The mode of growth of the main stem and branches is simply this; the main stem, carrying its great terminal individual (*Fig.* 1, *d*) continually onward from the beginning, gives off, alternately right and left, a branch, which, at first, bears only a single hydra of the largest kind (*Fig.* 2, B). The main stem continues to give off branches in this manner, while each branch, carrying outward its great terminal hydra, gives off, always on its upper side, and in one line, a succession of pedunculated individuals (G F E D C), in such a manner that the youngest is always next to the end of the branch. In consequence of this mode of growth, the lowest branches are the longest, and bear the greatest number of individuals, while those above are successively shorter; but it is very seldom, and owing to accidents, as examination of the branches shows, that a perfect specimen, illustrating the whole succession of individuals as they originally budded forth, can be found. We have counted as many as twelve individuals on one branch; but, inasmuch as the branch was broken off at the top, and, moreover, sprang from the main stem at the sixteenth interval from the base, we may safely infer that the lowest branch bore twenty or twenty-five individuals. The branches themselves give off secondary branches, as the third branch from the base in *Fig.* 1 shows; but how extensively this occurs, we have not ascertained. Since, however, the cases observed were isolated, the lower branches of the main stem remaining simple, we suspect that this sort of secondary ramification is only an occasional phenomenon.

The medusa. — The oldest medusa which we have observed had an oval oblong figure (*Fig.* 2, G, d^3), and measured about one twelfth of an inch in length. It had a large proboscis (*f*), similar in shape to itself, and was nearly half as long. At four equidistant places, a radiating chymiferous tube (*h*) diverged from the base of the proboscis, and terminated in a circular tube (e^2) at the edge of the disk. What seemed to distinguish this medusa from all other Medusæ, among the Tubularians, was the position of the ovaries (e e^1), which, instead of being on the proboscis, were near the peripheric, or outer end, of the chymiferous tubes; these organs were, however, not so far developed as to show their sexual character, and may be only specialized cells, as in Zanclea. They occupied about one third of the length of the tube, and had an elongate oval, or fusiform shape. There were also four globular, papillate tentacles (*g*), like those of Zanclea, one of which stood opposite the end of each radiating tube. The disk was perfectly transparent, and free from the red, granular, longitudinal lines, which ornament the surface of some of the Tubularioid medusæ.

In another chapter it will be shown, that the Hydroids described by Ayres and Leidy, under the names of Globiceps and Eucoryne, and by McCrady, under the name of Pennaria, are very closely allied, but not generically identical with Pennaria, though belonging to the same family.