

NEW RECORDS OF *MUGGIAEA DELSMANI* AND OTHER HYDROZOA FROM THE INDO-WEST PACIFIC

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In 1959, a few plankton samples, taken in Manila Bay, the Philippines, by that country's fishery research vessels, were submitted to us by Mr E. R. Bernabbe for examination.

Medusae have been reported on many occasions from the Philippines and these records are summarized by Kramp (1960). For the siphonophores, Lens and van Riemsdijk (1908) and Bigelow (1919) are the only authors to have studied Philippine material and in the list of pelagic Hydrozoa on p. 609 we have denoted those previously unrecorded for the area by means of asterisks.

New records of Muggiaea delsmani Totton (Fig. 1)

Of the five species recorded as new to the Philippines, one, viz., *Muggiaea delsmani* Totton 1954, was previously known only from the type locality (Java Sea, position 5° 57'S, 108° 23' E). This form, which was known only from the anterior nectophore, proved to be the most interesting species, especially as it had been originally described from a few rather small specimens.

The Java Sea specimens had a total length (anterior nectophore) of 1.89–3.71 mm whereas the Philippine specimens (ten in all) were on the whole slightly larger but still retained the characteristics of the species (i.e. short somatocyst, shallow hydroecium without notch and with its upper wall nearly horizontal). To these we were able to add additional records of 25 specimens from Station 5 south of Singapore (Wickstead, 1961) taken on October 7 and 21, 1955, November 4, 1955, January 31 and March 9, 1956. Since this note was originally prepared we have received further specimens of this species (five in all) taken off Zanzibar by Dr Wickstead; the measurements of these are included in Table I and Figures 2 and 3.

The Singapore specimens were on the whole much larger with a total length of 2.80–4.76 mm. Although displaying all the characteristics of the species, it was deemed advisable to adopt a series of standard measurements and to plot

the figures on the accompanying graphs (Figs 2 and 3) to see whether there were any significant differences between the material from the different areas. The measurements of all the specimens at our disposal are summarized in Table I.

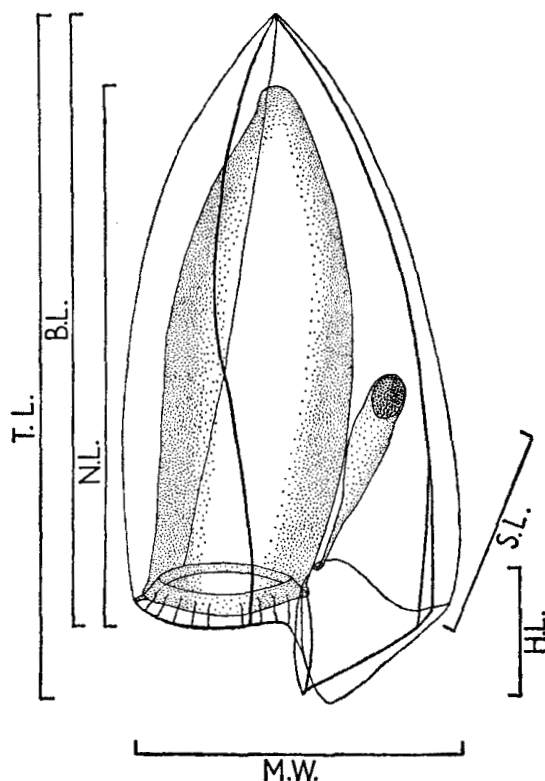


Fig. 1.—*Muggiaea delsmanni* Totton from Singapore Fisheries Station 5, from a depth of 30 fms, October 7, 1955: total length of anterior nectophore, 4.34 mm. Proposed standard measurements for the anterior nectophore of a diphyid siphonophore: B.L., bell length; H.L., hydroecium length; M.W., maximum width, S.L., somatocyst length; T.L., total length; N.L., nectosac length.

