

with migration of the indole moiety to any appreciable extent, then should be represented by 15.

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## BOOK REVIEWS

**Pyridine and its Derivatives.** Part Two. Edited by ERWIN KLINGSBERG, American Cyanamid Company, Bound Brook, New Jersey. Interscience Publishers, Inc., 250 Fifth Avenue, New York 1, N. Y. 1961. x + 576 pp. 16.5 × 23.5 cm. Price, \$37.50; subscription price, \$32.50.

This is the second of a four volume series on pyridine in the over-all series on the "Chemistry of Heterocyclic Compounds" edited by Arnold Weissberger. The pyridine volumes are edited by Erwin Klingsberg and the present volume contains chapters on Quaternary Pyridinium Compounds and Pyridine N-Oxides by Elliot Shaw, Alkylpyridines and Arylpyridines by Leon Tenenbaum, Halopyridines by Holly Mertel, Organometallic Compounds of Pyridine by Harry Yale, and Nitropyridines and Their Reduction Products by Renat Mizzoni. The literature appears to have been reviewed carefully through about 1957 with occasional references to work as recent as 1960.

As indicated in Professor Lauer's review of the first volume, recently published in this Journal, the literature covering heterocyclic chemistry is expanding at such a rate that exhaustive reviews of this nature are especially valuable and are gratefully received by the practicing organic chemist, even though gratitude is tempered by the high price tags attached to the volumes.

Volume one in the pyridine series was especially impressive by the imaginative way in which the over-all chemistry of pyridine and pyridine N-oxide was handled. Although the reviews in Volume two appear to have been prepared in a thorough and competent fashion, the originality of approach present in volume one is missing. Nevertheless volume two is a valuable addition to the reference library of anyone interested in pyridine chemistry.

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**Radiation Damage in Solids.** By DOUGLAS S. BILLINGTON and JAMES H. CRAWFORD, JR. Princeton University Press, Princeton, New Jersey. 1961. xi + 450 pp. 16 × 24 cm. Price, \$12.50.

This book is a desirable addition to any general library which contains much material on radiation effects. The suitability of its inclusion in a more limited, personal library is a matter of some question. The favorable features, as well as many of the unfavorable, are summed up in the authors' own preface. However, the unfavorable features do not appear to be recognized as such by the authors.

After an introductory chapter, a theoretical survey presents in very condensed form the content and conclusions of several review articles. In its present position the theoretical presentation is insufficiently detailed for value (although it is a good guide to the literature) and so terse as to prove a stumbling block for the reader possessed of the notion that it is desirable to understanding of the remainder of the text.

The balance of the book is rather spotty. Good, short essays of variable length are interspersed with material reminding of a class of annual review which attempts coverage of the subject matter without undue commitment by its author. The chapter on relation between structure and

properties is very readable; that on semi-conductors is superior to other parts of the book, doubtless because of the personal early involvement of one of the authors; the practical problems associated with uranium are interestingly discussed. However, in general, one gathers the impression (heightened by such juxtapositions as the treatment of radiation-affected silica gel catalyst at the end of a chapter on alloys) that the authors have unselectively presented all they know.

In cases where this reviewer has some personal acquaintance with details of the subject matter, he is impressed by the errors, by the manner of their presentation and by strange omissions. Some startling statements include an *obiter dictum* on radiation effects in organic solids (p. 82), a curious presentation of the mechanism of the Fricke dosimeter (p. 91), an extensive misconception of the early history of radiation damage studies (pp. 5, 395, 396), an erroneous discussion of the application of heavy-charged-particle accelerators "in the early days of the Manhattan Project" (p. 85), and the expressed notion (p. 5) that the terms "Wigner effect" and "discomposition," both originally suggested by this reviewer, are wholly synonymous. In view of the fact that the book is concerned about technological matters and does mention radiation-induced energy storage, omission of all reference to a possible thermal catastrophe, predicted by Szilard and unhappily demonstrated at Windscale, is rather notable.

The typography is exceptionally good, with only minor examples of bad usage (*cf.* p. 225) and but very few errors of spelling. It is unfortunate that the name of Van de Graaff is misspelled in its only three appearances in two different ways. Doubtless a second edition of this book will ultimately appear. When it does, it will be improved by many second thoughts of the authors.

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**Technique of Organic Chemistry. Volume I. Physical Methods of Organic Chemistry. Part III.** Third Completely Revised and Augmented Edition. ARNOLD WEISSBERGER, EDITOR. Interscience Publishers, Inc., 250 Fifth Avenue, New York 1, N. Y. 1960. xii + 849 pp. 16 × 23 cm. Price, \$24.50.

It is a striking indication of the growing dependence of organic chemistry upon more and more exotic physical techniques that a new and completely re-organized edition of this work should follow so soon the earlier edition. The volume at hand is Part III of a new Volume I; it deals with some topics covered in the earlier Volume I, Parts II and III, published in 1949 and 1954, respectively, together with some topics that have come into prominence, with respect to organic applications, in the intervening time.

The various branches of optical spectroscopy are now given expanded treatment in four chapters entitled, Spectroscopy and Spectrophotometry in the Visible and Ultraviolet (West), Infrared Spectroscopy (Anderson, Woodall and West), Colorimetry and Photometric Analysis (West), and Determination of Fluorescence and Phosphorescence (Wotherspoon and Oster). It is a question as to whether in these chapters the authors have not effected compromises