suck the fluid (a sucrose solution, in the experiments with *Cynomyopsis cadaverina*) from the capillary tube through the filter paper, and the amounts ingested are measured in millimeters by following the movement of the meniscus along the graduated scale.

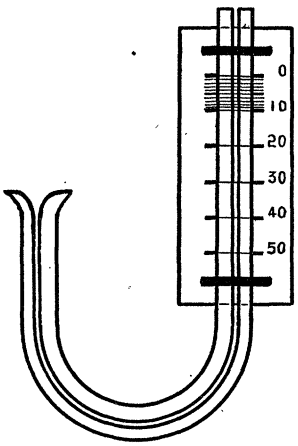

FIG. 1. Construction of the potometer. The bore of the capillary tubing is greatly exaggerated.

To convert amounts in millimeters, an obviously arbitrary measurement, to absolute volumes, the potometer must be calibrated. To do this, it is necessary merely to determine the weight of mercury represented by each centimeter along the scale, and then to convert this, using the density of mercury, into the volume represented. Benedetti-Pichler (*Introduction to the microtechnique of inorganic analysis.* New York: John Wiley & Sons, 1942. Pp. 256–260) gives complete detailed directions for such calibrations. With solutions of known concentration, the exact amount of dissolved material ingested by the individual animal can be measured readily when the potometer is thus calibrated.

One possible correction factor suggests itself. The fluid is evaporating from the wick during the feeding of the insect, and it would seem to be necessary to correct for the rate of evaporation. In our experiments the wick was kept so small that the oral lobes of the flies practically covered it in feeding, thus stopping this evaporation. Also, the rate of evaporation with sugar solutions, and even with distilled water, was found to be so low that there was no appreciable loss through this route for the short time during which each fly fed. This factor, therefore, can be eliminated with appropriate precautions, or it can easily be determined and taken into account in the readings.

Using this potometer, a preliminary study was made of the correlation between time of feeding and amount of fluid ingested to determine to what degree time of feeding could be used in place of amount. Twelve flies (6 males and 6 females) were used in the tests. These flies were mounted for ease of handling by fastening them on blocks of beeswax at the ends of glass rods. They were fed .5 M sucrose solution at 12-hour intervals, with distilled water supplied before each feeding. The results are presented graphically in Fig. 2.

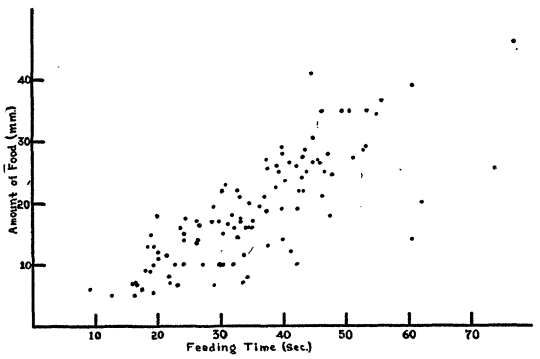

FIG. 2. The relationship between time of feeding and amount of food ingested for *Cynomyopsis cadaverina.*

There is obviously a high degree of correlation between time of feeding and amount of food ingested by this species, the coefficient of correlation (r) being .80 (Fisher's $z = 1.1$). With long times of feeding, however, as the graph shows, the time of feeding may not be an accurate index of the amount. This is probably due to the tendency on the part of some individuals of this species to allow the proboscis to remain extended after reaching satiety, thus giving a time record without really ingesting any food. For work in which a high degree of accuracy is not necessary, the time of feeding is obviously a good measure of amount of food ingested. Where precision is necessary, however, in the measurement of actual amounts, the feeding time is invalid.

A New Glass Device for Staining Cover-Glass Preparations[1]

RALPH WICHTERMAN
Temple University

Frequently biologists and others who are obliged to work with preparations affixed to cover glasses use methods whereby individual cover glasses must be transferred through fixing fluids, stains, alcohols, and clearing media before being mounted on slides.

[1] Cover-glass staining devices have been described by F. Baer (*Stain. Tech.*, 1929, **4**, 59–60), R. H. Bowen (*Stain. Tech.*, 1929, **4**, 57–58), and T. T. Chen (*Stain. Tech.*, 1942, **17**, 129–130). However, one who has experienced the staining of large numbers of cover-glass preparations should find obvious advantages in this new glass device.