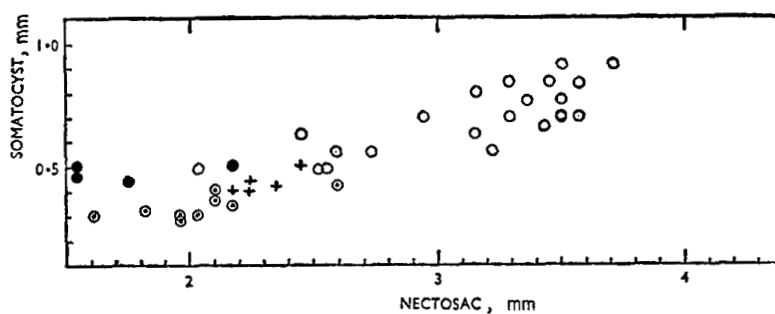


Fig. 2.—The relation of somatocyst length to nectosac length in *Muggiaea delsmanni* from the Java Sea, the Philippines, Singapore and Zanzibar: + Zanzibar; ● Java Sea; ○ Philippines; ○ Singapore.

In Table I we have given the standard measurements and indices selected for the species and we believe that the adoption of definite standards (the selection of suitable criteria will naturally vary according to the morphology of different kinds of siphonophores) as has been done so successfully for cephalopods by Adam, Pickford, and others, will prove very useful in population studies (Fig. 1).

In the Table below for the material at hand it is thought that the considerable variation in the indices represent seasonal differences in sizes rather than differences in populations.

To return to Figures 2 and 3, the first shows the relation of somatocyst length to nectosac length in the four groups of samples available to us. Similarly in

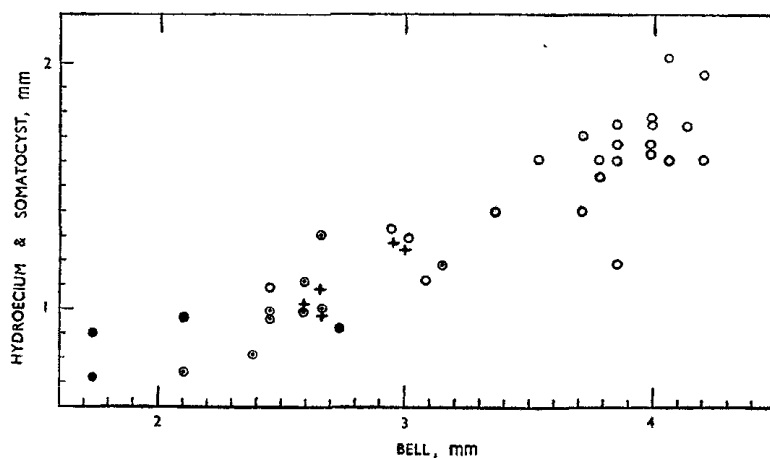


Fig. 3.—The relation of the length of hydroecium plus somatocyst to bell length in *Muggiaea delsmanni* from the four localities mentioned in Fig. 2: symbols as in Fig. 2.

TABLE I

Standard measurements and indices of Muggiaea delsmanni;
measurements in mm

Total length	1.89–4.76			
Maximum width	1.05–2.8			
Bell length	1.68–4.2			
Nectosac length	1.54–3.71			
Somatocyst length	0.28–0.91			
Hydroecium length	0.26–1.05			
	Java Sea	Philippines	Singapore	Zanzibar
Somatocyst length/Total length	15.5–24.3	9.5–13.3	13.3–19.3	13.0–18.7
Somatocyst length/Nectosac length	23.0–29.8	14.2–19.0	17.4–26.0	17.8–20.4
Hydroecium/Total length	13.7–22.6	18.4–23.8	12.9–23.6	14.6–25.4
Hydroecium/Nectosac	14.9–31.6	26.9–50.0	17.7–32.0	20.3–35.8

Figure 3 the total length of somatocyst plus that of the hydroecium is plotted in relation to bell length. It is evident that, assuming these measurements are diagnostic, all the specimens belong to a single species, which is probably widely distributed in the water masses circulating in the Indo-West Pacific from Zanzibar to the Netherlands East Indies.

