

1859. VALETTE, ST. GEORGE, A. J. H. DE LA.
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Ueber die Entwicklungs-geschichte der Amphipoden. Sitzungsber. Niederrhein. Gesell. f. Natur- u. Heilkunde zu Bonn, XVI. pp. 94-98, 1859.

Studien über die Entwicklung der Amphipoden. Mit 2 Tafeln. Halle. 1860.
14 pages. 2 Plates.

The ovaries are described as lying dorsally upon the gut and liver-tubes on either side of the heart, forming two cylindrical tubes closed at either end, reaching from the second to the sixth peræon-segment with an oviduct opening in the fourth segment. The inner surface is covered by an epithelium layer which is supported by a *Tunica propria* of finely granular appearance, and that in turn is surrounded by an outer skin which is homogeneous. [Bruzelius traces the ovaries from the first to the seventh segment, with the opening of the oviduct at the base of the marsupial plate of the fifth segment. G. O. Sars traces the ovaries from the second to the seventh, with the opening of the oviduct as stated by Bruzelius in the fifth segment]. Neither la Valette nor Bruzelius could discover the lobes of which according to Spence Bate (1855) the ovary of *Gammarus* is composed.

The first origin of the Amphipod-egg is derived by la Valette from an epithelial cell of the ovary. In eggs not far developed he found a sharply defined membrane, a finely granular content, a germinal vesicle and many germinal spots. With further development of the egg-cell violet-coloured drops appear in the hitherto colourless contents, which soon as smaller or larger strongly refracting globules fill the whole egg and conceal the germinal vesicle. The coloured yolk develops itself within the cell-membrane.

La Valette could never succeed in observing zoosperms in immediate proximity to the egg or within it. Of the two skins of the egg one in later stages of the embryo's development sometimes disappears, but the one remaining is not, he says, as Meissner supposes, the chorion or outer, but always the inner, or yolk-skin. The inner skin has a finely *shagreened* appearance; the outer is completely homogeneous.

He thus sums up his view of the earlier stages of the development of the egg. An epithelial cell of the ovary increases in size, its nucleus becomes the germinal vesicle and fills itself with germinal spots, while within the cell-membrane the development of the fine-grained yolk begins. Along with this and perhaps partly at its expense along with the increasing size of the egg appears the violet yolk. The former he calls the formation-yolk, the latter the nourishment-yolk, which at successive stages changes from violet to brown-red and finally to yellow-brown. The formation-yolk divides and perhaps with it the germinal vesicle. In this way arise the yolk-balls including a nucleus, and these after continued division by hardening at the periphery obtain a membrane and become the cells of the embryo-skin. When this has completely sheathed the nourishment-yolk, the whole egg-content draws back on one side from the egg-skin, and by a constriction on that side is divided into two unequal portions still connected on the opposite convex side. On the side where the constriction has taken place the cells of the embryo-skin put out protuberances, marking the position of arteries, mouth-organs and limbs.

A full discussion follows of the micropyllic apparatus of the Amphipod-egg, which Meissner first discovered in *Gammarus pulex*. It is confined to the inner or yolk-skin, the outer skin or chorion being completely closed. It lies, not as Meissner supposed, at the pole of the egg, but near the greatest diameter of its breadth. At its central point is a small tap with two small openings. The apparatus occurs at the part of the egg corresponding with the back of the embryo and the third peræon-segment of the developed animal. It is attached to a spherical sack which extends into the heart of the embryo, and which is still observable in