

by names in English, French and German. In the List of Elements, the symbols recommended in the 1957 IUPAC rules are used. These are written in Roman type and arranged alphabetically. Each symbol is followed by its atomic number and its name in Japanese, English, German, French and Russian.

Non-adopted rules, recommendations and reports which appeared in the 1957 edition are included in this book.

In the appendix, the following material is again included: (1) Miscellaneous Chemical Prefixes; (2) Symbols, Signs and Abbreviations; (3) Pronunciation of Chemical Words; and (4) How to Use *Chemical Abstracts*.

The table of contents and the index are given in Japanese and in English.

CHEMICAL ABSTRACTS SERVICE
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Microbial Genetics. Tenth Symposium of the Society for General Microbiology held at the Royal Institution, London, April 1960. Edited by W. HAYES and R. C. CLOWES, Medical Research Council, Microbial Genetics Research Unit, Hammersmith Hospital, London, W. 12, England. Cambridge University Press, 32 East 57th Street, New York 22, N. Y. 1960. x + 300 pp. 16 × 25 cm. Price, \$7.50.

Every year the Society of General Microbiology in England sponsors an international symposium on a theme or problem of current interest and importance to microbial investigators. The volumes that have emanated from these symposia have proved their usefulness in many ways, some having become important reference works (*e.g.*, Adaptation in Microorganisms, Bacterial Anatomy, Virus Growth and Variation), and they have set high standards for international conferences of this kind. The present volume, the tenth in the series, is an excellent contribution to the field of Microbial Genetics, despite the fact that in recent years considerable attention has been paid by symposium organizers to this rapidly developing and extremely important field of research.

Several notable qualities raise this volume in distinction and value in comparison to other works covering the same field. The first of these qualities is its sensible organization; one gains the impression that as much care was given by the editors to the selection and arrangement of topics and areas for discussion as to the choice of eminent investigators as authors. The symposium is treated as the unfolding of the present state of our knowledge of the hereditary determinants, or genes, of microorganisms. At first, these genes are described as they occur as a group or assembly, namely, as part of a chromosome. Then their individual behavior is analyzed in terms of their fine structure, their recombinational interactions, and their activity in the metabolic economy of the cell. Further study then is made of their structure and function at the molecular level. Finally, some consideration is given to how they cooperate in the running of the complex society of which they are a part, the cell as a whole.

Another valuable quality of this volume is the number of papers that are sufficiently comprehensive and broad in scope to assure the adequacy of the review of the field and to provide some foundation for the other papers which deal with more specific aspects or problems. Especially commendable in this regard are the excellent reviews by Hayes on the bacterial chromosome, by Pritchard on the genetic fine structure of microorganisms as revealed by recombination analysis (a paper in which the author laudably attempts to bring together the divergent information that has been obtained from cytomorphological, cytochemical and genetic investigations, and in the higher forms of life as well), by Catchside on the relation of gene structure to enzymic specificity, and by Brown on the role of the nucleic acids in the synthesis of specific proteins.

The remaining papers are uniformly of great interest. Kellenberger addresses himself to the structure of the bacterial chromosome as revealed by electron microscopy, and tries to correlate this information with other chemical information about its mode of replication. Jacob, Schaeffer and Wollman introduce a new concept, that of episomes, which are hereditary determinants that may be added to the genetic constitution of the cell (rather than replace some

determinants already present in the cell) and exist in either an autonomously replicating condition or in an integrated state. The notion of episomes not only unifies our understanding of lysogeny, colicinogeny and the sex factor of bacteria, but stimulates interesting hypotheses concerning the regulation and differentiation of cells of higher plants and animals as well. Clowes reviews what has been learned of the fine structure of bacterial genes through use of the mode of genetic transfer known as transduction. Esther Lederberg emphasizes in particular the bacterial genes governing galactose metabolism. Harriett Ephrussi-Taylor raises some critical questions regarding the heterocatalytic activity and replication of infectious deoxyribonucleic acid during the process of genetic transformation. Garen furnishes a lucid account of an elegant procedure for understanding the control of the gene over the functional specificity of an enzyme through the particular case of alkaline phosphatase. Gierer brings us up to date on the structure and function of ribonucleic acid in the group of small viruses, which includes the tobacco mosaic and the poliomyelitis viruses. Maaløe deals with the integration of the genome, the protein-synthesizing particles in the cytoplasm, the enzymes and their substrates and end products in the regulation of growth. Danielli summarizes the results of recent experiments by himself and co-workers on the hereditary effects of nuclear exchanges between amoebae of different species.

For the initiate Stocker provides a necessarily brief and condensed introduction to the concepts and terminology of genetics. Nevertheless, those unfamiliar with microbial genetics are not recommended to launch upon this volume without first assimilating some more elementary essays or reviews on the subject. Biochemists, however, will find extremely useful those papers dealing with the molecular aspects of gene structure and function, whatever difficulty they may experience with the purely formal aspects of genetic organization.

For biologists in general, and for geneticists in particular, this book should prove its worth, not only now but for some time to come.

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Organosilicon Compounds. By C. EABORN, Ph. D., D. Sc., Reader in Physical-Organic Chemistry, University of Leicester. Academic Press Inc., 111 Fifth Avenue, New York 3, N. Y. 1960. x + 530 pp. 15 × 22.5 cm. Price, \$15.00.

This handsome new book is the largest and most ambitious work on organosilicon chemistry to appear in the English language. Dr. Eaborn, reader in physical-organic chemistry at the University of Leicester, has concentrated within it everything that has come to light during his intensive study of the kinetics of the reactions of silicon compounds, and has used his ideas on the mechanisms of such reactions to correlate a vast amount of previously published material.

The plan of the book embraces 17 logical divisions, starting with preparative methods and general bond characteristics, then proceeding through reactions of all the major types of compound, and ending with a discussion of physical properties and analysis. An indication of the book's thoroughness is the inclusion of 10 pages and 6 extensive tables on the molecular spectra, interatomic distances and dipole moments of organosilicon compounds. Each chapter contains an exhaustive bibliography, and the reader is further helped by an unusually detailed table of contents and by a 23-page index of compounds and subjects. It is practically impossible to get lost in the book.

In his preface, Dr. Eaborn writes: "While I have drawn frequent parallels with carbon chemistry, I have, against my inclinations, not related the organic chemistry of silicon to that of other metalloids or metals." Just why he should go against his inclinations in this way is not clear to the reviewer (in whose experience the chemistry of silicon is closer to that of boron, germanium and tin than to that of carbon), unless it be out of loyalty to his university title or his past training.

Dr. Eaborn also explains in his preface that he has placed considerable emphasis on reaction mechanisms as a means of "introducing order into accounts of fragmentary and unrelated researches." In this he succeeds very well. The