Fig. 1b. Mean time in activity (BT) as related to mean number of revolutions per hour (H Rev), for three Ss. Each point is the average of 25 observations.

and hourly BT is shown in Fig. 1b. In Fig. 1b, H Rev were ranked in order of magnitude and grouped in units of 25 values each. The mean BT for each group of 25 values is shown plotted against the mean H Rev for the group. The linear relationship between these two measures is clear. It is also apparent that the slopes are nearly equal for all three Ss.

To determine whether or not this relationship held when different criteria were used for BT, a burst was defined as a period of activity of at least 3 min duration (4 Ss) and again as a period of activity of at least 6 min duration (5 Ss). For this analysis D Rev and daily BT were measured for all nine Ss over 13 consecutive days that followed the last eight day period in the first analysis. The correlations between BT thus defined and D Rev were comparable to those for hourly data. Pear-

son's r values ranged between .95 and .99, with a mean of .98; the conclusion is that the relationship between BT and H Rev was not due to the specific definition of BT used for the analysis.

The amount of activity of the normal adult female rat, as measured in the activity wheel, is determined almost entirely by the duration of periods of activity. Since the relationship is not specific to the estrous cycle, it may also be independent of age and sex. It is not clear why the number of revolutions is so closely paralleled by the duration of activity. Stellar & Hill (1952) found that when rats vary the amount of water intake, they do so by varying the amount of time spent in drinking; the rate of lapping is constant. The present study indicates that there is a similar relationship between the amount of activity emitted and the rate at which the activity occurs for the female rat.

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Notes

1. We thank Mrs. Hildegund Holloway and Mr. N. Roberts for assistance in collection and analysis of data, and Mrs. Mary J. Beaver for assistance in preparation of records. We also acknowledge the assistance of the Western Research Support Center, VAH, Sepulveda, California for the computer processing of the data.
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3. For the three Ss, 99.4, 99.3, and 98.6 percent of the activity occurred during periods for which BT could be measured (i.e., met the criteria for a "burst").

Comment on Clark and Bremner by Robert Boice and Carol Boice, The University of New Mexico

Clark & Bremner (1967) state unequivocally that kangaroo rats do not drink water. Although there are many reports of *Dipodomys* living on air-dried food without drinking (Schmidt-Nielsen, 1964), Richter (in Howell & Gersh, 1935), among others, notes that kangaroo rats will consume up to 10 cc of free water per day.

Ten *Dipodomys ordii* in our laboratory, maintained on Wayne Mouse Breeder Blox, have shown a mean intake of 8.8 cc free water per day over as many as 143 days of ad lib availability and a mean intake

of 3.9 cc free water per day over as many as 70 days of 1 h per day availability of water. The behaviors of the kangaroo rats when on the 23 h deprivation schedule suggest great eagerness for the water bottle.

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