mer are filiform and ciliated; but the radiated Polypes have only one aperture to their digestive sac, serving by turns the purposes of a mouth and a vent, and the tentacula that guard it are not ciliated, but very contractile.

I—MOLLUSCAN POLYPES.@@«

The molluscan Polype is always a very small, almost a mi­croscopic animal, with an elongated, slender, subcylindrical body, which is bent upon itself like a syphon, so that the two extremities approximate each other. The mouth is a wide edentulous aperture, situated in the centre of the circle of tentacula, which rise from its rim, and constitute a funnel-shaped coronet of extreme delicacy. The number of filaments of which the coronet consists is very variable, but each of them forms a long slender filiform tube, cloth­ed on one side with vibratile cilia, by whose active and well-regulated movements a current of water is incessantly driven along them in one determinate direction. These currents not only supply a succession of unbreathed water to the animal for the purpose of respiration, but they carry in their stream the animalcular prey that the polype feeds upon. Under the tentacular coronet the alimentary canal forms a kind of pouch analogous to the branchial sac of the ascidian mollusca, and, like it, plaited usually in a longi­tudinal direction. From this pouch or pharynx the gullet descends a short space previously to its dilatation into the stomach,—an organ usually of an oblong shape, with its wells studded with spots of a rich brown colour,—apparently he­patic follicles, that secrete a fluid which often tinges the whole organ, as well as its contents, of a similar hue. The intestine, on departing from the stomach, makes a sudden bend, to which is suspended a large short caecal appendage ; and afterwards the intestine proceeds upwards in a course parallel with the gullet to its termination, which is a little below the mouth, behind the pharynx, and on the side of the membranous sheath containing the tentacula.@@2

This kind of polype is never found isolated and naked. It dwells enclosed in a calcareous or horny cell, of which a great number is placed in juxtaposition, usually after a quin­cunx pattern ; and the entire congeries forms sometimes a leprous crust, sometimes a stony branched coral, sometimes a fleshy unformed mass, and at other times a horny flexible sea-weed like polypidom, or one that more nearly resembles some fine capillary moss or shrubby lichen. The numerous tenantry of these aggregations are besides all connected together, so as to form what has been named a “ com­pound animal every individual capable of self-support and of continuing its kind, yet so connected with the rest as necessarily to participate in every good and every evil that affects the community. The polypes are so connected with their cells that they cannot leave them, for indeed the cell and polype are merely parts of the same body. This, such as it has been described above, is enclosed in a thin mem­branous sac ; and the cell is formed by a continuation of this tunic reflected over the inner layer, and hardened by the de­position in it of calcareous or albuminous matter to fit it to endure with impunity the contact and friction of the cir­cumfluent waters, or to protect the soft viscera from accident and from the access of their enemies. Milne-Edwards compares the cell to the lopt finger of a glove, which has had its open truncate extremity ornamented with a thready fringe, capable of being withdrawn by an act of involution within the finger-stool. The point of junction between the retractile portion and that which is not so, constitutes, when the finger or polype is withdrawn, an opening usually

called the mouth of the cell, which is very often overhung with a sort of moveable lip or valvular fold named the operculum. Two muscular bands are attached to the inner surface of this valve, and their office is to draw it down and shut close the cell when the tenant has retired for rest or from danger.

The polypidom, formed frequently of a congeries of many thousand cells, invariably begins with one only. This original or seminal cell has no sooner been completed (or even in many instances previously to its perfection) than another begins to shoot out from a fixed point of its parie- tes, the bud gradually enlarging and developing itself un­til the form and size of the primary one has been attained. This process can most easily be traced in the common sea- matts (Flustra) and Lepraliæ, where, round the margin of the crust, cells can at all seasons be observed in every stage of their evolution ; one just budding, another half formed, and others again nearly complete. They never begin their original in the body of the polype, but al­ways from the parietes, or from the connecting medium of the cells ; and it is not until these have made considerable advances to maturity that the polype becomes distinguish­able within them.

From this mode of increase there would seem to be no natural limits set to the magnitude and duration of the polypidom, except what arise from accident or exterior causes. The original polype and its immediate successors may grow old, languish, and die ; but the solid cells re­main in their connection as a root and fixture, while the newer races, which have sprung up towards the outskirts, continue their work, generation following generation in rapid and ever-multiplying successions. The polypidom in this respect resembles a tree in its growth : the trunk and main branches have stood years and centuries, but the increase has been made by annual shoots and renewals, and the last only know vigour and juvenescence. And as the form of the tree depends on the fashion of its ramifica­tions, so that of the polypidom on the mode of evolution of its cells, for every part of the axis is not equally orga­nized to produce buds, nor the same parts in all. Hence, if the primitive cell has only one point fitted for this genera­tion, the polypidom will be built up in a catenated chain ; if the cell has two points, two series of cells are form­ed, and in several the multiplication goes on in a regular arithmetical progression ; but in others the cells are heaped together without apparent regularity, as in Alcyonella and Alcyonidium, where the softness of all the parts seems to allow of an irregular succession of buds. In this order, however, the general disposition of the cells is certainly after the quincunx, affording examples which the learned Sir Thomas Browne would have gladly adduced in proof that “ Nature geometrizeth and observeth order in all things, and of the generality of this mystic figure.”

The molluscan Polypes are all hermaphroditical and ovi­parous. The ova, which originate in the organized me­dium connecting the individuals together, are lodged and matured within the cell in some families; but in others their matrix is a little pearly globe that is placed over the mouths of the cells, and often constitutes the principal beauty of the specimen. When ripe for expulsion, the ova are of a vivid orange or yellow colour, of a roundish shape, and clothed with vibratile cilia, by means of which they swim about to and fro in the water like beings endowed with volition, and scatter themselves abroad.

The structure and form of the polypes seem to be very much alike throughout the entire class, so that it becomes

@@@1 This order corresponds with the *Polyzoa* of Thompson, the *Bryozoa* of Ehrenberg, the *Ciliobrachiata* of Ferre, and with the *Zoophyta Ascidioida* of Dr Johnston.

@@@2 See Ferre in *Philosophical Transactions,* an. 1837, p. 406, &c. ; Μ. Edwards in Lamarck's *Anim. sans Vert.* 2de edit. vol. ii. p. 214; and Johnston’s *British Zoophytes,* p. 240, &c.