

## NOTES

### ON THE LARVAL STAGES OF *SOLMUNDELLA BITENTACULATA* BROWNE

*Solmundella bitentaculata* Browne (Order: Narcomedusa, Family : Aeginidae) is very widely distributed and has been recorded from the Indian waters by Menon (1932). *S. bitentaculata* of the tropical Atlantic and Pacific was originally described by Quoy and Gaimard as *Charybda bitentaculata* and subsequently by Haeckel as *Aeginella bitentaculata* and by Mass as *Solmundella (Aeginopsis) hensinii*. The development of *S. mediterranea* has been studied by Muller, Metschnikoff, Mass and Woltereck (Ref. Mayer, 1910). There is at present only very little information about the larval stages of *Solmundella bitentaculata*.

While engaged in the quantitative determinations of planktonic animals, a series of larval stages of *S. bitentaculata* were collected. These samples were from two- four- and six-fathom lines of the inshore waters of Palk Bay during May 1960 to September 1962 and collected every week from the surface and bottom, the latter with the aid of a casella bottle. One litre of a well-stirred sub-sample was sedimented with formalin for 24 hours, the clear portion decanted and the remaining part centrifuged for about 15 minutes at 2000 r.p.m. Out of a total of 250 samples only 10 contained the larval stages, mostly during the months of August-September. Due to the paucity of occurrence of the various stages it was difficult to rear them in the laboratory. In this connection it would be worth mentioning that the larvae have not so far been observed in similar plankton collections made from 5 stations in the Gulf of Mannar.

#### LARVAL STAGES

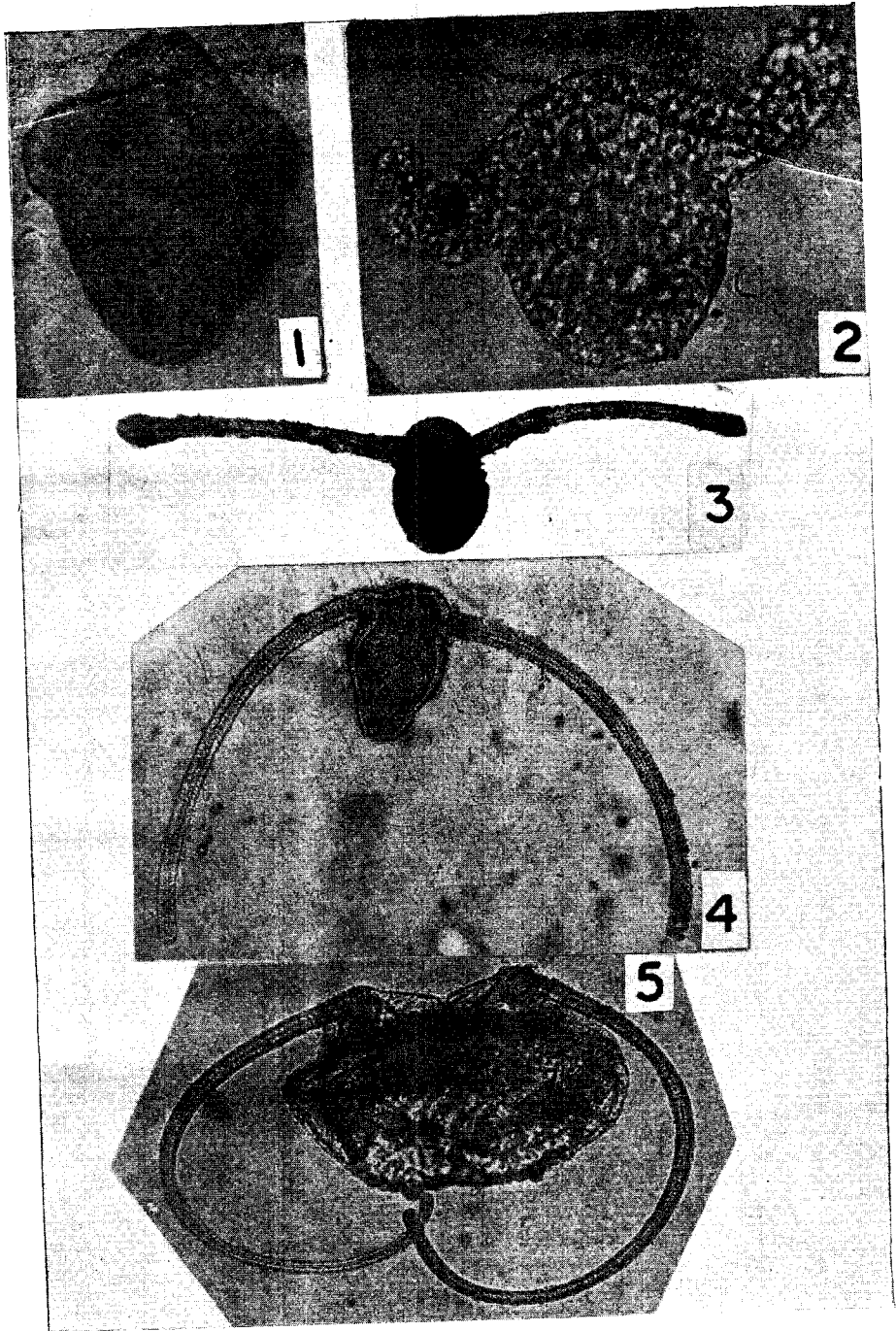
(FIGS. 1-5)

