

the stopcock is wrapped in a cotton pad, it can often be saved even when the tube breaks. These special stopcocks are not expensive and can be made according to specification by any European dealer in glass-ware. The style described in this paper was made of so-called "Resistenz" glass and supplied by the firm of C. Desaga, Heidelberg, Germany.

The accompanying sketch and brief description of the dimensions of a stopcock that has proved satisfactory give the necessary details: The stopcocks and tubes, as previously stated, should be of the same glass. Thick-walled Carius tubing is best. The bore of the opening through stopcock *A* is 1.5 mm. in diameter. Stopcock *A* is 2.7 cm. long, its greater diameter at the handle being 1 cm. and its lesser diameter 8 mm. The larger tube *B* should have the same internal diameter as the Carius or Volhard tube to which it is sealed. Its internal diameter is 1.3 cm., wall-thickness 2 mm., and it extends 7 cm. from the stopcock box. The smaller tube *C* is 4 mm. in internal diameter and extends 4 cm. from the stopcock box. The best lubricant for the stopcock is graphite.



As an example of a use of this method in sealed-tube work, the following case may be cited. An organic compound heated for a long time with a volatil reagent slowly gave off acetylene gas. To prove conclusively that such a reaction took place, the experiment was conducted as described above. Upon opening the stopcock and passing the contained gas through ammoniacal cuprous chloride solution,

copper acetylide was formed. This reaction would not have taken place in an open tube. In an ordinary sealed tube the recognition of acetylene would have been difficult, if not impossible. The above method settled the question beyond doubt.

W. H. WARREN.

WASHINGTON UNIV. MED. SCHOOL,
St. Louis, Mo.

NEW BOOKS.

A Concise History of Chemistry. By T. P. HILDITCH. Pp. ix + 263 (sixteen diagrams). 1911. New York: D. Van Nostrand Co. 5 × 8 in. Cloth, \$1.05.

This volume aims to give a brief outline of the entire history of chemistry from earliest times to the present day. The treatise contains eleven chapters which are devoted to the beginning of the science, inorganic compounds, organic compounds and their reactions, chemistry of plant and animal life, applications of chemistry to manufactures, and physical chemistry. There is an appendix containing a biographical index of chemists and a chronological summary of chemical events of outstanding interest.

In the preface it is stated that the book is designed more especially for those students whose interest is stimulated in the historical aspect of the science by the inclusion of "Historical Chemistry" in the syllabus of examinations which concern them. As an aid in reviewing the history of chemistry preparatory for an examination in the subject, the volume will doubtless be of service; but as a source of studying the development of chemistry in order to obtain a clearer insight into the fundamentals of the science and an inspiration for research, the treatment is quite inadequate. There seem to be but few errors in the book, but the treatment is often so very brief that clear, accurate conceptions are not conveyed to the reader.

The mechanical features of the volume are quite acceptable and the price is low.

L. KAHLBERG.

Chemistry for Beginners. Vol. I. Inorganic. By EDWARD HART, PH.D. Fifth Edition, Revised and Enlarged. With 78 illustrations and 2 plates. Published by the Chemical Publishing Co., Easton, Pa. 1910. Pages viii+214. Price, \$1.00.

That this text has reached its fifth edition is evidence of the fact that it has found a place among the successful texts of elementary chemistry. It is true to its name—"Chemistry for Beginners." The book is small, 12mo., and the treatment of the subject confined to 207 pages, including 204 experiments and 78 illustrations. The author believes, however, that it "will form a sufficient introduction to qualitative analysis." The order in which the subjects are discussed is similar to that commonly adopted, but the treatment is of necessity very brief.

WM. MCPHERSON.

Qualitative Chemical Analysis. Second Edition, Revised. By OLIN FREEMAN TOWER, Professor of Chemistry in Western Reserve University. Philadelphia, Pa.: P. Blakiston's Son & Co. 1911. xiii+84 pages. Price, \$1.00.

A brief outline of qualitative analysis well arranged and clearly presented. For theoretical discussions the student is referred to Alexander Smith's "General Chemistry for Colleges" and also to Edwin Lee's "Experimental Chemistry." For complete and detailed discussions, however, the student might well be referred to Alexander Smith's "General Inorganic Chemistry." Throughout the introductory considerations the use of heavy and light arrows, by way of indicating the specific tendency of an electrolyte to enter into ionic or non-ionic form, is exceedingly helpful. The laboratory directions are brief but explicit and include in this edition a few additional methods of separation, such for example as the nitroso-beta-naphthol method for cobalt and nickel. The solubility table is also considerably enlarged over that in the first edition.

WILLIAM J. HALE.