## HYDROIDÆ.

of the budding brood usually observed (Pl. XVIII. Fig. 14). Some had tentacles, while others were destitute of them or had mere papillæ in their places. But the most remarkable phenomenon connected with these modifications was, that they all had eggs or spermatozoa, in various stages of development. Some of them were casting their eggs, others had apparently finished laying, while some had just begun to develop them. So it was with the degree of development of the spermatozoa. In the section on the development of the medusoid form, the details of these peculiarities will be given in a more extended form.<sup>1</sup>

## SECTION III.

## THE REPRODUCTION OF CORYNE MIRABILIS.

We have never been so fortunate as to see the development of Coryne mirabilis, from the egg. Since, however, we know that the medusoid form produces eggs, it can safely be affirmed that Coryne originates, primarily, from an egg. Including this mode of reproduction, we may say that there are three ways in which Coryne develops its young, namely: first, from the egg, whence a hydroid is produced by direct growth; secondly, from the stem of this hydroid other hydroids bud, and, remaining attached, build up a branching community; and, lastly, Medusæ-buds arise from the head of the Hydroid.

The Budding of hydroids. — Nothing can be more simple than the manner in which the stem of the Hydroids pushes out, sideways, its double wall, and forms a hollow, semi-globular bud, and thus lays the foundation of a young Hydroid (Pl. XX. Fig. 3, a b). It is very rare, however, that true buds are formed opposite to each other, as seen in the figure to which we have just referred. The bud being hollow is supplied directly with nourishment, by the circulating currents from the stem. As the bud grows larger and longer, it swells near the end, becoming club-shaped (Pl. XX. Fig. 4); and soon the walls at the apex are perforated. The perforation is the mouth (Fig. 4,  $d^1$ ), and the swollen part the head. Synchronically with the formation of the mouth, two broad swellings or knobs

<sup>1</sup> In the Memoirs of the Royal Swedish Academy, 1835, translated in Wiegman's Archiv für Naturgeschichte, 1839, p. 321-326, Tab. VI. Figs. 19-28, Lovèn describes the same peculiarities as occurring in Syncoryna (Coryne) ramosa *Ehr.* and S. Sarsii *Lovèn*; but he considers them as appertaining to the usual mode of reproduction of these

species. His investigations were made in June, but had he seen Syncoryna in the previous months, in May, for instance, as did Sars, in 1838, according to his remarks published in his Fauna Norvegia, in 1846, he would have also observed the earlier and usual mode of reproduction. S. Sarsii is no doubt identical with S. ramosa.