198. *A Saemostome Medusa with Some Characters of Rhizostomae.*

By Tohru UCHIDA.

Zoological Institute, Faculty of Science, Hokkaido Imperial University,
Sapporo.

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It is generally known that the Saemostome medusa, *Aurosa furcata* Haeckel is an intermediate form between the Saemostomae and Rhizostomae, it being furnished with four perradial bifurcated oral arms and the mesh-work of a canal system which is somewhat similar to that of the Rhizostomae. To our regret, however, this interesting medusa has been only once recorded by Haeckel (1890) from Cocos Island, in the Indian Ocean, and, therefore, the species is not known in detail. In his monograph (1890) Haeckel further pointed out that *Aurelia limbata* Brandt is the „höchst entwickelte Art dieser Gattung“ and has „ein dichtmaschiges Kanal-Netz, welches an dasjenige der Rhizostomen erinnert.“

While studying specimens of *Aurelia limbata* collected from several localities in Hokkaido and Saghalien, I found that this species has several characters in common with Rhizostomae, as stated below.

1) The mesh-work of the canal system of this medusa is very complicated and reminds us of that of Rhizostomae, as pointed out by Haeckel. The canal system of the medusa is quite different from that of *Aurelia aurita*. The eight adradial canals are narrow, straight and connected with the mesh-work only in the widened portion near the peripheral region. The perradial and interradianal canals are rather distinct in the peripheral half but are merged into the mesh-work in the axial half. The intermediate canals between the eight adradial canals are generally 7-10 in number at the base, but are soon fused with each other and form a very complicated mesh-work which is very fine near the margin of the umbrella.

2) The oral arms of the medusa, rather short in the genus, are shorter than the diameter of the umbrella. They are characterized by the possession of a thick disc-like jelly mass present at their bases. The central mouth is not open as in other Saemostomae, but is closed by the four gelatinous lamellae extended from the oral arms, which

Fig. 1. *Aurelia limbata* Brandt, a quadrant of umbrella showing canal system.

overlap each other. The central stomach cavity, therefore, communicates with the furrows along the edges of the oral arms. From these furrows many canals, formed by the foldings of two wings of the oral arms, lead outside. In matured individuals one can often see in the furrows and canals brown genital products which have been emptied from the central stomach cavity. The openings of these canals are surrounded by small tentacles arranged in a row and recall the suctorial mouths of the Rhizostomae. Moreover, the thickened jelly mass, on which the oral arms are mounted, is somewhat similar in form to the oral disc of the Rhizostomae.

3) A most interesting fact lies in the presence of wrinkles in the exumbrel sensory pits of the medusa, which are found only in the sensory pits of Rhizostome medusae belonging to the suborder Dactylophorae, but not seen in the Saemostomae and the Rhizostome medusae eligible for the suborder Kolpophorae.

It is generally believed that the Rhizostomae and Saemostomae are closely related to each other, the former being derived from the

Ulmaridae of the latter. It is not decided, however, which suborder of the Rhizostomae, Dactyliophorae or Kolpophorae, stands nearer to the Saemostomae in the phylogenetical viewpoint. Judging from the development of their canals, in which these two Rhizostome suborders are mainly separated, the writer (1926)¹⁾ expressed the opinion that the Dactyliophorae are more nearly allied to the Ulmaridae than to the Kolpophorae. Besides the mode of development of the canal system, the presence of the wrinkled sensory pits possessed by *Aurelia limbata* belonging to the Ulmaridae seems to provide evidence of their close relationship.

Fig. 2. *Aurelia limbata* Brandt, wrinkled sensory pit.

1) Jour. Fac. Sci. Imp. Univ., Tokyo, Zool., vol. 1, pp. 86-88.