THE CRUSTACEAN CHROMATOPHORE ACTIVATOR AND THE GONADS OF THE RAT

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Communicated October 20, 1932

In 1928 Perkins and later Koller (1928) reported the production in the eye stalks of crustaceans of a chromatophore activator—presumably a hormone—which, carried in the blood-stream, induced chromatophore contraction resulting in pallor in these crustaceans. It was later found that the active substance was widely interspecific and also caused melanophore contraction in fishes (Koller and Meyer, 1930), and melanophore expansion in amphibian tadpoles (Perkins and Kropp, 1932). It is known also that mammalian endocrine secretions affect the melanophores of lower vertebrates. Since in some respects the action of the crustacean chromatophore activator on vertebrates is suggestive of the action of pituitary secretion, it seemed desirable to determine the action of the chromatophore activator on the ovary, testis and sexual cycle of a mammal.

The experiments consisted of the injection of varying doses of *Palaemonetes vulgaris* eye stalk extract into male and female rats twenty-one days of age. The eye stalks were extracted with 0.8 per cent NaCl solution in such a way that each 0.05 cc. of the extract contained the active substance from one eye stalk. The extract was known to contain the active material since samples produced the usual chromatophore contraction in black-adapted *Palaemonetes*. Twenty animals were grouped by fives and the members of each group were injected subcutaneously with a total of extract representing respectively five, ten, fifty and one hundred eye stalks. The injections were made over periods of three days for the two lower groups and four days for the two higher. On the fourth day following the first injection the animals were killed and compared with controls of the same age and sex for body weight, weight of gonads, and gross and histological appearance of the gonads.

No significant differences in any of these criteria were detected in either males or females. The experimental animals were wholly indistinguishable from the saline-injected controls. Despite its pituitrin-like qualities, therefore, as regards action upon melanophores, this invertebrate secretion failed to produce the anticipated alteration in the mammalian gonads.