

spicules" occur not only in the interior of the body but also in the superficial dermal layer; the rays of the small hexradiate spicules in the interior are *not bent* but *straight*, and are, up to the pointed extremity, beset with lateral prongs.<sup>1</sup>

Higgin succeeded in discovering in his *Hyalonema cebuense* the true position of the dermal spicules, and Küstermann<sup>2</sup> observed in the same year, in *Hyalonema sieboldii*, the presence of four cruciately disposed anchor-teeth on the extremity of the long tuft spicules. Küstermann also observed, close to the extremity of a tuft-spicule, that the fine axial canal was crossed by two short transverse canaliculi disposed at right angles to one another.

An elaborate description of the minute structural relations of *Hyalonema sieboldii* has been given by Marshall<sup>3</sup> in his admirable Researches on the Hexactinellidæ. He calls attention to the peculiar sieve-like perforated plate which covers the upper truncated extremity of the sponge-body. In the large hollow cavity of this species he also succeeded in discovering round embryos of the size of a millet grain or a pea, and exhibiting a central cavity with a small round excurrent opening. The wall consisted for the most part of smooth hexradiate spicules. On the outer surface spindle-shaped spicules occurred; and long pointed rod-like forms penetrated the wall here and there in a radial direction, and projected for a considerable distance beyond the surface. One of the specimens of the Leyden collection, described by Max Schultze, appeared to Marshall, on account of its different dimensions, and especially on account of the peculiar condition of the dermal skeleton, which was said to exhibit anastomosing bands of long elastic uniaxial spicules with large cross spicules at the anastomoses, to justify the institution of a new species, which he named *Hyalonema affine*. Important deviations from the *Hyalonema sieboldii* type were exhibited by a small (only 7 cm. in length) *Hyalonema* which Wyville Thomson collected to the north of the Shetland Islands, from a depth of 550 fathoms, and which has been named *Hyalonema thomsoni*. Instead of the sieve-net, which extends across the upper truncated extremity of *Hyalonema sieboldii*, a central slender cone, 1 cm. in length, projects freely, and from its expanded base four cruciately disposed narrow ridges extend, forming the upper border of four septa which traverse the cavity of the sponge in a radial direction. Another peculiarity of the *Hyalonema thomsoni* consists, according to Marshall, in the thumb-like prongs which are spirally disposed on many of the tuft-spicules, and which at their union with the ridge-like projecting basal portion of the spicule exhibit a canaliculated appearance.

Wyville Thomson<sup>4</sup> then briefly noted and figured some particularly striking forms of *Hyalonema* from the rich collection of the Challenger Expedition. One species, obtained in the vicinity of St. Thomas, from a depth of 390 fathoms, and named by Wyville

<sup>1</sup> *Loc. cit.*, pl. xxi. figs. 4, 5.

<sup>3</sup> *Zeitschr. f. wiss. Zool.*, 1875, Suppl.-Bd. xxv. p. 142.

<sup>2</sup> *Archiv f. mikrosk. Anat.*, Bd. xi. p. 268.

<sup>4</sup> *The Atlantic*, 1877, vol. i. p. 273.