7275 C

Histological Changes in the Hypophysis Produced by Chronic Administration of Hypophyseal Extracts.

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Twenty-two female rats were injected daily from their twenty-first day of life with various hypophyseal extracts. These preparations were separated from the filtrate obtained by the calcium-phosphate adsorption process, as described in a previous communication.[1] This filtrate was treated with saturated ammonium sulfate and the resulting precipitate was further purified by precipitation with 50% acetone or, in some instances, 70% alcohol. These extracts were rich in thyreotropic hormone but they also contained some gonadotropic hormone. After 6 to 10 weeks' treatment with these preparations (50 to 100 units thyreotropic daily), the animals were killed and their organs examined histologically

It was found that the ovaries showed definite signs of involution. Mature follicles or fresh corpora lutea were never present, and the ovary consisted mainly of interstitial tissue.

The anterior lobe of the hypophysis showed marked degenerative

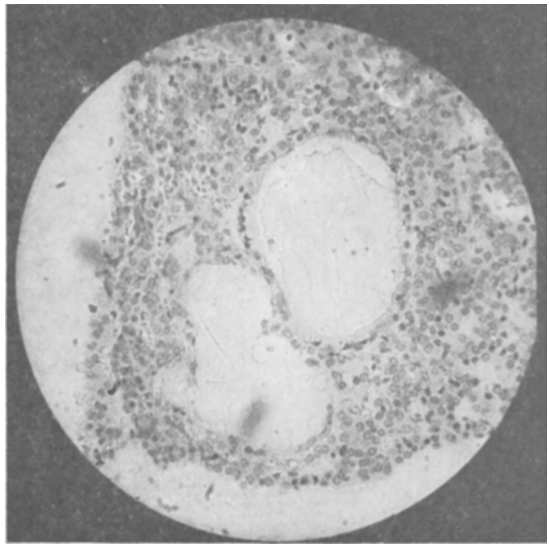

FIG. 1. Pituitary showing cysts.

[1] Collip, Selye and Thomson, PROC. SOC. EXP. BIOL. AND MED., 1933, **30**, 544.

changes. Cells of unusual size, having an excentric nucleus and a large vacuole in the cytoplasm, were observed. These elements are very similar to the so-called "castration cells" or the cells observed after thyroidectomy. In many cases hemorrhages were seen in the anterior lobe, and large cysts lined with epithelium and filled with colloid were frequently observed.

These findings show that marked histological changes of a degenerative type may be produced in the hypophysis by the chronic administration of hypophyseal extracts.

7276 C

Production of Pseudo-Pregnancy by Mechanical Stimulation of the Nipples.

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We have previously described experiments on lactating rats in which we found that the nervous stimulus of suckling could maintain the dioestrus of lactation after all galactophores had been transcised.[1, 2] It was also observed that in such animals, from which escape of milk to the litter was prevented, the mammary gland did not undergo rapid involution, but remained in an actively secreting state for some time in spite of the accumulation of the products of secretion.

The escape of milk is therefore not an essential condition for the continuation of dioestrus or for the maintenance of secretory activity in the mammary glands. Accordingly, the questions arise whether the influence of suckling could produce dioestrus in the absence of actively lactating glands and whether, since suckling will maintain the secreting gland, it could lead to a regeneration once involution has set in.

In order to answer these questions we performed the following experiments on rats.

The animals used fall into 3 groups: first, adult virgin rats; second, animals whose litters have been weaned at the end of a normal lactation and which have been seen to be normally cyclic for at least 3 cycles; and third, lactating mothers deprived of their litters

[1] Selye, H., *Am. J. Physiol.*, 1934, **107**, 535.

[2] Selye, H., Collip, J. B., and Thomson, D. L., *Endocrinology*, 1934, in press.