

The muscles in the autozooids are arranged with regard to the septa as in *Heliopora*, *Pennatula*, and *Umbellula*, showing a dorsal and ventral intermesenterial space. The protractor muscles are placed on the opposite sides of the mesenterial plates to those occupied by the retractors. Two mesenterial filaments are longer than the rest; probably they are those of the "Dorsalfach," since the only two retained by the siphonozooids are the dorsal ones. The ova are developed deep down in the autozoid cavities; they have the usual form of the ova of Alcyonarians, and measure, when mature, about 7 mm. in diameter. They are placed in Plate I. fig. 2 at a greater height in the cavity of the autozoid than that at which they usually occur. Ova are to be found in the tubular prolongations of the autozoid cavities very deep in the colonies, whilst the tubular cavities of the siphonozooids have a diameter of about .35 mm. The autozoid cavities widen out beneath the surface to contain the autozooids and gradually contract again below; they have an extreme diameter of 2 mm.

*Siphonozooids.*—The siphonozooid cavities are only about one-fifth the length of the autozoid cavities. The siphonozooid cavities contract below and their tubes gradually narrowing join the canal-system, as is described by Kölliker to be the case in *Sarcophyllum*.<sup>1</sup> The siphonozooids (Pl. II. fig. 3) consist of a simple globular stomach lined within by a thick epithelium, a prolongation of the ectoderm, and communicating with the exterior by a narrow tubular mouth; they have no trace of tentacles. The inner surface of the stomach is covered with long cilia directed downwards and inwards. Near the surface of the body, just beneath the ectoderm, eight mesenteries are present in all the siphonozooids; but four of these extend to a much less depth than the others, and hence in a horizontal section at a very slight depth from the surface all the siphonozooids in section are seen with only four mesenteries. The four deeper mesenteries are those attached to the ends of the long axes of the stomach, *i.e.*, the dorsal and ventral. Only two mesenterial filaments, those of the dorsal mesenteries, are developed in the siphonozooids. The filaments are attached throughout their length to the margins of the septa. The siphonozooids are without sexual organs.

*Sarcosome.*—The external surface of *Sarcophyton* is covered with an ectoderm resembling in structure that of *Heliopora*; it was not sufficiently well preserved in the available specimen to show its exact structure. No nematocysts were found in *Sarcophyton*. The mesoderm forms a general supporting mass consisting of tough, gelatinous, transparent connective tissue, in which are distributed, somewhat sparsely, very small finely ramified nucleate corpuscles. In the walls of the siphonozooid and autozoid cavities, when viewed from their surfaces, there is to be seen a transverse fibrillation of a part of the mesodermic layer composing them; and these walls, when seen in section on

<sup>1</sup> Kölliker, *l. c.*, 1<sup>te</sup> Abth. Taf. viii. fig. 68.