Hertlein, Allyn G. Smith, Dr. G. Dallas Hanna, the late Lloyd E. Berry, and Gale Sphon. We greatly appreciate the cooperation and help of all these fellow-conchologists in the preparation of this paper. The photographs were made by Mr. Lowell Weymouth.

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A NEW OPISTHOBRANCH OF THE GENUS AGLAJA IN SAN FRANCISCO BAY

by

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(Plate 16)

The diversity of the opisthobranch fauna in San Francisco Bay has long been overlooked, perhaps due to the variety of large and colorful forms on the outer shores of the California coast. But, although the additions to the San Francisco Bay fauna recently (Hand and Steinberg, 1955) and herein described are small and rather inconspicuous, they are nonetheless of considerable interest.

In the course of sampling the benthic fauna off Point Richmond (Jones, 1954), numerous specimens of a cephalaspidian opisthobranch belonging to the genus Aglaja were

found. They were quite unlike any of the six other species of Aglaja known from the West Coast of the Americas (see Tryon and Pilsbry, 1896, and MacFarland, 1924) and further investigation revealed them to be new to science.

Aglaja nana sp. nov.

(Plate 16)

Diagnosis.--Aglaja: body elliptical in outline, convex, without appendages. Anterior (cephalic) shield approximately 1/3 length of body and nearly as broad as long; anteriorly

emarginate and posteriorly overlapping posterior shield slightly. Posterior shield produced posteriorly into two lobes separated dorsally by a shallow medial notch and not joined ventrally. Flagellum on either lobe absent but ventral wing of left lobe sometimes larger and produced more posteriorly than that of the right lobe.

Parapodia small, flattened against body and reaching only to ventral edge of shields. Foot elliptical in outline, broad; attached anterior to middle of body; anterior border weakly bilabiate. Head small, not distinct; mouth pore-like. Gills bipinnate, lying in cavity above foot and below shell, posteriorly on right side.

Color of living animal translucent greyish white marked with irregular black flecks and small yellow-brown dots on dorsum, foot, and both inner and outer surfaces of parapodia; occasional larger opaque white spots present. Brownish-yellow internal organs showing through body wall. Gills pale translucent yellow.

Shell (figs. 3, 4) internal, nearly completely calcified but fragile; slightly longer than broad. Cuticular area restricted to narrow border along all but extreme posterior (apical) margin. Spire solute; nucleus consisting of at least two volutions. Large outer whorl slightly convex dorsally, directed downward at right posterior margin but not produced into projecting process.

Buccal mass strongly muscular. Radula and jaws absent.

Length of preserved type specimen (figs. 1, 2), 9.8 mm.; width, 4.2 mm.; height, 4.3 mm. Length of shell figured (figs. 3, 4), 4.9 mm.; greatest width, 3.6 mm.

Other specimens taken with the holotype and herewith designated as paratypes, differ in no discernible way from the holotype.

Holotype specimen.--U. S. N. M. Cat. No. 575,426.

Paratype specimen.--Calif. Acad. Sci. Dept. Geol. type collection No. 2238a.

Occurrence.--Type Locality: Richmond Yacht Harbor, Richmond, California, (approx. 37°55' N; 122°21' W) --collected "on floating old piles, under wharf" by Dr. Cadet Hand, May 5, 1956. Previous record: at 50 out of 65 stations in Richmond shoreline survey--collected with Eckman grab sampler on mud bottom in 6-37 ft. More abundant in shallow water (Jones, 1954, as *Aglaja* sp.). Other New Records: Berkeley Yacht Harbor, Berkeley, California--collected with epibenthic dredge in 5-30 ft. by Meredith Jones, July 20, 1954; off Treasure Island, San Francisco Bay, California--collected with epibenthic dredge by Meredith Jones, October 14, 1956.

Discussion.--Small specimens of *Aglaja nana* have been taken repeatedly in dredge hauls in San Francisco Bay near Point Richmond, in the Berkeley Yacht Harbor, and near Treasure Island. The largest specimens taken in deep water were never more than 3 mm. in length. The animals collected on floating piles at Richmond Yacht Harbor, from which the holotype has been selected, were much larger. Although this habitat appeared to be very different from the Bay bottom, Dr. Hand also reported seeing a number of small *Mya* which were lodged in the detritus fouling the piles so that the actual conditions may have been more like the bottom of the Bay than those on vertical wharf piles. An egg mass, presumably that of *Aglaja nana*, was collected at the same time.