Two such methods are widely used: In one, the cover-glass preparations are handled in Petri dishes, each of which accommodates about seven cover glasses. In this method there is always the danger of one cover glass sliding upon another and damaging the preparation. The other method requires the use of special staining wells which are grooved to receive four cover glasses. In both methods the cover glasses must be handled individually with forceps. This is not only tedious when large numbers of preparations are to be stained, but it is difficult or impossible to have all preparations stained for exactly the same lengths of time.

To overcome the objection to the use of Petri dishes and ordinary staining wells, I have constructed a device which permits the staining of ten cover-glass preparations (or twenty when placed back to back) in a single operation. The device (Fig. 1) consists of a slotted glass carrier to hold the cover-glass preparations, a spring-type handle for the carrier, and a glass container with lid for the reagent. The carrier is small and compact, with ten grooves on the inside of each of the long sides. Into these grooves are placed the circular or square cover-glass preparations of the size most commonly used, namely, 22 mm. ($\frac{7}{8}$ in.) wide. A thin strip of glass at the bottom and center of the carrier holds the cover glasses in place, and the space on each side of this strip permits the fluids to enter and cover the preparations when placed in a dish of reagent. In a staining procedure, there are frequently ten or more different reagents into which the preparations are to be passed. Of course, there should be a dish for each reagent. The size of the glass carrier ($5.5 \times 2.5 \times 4$ cm.) is such that two of these can be placed side by side in the standard glass dish that is ordinarily used for the carrier holding 1×3-in. glass slides.

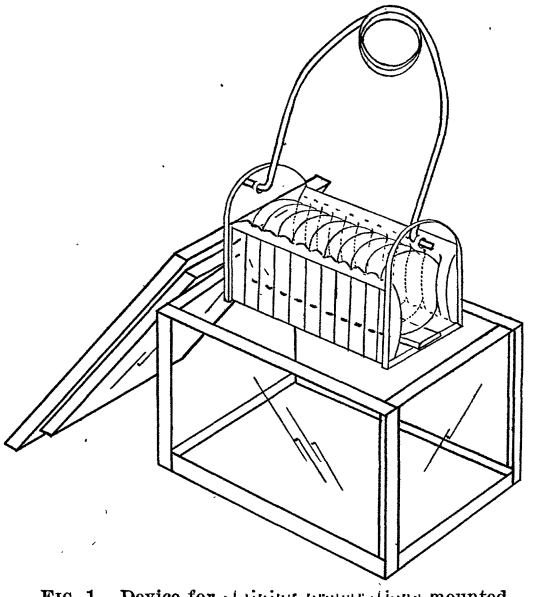

FIG. 1. Device for staining preparations mounted on cover glasses. The open bottomed glass carrier with wire handle is shown with ten cover glasses in place for staining. Glass dish and lid are also shown.

Protozoologists, parasitologists, cytologists, bacteriologists, and others, especially those working with blood smears on cover glasses, should find the device useful. Its use in the Feulgen staining reaction is apparent. Not only does it eliminate what has been a very tedious and time-consuming operation in the past, but also it enables one to obtain uniformly accurate results in working with large numbers of preparations.

Scanning Science—

At the fortieth meeting of the Geological Society, on January 9th, the first paper read was by Mr. R. T. Hill, of the U. S. Geological Survey, On the Agassiz Expedition to Panama and Costa Rica.

The speaker made acknowledgment to the following specialists who had determined for him many different types of material entering into this complicated section: to Dr. Wm. H. Dall, of the Geological Survey, for a report upon the Tertiary Mollusca; to Prof. R. M. Bagg, of Johns Hopkins University, for interesting determinations of the Tertiary Foraminifera; to Prof. J. E. Wolff, of Cambridge, to whom the petrographic specimens were assigned; to Mr. H. W. Turner, of the Geological Survey, for minute examination of certain important and apparently indeterminate earths; to Mr. Ahe Sjorgren, of Stockholm, Sweden, late of Costa Rica, for carefully prepared sections and collections; and to Mr. T. Wayland Vaughan, of the U. S. Geological Survey, for determination of the fossil corals.

—24 January 1896