turcica. In addition, one hypophysectomized lactating guinea pig receiving 10 mg. of galactin and another 0.5 cc. of A. C. T. ceased lactating 2 days after the operation. Lactation was reinitiated in these animals following 3 daily injections of 10 mg. of galactin and 0.2 cc. of A. C. T. beginning immediately after the complete cessation of milk secretion.

Summary. These observations are believed to indicate that the reason for the cessation of lactation following hypophysectomy in the guinea pig is the withdrawal of the lactogenic, the adrenotropic, and probably the carbohydrate metabolism hormones of the pituitary.

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Effect of Thyroxine and Galactin on Lactation in Hypophysectomized Guinea Pigs.*

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Following our observations[1] that the relatively pure lactogenic hormone (galactin) was incapable of initiating or maintaining lactation in hypophysectomized guinea pigs, experiments were initiated to determine what other pituitary principles played a direct or indirect rôle in lactation. As it is well established that the adrenal (cortex) and thyroid glands atrophy following hypophysectomy, our attention was turned to the hormones of these glands.

In this communication the effect of the sodium salt of pure thyroxine† alone and in combination with galactin on lactation in hypophysectomized guinea pigs is reported. To prevent the cessation of lactation attributable to the shock of the operation, all animals (unless otherwise stated) were given 5 to 10 mg. of whole sheep pituitary (powder) daily for 2 days. In addition, throughout all the experiments 50 mg. of glucose in solution were given twice daily.

Two hypophysectomized lactating guinea pigs were given 0.05

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1 Gomez, E. T., and Turner, C. W., PROC. SOC. EXP. BIOL. AND MED., 1936, **34**, 404.

† Prepared by the British Drug House, Ltd., London.

and 0.1 mg. of thyroxine daily beginning on the third day after hypophysectomy. Both of these animals ceased lactating after 2 days. Another animal receiving 0.05 mg. of thyroxine daily showed evidence of milk secretion for 5 days. At autopsy the mammary glands of this animal showed slight milk secretion. Microscopic examination of the sectioned sella revealed the presence of anterior pituitary fragments and the whole posterior lobe.

Two normal lactating females and one experimentally induced lactating male were given 5 and 10 mg. of galactin and 0.025 and 0.05 mg. of thyroxine daily immediately following hypophysectomy. The rapid cessation of lactation which follows hypophysectomy was not prevented in these animals, the mammary glands being dry in 2 to 3 days.

Six lactating guinea pigs were given 0.025 to 0.1 mg. of thyroxine and 5 to 10 mg. of galactin beginning on the third day following hypophysectomy. Three of these animals which received 0.025 and 0.05 mg. of thyroxine and 5 and 10 mg. of galactin showed no evidence of milk secretion after 3 days. Lactation was reinitiated in these animals following 2 to 3 daily injections of 5 to 10 mg. of galactin and 0.2 to 0.4 dog units of eschatin‡ (adrenal-cortical extract). However, when thyroxine was substituted for eschatin, milk secretion decreased rapidly, the glands being dry in 2 to 4 days. Two other animals receiving 0.07 and 0.1 mg. of thyroxine and 10 mg. of galactin showed no evidence of milk secretion after 2 days. Both of these animals developed severe coma after 2 injections. However, they were resuscitated by the injection of 100 mg. of glucose in solution administered 4 times daily. The sixth animal receiving 5 mg. of galactin and 0.05 mg. of thyroxine showed slight milk secretion for 5 days. Microscopic examination of the sella revealed the presence of pituitary fragments.

Summary. These observations are believed to indicate that the atrophy of the thyroid glands and the probable decrease in the secretion of thyroxine is not a limiting factor in the rapid cessation of lactation observed in the hypophysectomized guinea pig. This conclusion should not be interpreted as indicating the lack of importance of the thyroid in lactation, as it has been shown by Graham[2] and others that the milk yield of dairy cattle may be reduced by thyroidectomy or increased by administration of thyroxine.

‡ Kindly supplied by Dr. Oliver Kamm of Parke, Davis and Company.

2 Graham, W. R., Jr., *Biochem. J.*, 1934, **28**, 1368.