This is an excellent book in concept and organization. The typography and design are also sound. For many years this should be a standard reference work which will demand the publication of supplements or an occasional revision. There is no doubt that this is a monumental handbook. It gathers into one volume the present information about these metabolites from fungi, actinomycetes and bacteria, including, necessarily, the antibiotics. Previously this material was disseminated through reviews, texts, short monographs and the original papers.

The references by intent are not exhaustive, but a good selection of pertinent references has been made. The chapter on General References extensively supplements the particular references with reviews, books and papers.

It would be unbelievable if a work of this extent had no errors nor omissions. As the prerogative of a review a few corrections may be pointed out. Byssochlamic acid, a product from *Byssochlamys fulva*, isolated by H. Raistrick and G. Smith (*Biochem. J.*, **27**, 1814 [1933]), could not be found although other compounds of similar indefinite structure are included. On page 68, in the first reference under spiculisporic acid, the name should be Rintoul, not Pintoul.

The Addendum contains a large amount of valuable material, but loses much of its usefulness since there is no index. Much of the material is presented as a flow of, sometimes disconnected, sentences and notes. This makes the chapter a veritable wastebasket of notes. It should have been well if this Addendum had more clearly followed the style of the other chapters.

In spite of these minor complaints, the reviewer feels that this is a publication of great value to the chemist and microbiologist. The price is moderate in light of the extensive and, generally, well organized information contained.

Dr. Miller and The Pfizer Company are to be complimented.

BIOCHEMISTRY RESEARCH
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Combustion, Flames and Explosions of Gases. Second Edition. By BERNARD LEWIS, Ph.D., Sc.D. (Cantab.) and GUENTHER VON ELBE, Ph.D. (Berlin), Combustion and Explosives Research, Inc., Pittsburgh, Pennsylvania. Academic Press Inc., 111 Fifth Avenue, New York 3, N. Y. 1961. xix + 731 pp. 16 × 23.5 cm. Price, $22.00.

Lewis and von Elbe are the grand-daddies of combustion research. Their pre-World War II research and their 1938 treatise (Cambridge Press, same title) served as the basis for most of our present experimental and theoretical efforts. From the very beginning, Lewis and von Elbe recognized the importance of thermodynamics and reaction kinetics in interpreting flame phenomena. Thus, any book written by these eminent authors is bound to command the interest of all serious workers in the combustion field.

However, the new Second Edition is really very similar to the First Edition. The additions and changes appear to be very minor, although there have been great advances in the fields of combustion and detonations since the First Edition was published in 1951. This book describes a great variety of flame and explosion phenomena and tries to explain them in a semi-quantitative fashion. The modern highly mathematical theories of flames and detonations are ignored.

The treatment of detonations is very incomplete and omits any mention of the brilliant post-war research at Los Alamos. And, quite excusably, it omits the very recent work of Donald White (*Phys. Fluids*, **4**, 465 (1961)) which probably was not available to the authors before the Second Edition went to press. White demonstrated experimentally that the reaction zone in a gaseous detonation is frequently not laminar. This work has subsequently been confirmed by other workers and has led to considerable changes in our notions regarding the structure of gaseous detonations.

The first 200 pages of the Second Edition are devoted to the chemical kinetics of reactions between gaseous fuels and oxidants. The complexity of the various chain reactions required to explain the experimental combustion limits and flame phenomena is most impressive. It is surprising that the key free-radical in the combustion process, HO_2, has never been observed spectroscopically and its mass spectroscopic identification is not yet positive. The theoretical prediction and the experimental verification of the properties of HO_2 is currently a very important research problem.

The rest of the book is devoted to combustion phenomena. The authors are to be complimented on describing and discussing the scientific problems without getting entangled in the myriads of engineering detail. As the title indicates, the treatise is limited to gaseous phenomena and no mention is made of solid propellants.

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Physical Methods in Chemical Analysis. Volume IV. Edited by WALTER G. BERL, Applied Physics Laboratory, Johns Hopkins University, Silver Spring, Maryland. Academic Press Inc., 111 Fifth Avenue, New York 3, N. Y. 1961. xi + 476 pp. 16 + 23.5 cm. Price, $16.00.

This volume deals exclusively with separation methods based on the use of dialysis (38 pp.), molecular sieves (50 pp.), foams (17 pp.), electromagnetic properties (92 pp.), ion exchange (84 pp.), inclusion compounds (39 pp.), thermal diffusion (45 pp.) and solvent extraction (136 pp.). The general outline followed by each author in writing his chapter was a review of the theory and derivation of equations, practical aspects of the technique together with a presentation of applications in analytical chemistry and a bibliography of the more recent literature. The first chapter and the last four each have extensive bibliographies. The last chapter includes much useful data in 23 tables.

DEPARTMENT OF CHEMISTRY
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Carbon-14 Compounds. By JOHN R. CATCH, The Radiochemical Centre, Amersham, Bucks., England. Butterworth Inc., 7235 Wisconsin Avenue, Washington 14, D.C. 1961. vii + 128 pp. 14 × 22 cm. Price, $5.50.

The scope of this book is not apparent from the title; quoting the author this book is "not a practical text book" nor is it a "comprehensive index" or description of carbon-14 preparations. Rather is it a philosophical treatment of the entire field of carbon-14 chemistry. The book is intended for the newcomer to help him benefit from the experience of those who have preceded him.

The book is divided into 8 chapters: (1) Introduction, (2) Production of Carbon-14, (3) Chemical Synthesis, (4) Biological Methods of Labeling, (5) Peculiar Features of Carbon-14 Compounds, (6) Analysis, (7) Measurement of Carbon-14, (8) Precautions in the Use of Carbon-14 Compounds.

In the introduction the author lists the books and bibliographies in the field. The chapter is replete with kindly advice and warns against some common errors in research with radioactive isotopes. Chapter 2 is of academic interest only and outlines the reactions used for the production of carbon-14. His remarks concerning "recoil labeling" and the difficulty of purification of highly impure complex compounds are timely. The difficulties encountered in the preparation of complex organic compounds starting from carbonate-C-14 are covered in chapter 3. The principles governing the selection of a synthesis, the use of "carriers," explanation of elementary procedures and equipment (which differs somewhat from American practice) are all covered in this chapter, which is one of the best in the book. The chapter covering biological labeling, chapter 4, is a "must" for anyone entering this field of research. The author has given an excellent review of the methods and organisms used to prepare compounds through biologic labeling. The reviewer was surprised at the efficiency with which some organisms can incorporate carbon-14 into complex organic compounds. This is not true of most of the organisms studied and clearly shows this to be a fertile field for research. The difficulties and disadvantages of the method are clearly explained.

Isotope effect, auto-radiation, isomerism and nomenclature are well covered in chapter 5.