considered. It will be seen that sub-minimal doses of theelin caused a reaction in 3 cases in group O and 4 cases in the A-O group. The duration of the estrus is the same in the 2 groups; as is also the number of cases where estrus reoccurred a few days after the first estrus.

Another series of 30 rats ovariectomized at weaning were divided 8 weeks later into 2 groups of 15 rats each. Bilateral adrenalectomy was performed on one group, and bilateral laparotomy on the other or control group. On the 2 days following operation, theelin was injected in 4 equal doses to a total of 2 R.U. In the adrenalectomized group 13 animals came into estrus, as compared to 11 in the control group. Thus the larger doses of theelin that are required to bring about estrus in ovariectomized rats of long standing are not reduced by adrenalectomy.

Summary. Total adrenalectomy in rats has little or no effect on (a) the estrus cycles that occur after ovariectomy; (b) reducing the minimal dose of theelin; (c) the duration of estrus following 1 to 10 R.U. of theelin; (d) the tendency for estrus to reoccur after a positive reaction to theelin; and (e) reducing the dose of theelin needed to produce estrus in ovariectomized rats of long standing.

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Depressor Action of Extracts of Burned Skin.

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Extracts were made of normal and burned skin of rabbits by the method of Chang and Gaddum.[1] The skin was burned at temperatures varying from 70°C. to 210°C. and removed from 3 minutes to 48 hours after burning. The extracts were then tested by their action after intravenous injection on the blood pressure of 7 rabbits and 10 cats.

Results. Extracts of burned skin of 10 anesthetized rabbits caused an immediate, but transient, fall in blood pressure. The curve was similar to that following acetylcholine, but the recovery was slower

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1 Chang, H. C., and Gaddum, J. H., *J. Physiol.*, 1933, **79**, 255.

and was not always followed by a rise above the original level. Recovery was slower in the rabbit than in the cat. The depressor action was not affected by the injection of atropine (0.1 mg. per kg.), and was not reduced by treating the extract with alcohol to precipitate adenosine and its derivatives; and since depression of the blood pressure of rabbits was obtained, the depressor substance was not mainly histamine. Later experiments showed that when the extract was boiled with alkali and then neutralized, the depressor action did not disappear. The substance mainly responsible for the action was therefore not the "P" substance of Euler and Gaddum.[2] The depressor substance has not been identified. Extracts of normal skin of 5 rabbits were qualitatively similar to those of burned skin in depressor action.

Quantitative Comparisons. The depressor action of the extracts was compared with that produced by a standard solution of acetylcholine and roughly expressed in γ of acetylcholine equivalent per gm. of tissue. The extracts are named according to the time after burning or removal of tissue and to the temperature at which the heat had been applied. The 5½ hour, 24 hour, and 48 hour control extracts contained roughly 2.5 γ ac.-equiv. The 3 minute 70°, 3 minute 210°, and 48 hour extracts averaged a like amount, whereas the extracts taken during the intervening period, including the 3 hour 110°, 4 hour 105°, 24 hour 170°, and 24 hour 110° extracts were not so active, containing usually less than 1 γ ac.-equiv. At the 3 minute and 48 hour periods the subcutaneous edema fluid was small in amount as in normal skin, whereas at the intervening times, considerable edema fluid was present. This suggests that the depressor content of skin is not significantly altered by the application of heat, except insofar as the depressor substances become diluted by edema fluid.

Summary. (1) Trichloracetic acid extracts of the normal skin of rabbits have a depressor activity which is not due to acetylcholine, adenosine, histamine, or the "P" substance of Euler and Gaddum. (2) Extracts of rabbits' skin to which heat had been briefly applied at intervals of from 3 minutes to 48 hours previously, contain an apparently identical depressor substance. Such extracts show no increased depressor activity, but sometimes a diminution, which is probably due to dilution of the depressor content of normal skin by edema fluid.

[2] Euler, U. S., and Gaddum, J. H., *J. Physiol.*, 1931, **72**, 74.