

A NEW GENUS AND SPECIES OF SPONGE FROM SOUTHERN CALIFORNIA

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During 1959 four bizarre specimens were collected by two Campbell grabs from the ship R/V Velero IV. They were tentatively identified as large gastropod egg cases (Hartman, 1963:84). Credit is due to Robert Given who later recognized them as Porifera. Examination of the sponges indicated that they were members of the curious family Coelospheridae, Order Poecilosclerida, and constitute a new genus and species, the first representatives of this family from the Pacific coast of the United States.

Coelosphericon, new genus

Characterized by possessing subtylotes, anchorate isochelas, toxas, and a body wall consisting of two contiguous layers of subtylotes. This genus appears to be most closely related to *Coelosphaera* Thomson and *Coelosphaerella* De Laubenfels from which it differs by containing anchorate isochelas. The type species of the new genus is *Coelosphericon hatchi*, n. sp.

Coelosphericon hatchi, new species

Figure 1

Holotype: Allan Hancock Foundation, 1965-14; collected off Gull Island, Santa Cruz Channel, California (33° 56' 06" N, 118° 52' 17" W) on 22 December 1959. Depth, 221 m.; substratum, rocks and green coarse sand; R/V Velero IV station 6806-59.

Paratypes: Allan Hancock Foundation, 1965-14, United States National Museum 23747, and British Museum of Natural History 1965. 6.17.1; all collected off Gull Island, Santa Cruz Channel, California (33° 56' 03" N, 119° 52' 03" W) on 22 December 1959. Depth, 218 m; substratum, rocks and some green sand; R/V Velero IV station 6805-59.

The name *Coelosphericon* refers to the sponge having the likeness of a hollow sphere.

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Description: *Coelosphericon hatchi* is approximately egg-shaped (Fig. 1a) and measures up to 18 mm. in diameter across the base and 35 mm. in height (excluding the apical osculum). Two of the four

