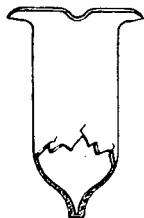


APPARATUS FOR THE PRECIPITATION OF BARIUM SULPHATE.*

BY A. G. MURRAY.

As is well known, the determination of sulphate by means of barium is subject to serious errors unless certain precautions are observed in the precipitation. Among other things it is necessary to have the sulphate solution boiling and to add the barium chloride solution slowly and preferably hot. The device illustrated is intended to facilitate this operation.



Apparatus for precipitation of barium sulphate.

It consists of a cup the bottom of which is drawn out to form a capillary opening of such size as to permit water to pass through at the rate of 2 or 3 drops a second. Depressions in the broad rim allow the escape of steam from a flask in the neck of which the device is placed.

A capacious Erlenmeyer flask containing the sulphate solution is placed over a flame and when the solution boils the requisite amount of dilute barium chloride solution is poured into the cup. By this means the barium chloride solution is introduced slowly and boiling hot into the sulphate solution. When the cold barium chloride solution is introduced into the cup the condensed steam trickles to its point, thus greatly diluting the first drops of barium chloride solution which fall into the sulphate solution.

A NEW METHOD FOR THE PREPARATION OF STYRAX AND BALSAM OF TOLU FOR USE AS MICROSCOPIC MOUNTING MEDIA OF HIGH REFRACTIVE INDEX.

BY GEORGE H. NEEDHAM.

Mounting media of high refractive index are a necessity for the study of diatoms. As stated by Carpenter¹ "There is a marked increase of visibility in proportion as the mounting medium has a refractive index higher than the object mounted, . . . thus facilitating the discovery of obscure details."

Numerous substances have been used for this purpose ranging from styrax with a refractive index of 1.582 to artificial realgar with an index of 2.549.² The former, due to its resinous nature, has proved to be the best. To the writer's knowledge the majority of microscopists prepare styrax by just dissolving the commercial article in an organic solvent such as xylol or chloroform and filtering. Due to this quick method quite often a fine precipitate appears in the mount after several years. Balsam of Tolu, which has a higher refractive index of 1.618, has been discarded for this reason. In both cases, little thought seems to have been given to the complex nature of these two balsams and to the fact that the precipitate is either cinnamic or benzoic acid, or both.

* Contribution from Bureau of Chemistry, U. S. Department of Agriculture. Demonstrated at the "Stunt Show" of the Scientific Section, A. Ph. A. meeting at Asheville, N. C., 1923.

¹ Wm. B. Carpenter, "The Microscope," London, 1891, p. 445.

² *Ibid.*, p. 1028.