

*Aphanipathes sarothamnoides.*

In the genus *Aphanipathes*, the horny skeleton frequently bears exceedingly long spines, which project into the zooidal tissues in all directions. Pl. XIV. fig. 2 shows a subhorizontal section of a zooid of *Aphanipathes sarothamnoides* in which the spines are shown in transverse section. Two spines are seen to penetrate the transverse mesentery on each side, whilst another is imbedded in the stomodæal ectoderm. In other sections of the same series, taken nearer to the oral surface, the latter spine is seen to project freely into the lumen of the stomodæum. Each spine is surrounded by a sheath of tissue, which is a dilation of the axial skeletal sheath. In transverse section (Pl. XIV. fig. 3) the sheath consists internally of a flattened row of cells with oval nuclei, which constitutes the axis epithelium. In the middle is a layer of mesogloea of variable thickness, whilst externally there is a layer of entoderm, consisting chiefly of small cubical cells with round nuclei. The entodermal layer consists usually of only a single row of cells, but in some parts the layer is thickened, and may then be two or three rows deep.

In sagittal sections the sclerenchyma is seen to be remarkably thick in proportion to the diameter of a zooid, and the coelenteron is reduced to a narrow crescent-shaped cavity between the body-wall and the skeletal sheath. The skeletal sheath has a structure similar to that already described, and differs from that of other genera chiefly on account of the thinness of its entoderm. The axis epithelium is irregularly developed. Usually it consists of a thin flattened row of cells, but at various points, particularly in the angles at the base of a spine, the layer is considerably thickened and the cells composing it are columnar. At a point corresponding to the position of a spine (in sagittal sections) the skeletal sheath becomes evolute so as to come in contact with the body-wall. The mesogloea of the skeletal sheath and that of the body-wall are in contact at this point, but so far as I could ascertain they do not become confluent. In such cases, therefore, the coelenteron is perforated by a number of vertical columns of tissue, each of which encloses a spine.

*Ectoderm.*—The ectoderm is about 35  $\mu$  thick and does not become so much reduced at the base of a zooid as in some other forms. That of the tentacles is papillose; each papilla contains a central battery of nematocysts and a peripheral ring of granular gland cells which are closely packed. In sagittal sections the gland cells are seen to be large, and filled with deeply-stained granules. The gland cells do not extend to the base of the layer, as in *Antipathella* and *Leiopathes*, but have an arrangement similar to those of *Antipathes*. The lower portion of the layer is occupied by nucleated fibres in the usual manner, which terminate in a thin nervous layer. A row of ectodermal muscular fibres is also present, applied to the outer surface of the mesogloea of the tentacles and body-wall, but is not well developed.