

REPORT ON A FEW OCTOCORALS FROM ENIWETOK ATOLL, MARSHALL ISLANDS

by

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With three text-figures and one plate

In 1969 Dr. Arthur G. Humes, Boston University, Massachusetts, U.S.A., collected a number of octocorals at Eniwetok Atoll, Marshall Islands. He found that most of these corals were the hosts of copepods, just like the corals collected by him in the waters north-west of Madagascar (vide Verseveldt, 1969: 3). It was with great pleasure that I identified the corals for him.

As appears from the survey of the material most of the species are well-known, with the exception of two species one of which is redescribed below, while the other is described as a new species:

Sinularia marenzelleri (Wright & Studer, 1889), this species being insufficiently described by previous authors, and

Sinularia brongersmai spec. nov., which is named in honour of Dr. L. D. Brongersma, to whom the present paper is dedicated.

The collection is kept in the Rijksmuseum van Natuurlijke Historie, Leiden; the register numbers are preceded by the abbreviation RMNH.

I express my gratitude to Mr. W. ter Spill for editorial assistance, and to Mr. G. J. Vrijmoeth for making the photographs.

SURVEY OF THE MATERIAL

In the collection the following species are represented:

Family Clavulariidae Hickson, 1894

Pachyclavularia violacea (Quoy & Gaimard, 1833); one large colony, some smaller specimens and fragments.

Family Alcyoniidae Lamouroux, 1812

Lobophytum pauciflorum (Ehrenberg, 1834); several colonies.

Sarcophyton trocheliophorum Von Marenzeller, 1886; a few specimens.

Sinularia polydactyla (Ehrenberg, 1834); a few colonies.

Sinularia marenzelleri (Wright & Studer, 1889); one colony.

Sinularia brongersmai spec. nov.; two colonies.

Family Nephtheidae Gray, 1862 (emend. Utinomi, 1954)

Nephthea chabrolii Audouin, 1828; eight colonies.

DESCRIPTIONS

Sinularia May, 1898**Sinularia marenzelleri** (Wright & Studer, 1889) (fig. 1, pl. 1 fig. 1)

Lobophytum marenzelleri Wright & Studer, 1889: 251, pl. 42 fig. 1; Whitelegge, 1897: 217; Hickson & Hiles, 1900: 505.

Sclerophytum marenzelleri; Pratt, 1905: 254-255; Thomson & Henderson, 1906: 419.

Sinularia marenzelleri; Lüttschwager, 1915: 13-14; Kolonko, 1926: 331; Tixier-Durivault, 1945: 243; 1951: 105-108, figs. 138, 148-152; 1966: 204-207, figs. 198-200; 1970: 187.

Material. — In lagoon, western side of Eniwetok Island, Eniwetok Atoll, depth 2 m; 14 July 1969. A. G. Humes no. 1439, RMNH Coel. no. 8028. One colony. Field-note: "Colour light brown".

Description. — From a common basal portion eight sterile stalks arise, each crowned with a lobular part. These eight parts are so densely pressed together that one must bend them apart to establish the composite structure. At first sight, however, both stalks and capitula seem to be a whole, so I shall speak of "the" sterile stalk and "the" capitulum of the whole colony. The texture is firm, though slightly flexible.

The colony is flattened laterally. At its base the stalk is 80 mm long and 35 mm wide, upwards it widens, and has a length of 90 mm. On one side, the "frontal side", the height of the stalk is 35 to 40 mm, on the other side it is 50 to 55 mm high. As a result of this the capitulum stands obliquely on the stalk. Pl. 1 fig. 1 shows the colony seen from this "frontal side". The stalk is grooved longitudinally and finely wrinkled transversely.

Seen from above the oval capitulum is 107 mm long and 50 mm wide. It projects slightly beyond the stalk. It consists of numerous short, thick lobes, each of which are covered with small, rounded secondary lobes, 5 to 7 mm high and approximately 5 mm wide; some of these are ovoid and measure 5 and 8 mm.

The zooids are closely set, their centres are 0.60 to 1.00 mm apart. Some of these are retracted, leaving very small pits, but the majority projects above the surface of the lobes, the tentacles being bent together, sometimes in a cone-shaped manner. The diameter of these semi-expanded zooids is 0.65 to 0.80 mm. The tentacles are armoured with numerous minute clubs, 0.10 to 0.17 mm long (figs. 1 k-n). At the base of the tentacles they are arranged "en chevron", distally they lie parallel to each other in a longitudinal direction. Under these pointed spicules we find a few spindles, 0.20 to 0.24 mm long, lying transversely, and forming a crown.

