

yolk-spherules, are seen on one side of the ovum, lying near the periphery. These deutoplasmic masses, as they increase in size, do not at first blend with one another, but preserve their individuality until the ovum, having attained a diameter of about 1 mm, has become almost completely filled with yolk-spherules. The yolk-spherules have an endogenous origin.

The vitelline membrane arises from a thin superficial layer of protoplasm.

The germinal dots, a little before the ovum attains a diameter of 1 mm, begin to move towards the centre of the germinal vesicle, and at the same time undergo repeated divisions. There is thus formed a mass of small nucleoli, or fragments of such, in the centre of the germinal vesicle. Later stages have not been completely made out.

2. The Structure of the Ovary, and the Origin of the Eggs and the Egg-strings in *Nephelis*.

By Mr. J. Jijima, Tokio, Japan.

The following is an epitomized account of the results of a study on the genesis of the egg in *Nephelis*¹.

The ovary-wall consists of two layers, an external cell-and-muscle layer (Tunica propria), and a lining epithelium.

The proper tunic may be said to be composed of the following 4 strata, beginning with the external one.

1) The circular muscle-fibres, which, running transversely, completely encircle the ovarian tube, frequently anastomosing with one another, and thus forming a muscular net-work.

2) A stratum composed of rather loosely packed cells and a net-work of vaso-fibrous tissue (Lankester), together with a few longitudinal muscle-fibres which run along the outer, or what I have called, on account of its being thickened, the rachal side of the tube.

3) The semi-circular muscle-fibres, disposed in two longitudinal series, one of which occupies the dorsal half of the tube, the other the ventral half. The extremities of these fibres are placed in the rachal and mediad lines of the tube. Except at the end of the tubes, where they assume a longitudinal direction, these fibres have a general transverse direction. They represent curves of double curvature; first they have the curvature of one half of the tube; and secondly, a curvature facing anteriorly, which is formed by the bending

¹ These observations were made in the University of Tokio.

forward of the terminal portions. Where the dorsal and ventral fibres meet in the rachal and mediad lines, they sometimes anastomose, and at other times cross one another to end in a point.

4) A cellular stratum, differing from the 2nd stratum only in the more or less complete absence of vaso-fibrous tissue, and in having no longitudinal muscle-fibres. Both the 2nd and 4th stratum are thickened somewhat along the rachal side, thus forming a sort of rachis.

The lining epithelium, consisting of fusiform cells often widely separated from one another by intercellular intervals, corresponds nearly to what Leydig found in *Piscicola*. These cells multiply and form a massive ridge of cells along the inner surface of the rachal thickening. This massive portion of the lining epithelium may be called the germogen (Balfour)².

The Egg-strings are derived from the germogen, which is composed of a main median ridge and several small and younger ridges on each side. The median ridge or string is quite irregularly marked off into parts, each of which, as it grows larger, assumes the form of the egg-string, and finally becomes detached. The median ridge is replaced by the coalescence of the younger ridges of the germogen.

The germogen is composed of membraneless cells, the outlines of which are sometimes obscure, but for the most part tolerably well marked.

Some of these germ-cells are destined to give rise to the ova, while others appear to undergo degeneration and to serve as nourishment for the latter.

The primordial ova are formed somewhat as in *Piscicola* as given by Ludwig. One of the germ-cells begins to enlarge while its nucleus, by repeated division, gives rise to a cluster of nuclei. A sort of follicle is thus formed, the contents of which consists of the cell-protoplasm and a nest of nuclei. Around one of these nuclei, a cell-like body of protoplasm, much clearer than the remaining protoplasm, becomes clearly defined. This is the primordial ovum. The ovum soon becomes invested with a distinct membrane, and, growing at the expense of the follicular contents, gradually comes to fill most of the follicular space. The free nuclei and the protoplasm are probably all absorbed by the egg-cell.

Thus the egg and its follicle arise from a single germ-cell.

One or more yolk-nuclei are often found in the egg, analogous to what has been found in the Amphibian egg.

² I use the word in a less restricted sense than Balfour.

The Spiral Asters (Mark). In eggs found floating in the ovarian fluid, the germinal vesicle is metamorphosed into a centrally situated *Archiamphiaster*. The rays of the stars are short and feeble. The spindle seems not to terminate in points at the centres of polar areas, as Hertwig represents. In fact, the spindle-rays appear to differ in no essential way from the other rays belonging to the asters as Fol, Bobretzky, Whitman, and Mark have observed.

In eggs examined just after laid, the *Archiamphiaster* presents quite a different aspect. The astral rays have grown considerably in length, often extending to the periphery. They describe nearly uniform curves, so that they have a spiral arrangement. When viewed from sides the spiral of both are always dextrally curved. If however either star is viewed from above, the spiral will be sinistral. This may be accounted for by supposing that the rays have a double curvature.

Such a spiral arrangement of the astral rays has been entirely overlooked, except by Dr. Mark of Harvard University, who was the first to describe it in *Limax*.

The spindle has also grown in size and the central thickened zone (Kernplatte) is very distinct.

In a few minutes, as the *Archiamphiaster* travels toward the periphery, the astral rays become shorter and lose their spiral sweep.

Tokio, Japan, Sept. 22nd, 1881.

3. Encore un mot sur le Nephridium, et la Cavité du Corps des Trématodes et des Cestodes.

Réponse à M. Ray Lankester.

Par Edouard Van Beneden, Professeur à l'Université de Liège.

Dans un note inséré dans le No. 85 de ce Journal (13 Juin 1881) M. Lankester a élevé une réclamation de priorité contre mon élève J. Fraipont. Il y affirme que les conclusions formulées par ce dernier, à la suite de ses études sur l'appareil urinaire des Trématodes et des Cestodes s'identifient avec les idées développées par lui Lankester dans deux publications successives: 1) On the primitive Cell-layers of the Embryo, 2) Notes on Embryology. Voici en quels termes il formule sa revendication: »As a matter of fact (though I had not succeeded in observing the exceedingly important facts made known by M. Fraipont)

I had been led by investigation of various species of *Cercaria* and of the transparent *Aspidogaster* and of *Caryophyllus* (Leuckart's *Archigetes*) to the theore-

ZOBODAT - www.zobodat.at

Zoologisch-Botanische Datenbank/Zoological-Botanical Database

Digitale Literatur/Digital Literature

Zeitschrift/Journal: [Zoologischer Anzeiger](#)

Jahr/Year: 1882

Band/Volume: [5](#)

Autor(en)/Author(s): Jijima J.

Artikel/Article: [2. The Structure of the Ovary, and the Origin of the Eggs and the Egg-strings in Nephelis 12-14](#)