ble to name that color. The general effect was of olive-lake to yellowish-citrine. From these data it is evident that the red color of an adult *Pseudotriton ruber* may be induced in prematurely metamorphosed individuals by anterior pituitary implants. It seems probable that in the normal development of the salamander it is the release of a quantity of anterior pituitary hormone, initiating metamorphosis, which brings about the assumption of adult red color at this time.

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Typhoid Agglutinins as Influenced by the Conditioned Reflex in Man.

N. KOPELOFF, M. F. UPTON, M. E. RANEY AND L. M. KOPELOFF.

From the Department of Bacteriology, Psychiatric Institute and Hospital, New York.

In order to throw some light on the relation of the nervous system to the production of antibodies, an investigation of the artificial production of typhoid agglutinins in man was undertaken. Following the procedure which Metalnikov[1] used with animals, the plan followed in 3 experiments was to inject patients for 21 successive days with a small dose of typhoid vaccine subcutaneously, immediately after application of an ice cube to the cheek. After a rest period of approximately 2 weeks the patients were given the conditioning stimuli alone, that is, ice cube, and the prick of the needle. The curve of typhoid agglutinins was determined.

In the first experiment with 12 subjects, 6 received typhoid vaccine daily and 6 received injections of sterile saline. The latter served as a control group and did not show any titer during the injection period. Following the administration of conditioning stimuli alone to the first 6 subjects, 2 showed a slight rise in titer from 1-200 to 1-250.

In the second experiment 12 subjects received typhoid vaccine (groups of 4 receiving different dosages). Two weeks later the conditioning stimuli alone were applied. Blood was taken 75 minutes later. Of the 11 subjects so tested 6 showed a rise in titer of one tube (one dilution-step), one a rise of 2 tubes and one a rise in 3 tubes, in the usual dilutions of 1-20, 1-40, 1-80, 1-160, 1-320,

[1] Metalnikov, S., *Ann. d. I. Inst. Past.*, 1931, **46**, 137.

etc. Three who had responded feebly to the vaccine showed no change. Twenty-four hours later the blood examination showed a marked decrease in titer in all subjects who had previously shown a rise. Subsequent conditioning stimuli again led to a rise.

In a third experiment, 16 subjects were given the same dosage of typhoid vaccine. The conditioning stimuli were not applied until 19 days after the administration of vaccine had been discontinued. Two of the subjects received no further injections and were utilized as controls. Eight subjects received conditioning stimuli alone; 3 received typhoid vaccine in a non-conditioned setting; and 3 received typhoid vaccine with conditioning.

The titers were read 3 times with a 6X magnifier by each of 3 observers, none of whom knew the classification of the subjects. The 2 control subjects showed no rise in titer. Six of the 8 subjects receiving conditioning stimuli alone gave a rise in titer of one tube, and 2 gave a rise in titer of a half tube. Two of the 3 subjects receiving vaccine in a non-conditioned setting showed a rise in titer of 1½ tubes, the third showing no rise. Two of the 3 subjects receiving vaccine with conditioning showed a rise of one-half tube, a third showed a rise of one tube.

Dr. Irving Lorge of Teachers College very generously went over all our data and according to his findings, based on the technic devised by Fisher, in which the 3 observers were differently weighted, there was a rise in titer in subjects receiving conditioning stimuli as compared with their own titers before the stimuli were applied.

It is doubtful from our data that a significant rise in typhoid agglutinins follows conditioning stimuli applied to suitably prepared subjects.

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Mechanism of Bacteriophage Action in Staphylococcus Bacteremia.*

WARD J. MACNEAL, FRANCES C. FRISBEE AND ALICE E. SLAVKIN.

From the Department of Pathology and Bacteriology, New York Post-Graduate Medical School and Hospital, Columbia University.

Four young rabbits, 1100 to 1320 gm. in weight, were inoculated intravenously with a suspension of staphylococcus which had been isolated from human bacteremia. Each animal received an intra-

* These studies were supported in part by a grant from the Josiah Macy, Jr., Foundation.