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Control of the Bill Color of the Male English Sparrow by Injection of Male Hormone.*

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The writer recently reported[1] the effect of castration upon the bill color of the male English Sparrow. In brief, the effect is a gradual disappearance of the pigment until the characteristic ivory-colored bill of the capon is established by the end of the sixth week.

A set of experiments was planned to test the possible restoration of the black color by injection of male hormone into sparrow capons. The male hormone was extracted with chloroform from the urine of men of approximately 20 years average age. The preparation was standardized in rat units using the seminal vesicle test as the criterion of standardization. Fourteen capons that had been castrated for 6 months were divided into 4 groups. Two individuals served as controls and the remaining 12 were divided into 3 groups of 4 each.

The individuals of group I received 3/4 of a rat unit daily for 25 days; those of Group II were given 1/6 of a rat unit daily for the same period; individuals of Group III each received 1/15 of a rat unit daily for 25 days. A noticeable change in bill color was evident after 8 days of injection. At the end of the experimental period the bills of the individuals receiving the high dosage were black like that of normal males during the breeding season. The capons receiving the low dosage had the anterior half of the bill blackened, but the basal portion remained light. Group II showed an intermediate condition. While the entire bill was dark in color, the black was not as intense as in Group I. The deposition of pigment always begins at the apex of the bill and proceeds in a posterior direction, thus indicating a gradient of threshold values, falling off from the base toward the tip of the bill.

The dosages of hormone given were only fractions of that necessary to produce an effect upon the seminal vesicles of the rat. Furthermore, a definite response can be obtained within 10 days which equals the time necessary to standardize in rat units.[2] While the

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[1] Keck, W. N., PROC. SOC. EXP. BIOL. AND MED., 1932, **30**, 158.

[2] Hansen, I. B., *Endocrinol.*, 1933, **17**, 163.

comb-growth response of capons to male hormone requires less time, many factors are involved such as light and accurate measurement that render its routine application rather difficult. It is also easier and much less expensive to maintain a sparrow colony in the average laboratory.

The results of this study, therefore, suggest the use of the bill color of the sparrow capon for the standardization of extracts of male hormone. More extensive experiments are planned to test its practicability.

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A Functional Study of the Nodose Ganglion of the Vagus with Degeneration Methods.*

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In 11 adult cats, the vagus (5 on the left, 6 on the right) was cut at its exit from the jugular foramen above the nodose ganglion. In 5 experiments, the superior cervical sympathetic ganglion was also removed. Approximately 15 days' degeneration was allowed. The animals were anesthetized with urethane or ether, the carotid (in some cases the femoral) artery was cannulated and prepared for blood pressure tracings. In some experiments, movements of the thorax were also recorded as an index for the rate of respiration. The nerves were stimulated with rapid faradic stimuli delivered through platinum electrodes which were connected to a Harvard inductorium (approximately 2 amperes were delivered to the primary coil). Both the vagus and the cervical sympathetic trunk were sectioned and then stimulated distal to the section. The saphenous nerve was also stimulated in order to elicit pressor responses.

With adequate stimuli (from 10 to 6 cm. coil separation), we have never seen any indication of the normal vagus inhibitory effect on the heart with slowing in rate and decrease in blood pressure. When the sympathetic trunk was stimulated 2 to 3 cm. below the superior cervical ganglion, no change in blood pressure was observed in 3 experiments with a coil separation of 6 cm. In the

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