

which, according to the degree of their histological differentiation, may be homogeneous and not enclosing cells, homogeneous and enclosing cells, or, finally, fibrous and containing cells. The framework of connective tissue gives us an accurate figure of the corporeal form of the Actinia even when the epithelial parts have been removed by maceration; from the standpoint of the "Blättertheorie," it must be termed the middle layer of the body or mesoderm.

All the lamellæ of connective tissue are covered on either side by a single layer of epithelial cells, which are distinguished by extraordinary length and thinness, and may, moreover, be placed in different categories according to their different functions. The most usual form is seen in the "supporting cells," in which, despite their fineness in an isolated condition, we can recognise a distinct, triangular, basal expansion. The most common after these are the "urticating cells" and "gland cells." In the former the body is expanded by the presence of the thread, in the latter it is distended by glandular secretion stored up in it. The form of the nematocysts, and the nature of the thread contained in them is not the same everywhere, and may, perhaps, some day become of systematic importance. The glandular secretion is also of different kinds; it sometimes fills the body of the cell, as a homogeneous, glassy mass, sometimes it is deposited as a mass of closely compacted granules, greedily absorbing colouring matter. The fourth form of cells is that of the "sense cells," which have the same fine, filamentous nature as the supporting cells, from which, however, they can be distinguished in an isolated condition by their central end giving off two or more fine nerve threads, which have a tendency to become varicose.

With the exception of the glandular cells, all the cells bear appendages at the peripheral end; the sense cells, and probably also the urticating cells, have fine, long, tactile bristles, of which each cell usually possesses only one; the supporting cells bear a bunch of cilia, or a simple flagellum. Ciliated cells and flagellate cells may be present in the same animal, *e.g.*, in most Actiniæ the ectodermal epithelium is made up of the former, the endodermal of the latter, whilst in *Cerianthus* we find only flagellate cells. We have as yet no satisfactory knowledge of the manner in which the two forms of cells are distributed among the Actiniæ.

The epithelial coverings are derived immediately from the two primitive layers of cells of the gastrula larva, the endoblast and the ectoblast, and in the developed animal are therefore to be distinguished as separate body layers, as endoderm and ectoderm, even when they hardly vary in their histological character. The ectoderm covers the outer surface of the body and the inside of the œsophagus; the endoderm covers everything else, *i.e.*, the inner wall of the whole coelenteron, and the inner spaces of the tentacles. The supporting lamellæ of the wall, of the œsophagus, &c., are therefore covered with ectoderm on one side and with endoderm on the other; the septa only form an exception, as they bear endodermal epithelium on both sides.