

outline of the margin, as though by the pull of the myocyte upon it (Pl. XV. fig. 17). In *Cydonium magellani* (Pl. XXI. fig. 13) a transverse section of a chonal sphincter presents appearances suggestive of the existence of a fibrillated sheath surrounding each axial portion of the myocytes, and as in this case the fibrillæ stain with hæmatoxylin, they would appear to be of a different nature to those of the inocytes.

Æsthocytes.

Stewart, Bell's Comparative Anatomy and Physiology, p. 431, 1885.

Lendenfeld, Das Nerven-system der Spongien, Zool. Anzeiger, Bd. viii. pp. 47-50, pp. 448, 466, 488.

„ Beiträge z. Kenntniss des Nerven- und Muskel-systems der Hornschwamme, Sitzungsab. d. k. Akad. d. Wiss. Berlin, p. 1015, 1885.

„ The Histology and Nervous System of Calcareous Sponges, Proc. Linn. Soc. New South Wales, vol. ix. p. 982.

„ Synocils, Sinnesorgane der Spongien, Zool. Anzeiger, Bd. x. p. 142, figs. 1-3, 1887.

Vosmaer, Biologisches Centralblatt, Bd. vi. p. 199, 1886.

In the summer of 1883 I visited the laboratory of Professor Lacaze Duthiers at Roscoff with the express purpose of seeking for sense-cells in *Pachymatisma johnstonia*, a histological examination of the chonal sphincters having convinced me that they might be expected to exist in that sponge. A fine specimen of the species was obtained for me from the Island of Douon, and the slow closure of the sphincters when irritated by the touch of a style was repeatedly observed. This phenomenon has been more than once described by other investigators in the case of other sponges. The specimen was then treated for subsequent histological examination by various methods, and sections were cut on my return to England. The results however were not conclusive enough for publication. Fusiform cells were certainly observed at the outer margin of the chones and traced inwards towards certain ill-defined cells, which I can compare to nothing better than ink-blotches smeared round the margin.

In the Challenger collection several sponges present fusiform cells in positions and with characters corresponding to those which Lendenfeld regards as æsthocytes. In *Cinachyra barbata*, one of the Tetillidæ, they occur in restricted regions on opposite sides of the entrance to the cloacas or vestibules, which as already mentioned are precisely similar to each other in structure. They will be found described on page 27 (Pl. XXXIX. figs. 6-8). In *Pilochrota pachydermata*, one of the Stellettidæ, a sponge provided with a very thick almost entirely fibrous cortex, similar cells occur generally distributed beneath the epithelium of the oscular wall. They will be found described on page 123 (Pl. XXXVIII. fig. 27). Finally, in *Anthastra parvispicula* fusiform cells have been observed directed inwards at right angles to the epithelium lining a chone immediately below the margin of the pores (Pl. XL. fig. 2).