

blind sac (Pl. XX. *Figs.* 3, *c*¹, and 6, *c*¹), following more or less closely the surface of the head. As the Hydroid grows older, this sheath seems to cling more closely to the surface of the head, and, as we have mentioned above (p. 189), forms an almost imperceptible film over the tentacles, to their very tips.

If, by accident, the head of a hydroid is destroyed, a new one is reproduced at the end of the stem of the old stock. In this process the injured end of the stem (Pl. XX. *Fig.* 1, *b*) spreads laterally (*b*¹), till it touches the horny sheath (*a*), to which it becomes attached, while at the same time the open end is closed over. When it reaches the end of the horny tube, it forms, in connection with the old one (Pl. XX. *Fig.* 6, *c*), a new sheath (Pl. XX. *Fig.* *c*¹), which covers it like a hood. From this new head the tentacles develop, as we have described above.

The budding of medusæ. Hitherto the medusoid generation of *Coryne* has been referred to the genus *Sarsia*, of Lesson, and the species, here described, called *Sarsia mirabilis*;¹ but inasmuch as, long before these medusæ were known, their hydroid form had been referred to the genus *Coryne* of Gaertner, the name *Sarsia*, as the generic appellation of this type, must yield to a prior claim. The medusæ-buds appear at two different seasons of the year, one lasting from January to April, the other in November. Each medusoid originates directly from the head, either just below (Pl. XVII. *Figs.* 2, *m*, 3, *a a*¹, 5, *a*, 9, *md*, 11, 12, and 13), or, now and then, intermixed with the tentacles (Pl. XVII. *Fig.* 2, *md*). Usually, however, they develop below the tentacles, and, being not more than five or six in number, at the utmost, do not cluster like those of some other genera. There may be seen on the same head all stages of development, from those just beginning to bud (Pl. XVII. *Fig.* 2, *m*), to such as are about ready to drop (Pl. XVII. *Fig.* 2, *md*). It is worth while here to recur to the fact that the hydroid form buds only from the stem, below the head and neck, in order to contrast it with another fact, namely, that the medusoid form buds only from the head, or at the junction of the latter with the neck.

The earliest indication of the formation of a medusa-bud, is a thickening of the exterior wall of the head of the Hydra (Pl. XVIII. *Fig.* 1, *d*), which produces a papillate elevation (Pl. XVII. *Fig.* 3, *a*¹) on the outer surface. This is soon followed by a corresponding thickening of the inner wall (Pl. XVIII. *Fig.* 1, *c*), at its exterior surface, and directly under the thickening of the outer wall. This advance is made without tending to form a true diverticulum of the conjoined walls. But soon both walls protrude, perpendicularly, from the surface of the head, in the form of a blind sac (Pl. XVIII. *Fig.* 2, *c d*), into which the digestive canal

¹ See Mem. Amer. Acad. of Arts and Sciences, Vol. IV.