

the base upwards to about one third the height of the stem, but from this point it either disappears altogether, or exists as a mere film (*Fig. 8, b<sup>4</sup> b<sup>6</sup>*) over the upper part of the stem and on the head. The lower, pointed base of the stem, is not so simple as might at first be supposed. The question naturally arises, whence are derived the numerous filamentary rootlets of the horny sheath? and, upon close examination, we find that the lower fifth of the stem is covered by small processes, varying from mere papillæ above, to extremely elongate filaments at the end of the stem. These processes excrete the filamentary rootlets of the horny sheath, and may be traced to the finest terminations of the latter. They are hollow, and are permeated by prolongations of the chymiferous tubes of the stem.

Before proceeding to describe the details of the different organs of this Hydroid, we would say a word in regard to the attitudes which it assumes from time to time. Owing to the flexible, plastic nature of the horny sheath, and also to its distensibility, the stem of this Hydroid is capable of assuming almost any form, without restraint. At one time we may see it swollen to its fullest extent, from top to bottom, with the head nearly erect, and, perhaps, in a few minutes, the whole aspect is changed, and the stem is contracted to one fourth, or even to one sixth, of its former diameter, when it is sometimes very much elongated, though it may also contract without elongating. At other times the upper part of the stem becomes quite slender and elongated, and the head droops to a greater or less degree (*Figs. 7-17*). The proboscis also shares largely in these changes, but, in this respect, it does not differ from the proboscis of other Tubularians, except, perhaps, in the extent of its changes; at one moment it has a globular form (*Fig. 9*), and soon afterwards assumes the opposite extreme, and hangs suspended by a slender neck (*Figs. 13 and 14*). Between these extreme limits of its plasticity it assumes, at intervals, numerous other forms, a few of which we have reproduced among our illustrations (*Figs. 7-17*).

An examination of the stem from the outside, already leads us to suspect that it has a structure similar to that of Tubularia; but we notice that, in addition to the longitudinal tubules (*Fig. 8, b<sup>4</sup>*), about thirty in number, which extend along the whole length of the stem, there are, in the lower half, transverse communications from one tubule to the next on either side. These transverse channels are very simple about the middle region of the stem, but lower down they are irregular in their course, and communicate with each other as well as with the longitudinal tubules; and at the base of the stem the longitudinal tubules become very irregular in their course, and reduced in size, so that they cannot be distinguished from their transverse connections, with which they form an irregular network. Now, upon making a transverse section of the stem, we find that it