

he has added a simple outline plan of the scheme of analysis. The last item is a good teaching aid for it helps a student not to lose his way. The revision has been well done and "Fenton" is now a useful and reliable book for use in schools. G. FOWLES

#### Five-Membered Heterocyclic Compounds with Nitrogen and Sulfur or Nitrogen, Sulfur and Oxygen (except Thiazole)

By L. L. Bambas. (The Chemistry of Heterocyclic Compounds, a Series of Monographs, Vol. 4.) Pp. xi+403. (New York and London: Interscience Publishers, Inc., 1952.) 14 dollars.

THE principal themes of this volume—the fourth of the present series of monographs—are provided by thiadiazoles and *isothiazoles*. The latter compounds are known only as condensed ring structures as in the benz*isothiazoles*, whereas the former comprise both monocyclic and condensed cyclic types. These two groups of azoles, together with their selenium analogues, occupy the whole text except for eight pages devoted to representatives of the little-known dithiazoles, dithiadiazoles, thiatriazoles and oxathiazoles. Rational subdivision of each of the main themes allows individual topics to be treated on historical lines, and the author has not hesitated to introduce a controversial note by adding occasionally his own interpretation or point of view. As in earlier volumes of the series the text is profusely illustrated by admirably clear structural formulae and is supplemented by tables of preparative methods and physical constants for individual compounds: an adequate index is provided. Although current interest in the subject-matter is comparatively slight, the book nevertheless affords an excellent survey of its field and contributes its full share towards the major work of reference of which it forms a part.

J. D. LOUDON

#### L. Farkas Memorial Volume

Editors: Adalbert Farkas and Eugene P. Wigner. (Research Council of Israel: Special Publication No. 1.) Pp. ix+309. (Jerusalem: Universitas Booksellers, 1952.)

THIS volume contains papers by teachers, colleagues, pupils and friends of Ladislaus Farkas, who lost his life in an air accident in 1948. A portrait of him and an appreciation by Sir Eric Rideal appear at the beginning of the volume. There are twenty-four papers by authorities on a variety of subjects, all of which are interesting and useful. Some deal with reaction kinetics, including fast reactions, others with catalysis, adsorption, and enzymes. Farkas was professor of physical chemistry in the Hebrew University of Jerusalem, and all those who recognized the high quality of his work and his great promise must regret that his career was so tragically closed. This volume will serve as a reminder of one who was esteemed by all who met him.

J. R. PARTINGTON

#### Radiation Chemistry

Discussions of the Faraday Society, No. 12. Pp. 319. (Aberdeen: Aberdeen University Press, Ltd., 1952.) 35s. net.

THE well-known excellence of the General Discussions of the Faraday Society makes it unnecessary to do more than direct attention to the fact that one on radiation chemistry is available. The papers are fairly short, but they give intelligible accounts of their subjects and the discussions are helpful in that they introduce new material or new

aspects of the topics with which they are concerned. What is now called radiation chemistry deals mostly with the effects of X- and  $\gamma$ -rays in inducing chemical reactions. Most of the work is concerned with liquids, both organic liquids and aqueous solutions. Since organisms all contain water or solutions, the subject has a biological aspect. In some cases radiation may bring about polymerization, in other cases it may create free radicals. The exact mechanism is still not always fully understood and differences of opinion exist. The Discussion provides a good and intelligible survey of the subject and will be useful to many classes of reader. J. R. PARTINGTON

#### Physical Chemistry for Colleges

A Course of Instruction based upon the Fundamental Laws of Chemistry. By Prof. E. B. Millard. (International Chemical Series.) Seventh Edition. Pp. ix+618. (London: McGraw-Hill Publishing Co., Ltd., 1953.) 51s.

PROF. E. B. MILLARD'S book is probably well known to most teachers of physical chemistry, and it is only necessary to say that the fact that it has reached a seventh edition since it was first published in 1921 is an indication of its excellence. The text has been largely rewritten and rearranged, new material being added when necessary. Problems on topics usually found difficult by students are included. References to original papers have been carefully selected so that students may be encouraged to read at least some of them; many are to American publications, but by no means all. A good feature of the text is the experimental approach; although actual experimental methods and descriptions of apparatus do not appear very prominently, all the fundamental laws are discussed on the basis of numerical results rather than in an abstract or formal way, and most teachers will agree that this is the best way of making their meaning clear to students. It is very likely that individual teachers will vary the order of presentation somewhat; the reviewer thinks the section on thermodynamics (Chapter 18) could well come much earlier in the book, and the electrochemistry is rather condensed. More space is given to equilibrium and phase rule and to kinetics. There is little doubt that this book will continue to be popular, and the care which the author has taken in the revision will be appreciated.

J. R. PARTINGTON

#### Starch and Its Derivatives

By J. A. Radley. Vol. 2. Third edition, revised. (Being Volume Twelve of a Series of Monographs on Applied Chemistry, under the Editorship of Dr. E. Howard Tripp.) Pp. xi+465+35 plates. (London: Chapman and Hall, Ltd., 1953.) 65s. net.

THE second volume of Radley's comprehensive treatise on starch and its derivatives deals mainly with industrial aspects, including the manufacture of starch, the production of derivatives and the applications of these materials in adhesives, paper, textiles and foodstuffs. A detailed discussion is given of the methods of analysis available for the assessment of starches and starch products.

The text of many sections is substantially the same as that of the second edition published in 1943, new information being given only in the form of additional references and brief notes. New chapters have been contributed on the manufacture of corn starch (R. W. Kerr), on the production of chemicals from starch by fermentation processes (L. M. Christensen