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# MEDUSAE FROM THE VICINITY OF KAMCHATKA

BY

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(*Eight figures*)

The collection forming the basis of this report was secured by Mr. D. INABA of the Imperial Fishery Institute, Tokyo, from the western coast of Kamchatka in July, 1932. The material, mostly well preserved in formalin, consists of ten species, including nine Hydromedusae and one Ctenophore. Most of these species are common circumpolar forms but one among them is probably new to science. The writer begs to express here his thanks to Mr. D. INABA for placing these specimens at his disposal.

## List of species

### Anthomedusae

- 1) *Sarsia princeps* HAECKEL
- 2) *Sarsia inabai* n. sp.
- 3) *Euphysa japonica* (MAAS)
- 4) *Hybocodon prolifer* L. AGASSIZ
- 5) *Halitholus pauper* HARTLAUB
- 6) *Catablema multicirrata* KISHINOUE
- 7) *Rathkea octopunctata* (M. SARS)

### Leptomedusae

- 8) *Eutonia indicans* (ROMANCES)

### Trachomedusae

- 9) *Aglantha digitale* (FABRICIUS)

### Ctenophorae

- 10) *Beroë cucumis* FABRICIUS

## Anthomedusae

*Sarsia princeps* HAECKEL

Umbrella high bell-shaped, 11 mm high and 9 mm wide in the largest specimens and 4 mm high and 3.5 mm wide in the smallest one. Jelly rather thin. Four radial canals always jagged. Ring



Fig. 1. *Sarsia princeps*  
HAECKEL  $\times 3$ .

canal straight and narrow. Four tentacles each arising from a well-developed basal bulb which is provided with a carmine ocellus on the abaxial side. The tentacle shaft is armed with conspicuous nematocyst clusters which are not arranged in ring-like form. Manubrium long and tubular, generally extending out of the bell cavity. The proximal (upper) part of the manubrium is sometimes narrow, while the distal portion is generally bulged out. A conspicuous blind canal extends upwards into the jelly mass from the

junctionpoint of the radial canals with the base of the manubrium.

The arctic species is already recorded from the southern Bering Sea (BIGELOW, 1913), the Alaskan coast (BIGELOW, 1920) and Takashima, Hokkaido (UCHIDA, 1926).

Loc. 51°33' N. 156°20' E. Twenty nine excellent specimens collected by 30 m vertical hauls on July 7, 1932.

*Sarsia inabai* n. sp.

Umbrella bell-shaped, thick but soft, 3–8.5 mm high and 2.5–3.5 mm wide. Bell cavity rather small. By fixation the subumbrella is liable to be recurved up. Four radial canals and a circular canal straight. Tentacle bulbs swollen, each with an abaxial ocellus. Tentacles arising from the bulbs, very short and terminating in a single

large egg-shaped swelling which is covered with nematocysts. Manubrium hanging in the bell cavity, large and flask-shaped; rounded at the apical side and furnished with a small proboscis at the distal portion. Gonads encircling the entire surface of the manu-

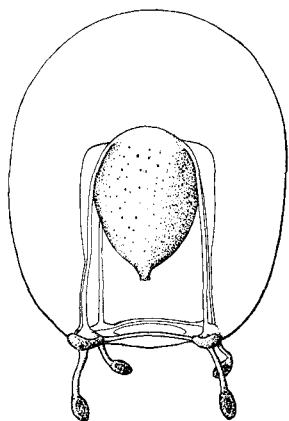


Fig. 2. *Sarsia inabai* n. sp.

brium except the apical and the distal portions. In preserved specimens manubrium and tentacles yellowish and ocelli faintly brown.

The species is distinguished from others belonging to the genus by its characteristic tentacles which are provided with a terminal swelling. Tentacles of such a structure are present in *Dipurena strangulata*, *Microcampana conica* and *Eucodonium browni*, but, as far as the writer is aware, they have never been described for the genus *Sarsia*.

Loc. 51°33' N, 156°20' E. Twenty nine examples obtained by 30 m vertical hauls on July 7, 1932.

