

difference of the individuals forming these communities, as in the form of the basis to which the individuals are attached. In *Physalia* that basis is a sac, inverted upon itself, the inner bag of which, opening externally, is filled with air; the intervening cavity, communicating with the open bases of the pendent individuals, contains a greater or less quantity of fluid. Now, suppose the air-bag to be turned inside out, there would be formed a large and simple hose, containing liquid that may be pressed into the individuals attached to it, or to which the individuals may add by pouring their fluid contents into the bag. In *Hydractinia*, the narrow anastomosing tubes, in the basis of attachment of the polymorphous individuals of the community, may be compared to this hose of the *Physalia*, only that they are branching. But as a number of individuals arise from each of these stems, we may just as well consider their basis as a single tube; and then the only difference between *Hydractinia* and *Physalia* would be the narrowness of the tube of the former, and the great width of that of the latter. But reduce the diameter of the one or swell the cavity of the other, and all difference disappears, especially if we suppose them both floating or both attached. It may be that the crest of the *Physalia*, with its many chambers, carries the homology with the anastomosing tubes of the *Hydractinia* still farther.

As to the various kinds of individuals forming these communities, we find first in *Physalia* the numerous so-called suckers, or Polyps (*Figs. 27 bb* and *28 bb*), correspond-

*Fig. 27.*



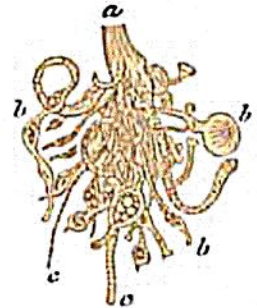
Bunch of single Hydræ and clusters of Medusæ of *PHYSALIA ARETHUSA*, Til.

*bb* The Hydræ, with their tentacles *cc*. — *dd* The bunches of Medusæ.

ing to the larger trumpet-like individuals of the *Hydractinia* community (*Pl. XVI. Fig. 1 a, 1 d*). These suckers, very numerous, and also much diversified among themselves, are genuine Hydroids. I have seen them feeding greedily upon small fishes, and gorging themselves to such a degree that the silvery scales of their prey could be distinctly seen through their distended walls. But these so-called "Polyps" have nothing of the polyp structure about them, neither radiating partitions dividing their internal cavity, nor tentacles opening di-

rectly into radiating chambers, nor an inverted sac hanging in that cavity; on the contrary, the edge of their oral opening is turned outward as in all Hydroids. They are, in fact, Hydroids of the simpler kind, but not so simple as some of the individuals of the *Hydractinia* communities; for though they have no whorl of tentacles around their mouth, they have at least one very long and very complicated tentacle. Of these tentacles there are two kinds,—larger ones connected

*Fig. 28.*



Bunch of Hydræ of *PHYSALIA ARETHUSA*, Til.

In various states of contraction and expansion.

*a* The hollow base of attachment of the whole bunch, communicating freely with the chymiferous cavity of the air sac. — *bb* Single Hydræ. — *cc* Tentacles.