

when at rest, are but slightly infolded. The cœnenchyma consists of two layers, a cortical and a medullary portion. The cortex consists of spicules varying from spindle to club-shaped; it is thick on one face of the axis and contains the polyps. The short alimentary polyp-cavities are sunk into the cœnenchyma, beyond which the anterior œsophageal and tentacular portions project. The medullary portion of the stem exhibits only a very thin cortical layer, which consists of a smooth, delicate ectoderm, and of a very thin layer of mesodermic substance. It contains no polyps. The medullary mass consists of very closely approximated rod-like spicules, which are united by a reticulated mass of horny material.

The nutritive system is formed of a network of very fine nutritive canals which unite the polyps. The canals pierce the entire thickness of the cortical substance, and finally open into larger vessels, which extend in diminishing numbers around the periphery of the medullary substance, and are also in part embedded in the cortical sheath. On the thinner twigs these longitudinal canals occur only in the polyp-bearing surface of the cœnenchyma; on the thicker branches they occur over the whole periphery. It is probable that the mechanical conditions of the upright growth is not favourable for a flattened expansion of the stem and branches, for they become inrolled on the side which does not bear polyps. It thus happens that in the stem and larger branches the margins will often touch so as to form a hollow tube, while the smaller twigs only exhibit a channelled stem. The near relation of such a colony to that of *Sympodium* and associated forms is very marked; there is still the flat expansion of the stem, but this instead of clinging by its lower face to foreign objects, is elevated and grooved so that its under surface becomes the inside of a tubular mass or a furrow. In the upright mode of growth, furthermore, a firmer support is essential, and this is furnished by the better differentiation of the medullary mass.

3. *Semperina*, Kölliker, Verhandl. phys. med. Gesch. Würzburg, N. F., Bd. ii. p. 9.

This genus is nearly related to the last. Here, however, the stem has assumed a more cylindrical form, and the medullary mass becomes more or less the axis of the colony. The axis still remains, however, eccentric, and the polyps, like those of the previous genus, arise predominantly from only one face of the mass.

4. *Suberia*, Studer, Monatsber. d. k. preuss. Akad. d. Wiss. Berlin, October 1878, p. 666.

Here the medullary mass is fairly well differentiated, and forms the central axis of a cylindrical stem. The latter is but slightly branched, and gives off polyps on all sides, but most abundantly on the club-like thickened apical portion. The