Sister lines of the stock Moina mothers during this depression period were, therefore, reared for several weeks in both conditioned and unconditioned media. It was evident that the mothers in the conditioned medium produced more young and more second eggs at all times than the sister mothers in the unconditioned medium. The conditioned medium failed, however, in rejuvenating completely the stock from the depression period.

6310

Effects of Administration of Cortin to the Hypophysectomized Rat.*

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Among the results of experimental hypophysectomy in mammals are loss of weight, or, in young animals, failure to increase in weight, loss of *libido sexualis,* cessation of estrus, or sexual infantilism, lessened spontaneous activity, lowered metabolism and lowered temperature.[1, 2, 3] Autopsy of such animals shows atrophy of the thyroid, the adrenal cortex, the gonads, the secondary sex organs, and the thymus. It is apparent that the hypophysectomized animal is characterized not only by absence of the pituitary but also by a marked reduction in size, and presumably also in function, of several other highly important endocrine glands. Considerable light has been thrown on the respective rôles of the thyroid and the gonads in this complex endocrine disturbance.[2, 4] The functional relationships of the adrenal cortex in the above pictured syndrome are not so well known; what symptoms and what glandular deficiencies, if any, are secondary to the atrophy of this important endocrine gland following removal of the pituitary?

We have previously reported the results of cortin treatment in hypophysectomized Amphibia.[5] In our mammalian experiments albino rats weighing from 150-200 gm., principally from the Wistar

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1 Smith, P. E., *J. Am. Med. Assn.*, 1927, **88**, 158.

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5 Atwell, W. J., PROC. SOC. EXP. BIOL. AND MED., 1932, **29**, 621.

experimental colony strain were used. Beginning about the 6th day following hypophysectomy certain animals received daily two 0.5 cc. injections of cortin. Other operated animals were injected at similar times with an equal amount of salt solution. Still other litter mates, unoperated, were available for controls. The operated animals were weighed and daily vaginal smears obtained from the females. In the latter part of the experiment spontaneous activity cages, which recorded revolutions, were available and some of the animals lived in them. The rats were killed from 4 to 8 weeks following operation after having received treatment for from 3 to 7 weeks. Unoperated litter mates were killed at the same time. At autopsy, gonads, genital tract exclusive of gonads, adrenals, thyroids, thymus, liver, spleen and kidneys were carefully dissected out, weighed, and fixed in Bouin's fluid for histological study. The hypophysial region also was preserved, decalcified and sectioned serially. This procedure was deemed necessary in all cases to prove the success or failure of the operation. Twenty rats were hypophysectomized. Nine of these received cortical extract.

Cortin treatment failed to repair the atrophy of the gonads, the thyroids or the adrenal cortex. The interrupted oestrous cycles of the females were not restored. There was no restoration of the growth rate.

In certain respects, however, the cortin-treated rats were strikingly different from the untreated. Instead of being cold, apathetic and almost entirely inactive as hypophysectomized animals characteristically are, they were distinctly active and showed a body temperature slightly under normal.

These observations provide an experimental basis for the expectation[6] that cortical extract will relieve the asthenia, hypothermia, and presumably also the hypotension, of Simmond's disease. They likewise provide a necessary link in the evidence that the relief of myasthenia which follows administration of hypophysial growth hormone to hypophysectomized rats (Evans and coworkers[7]) results from activation of the adrenal cortex.

[6] Calder, R. M., *Bull. Johns Hopkins Hosp.*, 1932, **50**, 87.

[7] Evans, H. M., Meyer, K., Pencharz, R., and Simpson, M. E., *Science*, 1932, **75**, 442.