METABOLIC INHIBITORS AND THE BIOCHEMISTRY OF EMBRYONIC DETERMINATION IN ECHINODERMS*

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If we leave the amphibia out of account, no branch of experimental embryology has made more remarkable forward advances in the past decade than that which deals with the processes of embryonic determination in the echinoderms. The work of the Scandinavian school (Runnström, Hörstadius, Lindahl and their colleagues) has shown that in the echinoderm embryo there are two centres, one at the animal pole, the other at the vegetal, upon the proper collaboration of which normal morphological development absolutely depends. If one or other of these centres is depressed the other takes control and deviates the development in its own direction. If the vegetable centre is depressed, animalisation or ectodermisation follows, conversely, if the animal centre is depressed, vegetalisation or endodermisation follows. The role of the centres can be elucidated either by morphological means such as transplantations of blastomeres, or by chemical means such as the use of agents which are identical in their effect with the animal or vegetal regions. And predictable developmental anomalies may be produced by a combination of both techniques.

More hypothetical is the extension of the theory which has found grounds for assuming that the animal pole is a centre of carbohydrate breakdown and the vegetal pole one of protein breakdown. In order to throw some fresh light on this we subjected developing *Echinarachnius* eggs to the action of inhibitors known to supress carbohydrate breakdown, e.g. iodoacetate, *dl*-glyceraldehyde phloridzin, etc. Contrary to the hypothesis, little or no sign of vegetalisation could be observed, although parallel experiments with lithium (the most classical and powerful vegetalisation agent) showed that the material was quite capable of forming perfect exo-gastrulae. These results were subsequently confirmed on *Arbacia* at Woods Hole. The biochemical part of the general theory will therefore require further modification.

A RARE VARIETY OF *TRACHELOMONAS DANGEARDI (PROTOZOA, MASTIGOPHORA)*

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An unusual variety of *Trachelomonas dangeardi* was observed in July 1940 from the waters of Beaver Lake near Salsbury Cove, Maine. It is identical with an organism reported from Venezuela by Deflandre and named *T. dangeardi* var. *glabra* by him. The occur-

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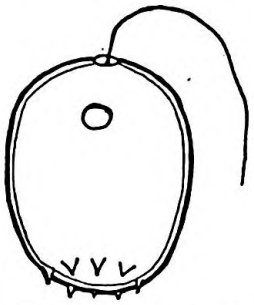
rence in Maine is the second one for the world according to all available literature.

The same name was given to a flagellate from Manchuria by Skvortzov but that unicellular organism is an entirely different species with no similarity to the one from Venezuela or the one from Maine.

From Australia, Playfair reported the occurrence of a flagellate which he named *T. armata* var. *glabra;* this organism resembles *T. dangeardi* var. *glabra* but is not identical with it.



Trachelomonas dangeardi var glabra

Description of *T. dangeardi* var. *glabra:*
Shape: elongate spherical with hole for emergence of single flagellum.
Lorica: medium brown color; smooth except for a ring of small spines near posterior end.
Endoplasm: green with pink stigma.
Dimensions: length (exclusive of flagellum) 36μ
width 27μ
length of flagellum 35μ

References

Deflandre, M. G., 1926, Rev. Gén. de Bot. 38 & 39.
Playfair, G. I., 1915, Proc. Linn. Soc. of New South Wales.
Skvortzov, B. V., 1928, Bot. Gaz. 85, 90.

A NEW VARIETY OF *TRACHELOMONAS URCEOLATA (PROTOZOA, MASTIGOPHORA)*

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During a preliminary survey of the Protozoa in Beaver Lake near Salsbury Cove, Maine, an example of the genus Trachelomonas previously unreported, was discovered. Since the organism is quite obviously a variety of *T. urceolata,* it is assigned to that species and given the name *serrataglabra* to denote a new variety, rather than