

opening. A somewhat unusual circumstance in connection with these organs is that, in *Eupomatus* at least, they serve not only as efferent ducts for the generative products, but as seats of development of the ova. In that genus I have found in the cavity of each segmental organ a little clump of ova in all stages of development, closely adherent together and rotating or moving to and fro under the action of the cilia; alternating with the segmental organs were the ovaries proper consisting of clumps of ova in various stages of development and occupying the normal position in the perivisceral cavity. In the male specimens which I have examined I have always found the sacs empty.

Sydney, 17. October 1884.

2. On the fate of the Blastopore in *Rana temporaria*.

By W. Baldwin Spencer, Scholar of Exeter Coll., Oxford.

eingeg. 3. December 1884.

The following is a brief outline of the results arrived at during an investigation into the fate of the blastopore in *Rana temporaria*: I hope to publish a more complete account with figures elsewhere.

As is well known a neural groove is present in the frog's ovum traversing the whole length of the medullary plate² and reaching as far as the blastopore posteriorly.

It is usually stated that the medullary folds extend behind (posterior to) the blastopore and that, when they grow over, meet each other and enclose the neural canal, the blastopore also is enclosed and a neuroenteric canal is formed. The conclusions at which I have arrived from the study of numerous series of consecutive sections cut by means of Caldwell's Microtome are:

1) The medullary folds grow over and enclose the neural canal but not the blastopore which remains open to the exterior: the neural canal however reaches back as far as the blastopore and opens into this.

2) The hinder part of the neural canal which opens into the blastopore loses its cavity and the nervous system in this region becomes solid.

3) In the same region (that is just in front of the blastopore) the epi-, meso- and hypoblast are fused together.

4) The Blastopore never closes but becomes transformed into the adult anus.

Miss Johnson has recently shown¹ that in the Newt the blasto-

¹ Quart. Journ. Micr. Sci. Oct. 1884.

pore is transformed into the adult anus and that the latter is not, as supposed by previous writers, a new and secondary structure: the newt's ovum appears however to differ from that of the frog in that the medullary folds stop short some distance anteriorly to the blastopore in front of which according to Miss Johnson a part of the primitive streak remains, whilst in the frog the neural canal extends as far back as and opens into the blastopore.

University Museum Oxford, 17. November 1884.

3. Beiträge zur nachembryonalen Entwicklung der Musciden.

Von Prof. A. Kowalevsky in Odessa.

eingeg. 8. December 1884.

I.

Ungeachtet der schönen Untersuchungen, welche wir über die nachembryonale Entwicklung der Musciden besitzen, ist doch das Wesen der Metamorphose, so wie die einzelnen Vorgänge in der Bildung der Organe noch bei Weitem nicht aufgeklärt. Nach den eingehenden und bis jetzt noch am meisten in's Detail gehenden Untersuchungen von Prof. Weismann¹, zerfallen die meisten Organe und Gewebe der Larve, besonders die Muskeln, die Fettkörper und andere, in Detritus-Conglomerate, welche Weismann »Körnchenkugeln« nennt. Diese »Körnchenkugeln« spielen nach Weismann eine wichtige Rolle in der Bildung der neuen Organe und Gewebe der Puppe resp. Imago. Aus denselben sollen Muskeln, Tracheen und noch viele andere Theile entstehen. Der Darmtractus, Herz und Nervensystem machen, nach Weismann², einen sonderbaren Proceß einer »histologischen Auflösung mit nachfolgendem Wiederaufbau« durch. Diesen letzten Proceß nennt Weismann »Histolyse« der Organe, welche Bezeichnung jetzt ziemlich allgemein angenommen ist. Die nachembryonale Entwicklung der Musciden wurde nach Weismann von Prof. Ganin³, Künckel d'Herculeis⁴ und endlich von Viallanes⁵ untersucht.

Alle diese Untersuchungen, besonders diejenige von Prof. Ga-

¹ A. Weismann, Die Entwicklung der Dipteren. Leipzig, 1864.]

² l. c. p. 241—242.

³ Arbeiten der Naturforscherversammlung in Warschau. 1877. Materialien zur Kenntniss der postembryonalen Entwicklung der Insecten.

⁴ Künckel d'Herculeis, Recherches sur l'organisation et le developpement des Volucelles. Paris 1876.

⁵ H. Viallanes, Histologie et Développement des Insectes. Annales d. Sciences Naturelles. Zoolog. 6. Série. vol. XIV. 1882. p. 1.

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Artikel/Article: [2. On the fate of the Blastopore in Rana temporaria 97-98](#)