

type of survey of the chemistry of free radicals and the techniques of investigation which he has made here should increase the opportunity for other workers to carry out plans of "investigation from all sides" such as he wishes to see.

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Chemical Transformations by Microorganisms. E. R. Squibb Lectures on Chemistry of Microbial Products at the Institute of Microbiology, Rutgers University. By FRANK H. STODOLA, Northern Utilization Research and Development Division, Agricultural Research Service, U. S. Department of Agriculture, Peoria, Illinois. John Wiley and Sons, Inc., 440 Fourth Avenue, New York 16, N. Y. 1958. ix + 134 pp. 12.5 × 19 cm. Price, \$4.25.

This is the second book in the series of the E. R. Squibb Lectures on Chemistry of Microbial Products. The lectures are delivered annually at the Institute of Microbiology, Rutgers, The State University of New Jersey, by prominent investigators. In three chapters, this little treatise highlights the (1) chemical composition, (2) type reactions and (3) synthetic powers of selected microorganisms. It is pleasingly written and each chapter is headed by quotations relevant to the subjects discussed. To the chemist and microbiologist alike, chapter 2 should be of definite value, for it lists the types of reactions that are brought about by microorganisms: oxidation, reduction, hydrolysis, decarboxylation, deamination, amination, phosphorylation, dehydration, condensation, methylation, dismutation, amidation, esterification, acylation and transglycosylation. The discussion on the formation of α -ketoglutaric acid and L-glutamic acid could have been included here rather than in chapter 3, where the biosyntheses of a few pigments and gibberellins are discussed.

Naturally, in a limited number of lectures such as these, it is impossible to discuss all microbial transformations and important related subjects. Consequently, the biosyntheses of compounds like proteins, vitamins and enzymes were omitted and others such as nucleic acids, antibiotics and cell wall studies, were mentioned only in passing. In spite of this, the book should furnish important references and inspiration for further reading in microbial chemistry.

RESEARCH LABORATORIES
THE UPJOHN COMPANY
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Some Problems of Chemical Kinetics and Reactivity. Volume I. By N. N. SEMENOV, Institute of Chemical Physics, Academy of Sciences of the U.S.S.R. Translated by J. E. S. BRADLEY, B.Sc., Ph.D. Pergamon Press, Inc., 122 East 57th Street, New York 22, N. Y. 1959. x + 305 pp. 15 × 22 cm. Price, \$7.50.

This is one of two English translations of the second edition of the book by Semenov, the other translation having been made by M. Boudart for the Princeton University Press (see above). The first edition was a limited one published in 1954 by the Academy of Sciences of the U.S.S.R.

This volume is a hard-cover edition and is well-bound and well-printed. It is listed as Volume I on the title page, but no indication is given as to what Volume II may be. A Name Index and a brief Subject Index have been provided.

Part I of the present volume, on radical reactions, and Part II, on initiation and termination of reactions, are the

same as in the edition by the Princeton University Press (see review above) except for the addition of a brief but cogent section on heterogeneous catalysis in biology. In addition there is a major section on Kinetics of Chain Reactions, as Part III. This is a general discussion of systems in which chain reactions are competing with reactions of saturated molecules and of the factors which determine their relative rates. Particular attention is given to the initial production of free radicals by decomposition reactions and the production of free radicals by reaction between stable molecules is also discussed. Decomposition of alkyl bromides and chlorides and cracking of hydrocarbons are considered in some detail. There is an Appendix on the activated complex, written by M. I. Temkin, with some interesting comments on the question of "equilibrium" of this complex with the reagent molecules. A second appendix, written by Semenov and N. O. Sokolov, discusses quantum-mechanical calculation of activation energies—with the conclusion that "theoretical calculation of activation energies in quantitative terms for gas-phase bimolecular reactions remains completely impracticable."

As noted in the former review, the book is not a comprehensive textbook or treatise, but it is an interesting and stimulating discussion by an outstanding scientist in the field of the present status of our knowledge of chemical kinetics and chain reactions involving free radicals.

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BOOKS RECEIVED

April 10, 1959—May 10, 1959

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ERNST BAYER. H. MAYER-KAUPP, Edited by. "Anleitungen für die Chemische Laboratoriumspraxis." Band X. "Gaschromatographie." Springer-Verlag, Heidelberg Platz 3, Berlin-Wilmersdorf, Germany. 1959. 163 pp. DM. 39.60.

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C. A. JACOBSON, Compiled by. CLIFFORD A. HAMPPEL, Edited by. "Encyclopedia of Chemical Reactions." Volume VIII. "Tungsten. Uranium. Vanadium. Ytterbium. Yttrium. Zinc. Zirconium. Addenda." Reinhold Publishing Corporation, 430 Park Avenue, New York 22, N. Y. 1959. 533 pp. \$14.00.

AJIT KUMAR SAHA AND TARA PRASAD DAS. "Theory and Applications of Nuclear Induction." Saha Institute of Nuclear Physics, 92, Upper Circular Road, Calcutta 9, India. 1957. 516 pp. \$6.00.

A. J. C. WILSON, General Editor. N. C. BAENZIGER and C. S. BARRETT (Metals), J. M. BIJVOET and J. WYART (Inorganic Compounds), AND J. MONTEATH ROBERTSON (Organic Compounds), Section Editors. O. EISNER, Assistant Editor. "Structure Reports." Supplementary Volume and Cumulative Index for 1940-1950. Volume 14. N.V. A. Oosthoek's Uitgevers Mij., Domstraat 1-3. Utrecht, The Netherlands. 1959. 215 pp. \$9.50.