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ON the structure and organization of the Polyphemidæ

Dr. C. Claus

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This fact was observed by Agassiz ; but I have been able to go further than that illustrious naturalist. In fact I have ascertained that this disappearance of the albumen is connected solely with the development of the embryo and of the vascular lamella, which, in its origin, is not distinguished from the embryo itself. The albumen disappears only above the circle formed by the vascular area ; and its disappearance increases like this circle. If by chance, as I have observed in my experiments, the vascular area presents an elliptical form, the empty space produced by the disappearance of the albumen presents the form of an elliptical cylinder, or, more correctly, of a portion of a cone with an elliptical base. Thus during the early part of the development the formation of the vascular area is connected with the gradual disappearance of the layer of albumen corresponding to it on the other side of the vitelline membrane. On the contrary, nothing of the kind takes place in all that portion of the blastoderm which is beyond the vascular lamella and surrounds it.

This led me to think that the albumen necessary for the nutrition of the embryo does not assist in the nutrition of the blastoderm itself. I have verified this prevision by the examination of blastoderms which had developed without producing any embryo, and which nevertheless had covered almost the whole surface of the yolk. This fact I have several times observed in the course of my teratogenical studies. Under these circumstances the albumen forms a perfectly continuous layer above the blastoderm. We must therefore assume that the blastoderm derives its elements from the yolk, whilst at the commencement of incubation, and, at least, up to the period of the complete closure of the amnios, the embryo is developed at the expense of the albumen.

I may add that the ascertainment of the disappearance of the albumen is the process that I adopt in my investigations whenever I wish to know whether an embryo is being developed in an egg, a fact which the death and disorganization of the blastoderm do not always allow to be ascertained directly. There are, in fact, many circumstances under which the embryo perishes very early, quite at the commencement of the development ; and if the egg is not opened until after the lapse of some days, it is often very difficult to find any appreciable traces of its existence. The disappearance or the preservation of the albumen furnishes a sure means of deciding as to the former existence of an embryo, and to decide whether the blastoderm has produced an embryo or whether it is one of those blastoderms without an embryo, the occurrence of which in my experiments I have just mentioned.—*Comptes Rendus*, Oct. 30, 1876, p. 836.

On the Structure and Organization of the Polyphemidæ.

By Dr. C. CLAUS.

The structure of the body and limbs of the Polyphemidæ (*Bythotrephes*, *Polyphemus*, *Podon*, *Evadne*) may be referred in detail to the

well-known structure of the Daphnidæ, and their peculiarities thus completely explained morphologically. The principal difference which leads physiologically to new conditions of embryonic nourishment, and is also of importance with regard to the external form of the body, consists in the transformation of the brood-chamber, bounded by the skin of the back and the inferior lamella of the shell, into a uterus-like sac, the cellular wall of which (*hypodermis*) becomes a nutrient organ of the ova and embryos, either throughout its whole extent (*Podon*, *Evadne*), or only in the ventral lamella, which is in contact with the intestine.

The nervous system could be traced in its whole course in all four genera. The brain is followed by a subœsophageal ganglion, which is united to it by short broad œsophageal commissures, and by the ventral ganglionic chain, the four inflations of which, united by transverse commissures, emit nerves for the limbs. The last and smallest pair of ganglia also sends forth nerves to the abdomen and to the tactile setæ of the postabdomen.

The crystalline cones of the large movable eye consist throughout of five segments; the nervous rods belonging to them show lamellar structure.

The shell-gland was traced in all the genera in its whole length to its orifice. In its course it presents characteristic peculiarities in each genus and species, but consists throughout of the ampulliform sac, the inner and outer looped canal, the terminal duct, and the short narrow efferent tube. The dilated terminal duct, extended after the fashion of a reservoir, contains large shining urinary concretions in *Podon* and *Evadne*.

The adherent organ of *Evadne* and *Podon* is not a sucking-cup with radiating muscles, but an excretory organ composed of large glandular cells with streaky protoplasm. In *Evadne* nine or ten cells are usually employed in its formation; their conically decreased secreting ends are applied to the well-known cuticular disk.

The ova, as in the Daphnidæ, are produced in four-celled chambers of the ovary, but are extraordinarily small when they pass into the brood-chamber, where an abundant supply of nourishment is furnished to the developing embryo by secretion from the walls. In *Evadne* the embryo becomes pregnant while still in the body of the mother, and is usually born with four ova in process of segmentation in the uterus.

The formation of the winter egg in *Evadne* takes place by absorption-processes of the neighbouring egg-chamber.—*Kais. Akad. der Wiss. in Wien*, Oct. 26, 1876.

On the Colydiidæ of New Zealand. By D. SHARP.

In the 'Annals,' July 1876, p. 22, I established a new genus of Colydiidæ, with the name *Epistrophus*. I find this word has already been used by Kirsch for a genus of Curculionidæ; and I propose therefore for the genus of Colydiidæ above alluded to the name of *Epistranus* in place of *Epistrophus*.