AN ELECTROMECHANICAL DRINKOMETER

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The device described is easily made with a minimum of tools and materials, is sufficiently reliable to be used in research and passes no current through the animal. It has been used in a research project requiring 24 drinkometers working simultaneously (making other devices too costly). Its performance has also been compared with an electronic drinkometer attached to the same tube. The count of licks registered by both devices was equal.

The device shown at the bottom of this page consists of a light leaf pivoted at one end, and a small aperture at the other. (Commercially available relay leaves with contacts (from relay kits) have been found to be suitable for this part of the apparatus.) The leaf is grounded through its pivot and is electrically conductive. The hole in the leaf is lined

up with the end of a drinking tube so that as the rat drinks it displaces the leaf with its tongue. At the end opposite to the pivot is a contact on the underside of the leaf which rests on another contact. From this contact a wire leads directly to a dc relay. As the animal breaks the circuit when it laps, the relay circuit is opened and a record can be made of the animal's drinking. If the relay is replaced by a counter directly or by a pen unit a further simplification can be achieved. In this arrangement as: (a) the animal is grounded, (b) has a considerable resistance in comparison to the directly grounded leaf, and (c) the voltage appearing between the leaf and ground must be to all intents and purposes nonexistent, it is clear that no current can be flowing through the animal when it touches the leaf to break the circuit. Further, after the circuit is broken the animal's tongue remains in contact only with that part of the circuit which is grounded so that again no current can flow through the animal. This arrangement is economical and works well when shaking of the test cage can be avoided and when the drinking nozzle can be arranged to be vertically above the test compartment. To protect the light leaf from gnawing attempts it has been found useful to mount the leaf with its pivot on a thin Plexiglas sheet with a hole above where the hole in the leaf and the nozzle of the bottle are to be placed. The device does not seem to affect the rat when it is drinking. To obviate possible taste effects, if these are important, it is possible to coat that part of the leaf with which the rat's tongue comes in contact with lacquer or a solution of Plexiglas.