

the upper part of the radiating cavity formed by the body-walls arise laterally more or less numerous hollow tentacles, which are also in direct and free communication with the radiating chambers. In fact, the tentacles are simply lateral diverticles of the upper part of the chambers. The centre of the upper part of the sac is widely open, but that opening, generally called the mouth, is not the open edge of the sac; it is the result of the inversion of the upper central part of the body-wall, the outer surface of which, in consequence of this bending inward, becomes internal, and forms what is commonly called the stomach. An accurate idea of this structure may be formed by comparing the sac of a Polyp to a bottle, the neck of which should be turned outside in, and expanded into another sac concentric to the body. This pendent sac, or stomach, is open at the bottom, and this opening leads into the main cavity of the body. The lower opening of the digestive cavity is, therefore, properly speaking, the outer opening of the body-wall, and strictly homologous to the mouth of the Acalephs. The habit of Actiniæ, of turning this so-called stomach inside out, affords an excellent opportunity to trace this homology, when it becomes plain that the opening commonly called mouth in Polyps in no way corresponds to the mouth of the Acalephs. It is equally plain, from such a comparison, that the so-called stomach of the Polyps is not any more homologous to the so-called stomach of the Acalephs. This stomach of the Acalephs can only be homologized with the open space in the centre of the main cavity of the Polyps, with which the radiating chambers stand in the same relation and communication as the radiating tubes of the Acalephs to their so-called stomach. The fluid circulating through the so-called gastero-vascular system of the Acalephs is chyme, and nothing but chyme mixed with water, as I have shown in my contributions to the Natural History of the Acalephs of North America, Part I. page 263.

These facts are in themselves sufficient to distinguish the Polyps under all circumstances, not only from the higher Acalephs, but also from the Hydroids, in which the structure is as essentially Acalephian as in the Medusæ proper. For many years past I have insisted upon these differences, and I truly wonder that there are still naturalists who do not see how completely distinct the structural type of the Polyps is from that of the Acalephs. In my lectures on Comparative Embryology,¹ delivered in the winter of 1848 and 1849, I have already shown, not only how the Hydroids differ from the Polyps, but also how the Hydroids agree

¹ Twelve Lectures on Comparative Embryology, delivered before the Lowell Institute, in Boston, in December and January, 1848-1849, Boston, 1849, 8vo. fig. pp. 42 and 43. See also my paper "On

the Structure and Homologies of Radiated Animals, with Reference to the Systematic Position of the Hydroid Polyps," Proc. Amer. Ass. of Sc. Cambridge, 1849, p. 389.