DROPLETS FROM THE PLANKTON NET*

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V. New Names for Egg Capsules of Littorinid Gastropods

(Fig. 6)

Several small disc-shaped egg capsules have been found among the plankton samples hauled in early summer in recent years in the bays of Ago and Tanabe. They are 150-200 μ in diameter and ca. 90 μ in thickness and appear quite transparent. Each of them is provided with an opening in the centre of the upper side

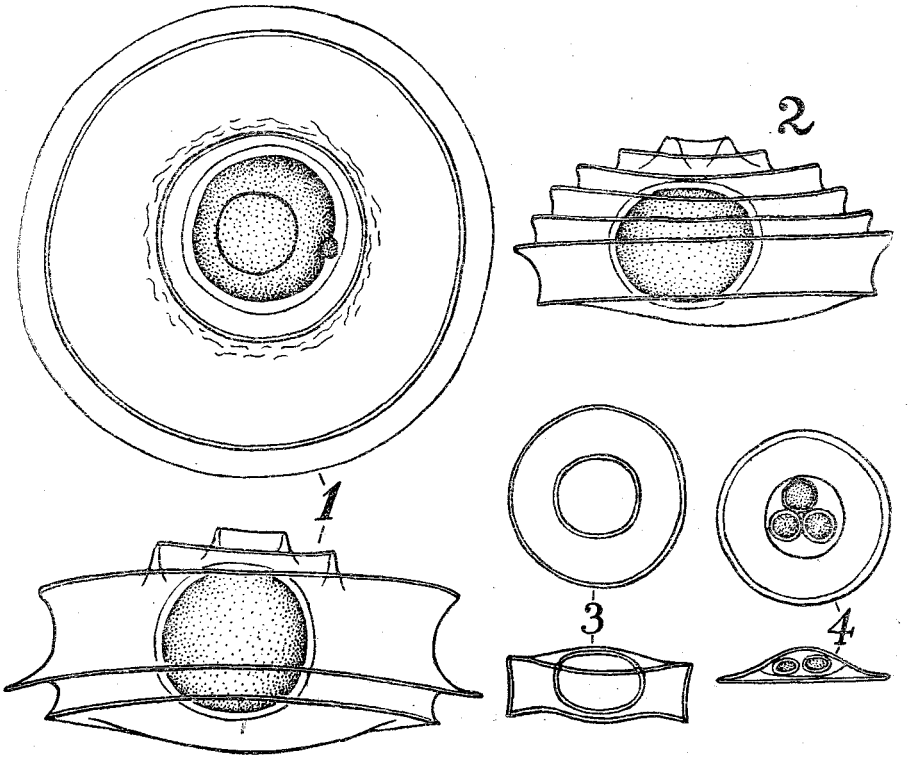

Fig. 6. 1—*Littorina-capsula hôbei*, ×300. 2—*Littorina-capsula multistriata*, × 300. 3—Egg capsule of *Littorina-neritoides*. 4—Egg capsule of *Littorina-littorea*. (3 and 4 after LEBOUR)

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and 4 circular ridges around the capsule, of which the third one has the largest diameter. The lower side of the capsule is slightly convex. Each capsule contains a single egg. This is about 70 μ in diameter and usually yellowish in colour.

Another egg capsule of a similar type was found once in June 1946 in Ago Bay. It was 160 μ in diameter and had 6 ridges around the capsule, of which the 5th had the largest diameter.

I could identify these capsules as egg capsules of some gastropods, since a veliger with a larval shell was in each of some capsules. So I showed them to Mr. T. HABE, malacologist in our laboratory. He was of opinion that these capsules were probably of some Littorinid, since they had resemblance to the egg capsule of *Littorina neritoides* (L.) illustrated by Dr. LEBOUR. Mr. HABE has endevoured to study the early developmental stages of some common Japanese species of Littorinidae, but so far he has not been successful. Also, I have found out no individual of the commonest species of this group occurring in this region carrying mature eggs. These capsules are, therefore, referred to a Littorinid merely after LEBOUR's paper.

For convenience of recording these capsules met with during our plankton studies, I propose to give them the following provisional names:

1. *Littorina-capsula habei*
   150–200 μ in diameter, with 4 ridges.
2. *Littorina-capsula multistriata*
   160 μ in diameter, with 6 ridges.

