autopsy the abdominal viscera of the injected animals appeared to be as large as those of the untreated spayed rats in spite of the disparity in body weight. The weights of the various organs were taken in the rats treated with 42.2 units of A-C-T, in the control spayed rats and in 23-day-old normal female rats.

There had been no inhibition in the growth of the spleen and kidney, and only a slight inhibition (?) in the growth of the liver and digestive tract of the treated rats. The heart and thyroids were considerably smaller than in the untreated spayed animals. The preputials were enlarged in the injected animals. The thymus was very atrophic and in some cases completely atrophied.

9446

Effect of Adrenocorticotropic Hormone on the Sexual Development of Spayed Rats.*

HENRY D. MOON. (Introduced by Herbert M. Evans.)

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In a previous paper[1] the production of an androgenic substance by the adrenal cortex in castrate rats after the administration of adrenocorticotropic extracts (A-C-T) was reported. The production of an estrogenic substance by the adrenal cortex in spayed immature female rats after the administration of A-C-T is herein reported.†

Wyman,[2] Martin[3] and Corey and Britton[4] have demonstrated the cessation of estrus after adrenalectomy. Nice and Shiffer[5] were able to obtain premature sexual development in immature female rats with implants of rat adrenals. Frank[6] has reported an increase in

* Aided by grants from the Board of Research, University of California, and the Rockefeller Foundation, New York City.

1 Davidson, C. S., and Moon, H. D., PROC. SOC. EXP. BIOL. AND MED., 1936, **35**, 281.

† Alcoholic extracts of steer adrenals have shown 1 intravaginal unit in 1-2 gm. of fresh tissue. The method of assay used was that of Lyons and Templeton (PROC. SOC. EXP. BIOL. AND MED., 1936, **33**, 587).

2 Wyman, L. C., *Am. J. Physiol.*, 1928, **85**, 414.

3 Martin, S. J., *Ibid.*, 1932, **100**, 180.

4 Corey, E. L., and Britton, S. W., PROC. SOC. EXP. BIOL. AND MED., 1933, **30**, 592.

5 Nice, L. B., and Shiffer, A. L., *Endocrinol.*, 1931, **15**, 205.

6 Frank, R. T., PROC. SOC. EXP. BIOL. AND MED., 1934, **31**, 204.

the excretion of female sex hormone in patients with cortical tumors. Quantitatively negative results were reported by Corey and Britton[7] in ovariectomized rats and by Corey[8] in hypophysectomized rats in attempts to produce estrus with adrenal cortical extracts.

Immature female rats were spayed when 22-23 days old. Injections of A-C-T (prepared and assayed by the method previously published[9]) were given intraperitoneally beginning on the day following the operation. The vaginæ of the injected spayed rats opened after the administration of 30-42 units of A-C-T. The vaginæ of untreated spayed rats did not open.

TABLE I.

Rats	Opening of Vagina Days of Treatment	Daily Dose of A-C-T Units	Total Dose of A-C-T Units
W 43	24	1.5	36.0
W 45	24	1.5	36.0
BH 48	25	1.5	37.5
W 18	16	1.9	30.4
BH 28	18	1.9	34.2
B 05	22	1.9	41.8

Vaginal smears of the treated spayed rats showed the presence of cornified cells, a few nucleated epithelial cells and leucocytes. Animals W 18 and B 05 showed, 2 days after the opening of the vagina, vaginal smears consisting predominantly of leucocytes.

At autopsy the adrenals of the injected rats were found to be greatly hypertrophied.

9447 P

Effectiveness of Arachidonic Acid in Curing "Fat Deficiency" Disease.*

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The earlier work by Evans and Burr,[1] by Burr and collabora-

7 Corey, E. L., and Britton, S. W., *Am. J. Physiol.*, 1934, **107**, 207.

8 Corey, E. L., PROC. SOC. EXP. BIOL. AND MED., 1937, **36**, 41.

9 Moon, H. D., PROC. SOC. EXP. BIOL. AND MED., 1937, **35**, 649.

* Aided by grants from the Board of Research and the College of Agriculture of the University of California, and the Rockefeller Foundation of New York City.

† Holder of a Finnish State Fellowship.

1 Evans, H. M., and Burr, G. O., PROC. SOC. EXP. BIOL. AND MED., 1927, **24**, 740.