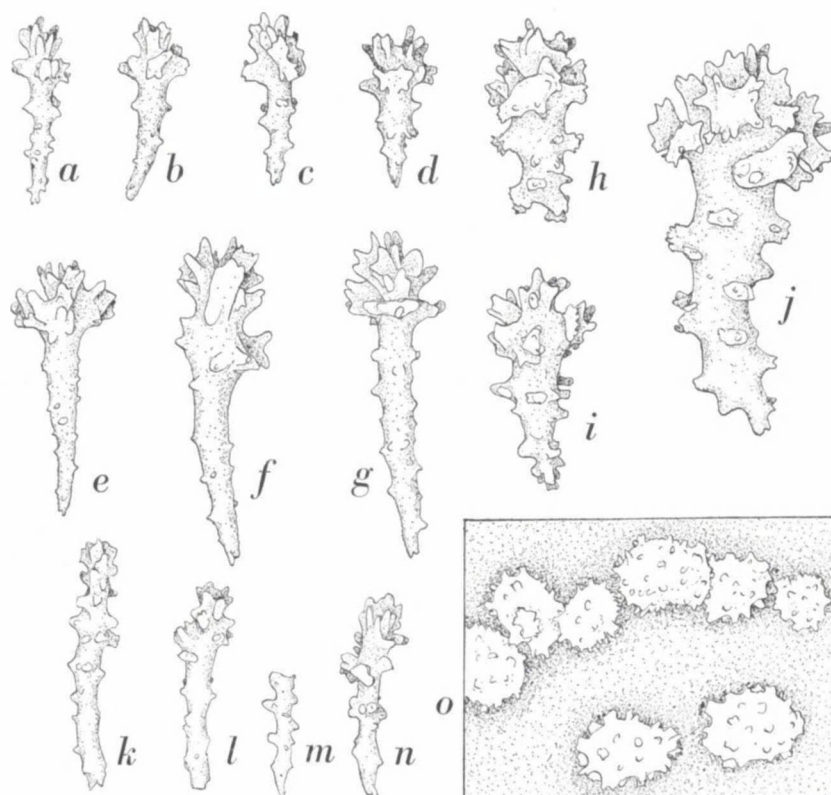


Fig. 1. *Simularia marenzelleri* (Wright & Studer). a-g, spicules from the cortex of a lobe; h-j, spicules from the cortex of the sterile stalk; k-n, spicules from the tentacles; o, warts from a coenenchymal spicule. $\times 220$.

In the cortex of the lobes we find clubs, 0.12 to 0.17 mm long. Some of these have heads with a kind of central wart (figs. 1 a, b), but the majority has irregularly tuberculated heads (figs. 1 c-g). The handles have small spines. In the coenenchyme of the lobes there are pointed or blunt-ended spindles; many are up to 4 mm long, the width is up to 0.50 mm. They usually are irregularly curved, sometimes they are branched at one end. The warts may be small, 0.035 mm in diameter, and scattered. In the stronger spicules they are larger, 0.07 to 0.08 mm in diameter (fig. 1 o), but oval warts may have a maximum diameter of 0.09 to 0.10 mm.

In the cortex of the stalk the clubs are wider and coarser than those in the lobes, the handles bear warts. The length is 0.10 to 0.25 mm (figs. 1 h-j).

The coenenchymal spicules in the stalk are quite like those in the lobes, a few measure 5.10 mm in length and 0.52 mm in width.

Colour. — In alcohol the colour is grey.

Remarks. — Our specimen agrees well with Wright & Studer's description of *S. marenzelleri* and with that of later authors. However, the capitulum projects a little beyond the stalk, and the zooids are densely placed. None of the previous authors gave a picture of a colony of *S. marenzelleri* except Tixier-Durivault, who published figures of two different colonies (1951: fig. 138a, and 1966: fig. 198). The spicules have been insufficiently represented.

I am not clear about the dimensions of the colony described by Wright & Studer (1889: 251). They state that the colony measures 50 mm in height, but further down they write: "what may be regarded as the strictly columnar portion is about 130 mm high". Whitelegge (1897: 217) and Pratt (1905: 254-255) record that the height of the sterile stalk is 30 mm and 55 mm, and this agrees with our specimen. Furthermore the species is characterized by the small, rounded, and densely placed lobes, by the coenenchymal spicules, which are up to 5 mm long and about 0.50 mm wide, and by the shape of the warts, which may be small or large.