The following two species of Littorinidae, the early developmental stages of which are not yet known, are found in the vicinity of Seto.

Tectarius (*Nodilittorina*) *granularis* (GRAY)	Common
Tectarius (*Nodilittorina*) *vilis* (MENKE)	Common

HERTLING, H. & ANKEL, W. E. (1927) Bemerkungen über Laich und Jugendformen von *Littorina* und *Lacuna*. Wiss. Meeres Komm. Unt. deutsch. Meere, N. F., Abt. Helgoland, Bd. XVI, 7, 13 pp.

LEBOUR, M. V. (1934) Rissoid larvae as food of the young herring. The eggs and larvae of the Plymouth Rissoidae. Journ. Mar. Biol. Assoc., Vol. XIX (N. S.), pp. 523–539.

LEBOUR, M. V. (1935) The breeding of *Littorina neritoides*. Journ. Mar. Biol. Assoc., Vol. XX, No. 2, pp. 373–378.

LEBOUR, M. V. (1937) The eggs and larvae of the British Prosobranchs with special reference to those living in the plankton. Journ. Mar. Biol. Assoc., Vol. XXII, pp. 105–166.

OSTERGAARD, J. M. (1950) Spawning and development of some Hawaiian gastropods. Pacific Science, Vol. IV, No. 2, pp. 75–115.

VI. Notes on the Posterior Protuberances Found in Some Fritillarians

(Figs. 7 and 8)

I (1940) have described and figured an abnormal specimen of *Fritillaria borealis* forma *sargassi* which had a pair of ear-like protuberances in the posterior portion of the trunk Later I (1942). mentioned that the existence of a protuberance at the position of two small gland cells at each postero-lateral sinus of the trunk seemed to