LIST OF PELAGIC HYDROZOA TAKEN IN MANILA BAY

(a) Siphonophora

**Nanomia bijuga* (delle Chiaje)

Not previously recorded

**Sulculeolaria chuni* (Lens and van Riemsdijk)

There is a possibility that some of the material described by Bigelow under the name *Galeolaria australis* from northern Mindanao may belong to this species.

**Sulculeolaria quadrivalvis* Blainville

Not previously recorded from the Philippines but reported from Indonesia and the vicinity of Hong Kong by Bigelow (1919, as *Galeolaria quadrivalvis*).

Lensia subtiloides (Lens and van Riemsdijk)

First described from specimens obtained in Sulu Harbour, Sulu Province, by the Siboga Expedition (Lens and van Riemsdijk, 1908).

**Muggiaea delsmanni* Totton

Previously known only from the Java Sea (Totton, 1954).

Chelophyes appendiculata (Eschscholtz)

Previously known from the west coast of Luzon (Bigelow, 1919, as *Diphyes appendiculata*).

Chelophyes contorta (Lens and van Riemsdijk)

Previously recorded from off Corregidor Light at the entrance to Manila Bay by Bigelow (1919, as *Diphyes contorta*) and from the Sulu Archipelago by Lens and van Riemsdijk (1908, as *Diphyes contorta*).

Eudoxoides mitra (Huxley)

Previously recorded from off Corregidor Light at the entrance to Manila Bay and other Philippine localities by Bigelow (1919, as *Diphyopsis mitra*).

**Eudoxoides spiralis* (Bigelow)

Previously unrecorded from these islands.

Diphyes dispar Chamisso and Eysenhardt

Previously reported from several Philippine localities including off Corregidor Light at the entrance to Manila Bay by Bigelow (1919, as *Diphyopsis dispar*).

Diphyes bojani (Eschscholtz)

Reported from several Philippine localities including off Corregidor Light at the entrance to Manila Bay by Bigelow (1919, as *Diphyopsis bojani*).

Diphyes chamissonis Huxley

Found off Corregidor Light at the entrance to Manila Bay and several other Philippine localities by Bigelow (1919, as *Diphyopsis chamissonis*).

Abylopsis tetragona (Otto)

Found off Corregidor Light and several other Philippine localities by Bigelow (1919) as well as from the Sulu Archipelago by Lens and van Riemsdijk (1908, as *Abyla pentagona*).

Abylopsis eschscholtzi (Huxley)

Reported from off Corregidor Light and off northern Mindanao by Bigelow (1919) and from the Sulu Archipelago by Lens and van Riemsdijk (1908, as *Aglaismoides eschscholtzii*).

Enneagonum hyalinum (Quoy and Gaimard)

Previously reported by Bigelow (1919, as *Cuboides vitreus*) from off Cor-

regidor Light and from the Sulu Archipelago by Lens and van Riemsdijk (1908, as *Cuboides adamantina*).

Bassia bassensis (Quoy and Gaimard)

Previously reported off Corregidor Light by Bigelow (1919) and from the Sulu Archipelago by Lens and van Riemsdijk (1908, as *Abyla bassensis*).

(b) Hydromedusae

The following hydromedusae occurred in the catches: *Bougainvillia fulva* Agassiz and Mayer, *Eirene hexanemalis* (Goette), *Liriope tetraphylla* (Chamisso and Eysenhardt) and *Solmundella bitentaculata* (Quoy and Gaimard). The first two are widely distributed in the Indo-pacific and the last two are cosmopolitan; all have been previously recorded from the Philippines (Bigelow, 1919; Kramp, 1960). *Eirene hexanemalis* was the only species taken in large numbers.

SUMMARY

A small collection of pelagic Hydrozoa from Manila Bay yielded five siphonophores new to Philippine waters. Of these, *Muggiaea delsmanni* Totton proved to be the most interesting and is also shown here to be widely distributed in the Indo-West Pacific from the Java Sea (the type locality) to the Philippines, Singapore and the Zanzibar coast.

Standard measurements are proposed for comparing samples.

The samples of *Muggiaea delsmanni* from the different areas are compared and demonstrated to belong to one species.

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