as butterfly wings to objects for which high power objectives must be used, the apparatus has other desirable features. It projects images which are in every respect equal to those of commercial machines. Only the higher priced devices are equipped with nose pieces as found on microscopes. Little time is lost in adjusting the parts of the machine for projection, because its operation is very simple. The cost for materials and labor to construct the support and table was less than eight dollars.

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DEVICE FOR WASHING MICROSCOPICAL TISSUES

DEVICES for washing microscopical objects are legion. However, there is no method, so far as we know, that is satisfactory from every standpoint. Any device for washing tissue should meet certain requirements. In the first place it should be simple of construction so that the student of microscopy can prepare one in short order from the materials found around the average laboratory. In the second place the apparatus should thoroughly wash the objects, subjecting them to a constant stream of fresh water.

The following method is convenient to construct and has certain other advantages. A wooden block about 12 inches by 6 inches by 1 inch is provided with holes 1 inch in diameter and about $\frac{3}{4}$ inch deep, spaced at intervals of about $1\frac{1}{2}$ inches, in which vials $\frac{7}{8}$ inch in diameter are set. These vials are fitted with 2-holed rubber stoppers which fit tightly. The glass tube D (Fig. 1) is run through one hole nearly to the bottom of the vial. The other tube C projects through the stopper into the vial only a short distance. These are connected in series with rubber hose as shown in Fig. 2. Pieces of cheesecloth are tied over the inner ends

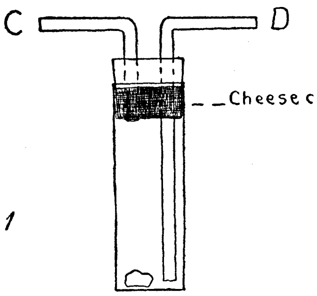

Fig. 1

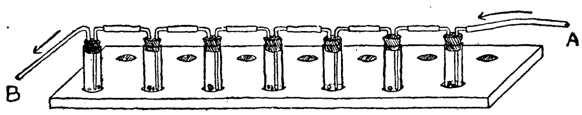

Fig. 2

of the rubber stoppers so as to cover the ends of the outlet tubes and prevent the objects from washing out. The hose A (Fig 2) is connected to the spigot and the other, B, is the outlet. A steady, gentle stream of water is allowed to flow through the vials for the desired length of time. This device insures thorough washing, for the objects are constantly agitated and revolved by the current of water. The whole apparatus may be placed out of the way at one side of the sink. A varying number of vials may be used according to needs.

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SPECIAL ARTICLES

THE EVOLUTION OF A CAROTID SINUS REFLEX AND THE ORIGIN OF VAGAL TONE

REFLEX inhibition of heart rate has been observed in elasmobranchs upon mechanical or electrical stimulation of sensory endings distributed widely over the body, both externally and internally, including the gill region and the heart itself.[1] In mammals the sensory areas from which reflex cardiac inhibition may be obtained are limited, the most important being located in the aorta and in the carotid sinus.[2] Since in mammals an alteration of pressure within these blood vessels may be a physiological stimulus, the writers tried the effect of alterations of pressure within the branchial vessels of elasmobranchs.[3]

The ventral aorta of *Squalus acanthias,* with the cord destroyed, was ligated between the first and second branches and a cannula connecting with a burette, containing a physiological solution, was inserted anterior to the ligature. Cardiac inhibition was obtained when the pressure within the gill vessels was suddenly increased. A series of threshold determinations showed that an average increase of 10.7 mm Hg above the average systolic pressure in the dorsal aorta was found to constitute an effective stimulus for the inhibitory response. The response was found to be reflex, with afferent pathways located in the branchial nerves and efferent fibers in the vagus supply to the heart. Determinations of the blood pres-

[1] B. R. Lutz, *Biol. Bull.,* 59: 170, 1930.

[2] J. A. E. Eyster and D. R. Hooker, *Am. Jour. Physiol.,* 21: 373, 1908; G. V. Anrep and H. N. Segall, *Jour. Physiol.,* 61: 215, 1926; C. Heymans, "Le sinus carotidien," Louvain and Paris, 1929.

[3] B. R. Lutz and L. C. Wyman, *Biol. Bull.,* 62: 10, 1932.