

and *two* secondary ionization constants (see application of this idea to urazoles and indicators, *Am. Chem. J.*, **38**, 45-6 (1907); **39**, 541-3 (1908), and later papers) expressed by the equations (see footnote 5, page 1092)

$$\begin{aligned}(\text{HAn} + \text{HAn}') \times \text{H}/\text{H}_2\text{An} \times \text{H} \times \text{An}''/(\text{HAn} + \text{HAn}') &= \\(\text{K}_1 + \text{K}_1') \times \text{K}_2\text{K}_2'(\text{K}_2 + \text{K}_2') = \text{H}^2 \times \text{An}''/\text{H}_2\text{An} &= \\ \text{K}_2\text{K}_2'(\text{K}_1 + \text{K}_1')/(\text{K}_2 + \text{K}_2') = \text{K}_1\text{K}_1'(\text{K}_1 + \text{K}_1')/(\text{K}_2 + \text{K}_2') &= \end{aligned}$$

the  $\text{K}_1\text{H}$  in the last member of the equation on page 1093 and the  $\text{K}_1$  in the latter part of the footnote should obviously be replaced by  $\text{K}_1'\text{H}$  and  $\text{K}_1'$ , respectively. The "—4" in the graphic formula in the first line on page 1094 should be omitted. The formula in line 20, page 1094, should clearly be  $-\text{C}:(\text{C}_6\text{H}_4:\text{O}) (\text{C}_6\text{H}_4\text{OH})$ . The typographical errors are obvious.

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### NEW BOOKS.

**Organic Compounds of Arsenic and Antimony.** By GILBERT T. MORGAN. Longmans, Green and Company, London. 375 pages.

During the last ten years, the remarkable achievements in chemotherapy have drawn attention to the importance of the arsenical drugs. The gratifying results which have attended the clinical use of several such substances have only been possible because of an enormous amount of pioneer research. As a result of the chemical investigations, we now have a surprisingly complete knowledge of the behavior of the organic compounds of arsenic. The appearance of an English book on this subject is most welcome, particularly at this time, when the manufacture of certain drugs has become a matter of national importance.

A discussion of the aromatic arsenic compounds occupies two-thirds of the book. This allotment of space is entirely in proportion to the importance of these substances. The aliphatic arsenicals are considered in two chapters, and the aromatic antimony compounds in one. The general methods of preparing each class of compounds are presented in considerable detail, and in many cases specific laboratory directions are also given. A chapter is devoted to each of the therapeutically important substances—atoxyl, salvarsan, neosalvarsan and the metallic coordination compounds of salvarsan. A fuller discussion of the physiological action and clinical value of the various drugs would have added to the general interest of the book. However, the brief consideration given to this phase of the subject is an excellent résumé and includes the most recent advances. From a chemical point of view the monograph will be of the greatest value as a reference book. The chemical and more important physical properties of practically all the organic com-

pounds of arsenic and antimony are listed. There is a good bibliography appended.

It is very unfortunate that matters of general interest are hidden in a formidable array of detailed information. If the individual consideration of the less important compounds had been reserved for an appendix, a more unified account of the subjects of real interest could have been presented. The present arrangement is likely to discourage the reader before he has finished three chapters. It is also to be regretted that so little attention is paid to the comparison of the various types of arsenic and antimony compounds with each other and with the corresponding compounds of phosphorus and nitrogen. Such a discussion would have been a real contribution to the chemistry of the fifth column of the periodic system.

This is the first of a long series of monographs on industrial chemistry which we are promised by the publishers. The list includes many books on synthetic organic chemistry. It is a hopeful sign that the present meagre collection of organic monographs written in English will soon be so greatly extended.

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**A Laboratory Manual of Elementary Qualitative Chemical Analysis, for Students of Medicine, Dentistry, Pharmacy and Science.** By A. R. BLISS, JR. Second Edition, revised and reset. 194 pages. \$2.25. W. B. Saunders Co. 1918.

The first part of the book includes some 30 pages on theories of solution, ionization, and concentration effect. The treatment of these subjects is clear and helpful, though the limitations of the mathematical statements, when dealing with concentrated solutions, or with abnormal electrolytes, are not pointed out. The value to the student of these principles could be enhanced by weaving them into the rest of the book. The properties and reactions of each group of metals and non-metals and of their ions are described before taking up methods for separation and detection. This material, well chosen and with few exceptions accurate, is an excellent feature of the book. The methods are similar to those customarily used, and would be sufficient for the great majority of single substances and simple mixtures. Provision is not made, however, for detecting sulfides unattacked by hydrochloric acid, or for adequate treatment of mineral silicates. The roughly quantitative information obtainable from a good qualitative analysis should also find mention in a book of this scope.

GEORGE SHANNON FORBES.