POGONOPHORA

FIRST RECORDS FROM THE EASTERN PACIFIC

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Introduction

Since the printing of my first report of *Pogonophora* (KIRKEGAARD 1956) was finished some new specimens of this interesting class were found in material from the Galathea Expedition.

Dr. P. L. Kramp, who works out the hydroids, found among some *Stephanoscyphus* two tubes which did not belong to his material. At the first glance I thought that they were tubes of *Pogonophora,* and a closer examination showed in one of the tubes some small and damaged fragments of the animal, sufficient to prove that they were really *Pogonophora*-tubes.

The most interesting thing about this find was the geographical position. The tubes were from St. 724 in the Gulf of Panama, an area far from earlier finds of *Pogonophora*. By examining the material of polychætes from the Gulf of Panama I found still another tube from the same station. This tube was different from the others and contained an almost complete specimen which I am confident must be identical with *Lamellisabella zachsi* USCHAKOV.

I hope the story of these finds will induce some keepers of material from Deep Sea Expeditions to make a closer examination of unidentified tubes. I am sure that more material of this group can be found in such old material.

As in the earlier report the figures were made by Poul H. Winther and the English text corrected by Mrs. Agnete Volsøe to both of whom I express my best thanks.

Description of the material

FAM. LAMELLISABELLIDÆ IVANOV 1951

Pogonophora with fused tentacles forming a hollow cylinder.

LAMELLISABELLA ZACHSI USCHAKOV 1933

(Figs. 1 and 2 a-c)

Material:

Gulf of Panama: St. 724. 5°44'N 79°20'W. 2950-3190 m. 1 specimen, almost complete, only the posterior part of the trunk absent. 90 × 1 mm. 1 tube: 150 × 1½ mm.

The tentacles are fused by a thin lamella forming a hollow cylinder. Since a part of this cylinder is lost, it is impossible to count the number of tentacles. JOHANSSON (1940) indicates 29. The length of the tentacle-crown is 12 mm. The anterior section of the body is very short, the cephalic lobe is damaged, but the bridle is very distinct, black, fused ventrally, but the two parts do not meet dorsally. Ventrally, on the anterior part of the trunk, horseshoe-shaped chitinized platelets are situated. These platelets (Fig. 2a) are very characteristic and quite similar to those described and figured by USCHAKOV (1933). They are placed on the border of the ventral groove, in my specimen in a number of 15 on each side. USCHAKOV describes 17-22 on each side, maybe some have fallen off in my specimen. In the posterior part of this section some of the horseshoe-shaped platelets are replaced by very tiny platelets of another shape (Fig. 2b). Posteriorly only these tiny platelets are present, situated in the adhesive papillæ. At the middle of the trunk are two belts, they consist of rows of small chitinoid platelets the surface of which is covered with four rows of denticles (Fig. 2c). The belts are parallel to each other, interrupted on the ventral surface. The preannular

