

They are contained within semi-fibrous capsules, which appear to be attached to the mesoglœa, but I am uncertain whether they are derived from it. The mesoglœa does not stain in borax-carminé in any of the Antipathinæ yet examined, whilst the capsule surrounding each ovum assumes a distinct carminé tint. It may therefore possibly prove to be a true vitelline membrane. The mesoglœa of Hexactinæ has been shown by R. Hertwig to stain red in picro-carminé, but material preserved for a long time in spirit does not apparently take the stain so well.

*Leiopathes glaberrima.*

The zooids of *Leiopathes glaberrima* are very unequal in size, owing to the formation of new zooids at irregular intervals by a process of budding. An elongation of the zooid in the transverse axis is never well marked. Apparently the sagittal tentacles, which are larger than the others, sink to a lower level in older individuals. In such cases horizontal sections taken at a point above the insertion of the sagittal tentacles are oblong, the greatest diameter corresponding with the transverse axis (*cf.* figs. 1, 2 and 3, p. 37). The fully-developed zooids are arranged about four to a centimetre, but in cases where young individuals are interposed between the adults there may be five or six to a centimetre. In large degenerate zooids the ectoderm may be 0·4 mm. thick, and the cells composing it quite indistinct, whilst the entoderm remains quite normal. Subsequently the whole of the zooidal tissues become degenerate, and form oval bead-like swellings of the cœenchyma, which are about 1 mm. in diameter. These are first recognisable at a point from 2 to 3·5 cm. from the apex of a branchlet, and form oval thickenings, four or five of which are arranged to a centimetre. Possibly the early atrophy of functional zooids may account for the fact that the spines of this species are confined to the more slender portions of the sclerenchyma.

*Ectoderm.*—The ectoderm of the tentacles is raised into small oval papillæ, the long axes of which are arranged transversely. In longitudinal sections of a tentacle these papillæ appear as irregular crenations (Pl. XV. fig. 3). Each crenation is occupied by a fan-shaped bundle of nematocysts, beneath which elongate thread-like cells extend to the base of the layer. Each battery in section is from 0·02 to 0·04 cm. broad at the surface, but becomes rapidly contracted towards the middle, and is dilated again near the base of the layer. The nematocysts are 0·02 to 0·03 mm. long, and are broader at their distal, than at their proximal, ends. A number of the thread-like cells beneath them have large oval nuclei which stain deeply; others which are more slender are perhaps sensory in function. The space between adjoining batteries of nematocysts is occupied by a group of hyaline gland cells. The glandular patches are usually more or less oval in outline, and have a diameter of 0·02 to 0·04 mm. near the middle. The clusters rapidly taper towards the surface of the ectoderm, and open on the narrow transverse