The shell of *Aglaja nana* is similar in shape to that of *A. diomedea* (Bergh, 1894) but is less heavily calcified and is not as markedly produced at the right posterior margin as is that of *A. diomedea*. In addition, the spire is more solute

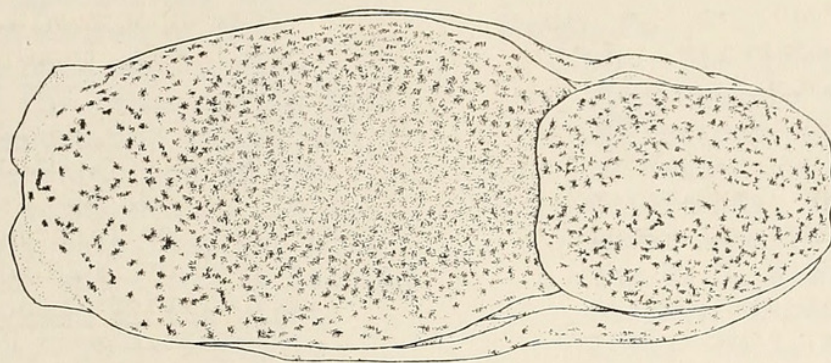


Figure 1

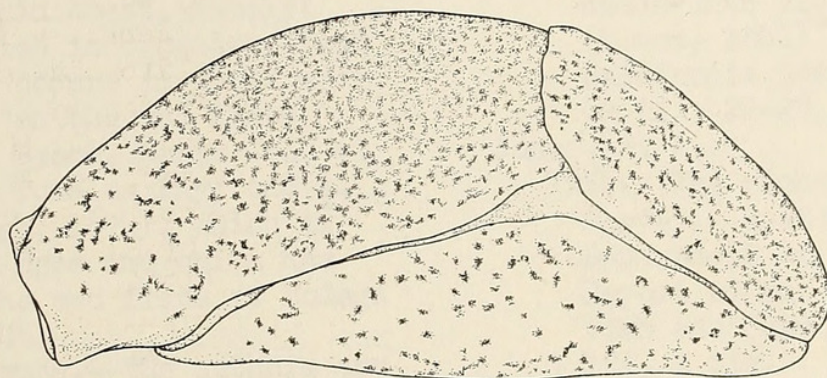


Figure 2

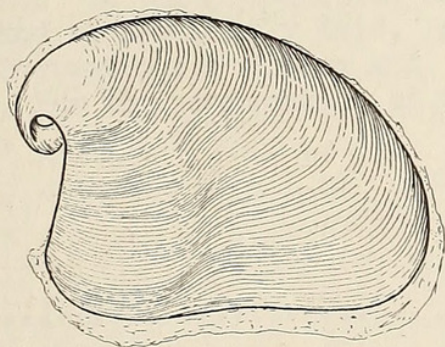


Figure 3

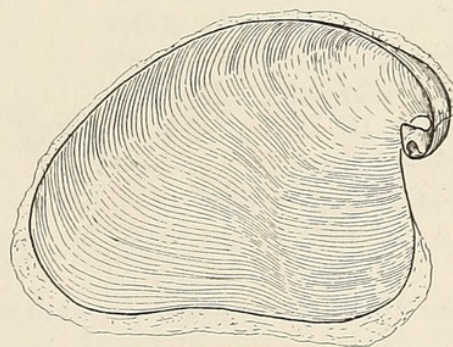


Figure 4

Aglaja nana spec. nov.

Figure 1. Holotype from above. Figure 2. Holotype from right side.
Figure 3. Shell from above. Figure 4. Shell from below.
(all figures 10 times natural size)



Steinberg, Joan E and Jones, Meredith L. 1960. "A new opisthobranch of the genus *Aglaja* in San Francisco Bay." *The veliger* 2, 73–75.

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