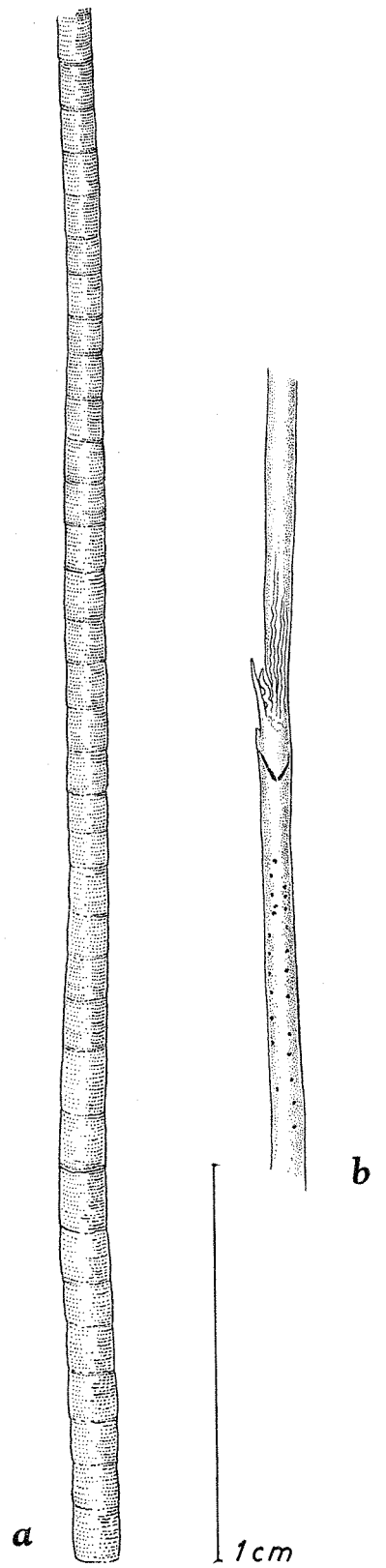

Fig. 1. *Lamellisabella zachsi* Uschakov. a. Tube. b. Ventral view of anterior part with a piece of the tentacle-crown.

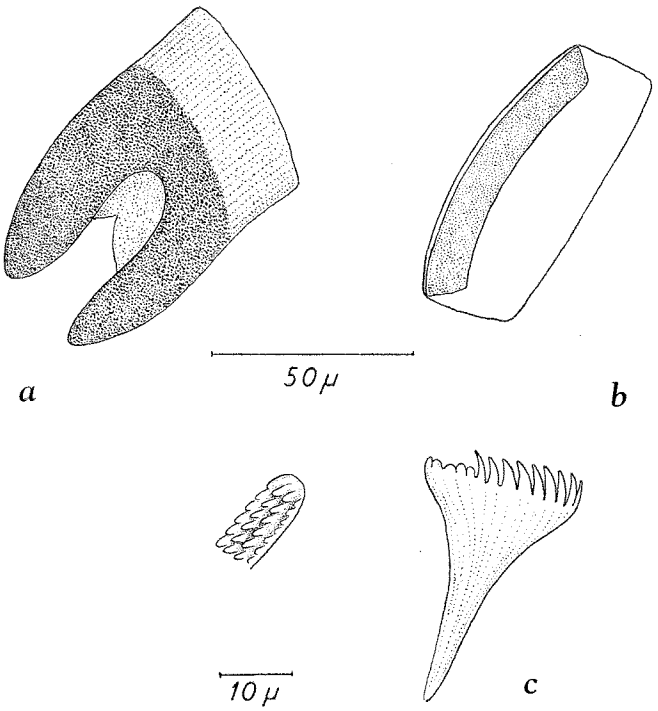

Fig. 2. *Lamellisabella zachsi* Uschakov. a. Horseshoe-shaped platelet from the anterior part of the trunk. b. Normal platelet from the posterior part of the trunk. c. Dentated platelets from the belt.

section of the trunk is 70 mm long and has a diameter of 1 mm.

The tube is strongly chitinized, without collars, but faintly segmented (Fig. 1). The colour is brown, light brown and translucent in the upper part and darker in the lower part. It is 150 mm long with a maximum diameter of $1^1/_2$ mm, but possibly a part of it has broken off and is lost.

USCHAKOV's description of this species is not quite sufficient. He has no figure of the tube and no measurements on the figures of the platelets. The characters of the present specimen are however so similar to USCAKOV's description that I refer it to his species, although the finding place is so far from the first one.

Distribution: Sea of Okhotsk, Behring Sea, Gulf of Panama. 2950-3500 m.

? FAM. POLYBRACHIIDÆ IVANOV 1952

Pogonophora with numerous free tentacles arranged in a circle or on a horseshoe-shaped base.

Krampolinum n. gen.

Small tubes consisting of a lower unsegmented part, a middle part with low collars and an upper translucent part with broad collars.

The genus is named after the known specialist on coelenterates P. L. Kramp, Dr. phil., who found the material.

Krampolinum galatheae n. sp.
(Fig. 3)

Material:

Gulf of Panama: St. 724. 5°44'N 79°20'W. 2950-3190 m. One fragment of a damaged specimen. 2 tubes. 1. 30 × 1 mm, lower part absent. 2. 66 × 1 mm. (Type preserved in the Zoological Museum of the University, Copenhagen).

As only the anterior section with a few tentacles are present and this fragment is very damaged it is of course not possible to give a closer description.

The fragment consists of the anterior section of the body. In front of this there is a cone-shaped cephalic lobe, somewhat damaged, and some free tentacles. In the tube are many free tentacles, but it is impossible to count them. At the middle of the fragment is a very distinct bridle consisting of a pair of oblique cuticular ribs which converge ventrally and dorsally, but they are not fused.

