

spherical nucleus about 0·004 mm. in diameter. They consist of finely granular, apparently protoplasmic, material. In two instances a chiaster was seen in the interior, apparently *in situ*. The darkly stained clusters of cells which occur embedded in this layer are sharply defined from it; the constituent cells (Pl. XIV. fig. 8) are about 0·016 mm. in diameter, and consist of translucent homogeneous material, incompletely divided into numerous lobes or completely divided up into little rounded masses about 0·004 mm. in diameter. No nucleus is apparent in these cells. Similar cells to these also occur irregularly scattered separately through the cortex, and more abundantly through the choanosome, especially adjacent to the walls of some of the canals. These separate cells are about 0·02 mm. in diameter, and usually consist of a number of quite isolated little spherical bodies, homogeneous, deeply stained, and translucent, and about 0·004 mm. in diameter. The inner fibrous layer of the cortex has the structure usual to it. It frequently sends strands of fibres into the outer cellular layer, which thus becomes more or less divided up into a number of separate masses.

*Choanosome*.—The flagellated chambers measure about 0·024 by 0·02 mm. in breadth and length; there is a single prosopyle to each, which in many cases measures about 0·004 mm. in diameter, the apopyle is wider, 0·008 mm., and leads into a longer or shorter aphodal canal. The mesoderm is a sarcenchyme.

*Pilochrota pachydermata*, Sollas (Pl. XXXVIII. figs. 18–27).

*Pilochrota pachyderma*, Sollas, Prelim. Account, Sci. Proc. Roy. Dubl. Soc., vol. v. p. 190, 1886.

*Sponge* (Pl. XXXVIII. figs. 18, 19).—Massive, irregularly lobate, raised into irregular rounded ridges; free, bearing several foreign bodies attached to the base by fibrous bands. Two or more oscules on the upper surface, with strong membranous margins; wall of the cloaca smooth and imperforate for some distance from the oscule, afterwards receiving the excurrent canals by several small simple mouths. Pores in sieves, sieves collected into patches, chiefly present in the depressions between the ridges of the surface. Surface smooth.

*Spicules*.—I. Megascleres. 1. *Oxea* (Pl. XXXVIII. fig. 20), slender, fusiform, usually curved and sharply pointed, 1·193 by 0·0178 mm.

2. *Orthotriæne* (Pl. XXXVIII. fig. 21), rhabdome conical, attenuating to an exceedingly sharp point; cladi conical, at first diverging outwards and forwards, but rapidly curving into horizontality. Rhabdome 1·114 by 0·022 mm., cladi 0·12 mm. long.

3. *Anatriæne* (Pl. XXXVIII. fig. 22), rhabdome cylindrical, attenuated to an exceedingly sharp point; cladi at first rising from the rhabdome outwards and forwards, but rapidly recurving outwards and backwards; the cladome in consequence depressed in front; rhabdome 1·35 by 0·0158 mm., cladi 0·067 mm. long, chord 0·099 mm.; sagitta 0·055 mm.