

## A MANOMETRIC PIPETTING DEVICE

BERTIL G. ANDERSON,

Department of Biology, West Virginia University, and  
Franz Theodore Stone Laboratory, The Ohio State University

The pipetting device herein described has enabled me to make 100 ml. dilutions faster and with much less fatigue than the pipetting by mouth method. The device can be used in a variety of situations where definite volumes are to be dispensed. It can also be used where a safety pipette is desirable especially with radioactive materials. Cleaning time is less than for other types of automatic and mechanical dispensing devices since the only part that requires cleaning is the pipette. The principle involved is simple so that others may have developed essentially similar devices but so far as I am aware they have not been described.

The device is diagrammed in Fig. 1. The pipette may be of any size and type that is emptied completely. This is connected by means of a rubber tube to a gas collecting tube of 250 ml. capacity. The gas collecting tube is in turn connected by means of a second rubber tube to a leveling bulb of 250 ml. capacity. These parts are supported on a stand with a heavy base and a rod 36 in. long and 0.5 in. in diameter. The pipette is held by a burette clamp. The gas collecting tube is held by a large burette clamp. A fixed leveling bulb support is mounted above the gas collecting tube at a level to hold the upper end of the tubulation of the leveling bulb 2-3 cm. below the upper end of the expanded portion of the gas collecting tube. An adjustable leveling bulb support is mounted below the gas collecting tube. After the apparatus is assembled it is filled with water to the level shown in Fig. 1.

The pipetting procedure is as follows: Place the leveling bulb in the fixed support. Adjust the lower leveling bulb support so that the distance between it and the fixed support is a centimeter or two greater than the distance between the tip of the pipette and the graduation mark. If the density of the liquid to be dispensed is different from that of water the distance should be proportional to the specific gravity of the liquid. To fill the pipette a vessel containing the liquid to be dispensed is raised to immerse the tip of the pipette and the leveling bulb lowered to the adjustable support. If the adjustable leveling bulb support is adjusted precisely the liquid level in the pipette will drop to the graduation mark on withdrawing the vessel. If the liquid level in the pipette falls below the graduation mark the vessel should again be raised to the pipette and the adjustable support lowered until the liquid level in the pipette falls to the graduation mark on withdrawing the vessel. If the liquid level falls above the graduation mark the adjustable support should be raised until the liquid level falls to the graduation mark. The pipette is emptied by raising the leveling bulb to the fixed support. Once adjusted to a pipette only minor adjustments need be made from time to time.

Any type and size of pipette can be used with this device. Mohr type pipettes have been used by adding a second adjustable leveling bulb support below the fixed support and adjusted to stop the emptying of the pipette at a given graduation mark. The pipette itself may be mounted on a separate support which may be at a distance from the remainder of the apparatus. In this way the device can be used advantageously in pipetting radioactive materials.

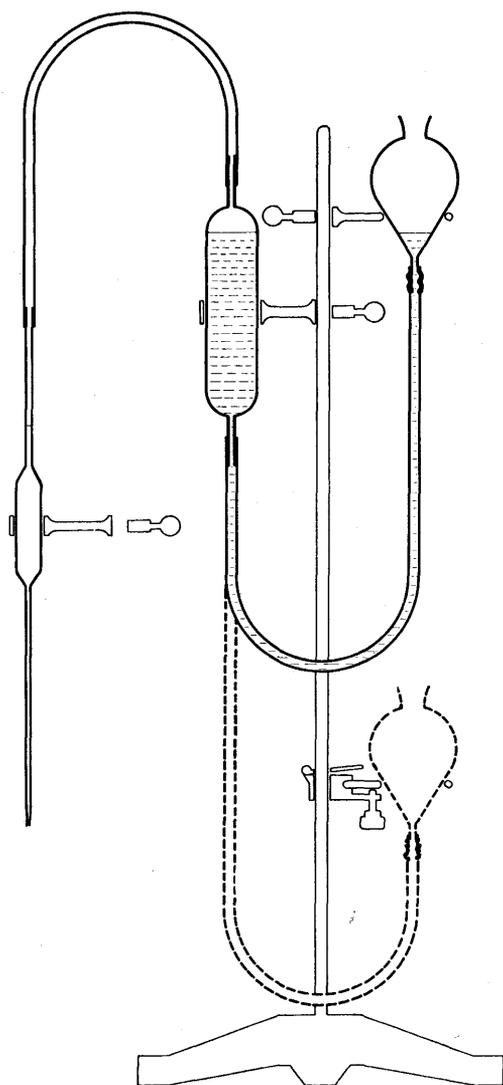


FIG. 1. A manometric pipetting device.