though where it has been used it has given satisfactory results.

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HEAVY GLASSWARE IN THE LABORATORY

THIS note was suggested by that of Dr. J. Howard Brown who recently described in these columns the use of milk bottles with a crown seal for bacteriological laboratory purposes. In the laboratory with which the writers are connected the replacement of the fragile and expensive laboratory glassware by heavy or commercial products has been constantly increasing. The type commonly known as a prescription bottle, in the 6 oz. and 12 oz. sizes, has been found particularly desirable. The modern heavy glass bottle is so well annealed that it will stand repeated heatings in the autoclave with no clouding of the glass and with a negligible amount of breakage.

Instead of the crown seal, we have used the screw cap seal with excellent results. The screw caps can be obtained with various types of liners, of which the cardboard-waxed paper combination has proved the best. Such caps can be placed on loosely in situations where ventilation is desired. For many purposes an unlined cap is best. It permits of practically no evaporation on long storage and the closure is sufficient to prevent all contamination. The easy removal of the screw cap and its re-use an indefinite number of times is an advantage over the crown seal.

A prescription bottle, which has one side nearly flat, is used in this laboratory for a variety of purposes. It serves admirably for the storage of bacteriological media, for the water used as dilution blanks in quantitative bacteriological work, and in many instances in place of the familiar petri dish. About 15–20 cc of agar is sterilized in the bottle, which is placed with the flat side down for the agar to harden, when the bottle is used in place of a petri dish. When used in the student laboratories in place of the petri dish for isolation purposes or for quantitative work, there is less difficulty from contamination and much less desiccation of the agar than with the petri dish.

The screw cap when placed loosely on the bottle permits of sufficient diffusion of oxygen to support the growth of the obligate aerobic organisms and serves to keep out contamination as well if not better than a cotton plug. In moist situations there is no danger of molds growing through the seal as often occurs with cotton plugs.

These bottles are very satisfactory for the growth of mass cultures of bacteria for the preparation of vaccines and antigens. During the past three years many thousand cultures of the legume-nodule bacteria have been grown and distributed to the farmers of the state in such bottles. Before the adoption of the screw cap, bottles with cork finish were used. The cork-finish bottles were plugged with cotton during the incubation period and this cotton plug was replaced with a paraffined cork for shipment. With the screw-cap bottle, the cap is placed on loosely during the incubation period and then tightened for shipment. The use of the screw cap has materially lessened the labor of preparation and has actually resulted in a lower percentage of contamination. The inoculation of the agar for these cultures is done by a spray process similar to that employed in applying lacquer or paint. An ordinary atomizer with supply pipe dipping into a suspension of the inoculant is supplied with compressed air which passes through a sterile three-foot length of 2 inch iron pipe which is packed with cotton. Two men can easily inoculate 800 bottles an hour with this apparatus.

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SPECIAL ARTICLES

A PRELIMINARY NOTE ON THE SIGNIFICANCE OF THE PHOSPHORUS INTAKE IN THE DIET AND BLOOD PHOSPHORUS CONCENTRATION, IN THE EXPERIMENTAL PRODUCTION OF CARIES-IMMUNITY AND CARIES-SUSCEPTIBILITY IN THE RAT[1]

INTRODUCTION

RECENTLY Hoppert, Webber and Canniff[2] have reported that rats fed stock diets develop caries[3] of the molars at three months of age. The composition of the stock diet as published consists of whole ground corn 60 parts, whole milk powder 30 parts, linseed oil 6 parts, alfalfa 3 parts and sodium chloride 1 part.

When the 60 parts of corn were omitted from the diet and replaced by either 60 parts of oatmeal or 60

[1] The Biochemical Laboratory, School of Hygiene and Public Health, The Johns Hopkins University, Baltimore, Maryland.

[2] C. A. Hoppert, P. A. Webber and T. L. Canniff, SCIENCE, 74: 77, July 17, 1931.

[3] Dental caries in the rat means a breaking down of tooth structure in the molars of rats resulting in a cavity formation such as has been described in a previous communication (H. Klein, *J. Dental Research*, 11: 151, February, 1931). The use of the term "dental caries in the rat" means exactly what the term implies and does not carry with it any implication or suggestion that such caries in the rat is the same as that known as human dental caries.