

furrows, separating the batteries of nematocysts. The gland cells of each group are separated from one another by slender thread-like cells, similar to those between and beneath the nematocysts. A nervous layer is more or less well marked at the base of the ectoderm, but is granular in the specimens examined. An ectodermal row of muscular fibres occurs, which is in some parts more fully developed than in *Antipathes* and *Antipathella*. The ectoderm is about 0.05 mm. thick near the middle of a tentacle, but towards the base the layer becomes much thickened, and the nematocysts are observable as small isolated clusters of cells, which extend for no great depth into the general mass of cells. In sagittal sections of a zooid (Pl. XV. fig. 4) the batteries of nematocysts are often indistinguishable on the surface of the body-wall and peristome, where the ectoderm is much thickened and considerably modified. In such situations the greater portion of the ectoderm consists of an irregular faintly-stained reticulum, enclosing hyaline cells. Nearly all the histological elements shown in the tentacles (Pl. XV. fig. 3, *ect*) have either disappeared or become so much modified as to be no longer recognisable. In horizontal sections the ectoderm, under such circumstances, is seen to be invaded by a number of slender mesogloæal processes, which are often branched, and undoubtedly form a part of the reticulum referred to. I have been unable to decide how far these processes extend, but the whole structure is so remarkable as to require a renewed study. The appearance presented recalls the condition of the ectodermal surface of the mesogloæa in certain Challenger Actiniaria described by R. Hertwig (*e.g.*, *Ilyanthopsis*, *Hormathia*, and *Phellia spinifera*).¹ In *Ilyanthopsis longifilis* the muscular pleats of the oral disc are slightly arborescent and arranged close together. At the free edge of each pleat mesogloæal fibres radiate into the ectoderm and are for some distance connected into bundles. In *Phellia spinifera* the mesogloæal ingrowths are stronger, and bear muscular fibres on each side throughout their entire length, whilst in some parts they become fused together into an irregular reticulum. It appears probable that the more complex muscular folds of many Hexactiniæ are due to similar ingrowths of the mesogloæa. It is worthy of note that in *Leiopathes* the longitudinal muscular fibres of the ectoderm are not confined to the normal surface of the mesogloæa, but may be seen to follow the outline of the mesogloæal processes for a short distance as in *Ilyanthopsis*. This layer is therefore not always flat as in the genera previously described. On this account there is a closer resemblance to the ectodermal muscular layer of *Cirripathes propinqua*, but the fibres in *Leiopathes* are not so thick.

Stomodæum.—The stomodæum of *Leiopathes glaberrima* is rather short, and does not extend into the lower two-thirds of the cœlenteron, excepting in that portion of it which borders the transverse axis. In this region the stomodæum is continued along the free margin of the transverse mesenteries, and the cells forming the rounded free extremity of each mesenterial filament are apparently derived from it (Pl. XV. fig. 4).

¹ Zool. Chall. Exp., pt. lxxiii. pl. ii. figs. 2, 3, and 8.