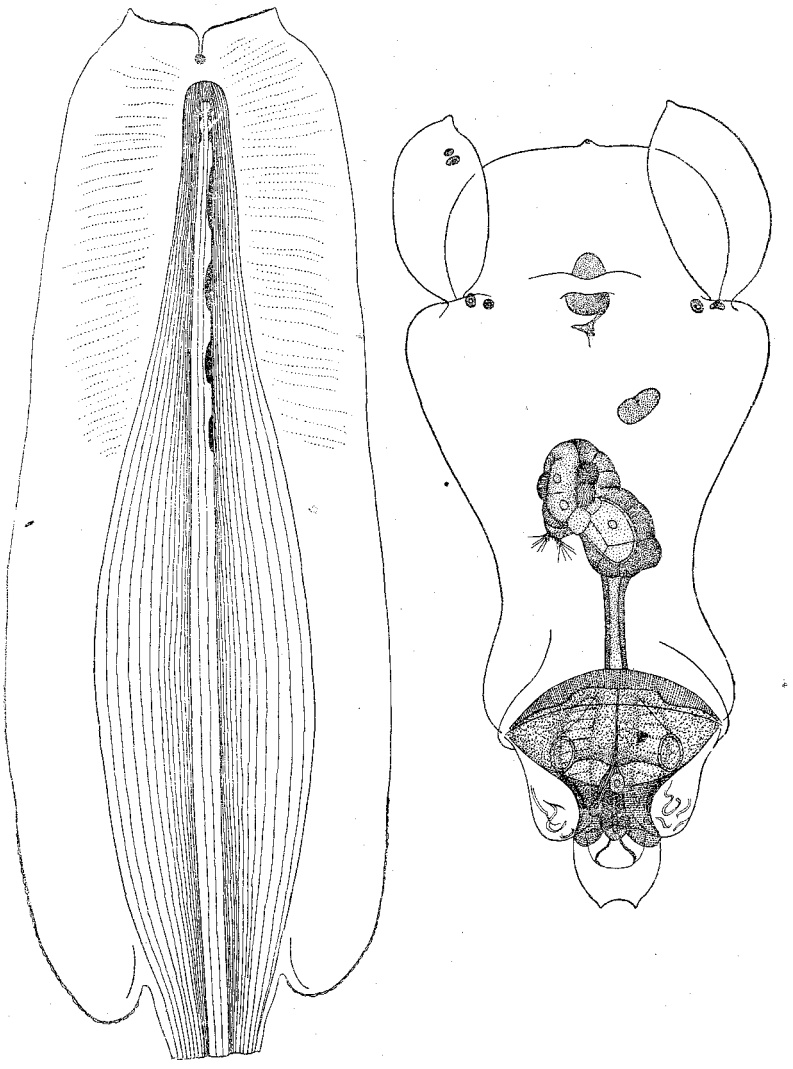

Fig. 7. *Fritillaria* (*Eurycercus*) *borealis* forma *sargassi* LOHMANN. A perfectly preserved specimen from Ago Bay, ×150. (The posterior end of the tail musculature is not truncate, but rather rounded.)

be a regular characteristic found in the perfectly preserved specimen. I have been able to verify this idea on several specimens collected in the bays of Ago and Tanabe.

The posterior margin of the trunk of the perfectly preserved specimen of *Fritillaria borealis* forma *sargassi* is always round, and has a remarkable sinus on each side on the boundary between it and the lateral margin. A pair of small gland cells are always

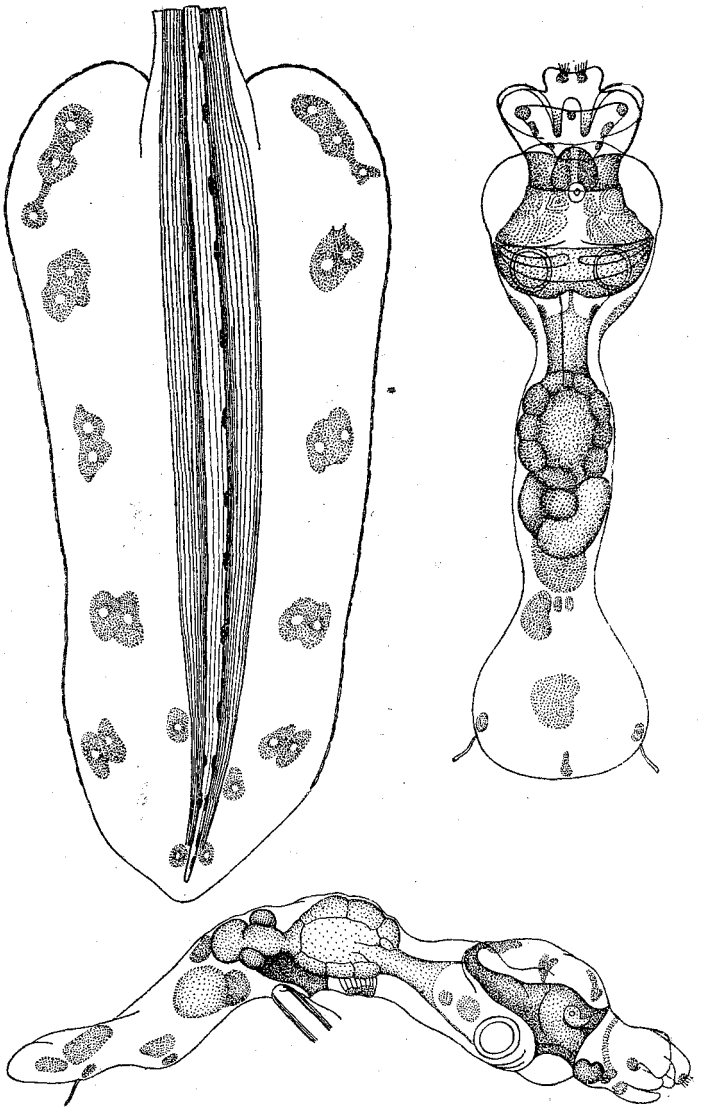

Fig. 8. *Fritillaria* (*Acrocercus*) *formica* FOL. A young individual from Tanabe Bay, ×200.

present at this position, and here a large ear-like protuberance is attached. These ear-like protuberances seem to correspond with the posterior protuberances of *F. pellucida, F. megachile* and other species belonging to the subgenus *Eurycercus*.

