

complication of structure,¹ which determines the orders in a class, but one of plan, which stands even above the consideration upon which classes are founded, and determines the four great branches into which the whole animal kingdom is divided. As to the Coral stocks formed by Bryozoa, they vary greatly, being calcareous in some, as in *Eschara*; horny in others, as for instance in *Achamarchis*; and in others again, as in *Haleyonidium* or *Holodactylus*, altogether gelatinous. Moreover, these Bryozoan Coral stocks never exhibit in the cells occupied by the animals, those radiating lamellæ so characteristic of the Coral stocks of the Actinoids. On the contrary, these cells, into which the animals may withdraw and conceal themselves entirely, are perfectly smooth, and the opening through which the animal is protruded presents uniformly a transverse, oblong, or crescent-shaped aperture, similar to the gaping opening between the valves of a *Lingula*, or the half-open shells of any other Brachiopod, with which they are much more closely allied than would at first appear. These cells are external, and do not form a part of the body-wall of the animal, as do the radiating pits of the Actinoids. The so-called arms of the Brachiopods are truly homologous to the marginal fringes of the Bryozoa, between the branches of which the mouth is placed in both. It is therefore evident, that, notwithstanding the high authority of some of our best anatomists, the Bryozoa must be removed altogether, not only from the Polyps, but also from the type of Radiata, and referred to that of the Mollusks. The presence of a Coral stock in most of them can no longer have the slightest weight in determining their affinities; since we have already seen that there is a kind of Coral stock, the *Millepora*, formed by certain Hydroids of the same type as *Sertularia* and *Campanularia*, or, rather, closely allied to *Hydractinia*, which truly belong to the Acalephs; and since, among the genuine Polyps themselves, we find Corals so diversified as those of the *Astræans* and *Madrepores*, of *Gorgonias* and the Red Coral, and of *Tubipora*. Under these circumstances, it must be self-evident that the name of Corals can no longer be applied to designate a natural group of animals, but only certain modes of association of animals belonging to very different

¹ I have already insisted upon this point in the first volume of this work (p. 143), and in the chapter on Embryological Systems (p. 220). Baer was the first to establish a clear distinction between the degree of perfection in the structure of animals and the plan upon which that structure is built, a distinction which Cuvier had not reached when he allowed the Intestinal Worms to remain among the Radiata on account of the simplicity of their structure. The same confusion remains in the minds of

those who consider the Worms as a distinct branch of the animal kingdom, and associate with them the Rotifera and even the Bryozoa. With reference to the Bryozoa and Polyps it is essential to remember, that, though the body in both may be called a *sac*, in Polyps this *sac* is a *radiating sac*, while in Bryozoa it is a *bilateral sac*; i. e., the one is built upon one plan and the other upon another plan. In Polyps the fundamental idea is *radiation*, in Bryozoa *bilateral symmetry*.