lactation can be initiated in some animals upon the administration of proper amounts of estrogens.

Summary. Three groups of male rabbits were injected with 3 different levels of estrone in order to determine whether estrogen could effect a simultaneous rise in the lactogenic hormone of the pituitary and blood stream. Assays of the pituitaries revealed that a considerable increase in lactogen was obtained, although the highest dosage of estrone (5000 I.U.) gave a smaller increase in lactogen than was secured with the two lower levels (500 and 1000 I.U.). Assays of the whole, untreated rabbit blood also showed that a definite increase in the release of lactogen into the blood stream was secured following the injection of estrone. These findings are believed to account for the initiation of lactation following suitable estrogen treatment.

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Lactogenic Content of Pituitaries of Pseudopregnant Rabbits.*†

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It has been suggested that copious lactation can be initiated only when (a) there is a well developed mammary gland present and (b) when there is a high lactogen content in the anterior pituitary.[1] After the middle of pregnancy one of these two factors is present, namely, a well developed mammary gland, but the production of lactogenic hormone by the pituitary remains at too low a level to initiate abundant lactation. Thus in the rat,[2, 3] guinea pig,[4] and rabbit,[1, 4] the lactogen content of the pituitary remains as low during pregnancy as in the non-pregnant state. Almost immediately following parturition, however, there is a great increase in the lactogenic hormone of the pituitary (from 200 to over 400%), and full lactation is initiated.[2, 3, 4] An increased lactogen content in the

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1 Turner, C. W., and Meites, J., *Endocrinol.*, 1941, **29**, 165.

2 Reece, R. P., and Turner, C. W., *Missouri Agr. Exp. Sta. Bull.* 266, 1937.

3 Reece, R. P., Hathaway, I. R., and Davis, H. P., *Dairy Science*, 1939, **22**, 1.

4 Holst, S., and Turner, C. W., PROC. SOC. EXP. BIOL. AND MED., 1939, **42**, 479.

urine has also been demonstrated in postpartum women.[5]

Inasmuch as the mammary glands of the rabbit become well developed during pseudopregnancy, it was of interest to determine whether the content of lactogenic hormone in the pituitary at the end of pseudopregnancy would account for the absence of any marked degree of milk secretion in such animals. Seven normal, mature New Zealand white rabbits served as control animals, while 11 similar rabbits were each injected intravenously with 100 I.U. chorionic gonadotropin (Korotrin)‡ in order to induce pseudopregnancy. Twenty days later both the control and pseudopregnant rabbits were killed, and their pituitaries were removed for assay. In 6 of the 11 pseudopregnant rabbits it was found possible to express either a slight amount of milk or serous secretion from the teats. The pituitaries of each group were assayed quantitatively for lactogen by the Reece-Turner pigeon method.[2]

The assays revealed that the normal mature female rabbits which served as controls contained an average of 10.05 Reece-Turner (R.-T.) lactogen units per pituitary, while the pseudopregnant rabbits contained an average of 10.25 R.-T. units per pituitary. Previously it had been found that rabbits on the twentieth day of pregnancy contained an average of 9.75 R.-T. units of lactogen per pituitary.[1] Thus the normal mature rabbit, the pseudopregnant rabbit and pregnant rabbit all contain approximately the same amount of lactogenic hormone in their pituitaries. In contrast, the pituitaries of lactating rabbits 5 days postpartum contain an average of 60.0[6] R.-T. units per pituitary. It is concluded, therefore, that the reason no substantial lactation occurs in the rabbit during pseudopregnancy, as also during pregnancy, is because the amount of lactogenic hormone in the pituitary is too low. This receives support from the fact that pseudopregnant rabbits can easily be brought into full lactation upon the administration of lactogenic hormone.[7, 8, 9]

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[5] Meites, J., and Turner, C. W., *J. Clin. Endocrinol.*, 1941, **1**, 918.

‡ We wish to express our thanks to the Winthrop Chemical Company for making this hormone available to us.

[6] Meites, J., and Turner, C. W., unpublished data.

[7] Gardner, W. U., and Turner, C. W., *Mo. Agr. Exp. Sta. Res. Bul.* 196, 1933.

[8] Nelson, W. O., *Physiol. Rev.*, 1936, **16**, 488.

[9] Bergman, A. J., and Turner, C. W., *Dairy Science*, 1940, **23**, 1229.