Missouri Section.

St. Louis University School of Medicine, December 11, 1929.

4709

Effect of Follicular Extract on Eggs of Fundulus.

PAUL L. CARROLL, S. J. (Introduced by E. A. Doisy.)

From the Department of Biology, St. Louis University.

Fundulus eggs covered for 10 minutes with sea water and 5 cc. of follicular extract, F1, 0.13; F2, 0.0026; F3, 0.00086; F4, 0.00043 units per cc., were removed from the solution and fertilized. In each of the first 3 concentrations 85 eggs were used both in the experimental lots and in the controls with the following results:

	No. Fertilized Experimental Lot	No. Fertilized Controls
F1	40	74
F2	41	79
F3	48	71

Of the 80 eggs exposed to F4 follicular extract 57 were fertilized, while the controls yielded 72 fertilized. Of a total of 335 eggs treated with the follicular extract 180 or 53% were fertilized; of 335 controls, 296 or 88%.

Fertilized eggs were placed for 10 minutes in sea water containing 5 cc. F1 follicular extract and then removed to different salt solutions and the time required for the eggs to sink was noted, with the following results:

No. Eggs	Solution	Experimental Lot	Controls
10	2.5 NaCl	7-9 hrs.	3-4½ hrs.
10	2.5 KCl	2-2½ hrs.	10-25 min.
10	1.5 CaCl	1-2 hrs.	25-45 min.
10	24 vols. 2.4 KCl and 1 vol. 1.5 CaCl	50-70 hrs.	45-54 hrs.
10	2/3 sea water	20-25 hrs.	25-35 min

On the second day after fertilization 30 eggs were injected for 6 consecutive days with 0.01 cc. F3 follicular extract and the follow-

ing changes in the embryo were observed: (a) abnormally dark pigment cells, (b) anastomosis of these cells and streaming of the pigment granules, (c) defective lens in one or both eyes, (d) diminutive forebrain. Practically the same abnormalities appeared in the embryos exposed to 5 cc. of F3 follicular extract placed in the sea water.

Thirty beating hearts stopped within an hour by 0.5 KCl were placed in sea water and 10 cc. F1 follicular extract; within 5 hours they recovered and the controls likewise began to beat in the same length of time. Thirty beating hearts placed in sea water and 10 cc. F1 follicular extract were then exposed to the KCl and within 55 minutes they had all stopped beating, while the controls ceased to beat within 58 minutes.

Conclusions: 1. Under the condition of this experiment dilute solutions of our follicular extract modify profoundly the permeability of the Fundulus egg, apparently in some cases preventing the possibilities of fertilization. 2. Changes in specific gravity of the Fundulus egg in hypertonic salt solutions after exposure to the follicular extract give additional evidence of this permeability. 3. The permeability of the cells which are already a part of the developing organism can be apparently affected by the follicular extract, and these disturbances in the injected embryo were most marked in the head region. 4. The absence of a profound difference in the restoration of heart beats in the controlled and experimental embryos is probably due to the change in permeability in the epidermal layers preventing access of the follicular extracts to the deeper tissues. 5. There was no evidence for a stimulation of cell proliferation in the Fundulus embryo.

4710

Results Obtained From Applying the Feulgen Reaction to Protozoa.

MIRIAM SCOTT LUCAS. (Introduced by McKim Marriott.)

From the Anatomical Laboratory, Washington University School of Medicine.

Certain of the free-living and associated protozoa have been selected for a preliminary study of their reaction to the Feulgen thymonucleic acid test. They have been considered as to their status, source, nuclear organization and their reaction to this test. Extranuclear inclusions and organelles have received attention, as well.