of one nearly over brooding can be only a surmise until more data are available.

Conclusions. It has been found that single fowl pituitaries implanted over the crop glands of 8- to 10-weeks-old pigeons (age computed from time of conception) will, in many instances, cause a prolactin-like reaction. It is assumed that this reaction is caused by prolactin in the pituitaries of the donating fowls.

Pituitaries from broody hens cause a greater reaction of the pigeon crop gland than the pituitaries of laying hens. Pituitaries from males cause a reaction about equal to, or slightly less, than the pituitaries from laying hens.

It was noted in a few cases that the pituitaries of hens just becoming broody gave a greater reaction than those of hens nearly over their broody period. More data are being gathered on this point.

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Studies of Prolactin in the Fowl Pituitary. II. Effects of Genetic Constitution With Respect to Broodiness on Prolactin Content.

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Broodiness was induced in laying fowls of broody races by the injection of prolactin, by Riddle, Bates, and Lahr.[1] After prolactin injections laying fowl of non-broody races and males of a broody race became only partially broody, usually clucking without nesting. Burrows and Byerly[2] showed that pituitaries from broody fowl have a much greater prolactin content than those from laying fowl and from males, as judged by local pigeon crop-gland response to pituitary implantation.

The present work was undertaken to determine the relative potency of fowl pituitaries with respect to genetic constitution of the fowls. White King pigeons of 8-10 weeks conception age were used as recipients for the fowl pituitaries. The local implantation technique of Lyons as described by McQueen-Williams[3] was used. The crop-gland responses were recorded as "plus" when any visible

[1] Riddle, O., Bates, R. W., and Lahr, E. L., *Am. J. Physiol.*, 1935, **111**, 352.

[2] Burrows, W. H., and Byerly, T. C., PROC. SOC. EXP. BIOL. AND MED., 1936, **34**, 841.

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

TABLE I.

Local Crop Gland Response to Implantation of Pituitaries from Birds of Proven or Presumptive Broody or Non-broody Genetic Constitution.

Donors	Laying fowl				Mature males			
	Broody genetic constitution (proven)		Non-broody genetic constitution (presumptive)		Broody genetic constitution (presumptive)		Non-broody genetic constitution (presumptive)	
	No. of donors	Aver. response	No. of donors	Aver. No. of pluses	No. of donors	Aver. No. of pluses	No. of donors	Aver. No. of pluses
Single Comb White Leghorn	*	*	7	0.6	*	*	11	1.1
Crossbred	21	3.0	14	1.5	10	1.5	*	*
Single Comb Rhode Island Red	*	*	*	*	*	*	4	1.0
Totals and averages	21	3.0	21	1.2	10	1.5	15	1.1

stimulation was obtained, "2 plus" when the stimulation was roughly twice the minimal visible response, and so on.

Crossbred females were used in their second laying year. Occurrence or absence of broodiness during their first laying year was assumed to reflect their genetic constitution with respect to broodiness. Crossbred males used were assumed to be genetically broody since females from the crosses showed a high incidence of broodiness. The crossbreds were chiefly from matings of Single Comb Rhode Island Reds x Barred Plymouth Rocks, and White Wyandottes x Single Comb White Leghorns. The Single Comb White Leghorn females and males and the Single Comb Rhode Island Red males used were assumed to be of non-broody genetic constitution, since incidence of broodiness is low in birds of these breeds in the flocks at the National Agricultural Research Center. Obviously, broody constitution of the females so designated is proven while the genetic constitution of the other groups is presumptive. Fortunately, presence of broody birds among the presumptively non-broody ones could only reduce, not increase, the apparent difference found between pituitaries from birds of broody and non-broody genetic constitution.

The data are summarized in Table I. They show clearly that pituitaries from laying hens of known broody constitution have greater crop-stimulating potency than those from laying birds of presumptive non-broody constitution. There were 9 paired experiments in which a pituitary from a laying hen of proven broody genetic constitution was implanted over one crop-gland and a pituitary from a laying hen of presumptive non-broody genetic constitution over the other. The response to the pituitary from the hen of broody genetic constitution was greater in 8 of the 9 cases and equal to that from the presumptively non-broody hen in one case.

The data for males indicate that the male pituitary is about equal in crop-stimulating potency to the pituitary of the genetically non-broody female. It is likely that males of broody genetic constitution have a higher prolactin content than those from males of non-broody genetic constitution but the difference in crop stimulation was so small that the data are too few to make this conclusion certain. Paired implants from males and females of proven and presumptive broody and non-broody genetic constitution, and vice versa, were in accord with the summarized data of Table I. This was also true of paired implants from males of presumptive broody and non-broody genetic constitution.