

The exact significance of the plasma-like mass which surrounds the spadix, as well as the portions which become detached from it, seems open to question. That they contain cell-like elements there can be no doubt, and as these show themselves before any apparent segmentation can be detected, they can scarcely be otherwise regarded than as the remains of the germ-cells, which from an early period filled the gonophore, and are now in process of coalescence with one another so as to form the plasma mass, while others have probably broken down, and served as nutriment for the developing embryo.

Ciamician, however, regards each plasma mass in *Tubularia mesembryanthemum* as an ordinary ovum, and compares the cell-like elements which exist in it to the "pseudo-cells" discovered by Kleinenberg in the ovum of *Hydra*. These cell-like elements are, however, very different in appearance from the hollow thick-walled corpuscles described as pseudo-cells by Kleinenberg, while the phenomena presented by the development of the embryo in *Myriothela* (see below, p. xli) are in favour of regarding the plasma masses of *Tubularia* as formed by the coalescence of the original germ-cells. In whatever light we view them, the further course of development in *Tubularia indivisa* and *Tubularia larynx* is as follows: ¹—

The portion which in the way just mentioned has been detached from the general mass, continues to lie for some time in the cavity of the gonophore, where it becomes further developed into an actiniform larva. During this development, it first acquires a flattened, somewhat disc-shaped form, and in such shape becomes extended over the remaining portion of the sexual mass by which the spadix continues to be surrounded. In the centre of the disc a cavity—the primitive digestive cavity—soon shows itself, while from the circumference short but thick outbulgings of this cavity radiate, and soon become elongated into tentacles. The disc at the same time becomes more gibbous on the side turned away from the spadix, while a mouth makes its appearance in the centre of the opposite side. The embryo now retreats from the residual generative mass, the mouth is seen to be elevated on a conical prominence (hypostome), while the side opposite to the mouth becomes prolonged into the commencement of a stem-like extension which has the digestive cavity of the embryo continued into it. In this state it escapes from the gonosome, a second circle of very short tentacles having in some species (*Tubularia indivisa*) become first developed round the mouth, while in others (*Tubularia larynx*) the oral tentacles do not make their appearance until after the escape of the embryo. The embryo continues free for a period, during which it creeps about by the aid of its circlet of long proximal tentacles, which are now thrown back round the aboral pole. In the meantime the aboral pole has become further elongated into a cylindrical stem which soon clothes itself with a perisarc and fixes the young *Tubularia* to some neighbouring object.

After the escape of the embryo, or even during its development within the gonophore,

¹ Gymnoblatic Hydroids, p. 90, pl. xxiii. figs. 11–16 and 19–24.