In many respects our specimen is also near *S. macropodia* (Hickson & Hiles, 1900). The colony represented by Tixier-Durivault (1966, fig. 195) bears a slight resemblance to our specimen. But in *S. macropodia* the coenenchymal spicules are shorter and in many cases bifurcated or branched, whereas the warts are very small. Tixier-Durivault (1951: 93; 1966: 201) states that in *S. macropodia* the polyps are small, but the original authors Hickson & Hiles (1900: 504) record that the pointed lobes bear "a few large polyps".

Geographical distribution. — The species has been recorded from Api (New Hebrides), Funafuti Atoll (Ellice Islands), Cape Gazelle (New Britain), Ceylon, Zanzibar, Madagascar, and Nha-Trang (Viet-Nam).

***Sinularia brongersmai* spec. nov. (figs. 2, 3, pl. 1 fig. 2)**

Material. — West of Eniwetok Island, Eniwetok Atoll, Marshall Islands, depth 4 m; 16 July 1969. A. G. Humes no. 1442 A, RMNH Coel. no. 8029. One colony, holotype. Field-note: "Colony brown".

The same locality and date, depth 3 m; A. G. Humes, collector (no number), RMNH Coel. no. 8030. One colony, paratype.

Description of the holotype (pl. 1 fig. 2). — The stiff colony is low and encrusting. The sterile stalk has been torn off obliquely, it is only present on one side, here the height is 15 to 20 mm.

Seen from above the capitulum measures 120 mm in length and 85 mm in width. From the hollow disc a few outgrowths arise, which bear a number of lobes. Some of these lobes are low, rounded knobs, about 8 to 10 mm wide. Others are more or less finger-shaped, often flattened processes, about 20 to 35 mm long, 10 to 25 mm wide, and 8 mm thick. The total height of the outgrowths and lobes above the surface of the disc is up to 50 mm. Sometimes a lobe has grown out in a gutter-shaped manner. The lobes yield to pressure of the fingers.

The small zooids are evenly set on the disc and the lobes, their centres are 0.60 to 0.80 mm apart. They are entirely retracted, the apertures are 0.15 to 0.25 mm wide.

