

locomotive flappers, two other branches the sacs from which the tentacles issue, and two others following the walls of the digestive cavity,—the four latter arising from the main lateral trunks in the trend of the transverse diameter, while the forks which supply the locomotive flappers trend at first in the direction of the longitudinal diameter, and emit each another fork parallel to the transverse diameter, so that all parts have a precise geometrical relation to each other; and, finally, that the right half of this system alternates in its contractions with the left half.

In the special investigation of the minute structure of the different systems of organs developed in these animals, it will be better to proceed in the order which will assist us in the understanding of all the other systems, rather than to follow a physiological principle.

Though the form is apparently well determined and regular, even superficial investigation will satisfy the observer that it is constantly changing within more extensive limits than might be at first suspected. In the first place, the apparently spherical form is not only frequently altered into an ovate by the vertical elongation of the mass, but it even assumes at times a form rather cylindrical than ovate, especially on the side of the mouth, by the extensive dilatation of this opening. The changes which the mouth assumes in its outlines are very extensive and frequent. When completely shut, it disappears almost entirely; and its position is scarcely marked by any thing more than an indistinct outline, towards which the actinal ends of the rows of locomotive flappers converge. When half-way open or while opening, it assumes an oval form, like a fissure, across the body, which becomes gradually more and more elongated, then widens, and finally expands into an ample, circular, funnel-shaped depression. These movements are rather slow, and may be compared to the undulations of a slug or snail adapting its mouth to the form of its food. The changes in *Pleurobrachia*, however, do not seem to be called forth by the approach of food, but are rather the result of a natural disposition in this animal to be in an attitude ready to seize upon its prey. Various aspects of the mouth are represented in my former paper.

The whole bulk of the body of *Pleurobrachia*, excepting the spaces occupied by the digestive and the chymiferous system and the tentacular sockets, is a solid mass of closely packed cells, most of which are of enormous size (Pl. II^e. *Fig.* 24). Such is the extreme transparency of these cells, that it is very difficult to follow their contour except in profile, and on this account the thickness of their walls has been mistaken for long and slender muscular fibres; and this illusion is oftentimes heightened when the wall wrinkles (*Fig.* 24, *b*, *c*) during contraction, and appears like shrunken fibres. But there is no muscular system apart from the constituent cells of the body, and therefore no contractile fibres of any kind so grouped as