The most complete tube (Fig. 3) consists of a lower part, black coloured with transverse yellow lines and without collars, a middle part also black coloured with low collars and an upper light brown translucent part with very broad collars.

Although only very poor material is present I dare give it a name because the tubes are so characteristic. I think IVANOV is right in his opinion that the details of the structure of the tubes may be used for the characterization of the different forms.

Distribution: Gulf of Panama. 2950-3190 m.

Zoogeographical Remarks

(Fig. 4).

These new finds of *Pogonophora* from the Gulf of Panama indicate a much more extended distribution than hitherto expected. Until now *Pogonophora* were known only from the north western Pacific and the Malayan Archipelago, i. e. from the western part of the Pacific. The present find at a single station of the "Galathea" in the eastern part of the Pacific indicates that the group is distributed in abyssal regions of the total Pacific. As I wrote in my first report (KIRKEGAARD 1956) it seems reasonable that the *Pogonophora* are restricted to areas with a great supply of organic matter. The new finds support this theory since the Gulf of Panama is known as an area with a very high organic productivity.

Fig. 4 gives a picture of our present knowledge of the distribution of *Pogonophora*. It is seen from the chart that most of the species are known from one area only, but two species, *Polybrachia annulata* and *Lamellisabella zachsi*, seem to have a wider distribution. *Polybrachia annulata* is known from the Sea of Okhotsk and the Behring Sea and *Lamellisabella zachsi* from the Sea of Okhotsk, Behring Sea and the Gulf of Panama. Possibly the class *Pogonophora* consists of a group of species with a wide distribution and a group with a more restricted one, but I think it more probable that further investigations may show a more extended distribution of the known species.

The present specimen of *Lamellisabella zachsi* contained some bottom material in the top of the tentacle-cylinder. Do the *Pogonophora* live as deposit-feeders and not as suspension-feeders as indicated by IVANOV? To me the tentacle-cylinder seems to be a very poor filtration organ. Possibly the bridle serves as a support on the edge of the tube when the animal protrudes the tentacle-cylinder to search the bottom.

The story of the finding of these two species make it more probable to get further material from other parts of the world. At least in the Pacific we should expect to find *Pogonophora* along the western coast of North and South America including the trenches. Also the western coast of Australia is an area with a high productivity

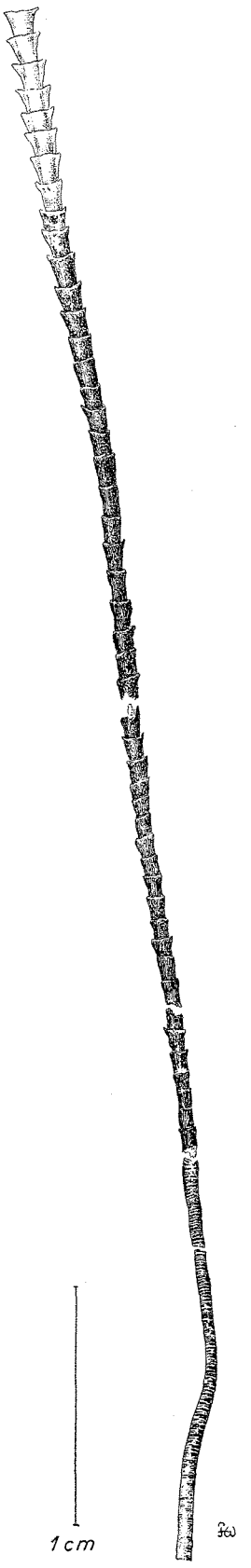

Fig. 3. Tube of *Krampolinum galatheae* n. gen. n. sp.

