To Measure Trickle Outflow

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This article was prepared expressly as an "Instrument News" contribution in cooperation with the Arizona Agricultural Experiment Station. The authors wish to thank R. J. McGuire, project machinist at the Research Center, for his help in fabricating the equipment described in this article.

First a thin sheet metal funnel was fabricated with a flexible hose leading downstream to the water meter (Fig. 2). This collecting funnel then was attached to the flume with synthetic rubber to make a watertight seal between the concrete and the funnel. In heavy surface runoff the funnel will easily become dislodged to allow the flume to operate normally.

The water meter first was modified to indicate volumetric increments of flow on the flume's recorder chart by inserting a microswitch on one of the totalizing gears. This switch is installed so that each gear revolution makes a contact, activating the relay and a pen on the recorder (Fig. 3). The pen is attached to a relay wired to the meter's contact points across a 6-v battery. Flow rates are determined by the frequency of volumetric increments recorded. Each gear revolution makes one mark on the water level recorder's strip chart to represent 10 gal of water.

To measure these very low flow rates, the closure time...
of the microswitch must be short to eliminate unnecessary battery drain but yet long enough to eliminate burning of the contact.

**Operation**

Water flowing over the flume enters the funnel through a screen which removes any coarse litter. The water then passes through a sieve which collects the fine sediments. An aeration pipe removes air bubbles before the water enters the meter. Water passing through the meter turns the impeller to which the gear with the microswitch is attached. Periodic cleaning of the screen is necessary when leaves are falling.

The unit was calibrated volumetrically in operation by using 6 cu ft barrels of water and a stop watch. The calibration (Fig. 4) reveals a direct linear relation throughout a wide range of discharge rates. In other words, the water meter had neither an acceleration bias at high flows nor a lack of sensitivity at low flows.

This simple unit requires a minimum of maintenance — yet it performs accurately for long periods.