

**Structural Concrete**

By Prof. Kurt Billig. Pp. xx+1020. (London: Macmillan and Co., Ltd.; New York: St. Martin's Press, Inc., 1960.) 84s. net.

PROF. BILLIG is a well-known author of books and papers on reinforced concrete and prestressed concrete. His present volume aims to provide a "minor encyclopædia on structural concrete", and this is indeed a fair description of the work. It is divided into three sections, the first dealing with materials, the second with structural design and the third with design and construction. In attempting to cover such a wide field in a single volume of manageable size the author is inevitably faced with very difficult problems of selection and condensation. On the whole, Prof. Billig has tackled these problems successfully although the depth of treatment varies somewhat from one chapter to another.

Part 1 is devoted mainly to concrete technology, that is to a discussion of the properties, selection and testing of cements and aggregates and the techniques of mixing, placing and consolidating concrete. A chapter is devoted to the important question of durability. Part 2 considers first the basis of structural design in concrete and goes on to discuss in considerable detail the methods of proportioning practically every kind of structural element in reinforced concrete, including beams, columns, slabs, arches and shells. A great amount of ground is covered, and numerous diagrams, tables and examples are included. The third section of the book discusses the use of structural concrete for a wide variety of building and engineering structures, with reference to actual examples.

A very good balance has been achieved between structural analysis, practical design considerations and concrete practice. The book is a veritable mine of information for structural engineers and architects, to whom it can be highly recommended.

A. W. HENDRY

**An Electronic Outline of Organic Chemistry**

By Dr. S. Horwood Tucker. Pp. xvi+478. (London: University of London Press, Ltd., 1959.) 63s. net.

THIS is a book, written for undergraduates, in which the reactions of the commoner types of organic compounds are interpreted in terms of the electronic theory. Dr. Tucker is to be congratulated for having rescued so effectively the "gems of electronic exposition" from submergence in the "heavy matrix of comprehensive fact". Not that the importance of experimental fact is in any way diminished: indeed, just sufficient significant facts have been carefully selected and lucidly expounded to present to the undergraduate a clear and reasonable account of the essentials of organic chemical theory.

There are, however, certain omissions which, though they do not detract from the overall value of the book, nevertheless seem surprising, especially since these topics are now included in undergraduate lecture courses. Thus, the reactions of benzene, and of carbenes (even in connexion with the Reimer-Tiemann reaction, p. 407) are neglected; likewise Bender's work on ester hydrolysis receives no mention.

The text is well supplied with references to both individual papers and review articles.

It is a pity that several misprints remained undetected in the proofs. Fortunately, most of them are relatively trivial and they do not seriously affect the sense of the text.

The book is well produced and possesses a good index.

While this book can be strongly recommended to students, it is likely that its price will deter all but the most affluent, or the most self-denying of the impeccable, from purchasing it. NEVILLE H. P. SMITH

**Proceedings of the 1960 Annual International Conference on High Energy Physics at Rochester N.Y., August 25-September 1, 1960.** Edited by E. C. G. Sudarshan, J. H. Tinlot, and A. C. Melissinos. Pp. xxv+890. (Rochester, N.Y.: University of Rochester, 1960. Distributed by Interscience Publishers, Inc., New York and London.) 13.50 dollars.

THE International Conference on High Energy Physics which was held in Rochester, N.Y., was the tenth in the series. This annual conference is acknowledged to be the most important one in this field. Its purpose is to assemble a representative group of workers from high-energy laboratories throughout the world to discuss the experimental results obtained and the theoretical developments which have occurred during the previous year.

The *Proceedings* are divided into three sections. The first section covers the initial "working" or "S" sessions, several of which were usually held concurrently. The second, "R" section, contains the reports of the *rapporteurs*. Finally, in the last three chapters are contained, in full, the papers presented at three "plenary" sessions. The subject-matter of the conference was limited to the following topics: the strong interactions of pions and nucleons; the strong interactions of strange particles; weak interactions; the structure of elementary particles; new results at super-high energies, and finally, theories of elementary particles.

The editors, secretaries and all concerned with the publication of the *Proceedings* deserve the highest praise for producing such a magnificent record within two months of the end of the Conference. No physicist interested in elementary particle physics can afford to be without the volume close at hand.

G. H. STAFFORD

**Probability Theory**

By Prof. Michel Loève. Second edition. (The University Series in Higher Mathematics.) Pp. xvi+685. (Princeton, N.J.: D. Van Nostrand Company, Inc.; London: D. Van Nostrand Company, Ltd., 1960.) 111s.

THE first edition of this book appeared in 1955 and went a long way to fill a serious gap in the mathematical literature. The new edition, revised in detail and longer by two chapters, comes a little nearer to closing the gap and is still the only (and an excellent) approximation to a comprehensive textbook on mathematical probability. The new chapter 11 (64 pages) deals with the generalities of the theory of stochastic processes (including separability and measurability), continuous-parameter martingales, and decomposability theorems. The new chapter 12 (95 pages) deals with Markov processes. It starts with an account of the 'strong' Markov property, and passes on to a discussion of the differentiability of transition functions before taking up the theory of one-parameter semi-groups of operators, which it pursues as far as a proof of the basic Hille-Yosida theorem. Finally, there is a valuable synthesis of the recent work by Feller, Dynkin and others on diffusion theory.

D. G. KENDALL