

SOME HYDROIDS FROM THE CALIFORNIA COAST,
COLLECTED IN 1939

By C. McLEAN FRASER, F.R.S.C.

AN opportunity has been afforded to examine two small collections of hydroids made along the coast of California in the summer of 1939. One of these was made in the vicinity of Moss Beach, not far south of the Golden Gate, by Theodore Bullock of the Department of Zoology, University of California at Berkeley. It consisted of specimens of two species, one of which was described originally from this region, and has been found on different occasions since then, but the other is evidently new and is quite unique in some respects.

The other collection, more extensive, containing 20 species, was made around the shores of Santa Cruz Island, south-east of Point Conception, by Willis G. Hewatt, of the Department of Biology, Texas Christian University, Fort Worth, Texas. Most of these species are common in this general region, but five of them have not been so recorded; one of them is evidently a new species.

My thanks are due to these collectors for the opportunity to examine this material.

I am again under obligation to Miss Ursula Dale for making the drawings used in illustration.

HYDROIDS FROM THE VICINITY OF MOSS BEACH

Of the two species of *Hydractinia* represented in the material from Moss Beach, *H. milleri* Torrey was described originally from Tomales Bay, and hence needs no further comment. The other species has certain features so different from other species of *Hydractinia* that at first it rather seemed necessary to place it in a new genus, but there are so many features in common with other species that it is probably more satisfactory to retain it in the genus.

***Hydractinia armata* new species**

FIGURE 1

Trophosome.—Colonies encrusting corallines; nutritive zooids not densely crowded, up to 2.5 mm. in height, confined largely to the margin of the colony; tentacles 9 to 12, proboscis and hydranth body generally abundantly supplied with raised batteries of nematocysts. Spines numerous, long (1.2 mm.), slender, smooth, almost cylindrical,

except for the short tapering point; this tapering point evidently breaks off very rapidly, as it is absent in most of the spines in the specimens examined; the spine is hollow, and when the top is broken off, it is possible to see that there is a series of annular thickenings on the inside, of which there is no indication on the outside.

Gonosome.—Generative zooids more closely crowded than the nutritive zooids, occupying the most of the central portion of the colony; they are very much smaller than the nutritive (1.0 to 1.4 mm.), with tentacles reduced in size and in number (5 to 7). The most characteristic feature is the cap-like structure that forms the distal half of the proboscis. This is so well provided with large, dark nematocysts that scarcely any supporting cells can be seen among them.

In both sexes, the sporosacs are arranged in an irregular double whorl around the hydrocaulus, some distance proximal to the tentacles, the male sporosacs relatively farther from the tentacles than the female. In both sexes, the sporosacs are definitely pedicellate. The male sporosacs show nothing unusual, but each of the female sporosacs contains but one ovum. It is supported on a flat-topped, hollow, basal structure, nearly as large as the sporosac.

Other zooids.—None observed.

Distribution.—In tide pools at Mantara, and from an intertidal edge at Pillar Point, San Mateo County, California.

HYDROIDS FROM SANTA CRUZ ISLAND

The twenty species of hydroids obtained from Santa Cruz Island, with their local distribution, are as follows:

Family Atractylidae

Bimeria pusilla Fraser. Scorpion Harbor, dredged in 7 fathoms.

Family Eudendridae

Eudendrium californicum Torrey. Pelican Bay, low tide.

Eudendrium carneum Clarke. Scorpion Harbor, low tide.

Family Campanularidae

Eucopeia everta (Clark). Willow-orqueto Harbor, 7 fathoms; Pelican Bay, low tide; Smuggler's Cove, low tide.

Obelia commissuralis McCrady. Scorpion Harbor, on kelp.

Obelia dichotoma (Linn.). Scorpion Harbor, on kelp.

Family Campanulinidae

Calycella syringa (Linn.). Scorpion Harbor, 7 fathoms.

Family **Synthecidae**

Synthecium cylindricum (Bale). Pelican Bay, low tide.

Family **Sertularidae**

Abietinaria amphora Nutting. Scorpion Harbor, on kelp.

Sertularella erecta Fraser. Pelican Bay, low tide; Willow-orqueto Harbor, 7 fathoms.

Sertularella turgida (Trask). Pelican Bay, low tide; Scorpion Harbor, on kelp.

Sertularia cornicina (McCrary). Pelican Bay, low tide; Scorpion Harbor, low tide.

Sertularia furcata Trask. Pelican Bay, low tide.

Family **Plumularidae**

Aglaophenia diegensis Torrey. Scorpion Harbor, 2-3 fathoms.

Aglaophenia inconspicua Torrey. Willow-orqueto Harbor, 7 fathoms.

Aglaophenia struthionides (Murray). Willow-orqueto Harbor, 7 fathoms.

