

strated in the average activity graph (Fig. 3) of a single female chipmunk from May 17 to June 29, 1939. Complete analysis of the activity of the species cannot be given here, but the activity curve shows that the species is diurnal with activity largely during the period between 6 a. m.-noon, and 2-6 p. m. This coincides with field observation. Analysis of activity by weeks shows that total average activity tends to increase and the periodicity to break down through the experimental time, thus average activity for the first week was much less, and confined to the day, no activity being recorded between 8 p. m.-6 a.m. During the course of this sample experiment the chipmunk traveled an average of 6.2 miles per 24-hour period, or a total of 272.8 miles. The cyclometer reading at this time was 272.6 miles, a difference of .2 miles between the direct count on the revolving axle, and the waxed-paper record, attesting to the accuracy of the apparatus. Such a recorder should be valuable for analysis of small mammal activity cycles in general.

Summary. A modification of the Hemmingsen-Krarup activity recorder is described and figured. In a test of the apparatus, the chipmunk was found to have at least an habitual diurnality in constant darkness, temperature and relative humidity.

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Effects of Adrenalectomy on the Blood Count of the Rat.

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Study of the literature concerning changes in the blood picture during adrenal insufficiency reveals that the results reported by different workers are not in complete agreement. While the experiments of Corey and Britton¹ show an increase in the red cells and lymphocytes, accompanied by a decrease in the neutrophiles, those of Simpson, Dennison and Korenchevsky² show a decrease in the red cells and lymphocytes with not much change in the total white cell count, whereas the effects observed by Sheket, Friedman and Nice³ were leukocytosis, lymphocytosis and neutropenia.

¹ Corey, E. L., and Britton, S. W., *Am. J. Physiol.*, 1932, **102**, 699.

² Simpson, S. L., Dennison, M., and Korenchevsky, V., *J. Path. and Bact.*, 1934, **39**, 569.

³ Sheket, H. A., Friedman, D. L., and Nice, L. B., *Proc. Soc. Exp. Biol. and Med.*, 1935, **32**, 608.

TABLE I.

Rats	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
R.B.C.	5,000,000 11,950,000	6,500,000 9,800,000	6,000,000 10,650,000	9,950,000 11,800,000	8,750,000 10,350,000	8,720,000 11,520,000	7,680,000 8,920,000	8,160,000 11,640,000
L.L.	1,500 6,000	500 7,500	1,500 4,000	1,500 4,000	1,000 4,500			
S.L.	11,500 21,000	11,000 17,000	13,000 19,000	26,500 52,500	11,500 22,000	9,000 11,000	11,500 14,000	9,000 11,500
Poly.	4,500 13,500	4,000 13,000	1,000 6,500	5,000 18,500	4,500 9,000	3,500 14,000	500 8,500	1,500 30,500
Total White cells	17,500 40,500	15,500 37,500	15,500 29,500	33,000 75,000	17,000 35,500	12,500 25,000	12,000 22,500	10,500 42,000

The first value given for each category of cell represents the count before operation, and the second, the count 24 hours before death.

The difference in these results led us to repeat these experiments.

In a first experiment, six male hooded rats, weighing 150-200 g, were adrenalectomized and blood taken from the tail was examined at regular intervals until their death. The results obtained for each category of blood cell did not permit us to draw definite conclusions; for example, 3 of the rats showed a decrease in the red cells, the others, an increase. We believed that these results, similar to those reported before by other workers, were caused by differences in the ability of individual animals to resist surgical shock and hemorrhage subsequent to the operation, as well as to small variations in the degree of shock and hemorrhage produced.

In a second experiment, therefore, 8 male rats of similar weights were given 1 cc injections of Wilson's cortical extract daily for 3 days following adrenalectomy. Thus we eliminated any individual differences due to operative procedure.

Two days after cessation of the cortin injections, the animals began to show symptoms of adrenal insufficiency, and from this time on, their blood was examined daily until their death.

The results obtained, all uniform, were as follows: the red blood cell count showed a rapid increase during the first 2 or 3 days after discontinuation of cortin treatment, and remained well above normal until death. The large lymphocytes, the small lymphocytes, and the neutrophiles, after small irregular variations, increased markedly in number during the 24-hour period preceding death.

Reticulocyte counts made on the blood of these rats agree with our previous finding⁴ that after adrenalectomy a great increase in reticulocytes occurs, followed by a drop to nearly normal numbers before death.

⁴ Dalton, A. J., Masson, G., and Selye, H., *Bull. et Mém., Soc. Endocrine Roumanie*, 1939, **5**, No. 6.