The larva is miter-shaped. The tentacles originate near the exumbrella surface and are diametrically opposite and equal in length. The hypostome is not well developed. Except for the two tentacular projections this stage looks like gastrula stage in the embryonic development. The arrangement of cells is not clear. Body length—119  $\mu$ ; body width—85  $\mu$ ; length of tentacle projections—8.5  $\mu$ .

The tentacles are prominent and fleshy. Parenchyma-like cell arrangement can be seen throughout the body and tentacles. The tentacles are curved outwards. Body length—119  $\mu$ /A; body width—110.5  $\mu$ ; tentacle length—68  $\mu$ ; tentacle width—34  $\mu$ .

Ectoderm and endoderm cell arrangements can be noticed at the region of the tentacles. The hypostome is well developed when it is viewed from subumbrella surface. The shape of the body is more or less oval. Body length—272  $\mu$ ; body width—204  $\mu$ ; tentacle length—569.5  $\mu$ ; tentacle width—51  $\mu$ .\*

The cellular arrangements continue to be clear at this stage. Slight change in body shape is noticed. A depression is noticed on either side of the body, where the tentacle originates. The hypostome region is comparatively pointed. At this stage the larva is not so fleshy as in the previous stage. Cellular arrangement at the



FIGS. 1-5. Larval stages of *Solmundella bitentaculata* Browne.

region of tentacles and body is more clear and the tentacles are curved inwards. Body length—323 /t; body width—204 /\*; tentacle length—799 ji; tentacle width—51 /i.

Bell width 850 /i, gelatinous substance thick and transparent. Apex of bell sharp-edged and keel shaped, the line of the keel being in the axis of the two long tentacles. The two tapering tentacles project from the side of the bell at a zone nearer to apex than to margin, they are 1.6 mm. in length. Endoderm cells are clear in the tentacles and subumbrella surface. Vestigial tentacles absent. Velum well developed. The endoderm of the central stomach and tentacles green in colour.

During this stage the larva closely resembles the adult of *Solmundella bitentaculata*.

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#### REFERENCES

- MAYER, A. G. 1910. *Medusae of the World. \l~The Hydromedusae*. Carnegie Institute, Washington, Publ. No. 109, Blanchard Press, New York : 231-498.
- MENON, M. G. K. 1932. *Bull; Mad. Govt. Mus. (N.S.)*, 3 (2): 28.

#### NEUROSECRETORY CELLS OF THE BIVALVE, *YOLDIA LIMATULA*

The presence of neurosecretory cells was first reported by Gabe (1955) in 20 species of lamellibranchs. Lubet (1955, 1956), using 2 bivalves *Mytilus* and *Chlamys*, showed a definite correlation between neurosecretion and sexual cycle. Fahrman (1961) reported two types of secretory granules in the freshwater mussel, *Unio tumidus* and Nagabhushanam (1962a, b) observed two neurosecretory cell types in the oyster, *Crassostrea virginica* and the surf clam, *Spisula solidissima*. The present study was undertaken with a view to extend our knowledge of neurosecretion in the lamellibranchs.

Adult specimens of *Yoldia limatula* were collected near the vicinity of the Marine Biological Laboratory, Woods Hole, and the laboratory work was carried out in the Zoology Department, Tulane University, New Orleans, U.S.A. The portions of the central nervous system investigated were the cerebral, pedal and visceral ganglia. The soft parts were carefully removed from the shells and fixed *in toto* in Helly's fluid. The desired tissues were then dissected out, dehydrated in alcohol, cleared in xylol and embedded in Tissuemat. Serial sections were cut at 8 /\* in