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Early Stages of Postembryonic Development of *Nippotaenia chaenogobii* Yamaguti, 1939 (Cestoda) . With 4 photomicrographs.

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**Early Stages of Postembryonic Development
of *Nippotaenia chaenogobii* Yamaguti, 1939
(Cestoda).**

With 4 photomicrographs.

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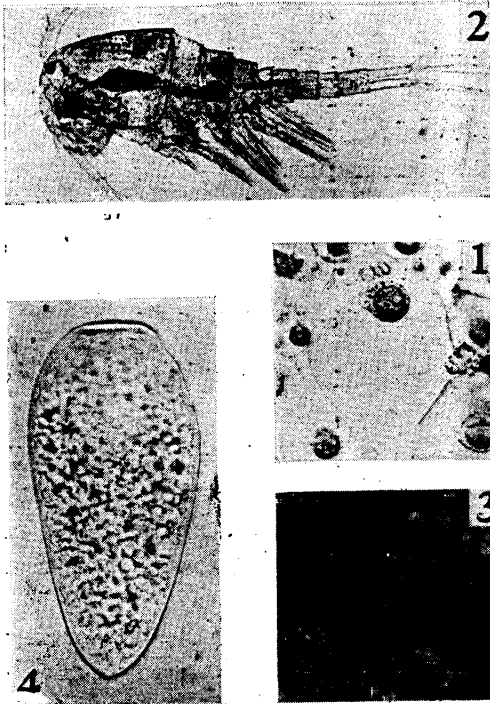
In 1939 I reported a new fish cestode, *Nippotaenia chaenogobii*, representing a new Order, **Nippotaeniidea**, which is intermediate between **Pseudophyllidea** and **Cyclophyllidea**, and in 1940 a second representative of this genus, *N. mogurndae*, in collaboration with Dr. I. Miyata.

On May 2, 1940, I made an attempt to work out the life history of the type species of the genus in the hope of finding any biological evidence in support of my view concerning the systematic relationship of this genus which was originally based solely on the morphological characters. I commenced the experiment with the eggs of the parasite from the type locality, Lake Suwa, Nagano Prefecture, but unfortunately I was unable to elucidate the entire life cycle of the cestode.

The present brief note is based on my preliminary experiment, which clearly showed the early stages of the postembryonic development to be of the pseudophyllidean type, though the embryophore is of the cyclophyllidean type.

I. Tailed Proceroid.

10 days after the feeding of the embryonated eggs to a *Diaptomus* species the oncospheres developed in the body cavity of the copepod into elongate proceroids measuring *in situ* 0.15 mm long by 60 μ broad exclusive of the tail vesicle. At the anterior extremity is a rounded apical organ which is 30 μ long by 45 μ broad and sharply delimited from the surroundings, and whose center may be extruded into a blunt cone. In the dense parenchyma of the body there are two or three minute calcareous corpuscles 1.5 μ to 3 μ in diameter and two pairs of hooklets 13 μ long, the other pair being in the constricted part between the body and the tail vesicle



Nippotaenia chaenogobii

1. Eggs, 100X.
2. *Diaptomus* infected with five proceroids, 15 days after infection, 35X.
3. Cercomere of proceroid discarded in body cavity of *Diaptomus*, 14 days after infection, 300X.
4. Proceroid liberated from *Diaptomus*, 15 days after infection, 200X.

round or truncate at the anterior extremity and tapers gradually toward the blunt-pointed posterior extremity. The solid apical organ of the tailed proceroid stage has developed into a typical sucker 45 μ to 60 μ in diameter, with a wall 12 μ thick of fine radial muscle fibers inclosed in a distinct limiting membrane, a rounded lumen 30 μ to 40 μ deep, and an apical opening 12 μ in diameter. The two pairs of hooklets remain in the body parenchyma at different levels. The parenchymatous calcareous bodies increased up to 20 in number, are variable in shape and lie in irregular groups or linear series of two or three each. Of the flame cells there are three pairs in the middle third of the body, and three more near the posterior extremity; the collecting tubules ascending on both sides turn back on themselves close to the apical sucker and descend as far backward as to near the posterior end of the body,

or entirely inclosed in the latter. No flame cells were observed. The spherical tail vesicle is 27 μ to 30 μ in diameter and contains a distinct vacuole in the center. In this stage of development the proceroids do not perform any active forward or rotatory movements, although they may show now and then almost imperceptible contraction followed by extension of the body.

II Tailless Proceroid.

Two weeks after the infection some of the proceroids dropped the tail vesicle, and moved back and forth or wriggled along the digestive tract in the body cavity of the copepod, and the others performed sluggish movements.

The elongate proceroid, measuring 0.21 - 0.24 \times 0.06 - 0.11 mm when at rest, is

where they unite together to form a short median vessel opening to the outside at the very tip of the body.

The tail vesicle discarded in the body cavity of the copepod is still capable of contraction to an inappreciable degree and rounded up to an exactly spherical body 48μ to 51μ in diameter, containing a pair of hooklets in the periphery and a large rounded vacuole 30μ to 40μ in diameter in the center.

III. Feeding Experiment.

May 16, 1940, two weeks after feeding of eggs, eight tailless procercoids were introduced by means of a pipette into the stomach of each of eight specimens of *Mogurnda obscura*, a collateral final host for the parasite, which had been kept in the aquarium of my laboratory at the University of Kyoto, and seven more of the same lot to another fish on the following day, but with negative results, apparently due to the forced feeding, upon which the fish usually reacts with vomiting.

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