CHAPTER III.

The Classifications of Zoophytes.

The existence of a polypidom is not, as has been already mentioned, essential to a polype; nor does it exercise, when present, that great influence over the organization of its architects and tenants which might have been anticipated. Thus the animal of the madreporous Caryophyllæa does not essentially differ from the naked Actinia; and the gelatinous Hydra is a true representative of the tenant of the sheathed Sertulariadæ and Tubularia. No ascidian polype, however, is ever found detached, and without a polypidom; and it is the same with all our native Astroida, but, perhaps, the clustered animal-flower (Actinia sociata, *Ellis*, Zoanthus, *Cuv.*) of the Caribbæan sea, might take its place in this tribe with greater propriety than in any other.

In reference to their composition, Polypidoms may be divided into 1. the stony or calcareous, 2. the membrano-calcareous, and 3. the horny and flexible; but the line which separates these divisions is often as uncertain and debateable as that which is traced between the sister kingdoms. All are composed of the same materials, viz. lime, and a gelatinous or membranaceous substance; and their peculiar characters depend on the different proportions in which the materials are mixed. The calcareous, which are hard and inflexible, and, when dry, assume a white colour, consist principally of carbonate of lime, with a small quantity of the phosphate of the same earth, and the gelatinous matter which cements them into one coherent mass, is in sparing proportion: that proportion is so greatly increased in the polypidoms of the second section, that when the earthy ingredients have been removed by the action of diluted acids, the structure retains its original form, and is, in fact, reduced to the