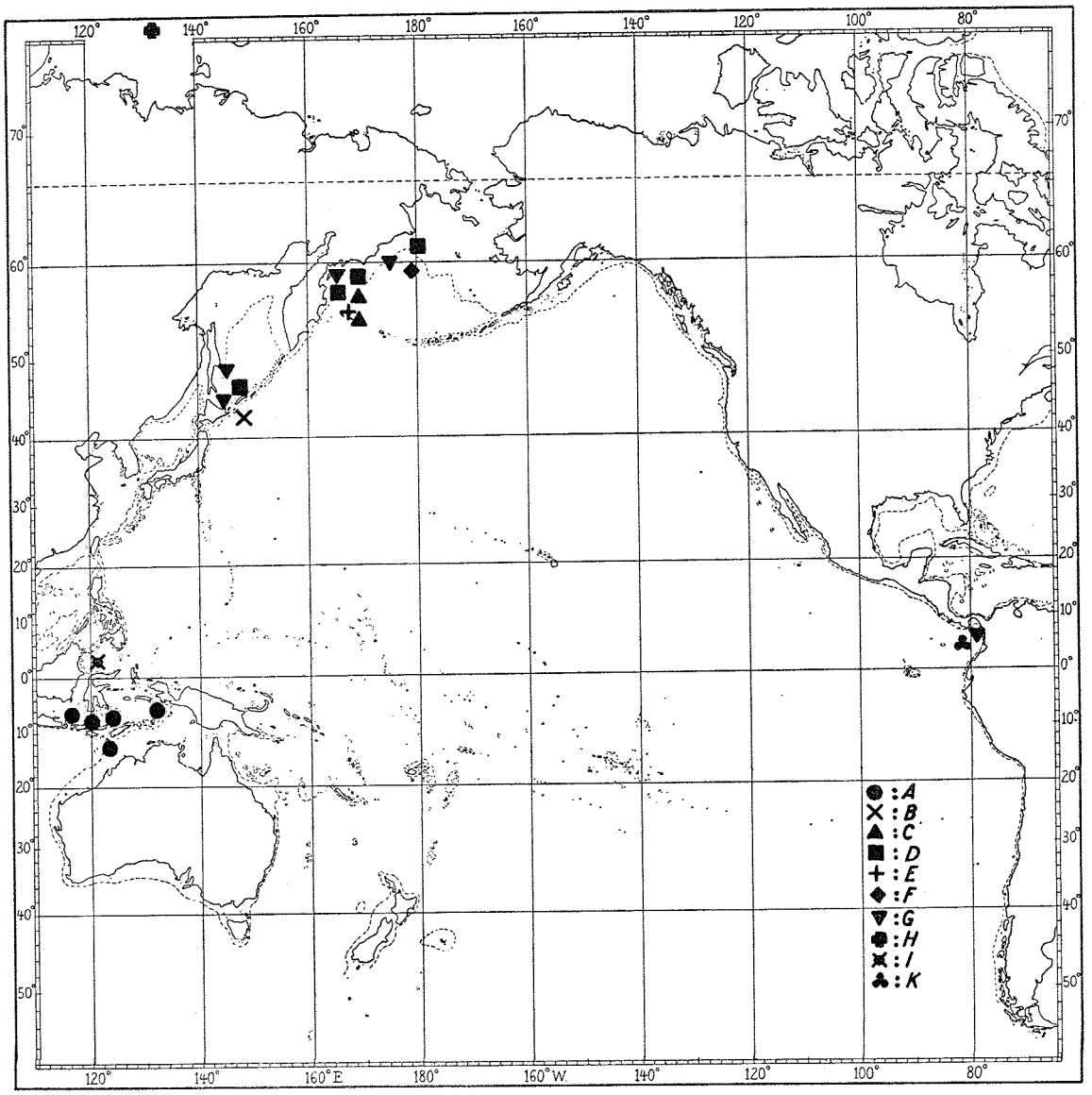

Fig. 4. Distribution of described species of Pogonophora. A. *Siboglinum weberi*. B. *Heptabrachia abyssico a.* C. *Birsteinia barbata*. D. *Polybrachia annulata*. E. *Polybrachia barbata*. F. *Spirobrachia grandis*. G. *Lamellisabella zachsi*. H. *Lamellisabella gorbunovi*. I. *Galathealinum bruuni*. K. *Krampolinum galatheae*.

of organic matter. If there are *Pogonophora* in the Atlantic I suppose, according to my theory, that we must find them on the north-west and south-west coast of Africa, off New Foundland, Iceland and the north-western coast of Norway. All these areas are known as places with a great supply of organic matter.[1]

1. In a recent paper JÄGERSTEN described a new species of *Siboglinum* from 487-650 m in the Skagerrak (cf. JÄGERSTEN, G., 1956: Investigations on *Siboglinum ekmani*, n. sp., encountered in Skagerak. – Zool. Bidrag från Uppsala, 31, pp. 211-252).

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