Antennella avalonia Torrey. Pelican Bay, low tide.

Plumularia alicia Torrey. Willow-orqueto Harbor, low tide.

Plumularia lagenifera Allman. Scorpion Harbor, 2-3 fathoms; Pelican Bay, low tide; Willow-orqueto Harbor, low tide.

Plumularia paucinema Fraser. Scorpion Harbor, on kelp.

This is the first time that *Bimeria pusilla* has been reported since it was originally described from San Francisco Bay. *Eudendrium carneum* is a common Atlantic species that has recently been collected in the tropical Pacific. None has been reported north or north-west of Navidad Head, at the southern entrance to Tenacatita Bay, Mexico.

When the Atlantic species, *Obelia commissuralis*, was located in San Francisco Bay, it was surmised that it might have been carried there on ships' bottoms. Recently it has appeared in the Allan Hancock collections from Bahia Honda, Panama; Wafer Bay, Cocos Island; Tangola-Tangola, Mexico; and now it appears at Santa Cruz Island.

Abietinaria amphora is a northern Pacific species. Before this the farthest south record was at the entrance to the Golden Gate.

Sertularella erecta was described (Allan Hancock Expeditions) from specimens obtained at the north end of Albemarle Island (Galapagos group), and this is its second appearance. The Albemarle material carried no gonangia but these are present in the Santa Cruz material,

hence it may be well to give the description of the species to include the description of the gonosome.

Sertularia erecta Fraser

FIGURE 2

Sertularia erecta Fraser, Allan Hancock Pac. Ex., 4, No. 3, 1938, p. 141.

Trophosome.—Stem simple, unbranched, or with few, short, distal branches, rather rigid, arising from a stolon to a height of 20 mm. Nodes varying: they may be regularly arranged and distinct, irregularly arranged or placed, or absent. Hydrothecae appear in very regular alternation on the two sides of the stem; nearly one-half of the adcauline side is adnate. The basal portion is slightly turgid, the distal is turned outward, nearly at right angles; the adcauline side of this portion is concave, the abcauline, convex, so that the margin is nearly horizontal; margin with three teeth, the one on the adcauline side is low and blunt, the other two sharper; operculum of three flaps.

Gonosome.—(Not previously described.) Gonangium quite unique, growing out like a fungus from the small ultimate branchlets (0.7 mm. in greatest diameter), and shaped like a rigid fungus, growing out from a tree or stub. There is a short, stout pedicel, however. It is partially divided into a number (5 in gonangia described) of sectors, although the dividing planes do not reach quite to the tip of the pedicel. In no case were there more than one gonangium observed in one colony.

Plumularia paucinema new species

FIGURE 3

Trophosome.—Colonies small, up to 15 mm., unbranched; stem simple, divided into regular internodes by well marked nodes, each bearing a single hydrocladium on a prominent process, slightly distal to the middle of the internode; the hydrocladia alternate but are not quite in the same plane. Hydrocladium short, with two or three hydrothecae, divided into alternating non-thecate and thecate internodes, the proximal, non-thecate; the non-thecate internodes are usually shorter than the thecate; the node proximal to the thecate internode often oblique. The hydrotheca is somewhat wider than deep; the septal ridges are prominent, there is one near each end of the cauline internodes, as well as of all the hydrocladial internodes.

The nematophores are noticeably scarce. On each cauline inter-

node there is one slightly distal to the axil of the hydrocladium; on the hydrocladium there is none on any of the non-thecate internodes; on the thecate internode there is a small median nematophore a short distance below the base of the hydrotheca, and one, even smaller, medially placed, just above the attachment of the hydrotheca. This is so small that it is difficult to be sure that it is always present.

Gonosome.—Gonangia appearing in considerable numbers on the stolon, but occasionally replacing the proximal hydrocladium. The gonangium, attached by a short, stout pedicel, is obovate or nearly globular.

EXPLANATION OF PLATE

NOTE: All drawings are made at a magnification of 20 diameters unless otherwise indicated.

Fig. 1.—*Hydractinia armata*

- 1a. One nutritive zooid and two male generative zooids.
- 1b. One female generative zooid and a spine.
- 1c. Vertical section of a female sporosac some distance from the median ($\times 60$).
- 1d. Median vertical section of female sporosac ($\times 60$).
- 1e. Hydranth of generative zooid to show the cap of nematocysts ($\times 40$).
- 1f. A spine vertically bisected to show internal ridges.

Fig. 2.—*Sertularella erecta*

- 2a. Portion of stem and branches to show position of gonangium.
- 2b. Face view of gonangium.

Fig. 3.—*Plumularia paucinema*

3. Portion of colony to show main stem, hydrocladia, hydrothecae, and gonangia.

PLATE I