Then question arises as to the nature of the small paired protuberances found on the posterior margin of the trunk of *F. borealis* f. *typica* (TOKIOKA 1940) or of *F. borealis* f. *intermedia* (LOHMANN 1931, and TOKIOKA 1940). The answer seems to be that either, that these forms having a pair of small posterior protuberances represent an independent species quite different from f. *sargassi*, or the small posterior protuberances observed and figured by LOHMANN and myself are nothing but some foreign matters attached there, or pieces of the torn mantle, under the presumption that *F. borealis* should be provided with a pair of protuberances at the posterier end of the trunk, since it belongs to the subgenus *Eurycercus*. I think that the latter is more probable than the former, at least for the present.

A young specimen of *F. formica* found in the plankton sample hauled in Tanabe Bay in January 1949 was provided with a pair of minute protuberances on the posterior margin of the trunk. A gland cell was present at the base of each protuberance. No adult specimen of *Acrocercus* has been observed to have any posterior protuberance. If such a structure is observed repeatedly in young individuals of some species of *Acrocercus*, it merits special attention.

LOHMANN, H. (1931) Die Appendicularien der Deutsches Tiefsee-Expedition. Deutsche Tiefsee-Exp., Bd. XXI, Hft. 1.

TOKIOKA, T. (1940) Some additional notes on the Japanese Appendicularian fauna. Rec. Oceanogr. Works in Japan, Vol. XI, No. 1, p. 16.

TOKIOKA, T. (1942) Systematic studies of the plankton organisms occurring in Iwayama Bay, Palao. VII. A preliminary report on the Appendicularian fauna of the Bay and the adjacent waters. Palao Tropical Biological Station Studies, Vol. II, No. 3, p. 614.

VII. Record of a *Thliptodon* Found near Seto

(Fig. 9)

Some years ago when I was a student, I saw a curious plankton organism during our course in planktology given in the winter of 1933 at the Seto Marine Biological Laboratory. It had an appearance, reminding the pod of pea-nut about 3 mm in length, and was provided near the middle of the body with a pair of remarkable oar-like fins with which it swam swiftly in a hollow slide containing the specimen. I could not find out the name of the animal at that time; I only thought it to be a form of Pteropoda. Mr. K. AKATUKA under whose direction the course was given us told me that it was a *Thliptodon*, but its specific name was unknown to him. In spite of my effort to get the animal again, the chance has not come as