### *Euphysa japonica* (MAAS)

The medusa is closely related to the North Atlantic species *Euphysa flammaea* and its identification with the latter has been discussed by several investigators, such as BIGELOW (1920), KRAMP (1926) and UCHIDA (1927). Afterwards KRAMP (1928, p. 33) wrote that "It is distinguished from *flammaea* by its smaller size and by the nematocysts forming complete rings around the tentacles, moreover, even in the smallest specimens of *E. japonica* known till now (1 mm) all of the four tentacles are equally developed (as shown by UCHIDA), whereas the young *flammaea* has only one tentacle." Among the specimens examined by the present writer the largest one is 11 mm long and 7.5 mm wide. Specimens in this collection are all provided with four equally developed tentacles, of which the

whole shaft except the proximal portion is armed with nematocysts arranged obviously in rings. The detailed descriptions are given by MAAS (1910), UCHIDA (1927) and especially KRAMP (1928). As to

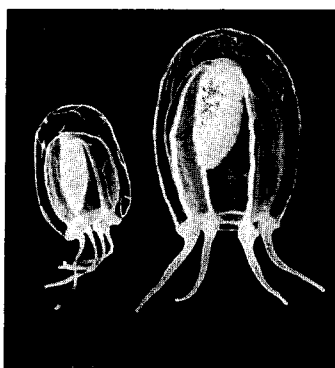


Fig. 3. *Euphysa japonica*  
(MAAS)  $\times 3$ .

the coloration of the species BIGELOW (1920) noted that "A colour sketch, taken from life by Mr. JOHANSEN shows manubrium and tentacle bulb reddish orange, which agrees with the earlier account (MAYER, 1910, p. 64), the tentacles themselves pale bluish." When examined about one month and a half after preservation, they retained reddish orange colour in gonads and orange in tentacle bulbs. KRAMP (1928) transferred the medusa from the genus *Sarsia* to *Euphysa*. Though the writer

has followed him in this report, it is not conclusive while the hydroid corresponding to the medusa remains unknown.

Loc. 51°33' N, 156°20' E. Seventeen well-preserved specimens caught by 30 m vertical hauls on July 7, 1932.

#### *Hybocodon prolifer* L. AGASSIZ

The circumpolar medusa is represented in this collection by numerous specimens, most of which bear on the largest tentacle bulb several medusa-buds and often on the manubrium actinulae developed from ova. The species is common from Hokkaido to Aomori Bay, both in Japan, during March—May.

Loc. 51°33' N, 156°20' E. Collected by 30 m vertical hauls on July 7, 1932.

#### *Halitholus pauper* HARTLAUB

Umbrella 3–7 mm high and 2.5–5.5 mm wide, with a large rounded gelatinous swelling at the apical pole. The apical dome is com-

paratively small in young specimens and often represented by a small wrinkled jelly mass in preservation. Four radial canals, broad and slightly jagged, widened near the junction-point with the manubrium. No perradial mesenteries exist between the canals and the manubrium. Ring-canal slightly narrower than the radial canals. There are 8 marginal hollow tentacles, 4 large perradial and 4 somewhat smaller interradial. These 8 principal tentacles each arise from a well-developed tentacle bulb and taper to the tip. They are somewhat spirally coiled. On the convex abaxial side of these tentacles there is a reddish orange ocellus. In each of the adradial portions between these tentacles there are generally 3 rudimentary tentacles,

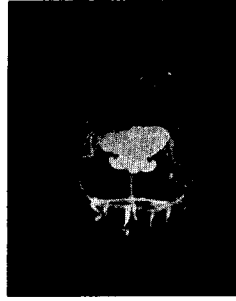


Fig. 4. *Halitholus pauper*  
HARTLAUB  $\times 6$ .

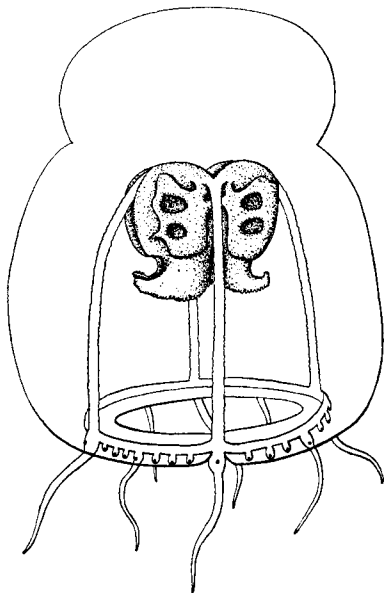


Fig. 5. *Halitholus pauper*  
HARTLAUB.

among which the middle one is larger than the lateral ones. In small specimens only two rudimentary tentacles are found in the adradial spaces. These rudimentary tentacles are small and each bear on the distal blunt end a reddish orange ocellus. Manubrium wider than long, provided with four-sided lips of which the margin is complexly crenulated. Stomach four-chambered. As described by HARTLAUB (1913) the gonads present in the interradial are of the *Leuckartiara*-type with a distinct horseshoe fold from which ridges are radiating towards the perradii as well as upwards.

