

That form of gonophore which presents the condition of a free Medusa or planoblast, has like the sedentary gonophores the office of bringing to maturity the sexual elements. In almost all these, however, the sexual products arise within the Medusa, and do not therefore need to migrate from a distance into their place of maturation.

In those planoblasts whose generative elements are borne along the course of the radiating canals (Leptomedusæ) that part of the walls of the canal in which these are contained usually projects with the included ova or spermatozoa into the cavity of the umbrella in the form of a pouch or gonad, which has often the appearance of a distinct gonophore budded off as an independent zooid from the canal. I formerly regarded it as such and made this view the grounds for separating the planoblasts into such as give origin to their sexual elements directly in the walls of the manubrium (gonochemes = Anthomedusæ), and such as produce them only through the intervention of a special sexual bud (blastoschemes = Leptomedusæ). I now, however, believe it more correct to regard the sexual pouches or gonads which are produced in the course of the radiating canals, not as true buds, but as simple extensions of the canal walls, caused by the presence of the sexual products between their endoderm and ectoderm; and I would accordingly view this second form of planoblast as also giving rise to its sexual elements directly, and therefore, like the first, as the exact locomotive equivalent of the hedrioblast or sedentary gonophore.

### 3. *Development of the Ovum.*

In by far the greater number of species the development of the ovum results in the formation of a ciliated locomotive larva known as a *planula*. In such cases the ovum, which is mostly destitute of vitellary membrane, after passing through a regular or nearly regular segmentation in accordance with the usual binary law of embryonal development, becomes transformed into a solid spherical mass of cells (blastosphere) from which a peripheral layer soon becomes separated by a process of delamination. The embryo now as a rule becomes more or less elongated, and a central cavity makes its appearance in it.

At this stage the embryo is in the form of a hollow oviform body whose walls are composed of two layers, an external or ectoderm, and an internal or endoderm. It is by delamination, never by invagination, that the two germinal layers, ectoderm and endoderm, are formed. The embryo has now usually escaped from the confinement of the gonophore, and its ectoderm becomes clothed with vibratile cilia, by the aid of which

wish for an opportunity of examining other examples which might supplement the very scanty material at the disposal of Goette.

In some common Hydroids no gonosome has yet been found. Until, however, we know the time of year and other conditions which may be here necessary for the development of the gonosome, an ignorance of this element in certain Hydroids affords no grounds for regarding its absence in these as a constant and permanent occurrence.