

p. 48. The statements on p. 166 with regard to silicic acid, assigning H_2SiO_3 as the formula of the gelatinous precipitate and H_4SiO_4 , as the formula of the soluble acid only, are not in harmony with the results of recent investigations in the writer's laboratory.¹ Both tartaric acid and hydrogen sodium tartrate, are used in testing for ammonium salts (p. 21), but the second reagent only is advised for potassium compounds.

The following omissions of analytical data should be remedied in a second edition; on p. 88, the frequent presence of sulphur in the residue of HgS , $PbSO_4$, and $Hg(NO_3)_2 \cdot 2HgS$, is overlooked; on p. 70, a method for the separation of glucinum, zirconium, titanium, and uranium should be outlined; on p. 128, no mention is made of Hart's excellent method for mixtures of chlorides, bromides, and iodides; on p. 151, no mention is made of the combustibility of all hypophosphites—their most striking property; on p. 155, no mention is made of the reaction of formates with ferric chloride, nor of the prompt reaction with silver nitrate; on p. 169, the familiar test for silica, etc. by means of calcium fluoride and sulphuric acid is omitted; on p. 151, the deportment of metaphosphates with ammonium molybdate is not stated; on p. 171, pyrophosphoric, metaphosphoric, phosphorous and hypophosphorous acids are omitted from the general scheme for the systematic detection of acids, although such a rare acid as $HCNO$ is included.

Despite these minor blemishes, the book marks a distinct advance in the evolution of the ideal manual of analysis, and will certainly find many friends. THOMAS H. NORTON.

AN INTRODUCTORY COURSE OF QUANTITATIVE CHEMICAL ANALYSIS WITH EXPLANATORY NOTES AND STOICHIOMETRICAL PROBLEMS. BY HENRY P. TALBOT, Ph.D., Professor of Analytical Chemistry in the Massachusetts Institute of Technology. Third Edition, Revised and Enlarged. 153 pp. New York: The Macmillan Co. 1899. Price \$1.50.

That a third edition should be demanded in less than two years from the first appearance of this book, is evidence that many teachers have found it suited to their needs. To all the matter contained in the first edition, the present adds the determination of carbon dioxide in dolomite, the determination of silica in laumontite and in feldspar, reference to the determination of zinc

¹ This JOURNAL, 19, 832.

as the pyrophosphate, and a very clear and useful chapter of 17 pages on the theories of solution and some of their applications to analytical chemistry. A note on the capacities of beakers, referred to in the text by numbers, will be appreciated. The paragraphs on temperature of calibration have been rewritten. Of the first edition as an introduction to the principles and practice of quantitative analysis, the present reviewer wrote two years ago: "It is hardly too much to say that it is difficult to see how a better book could be prepared for this purpose than the one before us." After the practical demonstration of two years' use of the book with his classes, his opinion is unchanged, and the additions in the present edition increase the value of the book.

JAS. LEWIS HOWE.

INORGANIC CHEMISTRY ACCORDING TO THE PERIODIC LAW. By F. P. VENABLE AND JAS. LEWIS HOWE. Easton, Pa.: The Chemical Publishing Co. 1898. v+266 pp. 12mo. Price, \$1.50.

Professor Venable's studies on the development of the Periodic Law have made so firm an impress on his mind that he has prepared a text-book for beginners in inorganic chemistry which takes the Periodic System as a guiding principle. The professor in the University of North Carolina has associated with him another experienced teacher in the person of Professor Howe, of the Washington and Lee University, and the two have produced a very systematic and accurate work quite up to date. In the hands of enthusiastic teachers the book cannot fail to prove useful in classes, especially if oral explanations supplement the concise and dogmatic statements. Whether beginners in chemistry are competent to appreciate the beauties of the Periodic System before they have learned something of the nature of chemical bodies in general, can be best determined by using the volume; but in any case the study of the terse introduction can be repeated after having read the first fifty or sixty pages. As the distinctive feature of this text-book is the order in which the elements and their compounds are treated, this review will endeavor to do it justice. After giving the history, methods of preparation, and the salient properties of hydrogen, as "the standard element," the elements of the negative subseries of Group VII of Mendeléeff's table are considered; this subseries includes fluorine, chlorine, bromine, and iodine.