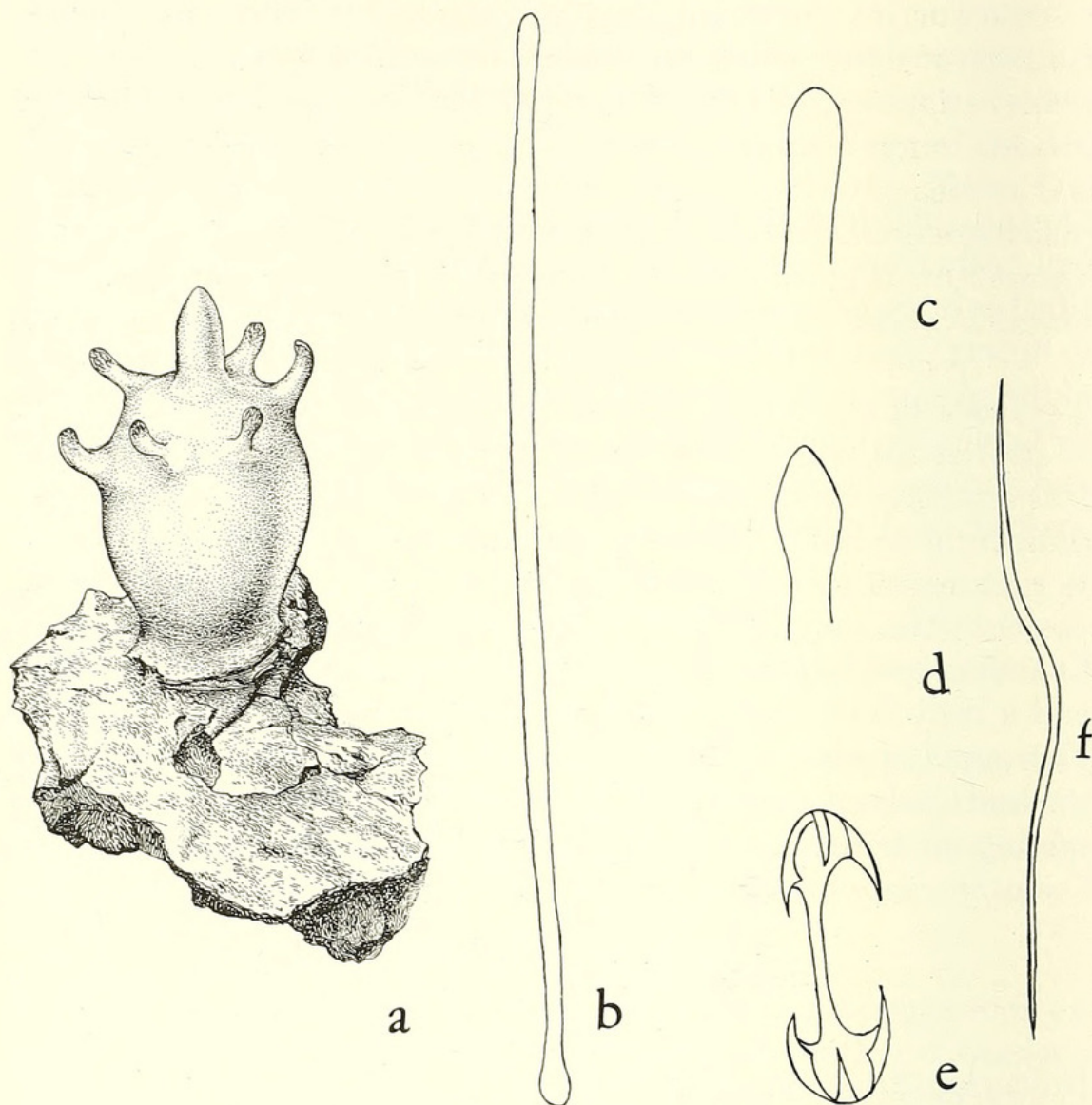


Figure 1. (a) Drawing of the holotype of *Coelosphericon hatchi* (height, excluding osculum, 27 mm.; basal diameter, 18 mm.) attached to a rock; from Hartman (1963:82). Note the 6 fistules and the apical osculum. (b) Camera lucida drawing of a typical subtylote. Length, 869 μ ; diameter, 17 μ . (c) Stylote end of the subtylote spicule. (d) Another variation in the end of a subtylote. (e) Anchorate isochela. Length, 39 μ . (f) Toxa. Length, 133 μ ; diameter, 2.5 μ .

specimens are firmly attached to rock; the remaining sponges were torn from their substratum. From 6 to 13 subapical fistules arise from the upper half of each of the specimens. The holotype contains a symmetrical but atypical subapical rosette of 6 fistules (Fig. 1a). In addition, each specimen contains an apical osculum. The fistules measure up to 8 mm. and the oscula up to 10 mm. in length.

The color in alcohol is white to cream, the latter shade due to the presence of the dermal membrane. The body surface is smooth, the texture slightly crusty, and the body wall exceptionally tough. Fistules, occurring on the midbody and the subapex, arise as a hollow cylinder of subtylotes. Near the apex of the fistules columns of subtylotes originate and proceed to the end where they arch around and become congruent with other similar columns. The columns of subtylotes measure up to $250\ \mu$ in diameter. Between them lie spaces which are occupied by dermal membrane and pores. Pores measure from 50 to $200\ \mu$ in greatest diameter. The central apical osculum contains an orifice measuring roughly one mm. in diameter in preserved specimens. Since the apex of the osculum has a folded wall, the size of the opening presumably is larger in live specimens.

The dermal membrane is thin and contains numerous anchorate isochelas (Fig. 1e); it appears to lack pores except in the apical portions of the fistules. The body wall measures up to 2 mm. in thickness. It consists of an outer layer of subtylotes (Fig. 1b) that lie approximately at right angles to a second layer of subtylotes. This

TABLE 1. Spicule dimensions of *Coelosphericon hatchi*, new genus and species.¹

SUBTYLOTE	Holotype <i>AHF</i> 1965-14	Paratype <i>USNM</i> 23747	Paratype <i>BMNH</i> 1965.6.17.1
a. length (range and mean)	535-770-970	525 878-1010	
b. standard error of mean length	770 ± 24	878 ± 20	
c. confidence limits for length at 95% level	722 to 817	839 to 916	
d. diameter	12-17-22	15-17-20	
e. standard error of mean diameter	17 ± 0.1	17 ± 0.3	
f. confidence limits for diameter at 95% level	16.8 to 17.2	16.2 to 17.2	
ANCHORATE ISOCHELA			
a. length (range and mean)	32-38-42	30-38-42	
b. standard error of mean length	38 ± 0.4	38 ± 0.5	
c. confidence limits for length at 95% level	37.0 to 38.6	35.6 to 39.5	
TOXA			
a. length (range and mean)			111-134-162
b. standard error of mean length			134 ± 2
c. confidence limits for length at 95% level			130 to 138

¹Based on 35 measurements for each character; all data expressed in microns.

seems to confer considerable strength to the sponge. Beneath the two layers occurs a capacious spongocoel that is either empty or it contains a small basal mass of pulpy mesenchyme or a few small patches of mesenchyme adhering to the body wall. The mesenchyme contains numerous subtylotes arranged in apparent confusion although there is a tendency for the subtylotes to occur in groups of 8 to 10 units. Toxas (Fig. 1f) and anchorate isochelas are abundant. Histological sections of the mesenchyme from the paratype AHF 1965-14 indicate that the sponge was undergoing spermatogenesis in December. Numerous "cysts" measuring from 40 to 121 μ in largest diameter were observed. Many contained spermatocytes, and a few, apparently mature spermatozoa. The choanocyte chambers measure up to 37 μ in diameter.

Spicules are shown in Figures 1b to f and dimensions presented in Table 1. Subtylotes and anchorate isochelas are abundant in the body wall and mesenchyme. Toxas, with few exceptions, are restricted to the mesenchyme. It is not uncommon for the subtylotes to have various modifications of one or both ends (Figs. 1c, d). The anchorate isochelas tend to approach the arcuate configuration. The one acanthostyle and one sigma observed in spicule slide preparations are considered to be contaminants.

Remarks: It gives me great pleasure to name *Coelosphericon hatchi* in honor of Professor Melville Hatch, Department of Zoology, University of Washington. Dr. Hatch is recognized as the authority on beetles of the Pacific Northwest United States. He also served as a member of my dissertation committee for which I am grateful.

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