glad to do whatever he can in assisting others to profit both by our successes and failures. H. G. BYERS.

A Modified Burette for Standard Alkali Solutions.—Glass stoppered burettes offer serious obstacles to their constant employment for standard solutions of caustic alkalis. The tendency of the stopcock to stick, rapid wear, resulting in leakage, or breaking of the cock or of the shell, and other difficulties constitute serious objections to this form of burette for caustic alkali solutions. The type of burette in which a glass tip is connected to the burette by means of a rubber tube, the flow being controlled by a pinchcock or a glass ball, is an alternative which is still in considerable use, but the objection to this type on the ground of inaccuracy is well understood, and the United States Bureau of Standards will not calibrate such burettes.

It occurred to the writer that the substitution of metal for glass for the movable part of the stopcock might overcome the difficulty and that of the metals adapted to this purpose, silver might perhaps be preferable both because of its fairly good resisting powers towards caustic alkali, as well as on the ground of reasonable cost. Accordingly, a burette fitted with a silver stopcock was tried by filling with half-normal potassium hydroxide solution and allowing to stand for a week. The stopcock did not show the slightest sign of sticking or leakage. The burette was then emptied and filled with 30 per cent. sodium hydroxide solution and in the course of several weeks the stopcock was operated several times nearly every day. The stopcock is still apparently in as good condition as when first received, although it has not been lubricated again since it was first put into use. This stopcock was made for the writer by the Bausch & Lomb Optical Company, of Rochester, New York.

PAUL RUDNICK.

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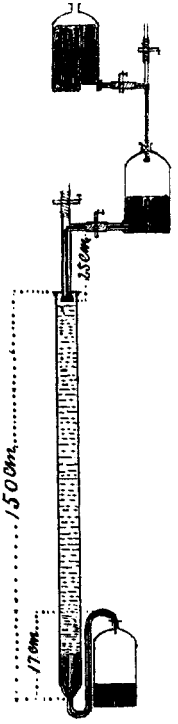
The Purification of Mercury.—The accompanying cut is of an apparatus which has been used by the writer in the Harvard laboratory for more than a year, and he believes it possesses several advantages over the original apparatus of L. Meyer,[1] and, perhaps, over a somewhat similar modification of the original by Hildebrand[2] in that large quantities of mercury can be rapidly and thoroughly freed from those substances which are likely to occur in it and which dissolve in dilute nitric acid or in mercurous nitrate.

The method of Meyer is so familiar to every one that details are unnecessary. The writer uses a 5 cm. tube, 1.5 m. long. He finds that 8 per

[1] *Z. anal. Chem.*, 2, 241.

[2] THIS JOURNAL, 31, 933.



cent. acid is better than the more dilute solution recommended by Meyer.

The mercury is atomized by forcing it through chamois skin tightly stretched over the end of a 25 mm. tube and bound fast by means of a cord. This large tube is drawn down sharply as shown in the figure and sealed to a 5 mm. tube which is attached to the T-tube of the aspirator bottle. It is so adjusted that the atomizing skin is about 15 mm. above the surface of the acid, and the pressure of the mercury is so regulated by means of the screw pinchcock as to make the fine streams just continuous, otherwise the skin may be so distended as to become hemispherical, in which event some of the mercury may be sprayed on the sides of the tube and collect in small drops.

The object of the upper aspirator bottle and filter, precisely like the lower one, is to increase the capacity of the reservoir and to remove solid particles which tend to clog the pores of the atomizing skin.

In offering the above suggestion the writer lays little claim to originality. It is but a slight modification of a time-honored method, but he does claim that in his hands it works far more rapidly, requires no attention, and the product obtained by one passage through the acid is much purer than by the original method, and he trusts that others may have a like experience with it.

C. J. MOORE.

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On the Preparation of a Cuprous Nitrate, $CuNO_3.2NH_3$.—Cuprous nitrate, of the formula $CuNO_3.2NH_3$, was prepared as follows:

A glass tube of two arms, the one carrying a stopcock, was drawn out as shown in Fig. 1. An approximately weighed amount of dried cupric nitrate of the formula $Cu(NO_3)_2.4NH_3$[1] was introduced into the arm A and the stopcock attached to a cylinder of dried ammonia. Ammonia was then passed through both arms and A sealed off. A piece of bright copper foil was then introduced into B and the arm sealed off at the lower end.

Ammonia was now distilled into A under pressure (A was placed in ice water for this purpose) until nearly full. The solution of cupric nitrate

[1] $Cu(NO_3)_2.NH_3$ is easily prepared by supersaturating an aqueous cupric nitrate solution with ammonia, when it crystallizes out, and may then be washed and dried over sulphuric acid. It is a stable salt in contact with the air, and is very soluble in ammonia