

ON THE HYDROID OF A HYDROZOAN, *STAUROCLADIA* SP.¹⁾

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From the middle of August to the middle of September in 1959, Many creeping medusae of *Staurocladia* sp. adhered to the glass walls of apuaria in the Asamushi Aquarium. Thereafter, this species was cultivated in the laboratory. The medusa of this species is about 1.0–1.8 mm in diameter. The stomach, radial canals and ring-canal are brown or reddish brown in color. the tentacles are colorless and transparent, except for the granules of axial canal. The manubrium is white, and the gonad is yellow or yellowish brown in color. The tentacles surrounding the umbrella margin are about 18 to 34 in number. Each tentacle is bifurcate, one branch end is the adhesive ventral disk, and the other branch has nematocyst clusters in the dorsal part. The clusters of the nematocysts are five to seven in number, in addition to that of the capitate extremity. Those are six in number typically. They arranged so as to alternate aboral and oral, three in the dorsal and two in ventral side; they become gradually smaller toward the base. In some medusae, seven clusters are visible. The seventh cluster appears aboral or oral in position. The stomach occupies the most inner umbrella cavity, and consists of six remarkable longitudinal pouches. The medusa has no dorsal brood-pouch. The gonad is not of ring shape around the manubrium, but covers almost the whole surface of the manubrium to the dorsal side. The developmental cycle from the egg of this species was observed by rearing the medusa in the laboratory, and in this paper, the characteristic structure of this hydroid is described. In this report, the present species was identified as *Staurocladia* sp. based on the structure of the medusa which has no dorsal brood pouch and on the hydroid with filiform tentacles (Russell 1953), and by Rees's informations on the hydroid of this species, though the identification of this species may require further investigations.

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MATERIAL AND METHOD

The eggs were liberated from the medusa in the laboratory, and the young colonies were obtained from the planula after about three weeks. The materials used in the observations on the hydroids were obtained from colonies in September and November in 1959, and in March and May of the next year.

OBSERVATION

When the planulae attached on the bottom of the glass, they developed polyps with the rudiments of three or four capitate tentacles and after about two weeks

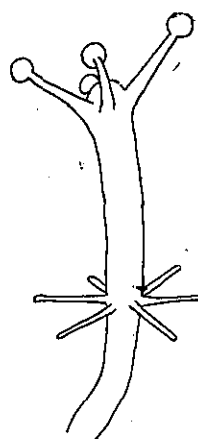


Fig. 1.

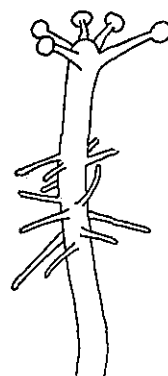


Fig. 2.

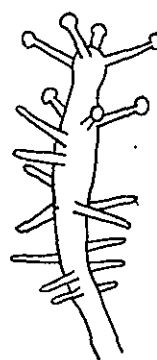


Fig. 3.



Fig. 4.

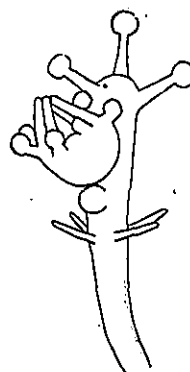


Fig. 5.



Fig. 6.

- Fig. 1. A young hydranth with the capitate and the filiform tentacles on each whorl. $\times 50$
 Fig. 2. A hydranth with increased filiform tentacles. $\times 50$
 Fig. 3. A hydranth with increased capitate and filiform tentacles over the column. $\times 50$
 Fig. 4. A new hydranth produced from the mother hydranth is visible. $\times 50$
 Fig. 5. Formation of the buds of medusae. $\times 50$
 Fig. 6. A liberated young medusa. $\times 15$

four to six filiform tentacles appeared on the basal part. The young polyp had capitate tentacles on the oral whorl, and filiform tentacles on aboral whorl (Fig. 1). The colonies produced from the planulae were reared in the laboratory with the larvae of the brine shrimp. The isolated pieces of the colony were removed to other glass dishes to obtain new colonies. On November 1960, in the expanded active colonies, the capitate tentacles increased up to five to six in number on the same vertical, and also the filiform tentacles were observed on the upper and the lower sides of a basal filiform whorl (Fig. 2). On March in 1960, the hydroids with capitate tentacles and filiform tentacles were produced all over the columns. The capitate ones occupied the upper one third part and the filiform ones the lower two third part of the column. On the part between the group of capitate tentacles, intermediate forms of those tentacles with or without nematocyst knobs were observed (Fig. 3). In the case in which the most distinct tentacles appeared, about 30 tentacles were counted over the column of a hydranth. After the buds of the medusae were liberated from those hydroids, the buds of the new hydranths produced from the part between the capitate tentacles and filiform ones were observed. In the present observations, the writer could not see the buds of the new hydranths which were separated from the initial polyp, though the buds were constricted distinctly at the bases (Fig. 4). The buds of the medusae developed on the polyp in the rearing colony in April; the sea-water temperature was 13–15°C. The bud was situated on the upper part of the filiform tentacles. The buds, at first, appeared as transparent swellings (Fig. 5). The young medusa was liberated from the polyp after about seven to ten days. The young medusa soon after being liberated from the mother hydranth was about 200 microns in diameter of umbrella. The radial canals are six in number with an equal number of bifurcated tentacles. The tentacle had a cluster of nematocysts at each end in the dorsal branch, and a small adhesive disk at each terminal in the ventral branch (Fig. 6).

CONSIDERATION

The medusa of *Staurocladia acuminata* was described by Harada (1957) in Japan. The chief differences between the structures of the medusa of the present species and *S. acuminata* are in the tentacle and the gonad. Particularly, the gonad of the former species surround almost all the manubrium to the dorsal surface, while that of the latter is ring shape and surrounds the manubrium (Harada 1957, Fig. 3). The differences of arrangement of clusters of the tentacles between those two species are observed. The material used in the present paper, was identified as *Staurocladia* sp., though further investigations may be necessary for a taxonomical study. The hydroid of the present species developed a whorl at the oral capitate tentacles and a whorl at the aboral filiform tentacles on the buds newly formed from the planulae. When the colonies expanded and became

appeared over the column of the hydranths over their whorls. The hydranth with capitate tentacles occupying the upper one third of the column, and the filiform ones on the lower two thirds of the column, showed a form resembling the Corynid hydroid, though the latter has only a whorl of filiform tentacles.

SUMMARY

A species of a hydrozoan used in the present paper was identified as *Staurocladia* sp. The characteristic structure of the hydroid of the present species was observed.

1. The young hydroid produced from the attached planula has a whorl of the oral capitate tentacles and whorl of the aboral filiform tentacles.

2. In the expanded mature colonies, the hydroids with filiform tentacles which appeared along the lower part of the column over the whorl were observed.

3. In the other mature colonies the hydroids with the capitate tentacles which appeared along the upper about one third of the column, and the filiform ones on the lower about two thirds of the column were observed.

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