

alysis should be carried out immediately to get the maximal value for the vitamin C contained in it. It is possible that the explanation of this discrepancy is due to the type of stomach tube employed. Those used on human beings had brass tips, while those used on dogs were rubber catheters. Barron, Barron, and Klemperer⁴ have shown that minute amounts of copper destroy the protective power of biological fluids.

Whether the presence of vitamin C in gastric juice has any clinical significance remains to be seen. Work is being carried on to determine any correlation between the amounts of vitamin C in blood and gastric juice.

Conclusions. 1. Gastric juice of dog contains vitamin C in variable amounts. In our series it varied from 0.33 mg. to 1.51 mg. per 100 cc. 2. Rated in descending order according to the amount of vitamin C contained within their mucosae, parts of the gastro-intestinal tract showed the duodenum to have the most, then the ileum, colon, fundus, and finally the pylorus. 3. Human gastric juice also contains variable amounts of vitamin C according to our study ranging from .046 to 1.04 mg. per 100 cc.

9122 P

The Adrenotropic Principle of the Pituitary in Relation to Lactation.*

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It was reported¹ that the simultaneous injection of galactin, the adrenal cortical extract (eschatin) and a glucose solution stimulated the initiation and continuation of lactation in hypophysectomized guinea pigs. In the present report the effect of the injection of the adrenotropic hormone of the pituitary as a substitute for eschatin is reported.

The adrenotropic hormone was prepared from whole sheep pit-

⁴ Barron, E. S. G., Barron, A. G., and Klemperer, F., *J. Biol. Chem.*, 1936, **116**, 563.

* Contribution from the Department of Dairy Husbandry, Missouri Agricultural Experiment Station, Journal Series No. 497.

¹ Gomez, E. T., and Turner, C. W., *Proc. Soc. Exp. Biol. and Med.*, 1936, **35**, 365.

uitaries by a modification of Perla's² method.† This extract was found to be free of the growth, gonadotropic and lactogenic factors. In the following discussion this extract will be referred to as A. C. T. (Adreno-Cortico-Tropic). All experimental animals were given 50 mg. of glucose in solution twice daily.

Initiation of lactation. Two unilaterally castrate and experimentally cryptorchid males carrying functional ovarian grafts were given subcutaneous injections of 20 mg. of galactin and 0.1 cc. and 0.2 cc. of A. C. T. simultaneously daily for 3 days beginning immediately after hypophysectomy. Both of these animals were in lactation on the fourth day after the first injection.

Ten multiparous involuted females were prepared for lactation by the injection of theelin‡ (in oil) daily for 20 to 25 days and hypophysectomized 24 hours after the last injection. Immediately after hypophysectomy, one of the animals was given 10 mg. of galactin alone and another 0.2 cc. of A. C. T. daily for 6 days as controls. These animals showed no evidence of lactation.

Five animals receiving 10 to 20 mg. of galactin and 0.1 cc. to 0.2 cc. of A. C. T. were in lactation within 3 to 5 days following hypophysectomy. Two other animals which received 0.1 cc. of A. C. T. and 10 mg. of galactin were in milk 3 days after the first injection. Autopsy of these animals revealed pituitary fragments in their sella turcica. One animal receiving 10 mg. of galactin and 0.1 cc. of A. C. T. showed only evidence of a clear fluid secretion after 6 days. In addition, one non-hypophysectomized control receiving 10 mg. of galactin was in lactation after 2 days, while another receiving 0.2 cc. of A. C. T. showed no evidence of lactation after 6 days.

Maintenance of lactation. Eight lactating guinea pigs hypophysectomized 2 to 7 days after parturition were immediately injected with 10 to 20 mg. of galactin and 0.1 to 0.2 cc. of A. C. T. daily. These animals were maintained in lactation for periods ranging from 8 to 15 days. Two animals receiving 10 mg. of galactin and 0.5 cc. and 0.25 cc. of A. C. T. succumbed after 3 and 5 days respectively. The mammary glands of these animals showed abundant milk secretion at autopsy. Two other animals receiving 10 and 20 mg. of galactin and 0.1 cc. and 0.2 cc. of A. C. T. succumbed after 4 and 9 days. Autopsy of these animals revealed pituitary fragments in the sella

² Perla, D., PROC. SOC. EXP. BIOL. AND MED., 1936, **34**, 751.

† Details of the method of extraction and assay to be published later. One cc. of the extract is equivalent to 100 mg. dry whole pituitary powder.

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

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.

9123 P

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

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Following our observations¹ 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

* Contribution from the Department of Dairy Husbandry, Missouri Agricultural Experiment Station, Journal Series No. 498.

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.