1st Sub-order. RUGOSÆ.—Coralliaria Rugosa *Milne-Edw.* and *Haime*; with four families: Stauridæ, Cyathaxonidæ, Cyathophyllidæ, and Cystiphyllidæ; all extinct, and mostly belonging to the earliest geological periods, for the enumeration of which I refer to the elaborate works of Milne-Edwards and Haime. Evidently the Hydroid elements prevailed in the structure of these animals, and they probably never produced Medusoid buds. How far the living types of Hydra and Lucernaria may be related to them still remains to be ascertained.

2d Sub-order. TABULATÆ.—Coralliaria Tabulata *Milne-Edw.* and *Haime*; with four families: Milleporidæ, Seriatoporidæ,[1] Favositidæ, and Thecidæ, for the characteristics of which I refer to the papers of Milne-Edwards and Haime. The Tubulosa *Milne-Edw.* and *Haime*, seem to me to be low forms of Tabulata. Should Millepora prove to produce medusæ-buds, I would not hesitate to unite this sub-order with the following.

3d Sub-order. TUBULARIÆ.[2] Alternate generations. Hydra always pedunculated, and mostly attached, head more or less club-shaped, without distinct horny bell; Medusa, either free or sessile, deep bell-shaped, with few hollow tentacles, all, or at least the most prominent of which, are in the prolongation of the radiating chymiferous tubes; eyes never independent of the tentacles. Reproductive organs always connected with the proboscis, and never limited to the radiating chymiferous tubes.

1st Family. CLAVIDÆ *McCrady*.[3]

Clava *Gmel.*—See p. 218.

C. multicornis *Johnst.*—Clava parasitica *Gmel.*—Coryne squamata *Lmk., VanBen.*—*Mediterranean* (Forskål); *British Channel* (Pallas).

C. leptostyla *Ag.*, Pl. 21.—*Massachusetts Bay* (Agassiz).

[1] I have shown, p. 296, that in Seriatopora the same tendency to a quadripartite division of the cells prevails, as among the Rugosa, which indicates a closer relation between the Tabulata and Rugosa than Milne-Edwards seems to admit.

[2] Lamouroux, ignorant of the mode of growth and reproduction of these animals, included only Hydroids in this group, to which many free Medusæ are now also referred. It is highly important to notice the close affinities which bind together the Medusæ of this sub-order, and the Hydroids from which they arise. We shall see that these relations are most intimate in all the minor natural groups of these Acalephs, the Medusa and Hydra of which are equally well known.

[3] The simple, uniform tentacles, scattered upon a club-shaped head, and the sessile medusæ-buds, characterize this family. The extraordinary changes which the proboscis assumes (Pl. XXI.), show that the peculiar arrangement of the tentacles, in the Tubularidæ, belongs to the same series. The Tubularians present, in fact, a beautiful gradation of forms, indicating a large number of distinct families. In Clavidæ, the head of the Hydræ is simply club-shaped, and all the Hydræ of a community are alike, and so are they in Sarsiadæ;