also produced marked inhibition of response to Friend virus. Other experiments in BALB/c mice have shown that the inhibiting factor is present in fluids of tissue cultures infected with Moloney virus at titers of no more than 10^3 infectious doses per milliliter, and that the Gross passage-A mouse-leukemia virus (*8*) does not induce resistance.

Conclusions about the mechanism of the inhibition of Friend virus response cannot be made from present data. Possible mechanisms include cross immunization, viral interference, immunologic rejection of altered cells (*9*), or less likely, a change in physiological state such as elevation of corticosteroid levels (*10*).

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Microtus: A Simple Method of Recording Time Spent in the Nest

Abstract. *A prairie vole,* Microtus ochrogaster, *was tagged with a radioactive label, a survey meter was placed over its nest, and the presence or absence of the animal in the nest was recorded on tape.*

Vertebrate animals have been tagged with isotopes and their movements have been traced by survey meters (*1*) to determine distances moved and area traversed. We have now devised a technique for measuring automatically the amount of time that the prairie vole spends in its nest or resting site.

A large male prairie vole (*Microtus ochrogaster*) was tagged subcutaneously with a 0.7 by 2.5 mm piece of alloy wire containing approximately 55 μc of Co^{60}. The animal was released at the point of capture and traced immediately into a burrow with a Victoreen Thyac II, model 489 survey meter and a scintillation probe (*2*). The next few days revealed that the animal spent most of the time underground in this same spot, presumably in a nest. A means of automatically recording the presence or absence of the animal in the nest was then devised.

Atomic Accessories model 463-1 GM survey meter was sufficiently sensitive to indicate the presence of the animal in the nest. The earphones were detached, and one end of a 200-foot length ($\sim$ 61 m) of single-conductor, shielded cable (*3*) was fitted with an appropriate connector and attached to the meter in place of the earphones. The meter with cable attached was enclosed in a plastic bag and placed on the ground directly over the nest. The other end of the cable was plugged into the input jack of a Wollensak model T-1500 tape recorder in a nearby building. With this equipment, the audio output of the survey meter could be recorded on tape. The recorder was energized by a recycling timer set to turn the current on every 4 minutes and 40 seconds and to keep it on for 20 seconds, thus giving a record every 5 minutes. During the 20 seconds that the recorder was running, some 14 seconds elapsed during which the recorder was warming up and not recording; this period provided a marker to separate consecutive recordings. Recording was done at a speed of 3¾ inches per second (9.5 cm/sec), playback at 7½ (19.5 cm/sec). At these speeds, in 2 minutes of playing time, one can hear the results of a full hour of recordings.

A 1200-foot tape ($\sim$ 376 m) will record for more than 12 hours, so the recorder needed attention only twice a day. A set of batteries (five size D cells) for the meter lasted more than 24 hours.

An advantage of this method of obtaining and recording data is that the parts are readily available, relatively inexpensive, and easily and quickly assembled and put in operation. A major disadvantage is that it is not known if the radioactive tag affects the behavior of an animal, and it is most difficult to use untagged animals for controls.

Figure 1 presents data recorded at 5-minute intervals from 8:00 P.M., 6 February, to 8:00 P.M., 7 February 1963. Temperature ranged from 31° to 46°F (−1° to +8°C), and the weather was almost continuously foggy with occasional drizzle. A black line indicates time at the nest, and blank areas indicate time away. A solid line does not necessarily mean that the animal was continuously at the nest; it may have left and returned between consecutive recordings. It does mean, however, that the animal did not spend as many as five consecutive minutes away from the nest at any time during continuation of the line.

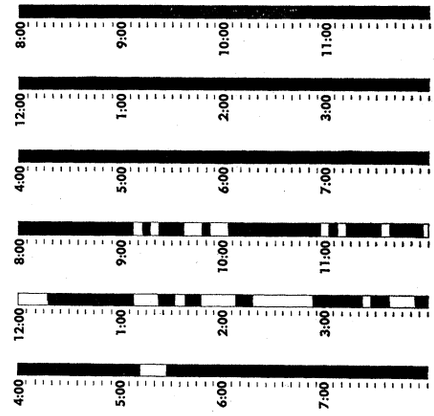

Fig. 1. From left to right and top to bottom, the chart indicates time in the nest (solid black) and time away from the nest (blank) of *M. ochrogaster* from 8:00 P.M., 6 February, to 8:00 P.M., 7 February 1963. Determinations were made at intervals of 5 minutes.

During the 24-hour period, the animal spent approximately 175 minutes out of the nest, divided into 15 activity periods with an average duration of 11.7 minutes, all during the daylight hours. *Microtus ochrogaster* is known to be active at night in summer, but little data are available on its activities in winter.

Twenty-two full days of recordings have been accumulated on two species, and the behavior pattern in Fig. 1 appears to be typical of *M. ochrogaster* during inclement weather.

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2. I thank the Faculty Research Fund Committee of the University of Kentucky for the survey meter and scintillation probe.
3. Shielded cable is unnecessary. A completely adequate signal may be transmitted on several hundred meters of field telephone wire.

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