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Injection of Avian Anterior Pituitary Substance into the Leghorn Fowl.*

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Several workers[1] have attempted to modify the genital system of the fowl by pituitary administration. With the exception of Clark, these have been unsuccessful, either by the oral or by the intraperitoneal route. Walker found the injection of a bovine preparation resulted in inhibition of ovulation in the hen.

Wishing to test the possible effectiveness of avian pituitary substance, the writer employed a technique which consisted in the collection of freshly killed chick heads, immediate dissection of the anterior lobes, and the daily intramuscular injection of these into White Leghorn pullets. In the first experiment, 20 three-months-old birds, divided into 4 equal lots, received for 28 days doses of 1, 2, or 3 anterior lobes. One lot as controls, consisted of saline injected, brain tissue injected, and untreated birds. Weights were periodically taken, and autopsies done. Careful examination of the ovaries and oviducts of these birds failed to reveal any deviations from the controls, although the weights of the injected birds were somewhat less than those of controls.

To extend the range of dosage and time, in a second experiment, using similar material and technique, 2 birds received 10 lobes each, three 5 lobes each, and four 3 lobes each for 56 days. There were 10 controls. Autopsies again revealed no departure of either ovaries or oviducts from controls, the weights again being slightly less than controls.

In a third experiment, 6 hens with a previous trapnest record were injected for 23 days as follows: one received 6 lobes daily, one 4 lobes, and one 2 lobes; 3 were controls, untreated, saline, and brain tissue injected. Excluding eggs probably already in the oviducts, controls produced 18 eggs, and injected birds 10 during the injection period. Variation in the individual records, and the lim-

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[1] Clark, N. C., *J. Biol. Chem.*, 1915, **22**; Pearl, R., and Surface, F. M., *Ibid.*, 1915, **21**; Pearl, R., *Ibid.*, 1916, **24**, Simpson, S., *Quar. J. Exp. Physiol.*, 1923, **13**; Walker, A. T., *Am. J. Physiol.*, 1925, **74**.

ited material make definite conclusion of an inhibition of ovulation unwarranted.

Without considering further the limits of technique, it appears that with these dosages and methods, there is no evidence of a response of the female genital system of the fowl to avian pituitary substance. It is recognized that such factors as absorption and elimination perhaps play a rôle in the explanation of these results.

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Influence of Bladder Extracts and Viosterol on Healing of Fractures and Bone Defects.

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Huggins[1] has shown that if a piece of the mucous membrane of the urinary bladder of a dog is transplanted into the abdominal wall of the same animal the transplant forms a cyst lined by bladder epithelium and true bone tends to form in and about the wall of the cyst. We[2] have confirmed Huggins' observation and have also shown that an autogenous transplant of bladder epithelium may stimulate the repair of defects in normal bone. This was demonstrated by a series of experiments in which comparatively large defects were created in both ulnas of dogs and at the original operation the defect on one side was bridged by a strip of bladder mucous membrane while the similar defect in the other ulna was left as a control. The defect bridged by the bladder transplant tended to heal by deposition of bone while non-union occurred on the control side. Similar results were obtained when scrapings from the mucous membrane of the dog's bladder were placed in fresh ulnar defects in the same animal.

The results of these experiments were so striking that we have performed other experiments in a search for an explanation of the phenomena. It seemed possible to us that the effect of the mucous membrane might be due to a hormone. Accordingly, extracts were made from bladders of dogs and swine and were injected at the site of fractures and bone defects.

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[1] Huggins, C. G., *Arch. Surgery*, 1931, **22**, 377.

[2] Copher, Glover H., and Key, J. Albert, unpublished article.