Subgenus 1. *Hyalonema*, sens. strict. (Pls. XXVII.–XXIX.; Pl. XXX. figs. 9–17; Pl. XXXIII.).

The superior aperture of the gastral cavity is covered by a sieve-plate, which extends from the side (with its annular, cuff-like fringe of fine marginalia) either right across the mouth of the cup, or sunk down into the latter, towards the inner surface, in funnel-shaped fashion.

1. *Hyalonema sieboldii*, Gray (Pl. XXVII. figs. 1–13).

Among the numerous species of *Hyalonema* obtained by the Challenger Expedition, the familiar Japanese form, *Hyalonema sieboldii*, Gray, one of the best and first known Hexactinellids, was unfortunately not included. A collection of Japanese Hexactinellids, however, entrusted to me by Dr. Döderlein, contained a tolerably well-preserved dried specimen of this sponge, which is figured after a photograph (one-third natural size, not one-half as stated on the plate) on Pl. XXVII. fig. 1. I was able further to compare this with several dried and preserved specimens in the Royal Museum, Berlin, which were brought from Japan by Dr. Hilgendorf.

The total length of the specimens examined varies from 50 to 80 cm. The body proper measures 6 to 15 cm. in thickness, and occupies 10 to 15 cm. of the above total length, the remainder representing the length of the spirally twisted, basal tuft. The upper portion of the latter where it joins the body, and where, for a distance of 10 to 20 cm., it is beset by *Palythoa fatua*, M. Schultze, only attains a diameter of 5 to 10 mm. Gradually, however, the tuft becomes looser, and breaks inferiorly into a bushy bundle. Since the form and external appearance of the whole sponge have been already described and figured in detail by Max Schultze and others, I shall simply restrict myself to emphasizing the important points, and devote more attention to certain structural relations which have been hitherto less intimately investigated. The general form of the body is cylindrical, transversely truncated at the upper end, and inferiorly narrowed in a somewhat conical manner, rounded off, and finally ending in a small inconspicuous marginal pad. The superior external margin bears a fine fringe, composed of slender needles projecting in wreath-like arrangement (marginalia). The upper truncated surface is formed by a sieve-plate, which is stretched right across, or protrudes with a slight convexity. The component lattice-work of the sieve-plate is not, however, uniformly developed, but is usually divided into four distinct portions by four zones of unperforated membrane, which unite in the centre to form an irregular cross. The dividing zones measure from 3 to 10 mm. in breadth, and the four irregularly triangular or roundish perforated sieve portions vary in width from 2 to 4 cm. Each of the four perforated sieve-regions corresponds to an equal sized, deep portion of the gastral cavity, while the