

Summary: The results of electric stimulations of an isolated smooth muscle before and after the successive applications of a choline ester, atropine and epinephrine, seem to lend support to the theory that these drugs and the electric current, in ordinary strengths, act solely on receptive substances for the neural hormones. These findings are in harmony with the chemical theory of nerve transmission, and, taken with the findings of others, suggest that each axone in the body acts by liberating at its endings a specific substance that catalyzes a specific receptive substance in the effector or other nerve cell with which they lie in contact, into fractions, one of which directly stimulates or inhibits the effector mechanism, or, in the nerve cell, the impulse mechanism. The experiments of Láncoz² suggest calcium ions as one of these fractions, those of Brown and Feldberg³ suggest potassium ions as another.

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Influence of Estrone upon Galactin Content of Male Rat Pituitaries.*

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McQueen-Williams¹ has demonstrated that one normal male rat pituitary contains sufficient galactin to induce a good response in a one-month-old pigeon when implanted subcutaneously over the crop gland. Better results have been obtained in our laboratory by injecting the macerated pituitary intradermally over the crop gland as described by Lyons and Page.²

In order to study the effect of estrone upon the galactin content of male rat pituitaries, 16 animals were paired upon the basis of body weight. One of each pair was injected subcutaneously daily for 15 days with 500 International Units of the benzoate of hy-

² Láncoz, Anna, *A. f. Exp. Path. u. Pharm.*, 1936, **180**, 312.

³ Brown, G. W., and Feldberg, W., *J. Physiol.*, 1936, **86**, 10P.

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¹ McQueen-Williams, M., *PROC. SOC. EXP. BIOL. AND MED.*, 1935, **33**, 406.

² Lyons, W. R., and Page, Emery, *PROC. SOC. EXP. BIOL. AND MED.*, 1935, **32**, 1049.

TABLE I.

Rat No.	Body Wt., gm.	Total Pituitary Wt., mg.	Pigeon Body Wt., gm.	Sex	Assay Data	
					Crop Gland Rating	
					Right	Left
9*	160	6.2	303	M	0.5	0
16†	156	4.8	284	M	1.5	0
3*	161	4.7	272	F	1.0	0
5†	162	5.6	299	M	1.0	0
10*	164	5.0	310	F	0.5	0
15†	167	6.9	295	M	1.5	0
7*	168	4.8	273	F	0.75	0
18†	172	6.5	296	M	1.0	0
8*	180	6.0	292	F	0.75	0
4†	182	6.0	289	F	1.0	0
6*	206	5.5	292	M	0.75	0
14†	199	6.8	331	M	1.0	0
13*	214	5.5	270	M	0.75	0
12†	216	7.1	289	M	1.5	0
11*	241	7.6	281	F	0.75	0
2†	222	7.2	339	F	1.25	0

*Control animals.

†Experimental animals.

droxyestrin (Oestroform B). At the end of 15 days all of the animals were sacrificed, their pituitaries removed and weighed. Each pituitary was then macerated, using an agate mortar and pestle, and suspended in 0.4 cc. of distilled water. This suspension was then injected intradermally over the right crop gland of a common rock pigeon at the rate of 0.1 cc. per day. The left crop gland was used as a control for each rat pituitary. The pigeons were sacrificed at 96 hours, weighed, and their crop glands removed. The crop glands were rated by both of us according to the degree of proliferation with one of us not knowing their identity. The results are summarized in Table I.

Of these 8 pairs of rats, 7 of the pituitaries from the animals under the influence of Oestroform B contained more galactin than their control mates and the eighth experimental animal's pituitary was rated as equal to that of its control mate.

These data indicate that the normal male rat pituitary contains an appreciable amount of the lactogenic hormone and that the injection of the estrogenic hormone definitely increases the galactin content of the pituitary. These observations do not indicate whether the increase is due to more rapid secretion of galactin or to the prevention of its discharge into the blood stream.