adult. By further changes in the relative lengths of the diameters, an increase in the number of tentacles, and the formation of marginal sense organs and of a velum, the larva assumes the form of the adult.

Metchnikoff[1] and Fol[2] have both, independently of one another, traced the development of the egg in *Geryonia hastata*, another member of the group which never passes through a polypoid trophosome, and have arrived at essentially similar results. In this Medusa the segmentation of the egg gives rise to a blastosphere with a large segmentation cavity, and with walls as yet formed by a single layer of cells. By the transverse division of these cells, the walls of the hollow blastosphere becomes differentiated into an ectodermal and an endodermal layer. Between these a clear homogeneous gelatinous excretion is deposited as the rudiment of a gelatinous umbrella, and by its unequal accumulation renders the segmentation cavity more and more excentric, until its endodermal lining again comes in contact at one point with the ectoderm. At this point a mouth is formed, and the segmentation cavity, now become the gastral cavity of the Medusa, is brought into connection with the exterior. Round the mouth the ectoderm forms a thickened ridge from which the rudiments of the tentacles shoot forth, and from which a perforated diaphragm extends towards the axis as a velum. In none of these cases, however, do the observers give any account of the formation of the gastrovascular canals, and a very important point in the development has thus been left unsolved.

The endoderm and ectoderm of the Hydroida represent, as was first pointed out by Huxley,[3] the inner and outer germinal layers, to the formation of which the early stages of the development of the ovum lead throughout the whole of the Metazoal members of the animal kingdom; but while these become in the higher Metazoa so transformed as to be no longer recognisable as definite layers, they remain as permanent elements in the structure not only of the Hydroida but of all the other members of the Cœlenterata, where they still continue as the endoderm and ectoderm of the adult.

The development of the Hydroid colony through the formation of a planula is characteristic of the great majority of the Hydroida. There are, however, three genera—*Tubularia*, *Myriothela*, and *Hydra*—in which the development of the egg has been proved not to result in the formation of a free planula, while one or two others may possibly come into the same category, though an opportunity of studying them sufficiently to render this point certain has not yet been afforded.

Development of the Egg in Tubularia.—In *Tubularia* and in *Myriothela* there is formed instead of a planula a locomotive actiniform larva which is destitute of a ciliated epithelium and moves about by the aid of long tentacular processes. The development of the embryo in two species of *Tubularia* (*Tubularia indivisa* and *Tubularia larynx*) has been followed by myself, while Ciamician and Weismann have examined it in *Tubularia*

[1] Metchnikoff, *loc. cit.*
[2] Fol, *Jenaische Zeitschr.*, Bd. vii.
[3] Huxley, On the Anatomy and Affinities of the Medusæ, *Phil. Trans.*, 1849.