

*Colour*.—Greenish-grey.

*Habitat*.—Station 161, off Melbourne, April 1, 1874; lat.  $38^{\circ} 22' 30''$  S., long.  $144^{\circ} 36' 30''$  E.; depth, 33 fathoms; bottom, sand. Trawled.

*Remarks*.—The ectosome (Pl. XIII. figs. 39, 40) is about 0.4 mm. in total thickness; the pores open directly into wide canals, which terminate below by freely opening into extensive subdermal cavities, from which the incurrent canals are produced inwards. These, like the excurrent canals, are widely open, crossed by vela with wide apertures, and surrounded by thin collenchymatous walls, in which fusiform and vesicular cells occur as well as collencytes. The ectosome, owing to the extensive subdermal cavities, is reduced chiefly to an outer layer, 0.13 mm. thick, forming the roof of these cavities, and to the pillars of tissue between them; the floor of the subdermal cavities is only separated from the choanosome by the epithelial lining and a discontinuous layer of vesicular cells, not more than 0.008 mm. in diameter. The ectosomal tissue forming the roof of the subdermal cavities consists of collenchyma, in which are abundance of fusiform cells, especially numerous immediately below the dermal epithelium; they lie tangentially, except in the pillars between the subdermal cavities, where they assume a radial direction. Just below the margin of the pores, directed at right angles to the surface of the poral canal, small, deeply stained, fusiform cells are in some cases conspicuously present; they are about 0.024 mm. long, it may be a little longer, and the nucleus is situated about 0.009 mm. from the outer end, which is in immediate contact with the lining epithelium of the canal, if indeed it does not penetrate it (Pl. XL. figs. 1, 2). In form, general characters, direction, and position these cells are strikingly similar to those which von Lendenfeld has interpreted as sense-cells.

The choanosome is a sarcenchyma. The flagellated chambers are about 0.03 by 0.024 mm. in length and breadth, the choanocytes 0.012 mm. in length, with a spherical body about 0.004 mm. in diameter; the collum can be traced as a double contoured band up to its entrance into the fenestrated membrane. The apopyle and prosopyle are of about the same diameter, from 0.008 to 0.015 mm.

*Anthastra pyriformis*, Sollas (Pl. XV. figs 1-19).

*Ecionema pyriformis*, Sollas, Prelim. Account, Sci. Proc. Roy. Dubl. Soc., vol. v. p. 192, 1886.

*Sponge* (Pl. XV. figs. 1, 2) somewhat obconic, attached by a flattened base, rising by straight sides, which pass by a gently rounded margin into a flattened or depressed upper surface, bearing numerous small oscules. Chief excurrent canals vertically ascending to open each by one or more chones in the oscules. Pores large, in sieves, generally distributed over the sides.

*Spicules*.—I. Megascleres. 1. *Oxea* (Pl. XV. fig. 3), massive, fusiform, sharply