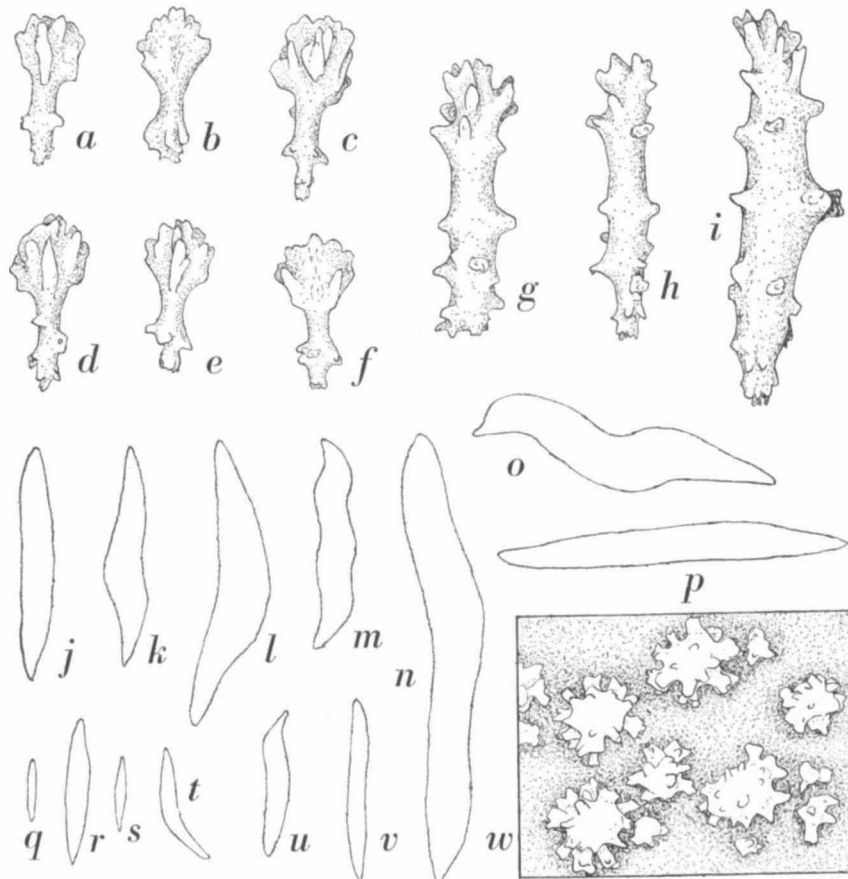


Fig. 2. *Sinularia brongersmai* spec. nov. a-i, spicules from the cortex of a lobe; j-v, spicules from the coenenchyme of a lobe; w, warts from a coenenchymal spicule. a-i, w, $\times 220$; j-v, $\times 11$.

The cortex of the lobes has clubs, 0.08 to 0.11 mm long, with a head composed of three flat, longitudinally placed, leaflike prominences (figs. 2 a-f). They resemble those in *S. maxima* Verseveldt (1971: 49, fig. 35), but in the latter they are smaller. The width of the heads is 0.035 to 0.055 mm. The handles have only one girdle of prominences just above the blunt base. Besides these clubs there are spiny rods, about 0.17 mm long, usually with higher and more closely set prominences at one end (figs. 2 g, h). There are also small spindles, representing transitional forms to the coenenchymal spicules (fig. 2 i).

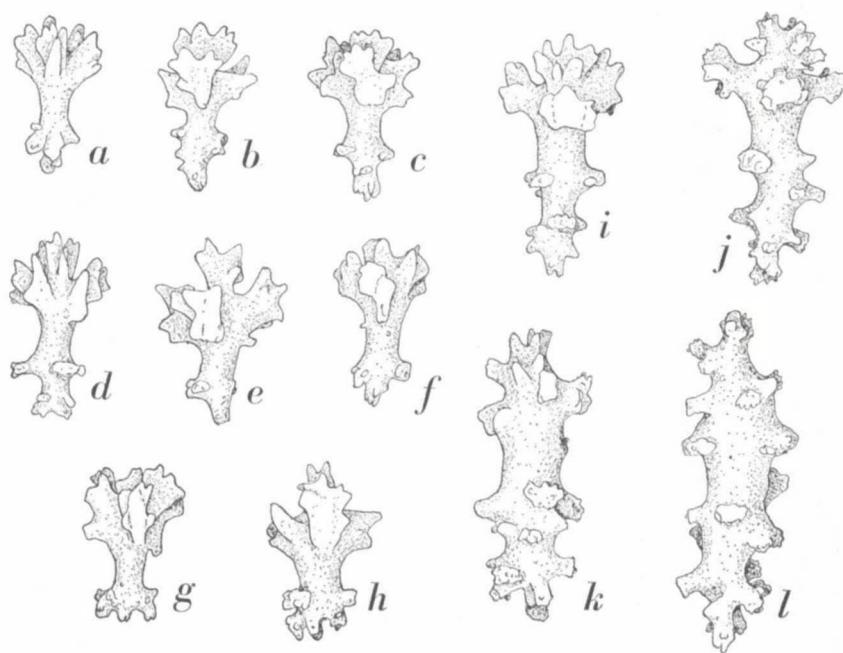


Fig. 3. *Simularia brongersmai* spec. nov. a-l, spicules from the cortex of the sterile stalk. $\times 220$.

In the cortex of the stalk the clubs are quite different. They are scarcely longer, but the heads and the handles are wider, the width of the heads varies from 0.06 to 0.08 mm (figs. 3 a-h). Their prominences are not leaf-like, but they have widened, flat tips. Larger, warty clubs and rods are transitional types to the coenenchymal spicules, their length is 0.14 to 0.22 mm (figs. 3 i-l).

In the interior of the lobes and the stalk we find straight or curved spindles, up to 5 mm long, the width is up to 0.58 mm (without warts;

0.67 mm, warts included) (figs. 2 j-v). The warts are spiny, sometimes they are arranged in girdles, their diameter is 0.055 to 0.075 mm (fig. 2 w).

Colour. — In alcohol the disc is brown, the apical parts of the lobes are dark brown to nearly black.

Variability. — The paratype only differs in the shape of the colony from the holotype. The diameters of the oval capitulum are 110 and 70 mm. The lobes are massive, the primary lobes may divide into finger-shaped secondaries. They all are flattened, their total height is up to 50 mm. The stalk is very low, the diameters of its oval base are 60 and 30 mm, upwards it widens and merges into the polyp-bearing lobes.