The medusa has hitherto been

recorded only from the western coast of Greenland and Iceland. This is the first report of the species from the Pacific. HARTLAUB (1914) and KRAMP (1926) gave the detailed description of the species.

Loc. 51°52' N, 156°17' E. Numerous specimens obtained by 45 m vertical hauls on July 23, 1932.

#### *Catablema multicirrata* KISHINOUE

The medusa is characterized in the genus *Catablema* by the presence of numerous tentacles. It was recorded from Poromushiri, the Kurile Islands (KISHINOUE, 1910), Alaska and Unalaska Island (BIGELOW, 1913) Greenland (KRAMP, 1926), Hokkaido (UCHIDA, 1928) and Aomori Bay (UCHIDA, 1929). The examples which occurred in Aomori Bay often harboured young actinians belonging to *Peachia quinquecapitata*. The largest specimen in this collection is 17 mm high and 17.5 mm wide in the bell margin.



Fig. 6.  
*Catablema multicirrata*  
KISHINOUE  $\times 3$ .

Loc. 51°52' N, 156°17' E. Four specimens collected by 45 m vertical hauls on July 23, 1932 and four by 50 m vertical hauls on August 3, 1932.

#### *Rathkea octopunctata* (M. SARS)

The arctic medusa was reported from Japan by KISHINOUE (1910) as *Lizzia shimiko* and by UCHIDA (1924, 1927). It is common in the Pacific from Kamchatka to the middle part of Honshu (Japan proper).

Loc. 51°33' N, 156°20' E. Twelve ill-preserved specimens collected on July 7, 1932.

**Leptomedusae*****Eutonia indicans* (ROMANCES)**

Umbrella dome-like, flatter than a hemisphere, generally 16–20 mm in diameter in the adult. Jelly thick but soft. Four radial canals and ring canal narrow and straight. Tentacles about 40 in number in each quadrant, arranged large and small alternative in position. Statocysts eight, one in each adradial portion. No cirri.

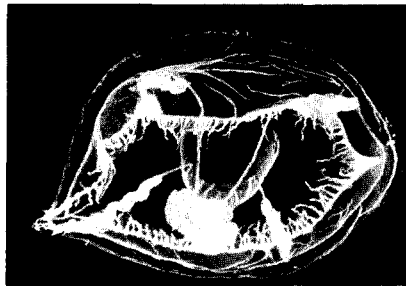


Fig. 7. *Eutonia indicans*  
(ROMANCES)  $\times 7$ .

Stomach short, four-sided, mounted upon a spindle-shaped peduncle reaching to the level of the bell opening. Lips four, complexly folded. Gonads, each appears at first as a narrow enlargement in the middle portion of the lateral side of a radial canal, gradually becoming wide and consequently folding 5 or 6 times. The gonads do not reach upwards to the peduncle and downwards to the circular canal. Gonads, manubrium, tentacles yellowish white in living specimens.

Though the medusa is common in the northern Atlantic, it has been reported from the Pacific only by BIGELOW (1913) who examined 15 specimens from Dutch Harbour. The species is very common in the neighbourhood of the Akkeshi Marine Biological Station (Hokkaido) during July-August.

Loc. 51°33' N, 156°20' E. and 51°52' N, 156°17' E. Many specimens showing various developmental stages. Collected by 30 m vertical hauls on July 7, 1933 and by 45 m vertical hauls on July 23, 1933.

### Trachomedusae

#### *Aglantha digitale* (FABRICIUS)

This is also one of the common circumpolar medusae. According to BIGELOW (1913, 1920) and UCHIDA (1928, 1930), the species occurs from Okhotsk Sea to the coast of middle Japan.

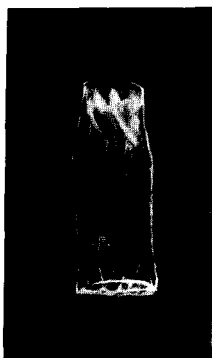


Fig. 8. *Aglantha digitale*  
(FABRICIUS) × 9.

Loc. 51°33' N, 156°20' E. Twenty one specimens collected by 30 m vertical hauls on July 1, 1932.

### Ctenophorae

#### *Beroë cucumis* FABRICIUS

The Ctenophore is already recorded from Alaska (BIGELOW, 1920). Specimens in this collection are mostly in poor condition.

Locality and date of collection are not given.

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