here are pieces of cheese-cloth, pieces of glass tube, open on both sides and with smooth edges so as not to cut the cloth, and pieces of rubber tube, also open on both sides, which just fit around the glass tubes and around the faucet used for the water current.

First, the faucet above the sink is provided with a long piece of rubber tube. Then a piece of cheese-cloth is put over one end of a glass tube, and this end is connected with the long rubber tube on the faucet. Now the free end of the glass tube is held upward and a gentle flow of water allowed to expel all air bubbles. Then the material and a label is transferred into the glass tube and its other end covered with a piece of cheese-cloth kept in the right position by another piece of rubber tube. This in its turn may be connected with a second glass tube containing another piece of material, and this may be repeated any number of times. The result is that a long series of glass tubes separated by cheese-cloth and rubber tubes and each containing a piece of tissue are connected in a series with the faucet (see Fig. 1).

Intercalation of one or more Y-shaped tubes allows

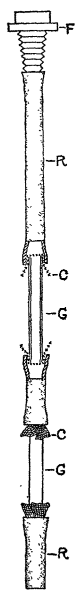

FIG. 1. Semi-diagrammatic drawing, showing the arrangement of the tubes. F, faucet; R, rubber tube; G, glass tube; and C, cheese-cloth.

one faucet to serve more than one series of tubes containing material fixed in different reagents. In this way substances washed away from one piece of tissue can never touch material fixed in a different way.

Abstract: As a simple way of washing more than one piece of tissue at the same time in running water, it is suggested to put them in glass tubes separated by cheese-cloth and connected by rubber tubes to one another and to the faucet.

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ELASTIC FATIGUE AND CREEP OF COILED SPRINGS

THE writer tested springs of two types to obtain information on the rate of increase in length when loads were applied for long times. One type was made of steel piano wire. This type had turns of uniform size. The other type was the ordinary jolly balance spring, made of phosphor bronze and tapered.

During the 365 days that the 50 gm load was on the steel spring there was a gradually subsiding increase in length. This is not surprising, but the writer was surprised at the magnitude of the creep. It was about 3.5 cm (5 per cent. increase in length). At the end of the year the load was removed and replaced after a few weeks. During this rest period the spring became 1.2 cm shorter. Within six days after it was reloaded it had regained most of its loss in elongation (0.8 cm). Then the creep proceeded at a much slower rate, the displacement-time curve soon reaching about the same slope as it had shortly before the load was removed. The load was left about 6 months longer, but the creep was still noticeable at the end of this time. Such a spring would be entirely unsuited as a balance spring for many purposes, such as slow evaporation measurements.

The two phosphor bronze springs showed very little creep. With the load applied for six months the length increases 0.03 cm with one spring and 0.23 cm with the other, the former being about 0.08 per cent. The uncertainty of the readings was about 0.04 per cent.

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SPECIAL ARTICLES

EFFECTS OF ENVIRONMENTAL CONDITIONS ON LONGEVITY

IN line with a recent article in SCIENCE by Dr. C. M. McCay[1] some of the writer's experiments, planned to test the effects of environmental conditions on longevity, may be of interest. For the past year the writer has been working with the effects of certain environmental conditions on the duration of life in Cladocera. The animals used in the experiments to be mentioned here were Cladocerans from the

[1] C. M. McCay, "Is Longevity Compatible with Optimum Growth," SCIENCE, 77, 410, 1933.