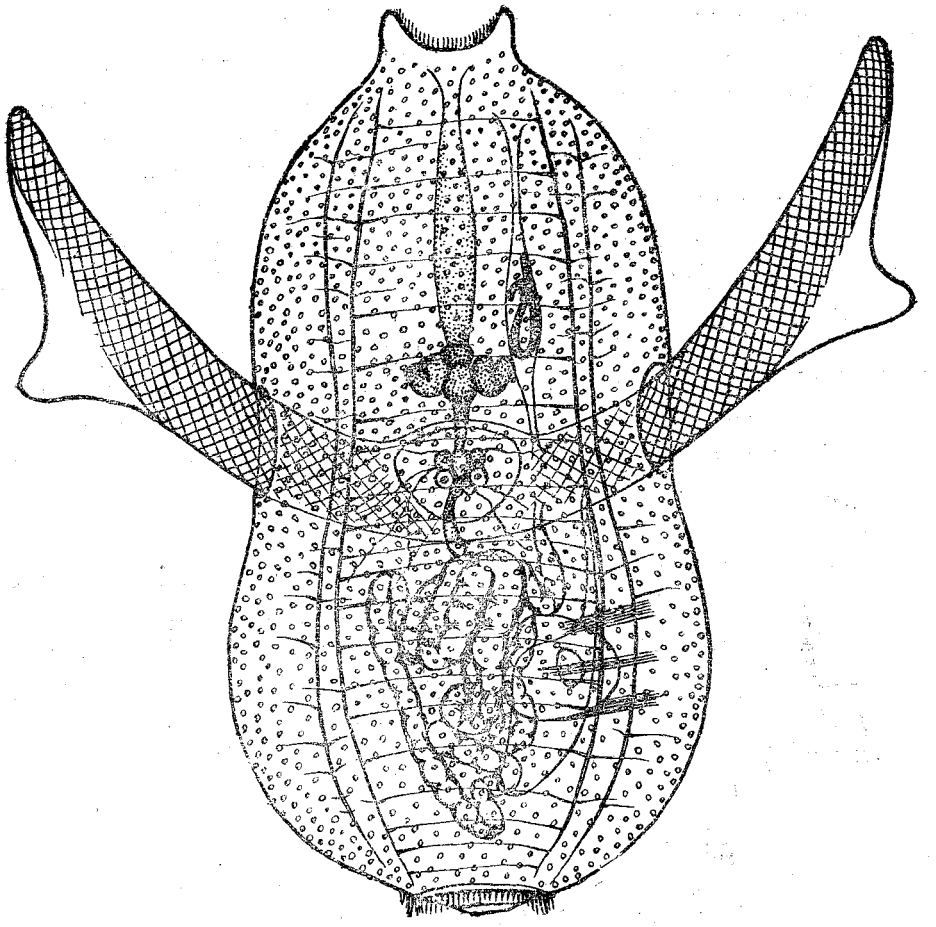

Fig. 9. *Thliptodon akatukai* n. sp. from Seto.

yet. The rather carefully prepared sketch of the specimen shows its close resemblance to *Thliptodon gegenbauri* BOAS. But the shape of the fin in this specimen, which is rather elongate, wider distally and ends in a spatulate terminal, differs distinctly from that of *T. gegenbauri*, which is shorter than in the former and provided with a truncate distal margin. Therefore, I propose here a provisional name *Thliptodon akatukai*.

VIII. Occurrence of Two Species of *Chaetoceros* in the City of Peking

One day, in April 1945 when I was walking around the marshy area situated just west of the famous Tientan in Peking, I was impressed by the enormously high salinity and alkalinity of the water of some ponds and pools in that area. So I started to examine the water, plankton and other inhabitants of many of these ponds

and pools, and continued the study till the beginning of August. The water in these pools and ponds had various grades of salinity or alkalinity, and held each peculiar fauna and flora both planktonic and benthonic. In plankton samples from two of these water bodies, I found many frustules of *Chaetoceros*.

One of these was small and shallow pond situated in the centre of a small basin fringed with reed plants, about 200 m in circumference and less than 50 cm in depth. The water was considerably salty and with pH 9.0+, although women from neighbouring houses were using it for washing. A species of the spiral Cyanophyceae, *Arthrospira* sp., was very abundant from April to August, and gave the water dark green colour. Besides there were:

April—May	*Brachionus plicatilis*	common
	Pedalia mira	very rare
	Fragilaria sp.	+
June	*Oscillatoria* sp.	rare
June—July	*Eristalis* larva	+
	Culicoides larva and pupa	+

Many frustules of *Chaetoceros orientalis* SCHILLER[1] were found there from the beginning to the middle of April. They were rather small, less than 10 μ along the apical axis and with a minute process on the valve on the transapical axis, slightly displaced from the centre.

The other water-body was a small pool, 20 m×30 m and less than 30 cm in depth, situated in a swamp. It was swarmed with larvae of *Aëdes dorsalis* from the beginning to the middle of April, and then with larvae of *Aëdes maculatus* from the end of April to the beginning of May. The water was not so salty as in the other pond; its pH was about 8. 5. Besides there were:

April—May	*Daphnia magna*	rare
	Simocephalus vetulus	rare
	Moina macrocopa	rare
June (When the water has considerably decreased by evaporation)		
	Laccobius bedeli	rare
	Sigara sp.	rare
	Bidessus sp.	rare

July·····Dried up.

Frustules of *Chaetoceros muelleri* LEMMERMANN[2] were found there in the beginning of May. They were 5–10 μ along the apical axis and mingled with a considerable number of resting spores.

The occurrence of *Chaetoceros* in the waters in the City of Peking is interesting, when it is considered in relation to the history of the alkaline-district in North China.

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[1] This species has hitherto been known from the Lake Van of Armenia. Shell 10–20 μ along the apical axis and provided with a minute process in the centre of the valve, where it is slightly swollen. This process bridges completely the space between cells. Chain is of considerable length.

[2] This is a small and nearly solitary species, measuring 5–30 μ along the apical axis.