Remarks. — The species is characterized by the large lobes and by the shape of the cortical clubs, those in the lobes being different from those in the sterile stalk.

With respect to the shape and the dimensions of the lobes there is agreement with other *Sinularia* species such as *S. robusta* Macfadyen (1936) and *S. maxima* Verseveldt (1971). But the spicules of these two species differ from those of our specimens.

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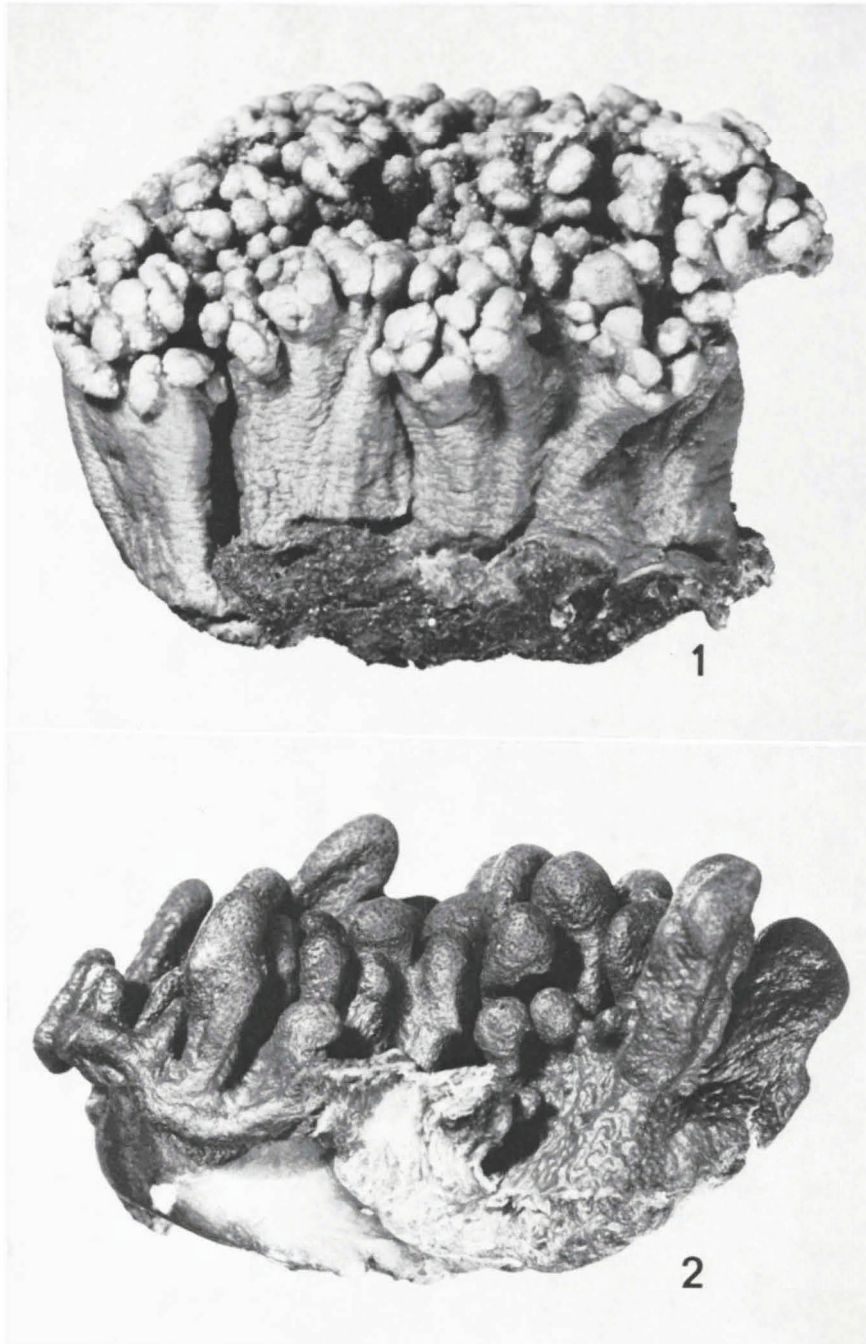


Fig. 1. *Sinularia marcnzelleri* (Wright & Studer), RMNH Coel. no. 8023. Fig. 2. *Sinularia brongersmai* spec. nov., holotype, RMNH Coel. no. 8029. Natural size.