In all Alcyonaria, with the exception of the small family of the Haimeidæ, which may perhaps represent primitive forms, there is an all prevailing tendency to the production of colonies by a process of gemmation. The gemmæ do not arise directly from the body of the main polyp, but from stolons which orginate as tubular processes from the alimentary cavities of the polyps. Following the varied growth of these stolons, the different colonial masses arise, either as narrow ribbon-like forms, or forming incrusting surfaces or bushy structures or tree-like stems. As the highest type of development, we may regard that type of colony in which a large number of individuals are so distributed, that each receives an equal share of the nutritive supply, a condition most perfectly realised on upright tree-like stems, where the branches and twigs bearing the individuals are arranged in spirals. But such a colony is additionally favoured when a supporting skeleton is differentiated so as to give the necessary support. The axis-forming Alcyonaria, for which the title Gorgonacea may be retained, exhibit in their higher forms just such a development, and reach it moreover in different ways, since the axis of the colony may be differentiated in various ways from the skeletal elements.

The simplest form of colony is that where the stem-polyps give off tubular processes, which represent sac-like diverticula of the body and contain a cavity which is continuous with the digestive canal of the polyp. On such stolons new polyps may arise by budding, and these may in their turn produce polyp-bearing stolons. Such colonies are to be found in the genera *Rhizoxenia* and *Cornularia*, and in some species of *Clavularia*. A more compact colony may arise, if the base of the polyps in which the mesoderm is greatly developed be broadened out so as to surround the polyps, and includes a series of endodermic tubes from which new polyps can arise by budding. Such expansions are known as the "cœnenchyma." They may give origin to flatly expanded crustaceous colonies like those of *Clavularia rosea*, Studer, and *Clavularia violacea*, Quoy and Gaimard. In these forms the cœnenchyma still remains as a thin membrane, on which the individual polyps are lodged, being only connected therewith by their bases; with a greater development of the cœnenchyma a larger portion of the polyp body becomes associated therewith, the deeper part of the elongated alimentary cavity being included in the cœnenchymatous expansion, as in *Anthelia*, *Sarcodictyon*, *Sympodium*, *Erythropodium*, *Callipodium*. Here the endodermic canals arise not only from the bases of the polyps, but also from their lateral walls, as far upwards as the cœnenchymatous thickening extends. The colony is, however, still crustaceous.

Such an arrangement can only be advantageous, however, under favourable nutritive conditions, where not alone the peripheral polyps but equally those in the centre of the colony share in the nutritive supply, or else in cases where the colony spreads over some irregular body, and thus brings the individual polyps into diverse relative positions, and in contact with different strata in the water. This will depend, however, on the nature of the foreign body which is so utilised.