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II.

THE CTENOPHORES OF THE SAN DIEGO REGION.

BY
HARRY BEAL TORREY.

Ord. CYDIPPIDA.

Ctenophorae spherical, cylindrical or compressed, with or without winglike aboral processes; two simple or pinnate tentacles usually retractile into a sheath; meridional and oesophageal canals end blindly.

Fam PLEUROBRACHIIDAE.

Cydippida without winglike aboral appendages. Body approximately round in cross section. Sub-tentacular and sub-oesophageal rows of swimming plates equal in length.

Gen. **Euplokamis,** Chun, 1880.

Body elongated; cylindrical or moderately compressed; rows of swimming plates reaching from pole to pole; tentacle sheath present.

Three *ctenophores* taken in Prince William Sound, Alaska, by Professor Ritter, and now in the collection of the University of California, belong undoubtedly to Mertens' *Beroe cucumis (Euplokamis cucumis,* Chun). All are compressed somewhat, so that the transverse diameters are to each other as 6 to 5. *Pleurobrachia,* a typical example of a spherical ctenophore, may also be compressed to the same extent. For these reasons, too much stress should not be laid on the circular cross section of *Euplokamis,* which is rather to be distinguished from *Pleurobrachia* by its elongation, from *Mertensia* by its slight degree of compression and equal rows of swimming plates. According to recent figures by Vanhöffen (:04), cross sections of specimens of *Mertensia ovum* taken in Greenland were three to four times as long as broad.

1. **Euplokamis californensis,** n. sp.

Body moderately compressed, somewhat flattened at sensory pole, narrowed toward mouth. Tentacle sheaths about three fourths the length of the body, lying close to and parallel with the oesophageal canals, diverging slightly to openings near sensory pole. The four interradial canals arise independently from funnel. Distances from funnel to aboral and oral poles as 1 to 2. Tentacles yellow brown; inner opening of oesophagus purple.

Distribution. San Diego, Cal. Taken at the surface and in vertical hauls from various depths to 125 fathoms with non-closing nets, during May, June and July. None were more than 25 mm. long. This species is very closely related to *E. cucumis*, with which it may prove to be identical. It is near, also, to the *Cydippe elliptica* of Eschscholtz, from the tropical Pacific.

Pleurobrachia, Fleming, 1822.

Body spherical, interradial canals from two stem canals.

2. **Pleurobrachia bachei** A. Ag.

Pleurobrachia bachei A. Ag., L. Agassiz, 1860, p. 294.
A. Agassiz, 1865, p. 34.

Oesophagus equal to or less than funnel tube in length; tentacle sheaths distant from funnel, about half as long as body, divergent, openings about one fourth the distance from pole to pole from sense organ; stems canals long, all canals slender.

Remarkably transparent, and colorless with the exception of the tentacles, which are yellowish red, and the oesophagus, which is blotched with deep purple proximally.

Distribution. San Diego to Puget Sound. This species differs from *P. pileus* (Fabr.) of the Atlantic, having a shorter oesophagus and longer funnel tube, and longer and more slender stem and interradial canals. The openings of the tentacle sacs are somewhat farther from the sensory pole.

Ord. LOBATA.

Body compressed, with two lateral lobes. Subtentacular rows of swimming plates shorter than others, with four auricular processes at their ends. Mouth large. Four interradial canals direct from the funnel. Tentacles rudimentary, near oral pole, without sheathes. A *Mertensia* stage in the development.

Fam. Bolinidae.

Bolina, Mertens, 1833.

3. **Bolina** sp.

There are two recognized species of Lobata on the western coast of North America: *Bolina septentrionalis* Mertens, from Behring Str. and *B. microptera* A. Ag., from the Gulf of Georgia. Agassiz and Mayer have described another, *Eucharis grandiformis,* from the Fiji Islands. It is probable that the very young Lobata which have been taken in large numbers off San Diego for the past two summers belong to *B. microptera,* which may ultimately prove to be identical with Mertens' circumboreal species. But the development of these immature individuals has not proceeded to the appearance of the auricles, and the total absence of mature individuals make it obviously impossible for the present to determine even the family of the species with accuracy.

Ord. BEROIDA.

Ctenophorae elongated, conical or ovate, compressed, with large mouth and oesophagus. Tentacles and tentacle canals wanting. Meridional canals communicate with oesophageal canals at the edge of the mouth, and send out numerous branches which may form a peripheral network.

Fam. Beroidae.

With the characters of the order.

Beroë, Browne, 1756.

With the characters of the family.

4. **Beroë forskali** M. Edw., Chun.

?Beroë rufescens Forskal, 1775, p. 111.
Cydalisia mitraeformis, Lesson, 1843, p. 138, pl. 2, fig. 2.
Idya penicillata, Mertens, 1833, p. 534, pl. 12.
Beroë Forskalii, Milne-Edwards, 1841, p. 207, pl. 5.
Beroë Forskalii, Chun, 1880, p. 309, pl. 14, figs. 3-5; pl. 14a, figs. 6-10.

Body much compressed, conical, tapering from the very broad mouth with full lips to a narrow sensory pole. Fine network of vessels between meridional canals, communicating also with oesophageal canals. Gonads in lateral follicles of meridional canals. Rows of swimming plates reach almost from mouth to tip.

Distribution. San Diego, Cal. Peru (Lesson). South Pacific (Mertens). Mediterranean (Forskal).

Taken about ten miles off shore, at the surface and in vertical hauls from various depths to 125 fathoms with non-closing nets, during May, June and July. A single mature specimen was taken, with the typical pointed form which is much more pronounced than in young individuals. The early stages were commonly taken in considerable numbers, and resemble in shape the young of *B. (roseola) cucumis* according to L. Agassiz, and the adult of *B. cyathina* according to A. Agassiz, the aboral end hemispherical and the rows of swimming plates short. The transition to the pointed forms is gradual and convincing The very young are colorless, the half grown are rosy, with brilliantly irridescent rows of swimming plates.

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EXPLANATION OF PLATE 1.

Fig. 1.—Mertensia ovum.

Fig. 2.—Beroë forskali.

Fig. 3.—Pleurobrachia bachei.