

NOTES ON A PECULIAR ACTINOZOAN LARVA.

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For a number of years past a few specimens of a large trochophore-like larva have been taken each summer in the tow near Beaufort, N. C., but they have never been seen to transform.

While at the laboratory of the United States Fish Commission at Beaufort,¹ during the past summer, I had the good fortune to secure a number of these peculiar larvæ.

The larvæ were taken while towing outside the harbor on August 15, after a heavy southeast storm which had continued for two days, and which had driven in shore specimens of several forms not usually found inside the Gulf Stream.

These larvæ were taken to the laboratory and at the suggestion of Dr. Caswell Grave, of the Johns Hopkins University, were put in aquarium jars of sea-water containing sand rich in diatoms. By this method they were kept alive for the remaining seven weeks of my stay at the laboratory.

The larvæ, Figs. 1 and 2, are elongate-oval in shape when in an active state, changing to a very nearly spherical form when they are disturbed. They are from two to four millimeters in length, and of a light brown or cream color.

At a point about one fourth of the distance from its anterior end, the body is encircled by a ridge which lies at the bottom of a shallow groove. This ridge bears on its surface two parallel bands of long stiff setæ, Fig. 4. The setæ-bearing ridge is not continuous around the body, but on one side it is interrupted and the ends overlap for a short distance, Fig. 1.

The whole surface of the body is provided with a covering of short cilia which are the true locomotor organs. The function of the bands of setæ is not apparent. They move only at irregular intervals, and then the force of their movement is in a direction antagonistic to the progress of the larva.

¹I am indebted to the Hon. G. M. Bowers, U. S. Commissioner of Fisheries, for the privilege of occupying a table at the Beaufort Laboratory, and to Dr. Grave, the director, for many favors received while there.

At both the anterior and posterior ends of the body there is a depression lined with cilia. The depression at the anterior end has at its bottom an opening communicating with the interior.

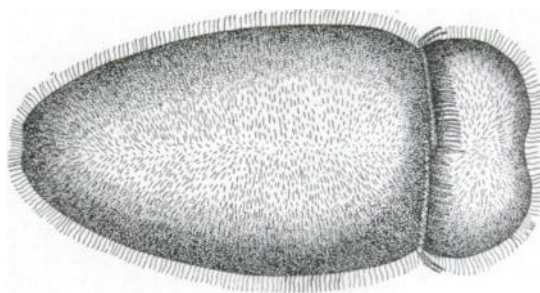


FIG. 1. Larva in the active expanded condition, $\times 30$.

In swimming, the larva rotates rapidly on its long axis, and the anterior end describes a small circle about the axis of progression so that the larva advances by a kind of corkscrew

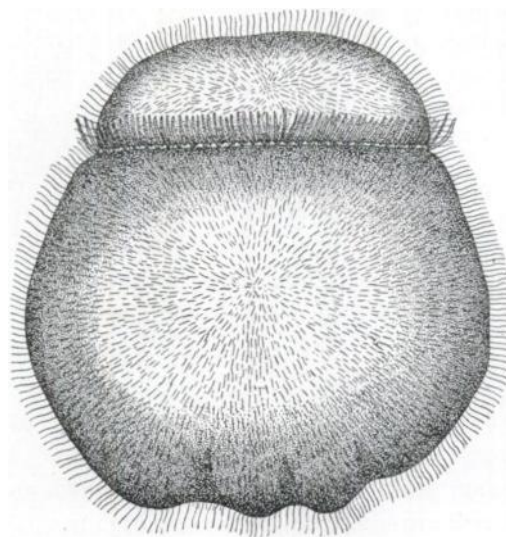


FIG. 2. Same larva as in Fig. 1, when contracted, $\times 45$.

movement, such as has been described for the larva of *Astroides* by Lacaze Duthiers¹ and for *Renilla* by E. B. Wilson.²

¹ Lacaze Duthiers, H., "De Devellopment des coralliaires," *Archiv Zool. exper. et gen.*, Tom II., 1873.

² Wilson, E. B., "The Development of *Renilla*," *Phil. Trans. Roy. Soc. London*, Vol. CLXXIII., 1883.

The habits of the larva differ from those of the larvæ just mentioned in that it does not come to the surface of the water in the aquarium, nor does it remain motionless for any appreciable time unless it is disturbed, when it contracts and sinks to the bottom of the vessel.

Two of the larvæ went through their transformation two days after they were brought into the laboratory. When transformation is to take place, the larva settles down and becomes attached by the anterior end. In a short time the tentacles are budded out from the upper (posterior) end, and the mouth opening

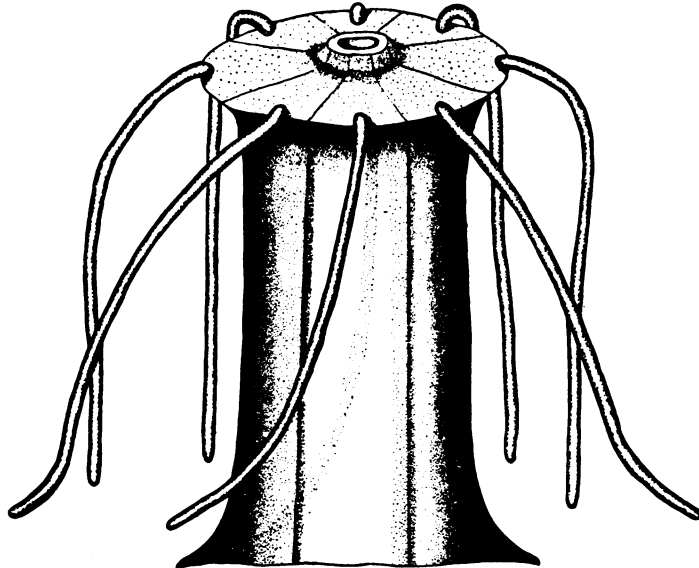


FIG. 3. Young polyp, two days after transformation, $\times 60$.

breaks through the body wall within the cirlet of tentacles. Within twenty-four hours from the time of the attachment at the beginning of the transformation, the young polyp had assumed a form such as is shown in Fig. 3.

In the five or six weeks after transformation, during which the young polyps were under observation, there was no apparent external change other than a gradual increase in the size of the animal as a whole without any change in proportions.

All the larvæ, with one exception, had transformed by Sep-

tember 7, three weeks after they were secured. The other specimens had not transformed on October 3, and, as far as could be determined, it had undergone no changes in size or form.

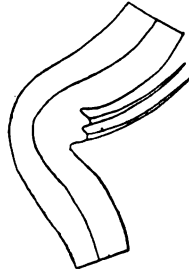


FIG. 4. Diagram to show position of setæ.

The actinian, of which the larva just described is the immature form, is not definitely known to me at present, but a number of mature sea anemonies, probably of the genus *Amophyllactis*, were cast upon the beach near where the larvæ were found during the same and subsequent storms coming from the same direction.

Since both these forms appear only after heavy storms from a definite direction, and since there are certain structural resemblances between the young polyps and the mature actinians, it seems not improbable that they may be different stages in the life history of the same species.

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