

kinetic ambiguities in defining the substituting agent, the use of various acidity functions, the status of molecular-orbital calculations with regard to relative reactivities of polynuclear systems, the difference in reactivity between charged and uncharged reagents, the various modifications of the Hammett equation, are all of current interest in the field and receive intelligent and critical attention.

Most readers will probably find little to disagree with; therefore, whatever questions may be raised will presumably regard the emphasis given to different topics. Some may think, for instance, that preparative details do not quite belong in this book, or that some treatments are rather short. On the other hand, some discussions, such as the one on methods for the investigation of substitution mechanisms, or the discussion of structural effects in halogenation or of substitution in biphenyl, are the best that have been written on these subjects in recent years. One can only hope that the authors will decide to follow this book with one that will cover the remaining substitution reactions, particularly in view of some of the more recent work on deuteration, diazo-coupling and the Friedel-Crafts reaction.

The book is written in very clear and precise language; its make-up is of the high standard that one has come to expect from its publishers. It is an excellent and informative book, which should satisfy those who work in the field and appeal to those who wish to become acquainted with its present status. It should also go a long way toward stimulating renewed interest in the many and varied problems connected with aromatic substitution.

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Proceedings of the Symposium on Electronic Waveguides. New York, N. Y., April 8, 9, 10, 1958. Microwave Research Institute Symposia Series. Volume VIII. Edited by JEROME FOX, Assistant Editor, MARTHA CROWELL. Interscience Publishers, Inc., 250 Fifth Avenue, New York 1, N. Y. 1958. xix + 418 pp. 15.5 X 22.5 cm. Price, \$5.00.

Electronic Waveguides is the eighth of the volumes reporting the proceedings of the Symposia sponsored by the Microwave Research Institute of the Polytechnic Institute of Brooklyn. These volumes all have proved to be most useful, not only to specialists in the field of interest covered, but to others seeking an introduction to the topic.

The term Electronic Waveguides is not one widely used and, in fact, originated with the Microwave Research Institute and therefore deserves an explanation. As used here, it has the very broad interpretation of including all the physical situations where propagating electromagnetic waves interacting with free or nearly free electrons or ions in a space that is usually, but not always, clearly delineated by physical structures.

The book, in addition to the foreword and a very brief summary of a round-table discussion on future electron tubes and solid state devices, is composed of twenty-six different articles by different authors. These can be characterized, in general, as falling in two groups, (a) those which concern electrons, plasma and field interaction in specific devices, such as travelling wave tubes, magnetrons, etc., and (b) those which deal with the interaction of electron beams, plasmas and wave propagation in different media without reference to any special device.

As is usual in books of this type, an attempt is made to present some rather simple pictures of the devices for which electronic wave-guide phenomena are important. Thus, we have the articles about travelling-wave tubes and new microwave devices, both of which are very readable and give some insight to the physical basis of operation to the person without experience. However, as is also usual, it is also quickly necessary, for understanding, to go beyond these simple models and develop material which either requires considerable experience or effort to comprehend. Most of the other articles are of this nature, and are written by specialists very well qualified to write on their subjects. No effort is made by most of these authors to provide extensive bibliographies of their subject, but the book as a

whole provides a good reference to the literature on this subject.

It is not any easy task to edit and present in book form the work of a number of different authors, and this task has been skillfully accomplished to the end that we have here a unified and inclusive treatment of a field that is bound to become of increasing technical and scientific importance. This book is important both as an introduction to this field, and as one indicating the scope and techniques that are used to attack problems of great technical difficulty.

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BOOKS RECEIVED

December 10, 1959-January 10, 1960

ROGER ADAMS, Editor-in-Chief. "Organic Reactions." Volume 10. John Wiley and Sons, Inc., 440 Fourth Avenue, New York 16, N. Y. 1959. 563 pp. \$12.00.

R. P. BELL. "The Proton in Chemistry." The George Fisher Baker Non-Resident Lectureship in Chemistry at Cornell University. Cornell University Press, 124 Roberts Place, Ithaca, N. Y. 1959. 223 pp. \$4.75.

J. O'M. BOCKRIS, J. L. WHITE AND J. D. MACKENZIE, Edited by. "Physicochemical Measurements at High Temperatures." Academic Press, Inc., 111 Fifth Avenue, New York 3, N. Y. 1959. 394 pp. \$13.50.

E. F. GALE. "Synthesis and Organisation in the Bacterial Cell." CIBA Lectures in Microbial Biochemistry. John Wiley and Sons, Inc., 440 Fourth Avenue, New York 16, N. Y. 1959. 110 pp. \$3.50.

MARTIN J. KLEIN, Edited by. "Paul Ehrenfest. Collected Scientific Papers." Interscience Publishers, Inc., 250 Fifth Avenue, New York 1, N. Y. 1959. 632 pp. \$13.75.

WILLIAM D. LOTSPEICH. "Metabolic Aspects of Renal Function." Charles C Thomas, Publisher, 301-327 East Lawrence Avenue, Springfield, Illinois. 1959. 214 pp. \$7.50.

W. G. PALMER. "Valency: Classical and Modern." Second Edition. Cambridge University Press, 32 East 57th Street, New York 22, N. Y. 1959. 244 pp. \$5.50.

PAUL PASCAL, Edited by. "Nouveau Traité de Chimie Minérale." Thome XVIII. "Complexes du Fer, du Cobalt et du Nickel." Masson et Cie., 120 Boulevard Saint-Germain, Paris 6, France. 1959. 944 pp. Broché, 9.500 fr.; cartonné toile, 10.700 fr.

E. H. ERICH PIETSCH, Editor. "Gmelins Handbuch der Anorganischen Chemie. Alphabetische Folge zur Systematik der Sachverhalte." Verlag Chemie, G.m.b.H. (17a) Weinheim/Bergstr., Pappelalle 3, Germany. 1959. 109 pp. Kart. DM. 30.—; Geb. DM. 35.—.

F. SMITH AND R. MONTGOMERY. "The Chemistry of Plant Gums and Mucilages and Some Related Polysaccharides." ACS Monograph No. 141. Reinhold Publishing Corporation, 430 Park Avenue, New York 22, N. Y. 1959. 627 pp. \$18.00.

H. W. THOMPSON, Edited by. "Advances in Spectroscopy." Volume I. Interscience Publishers, Inc., 250 Fifth Avenue, New York 1, N. Y. 1959. 363 pp. \$12.50.

K. L. WOLF. "Physik und Chemie der Grenzflächen." Zweiter Band. "Die Phänomene im Besonderen." Springer-Verlag, Heidelberger Platz 3, Berlin-Wilmersdorf, Germany. 1959. 360 pp. DM. 58.—.