

After segmenting (*Figs.* 12 and 13, b^3), the young hydroid is irregularly globular in shape (*Fig.* 14, b^3), and appears to be composed of two dissimilar substances, namely, an outer, thick, transparent layer, which is about one sixth as thick as the whole body, and a very dark inner mass. Finally, the young assumes an elongated, pear-shaped form (*Fig.* 15, b^3). We have not been able to detect any vibratile cilia upon the planula while it was within the parent. After breaking through the confines of the disk, and entering upon the new relations of a free, planula-like hydroid (Pl. XXI. *Figs.* 10 and 10^a), the vibratile cilia may be seen covering the whole surface of the body, like short bristles, in a constant state of agitation. The length of these cilia is about equal to the thickness of the outer wall (f) of the body. The inner wall (*Fig.* 10^a, f^1), which has not been recognizable till now, is a little thicker than the outer one, and most distinct at the narrower end of the planula. After swimming about for a while, the planula settles down upon one end, loses its cilia, and its longer axis assumes a perpendicular position (*Fig.* 3). At this early stage a marked difference exists between the respective thicknesses of the outer and inner walls; the outer (f) is hardly half as thick as the inner one (f^1). In form, the young hydroid is perfectly cylindrical from the rounded top to the broad base. It retains this form until it has doubled its breadth, and is about six times longer than broad, and has, at least, five or six tentacles (*Fig.* 4, a). The tentacles originate one after the other, apparently from above downwards, and no two are ever on the same level. After this period, the body begins to broaden above (*Figs.* 5 and 6), and to assume a club-shaped form, while the number of the tentacles continues to increase. By comparing *Figs.* 5 and 6, it will be seen that there is considerable inequality in the development of the tentacles, the larger of two hydroids may possess fewer of these organs than the other, but those of the latter are much smaller. The contractions of the proboscis, and the wide gaping of the mouth (*Fig.* 6, g^1), sometimes reduce the head to such a degree that the tentacles are brought to nearly the same level, where they appear to be disposed in a single circle, as in *Hydractinia*, &c. This may be observed in older individuals (*Fig.* 7^a), where some of the tentacles are rolled inward to the borders of the widely-gaping mouth (g^1). The individual here alluded to (*Figs.* 7 and 7^a), although it has only nine tentacles, is yet twice as large as those we have compared above. Its upper part is as distinctly marked from the stem, as in the adult. The stem does not yet exhibit the remarkable slender base of the adult (Pl. XXI. *Fig.* 2, d).

As to the reproduction of the hydroid, by budding from adult forms, we can only say that the upright stem never branches nor produces any other buds, except medusoids, and, therefore, the prostrate stolonial portion is the basis of all increase in the number of individuals of the colony.