

of activity for the Grignard reagent. The fact that a large amount of racemization was obtained suggests that racemization is occurring in the Grignard formation step.

Further work pertaining to the mechanism of

Grignard formation as well as to the optical stability of organometallics is now in progress.

DEPARTMENT OF CHEMISTRY  
FLORIDA STATE UNIVERSITY  
TALLAHASSEE, FLORIDA

H. M. WALBORSKY  
A. E. YOUNG

RECEIVED APRIL 7, 1961

## BOOK REVIEWS

**Modern Probability Theory and its Applications.** By EMANUEL PARZEN, Associate Professor of Statistics, Stanford University. John Wiley and Sons, Inc., 440 Fourth Avenue, New York 16, N. Y. 1960. xv + 464 pp. 15.5 × 23.5 cm. Price, \$10.75.

The title of this book should perhaps be: Introduction to Probability Theory, since by mathematical standards it is a first undergraduate textbook. Content: Chapter I, Probability Theory as the Study of Mathematical Models of Random Phenomena; Chapter II, Basic Probability Theory; Chapter III, Independence and Dependence; Chapter IV, Numerical-Valued Random Phenomena; Chapter V, Mean and Variance of a Probability Law; Chapter VI, Normal, Poisson, and Related Probability Laws; Chapter VII, Random Variables, Chapter VIII, Expectation of a Random Variable; Chapter IX, Sums of Independent Random Variables; and Chapter X, Sequences of Random Variables.

The knowledge of Lebesgue integration is not assumed. Some theorems are stated without proof, the author usually pointing out this fact carefully. The book is written vividly, contains interesting bibliographical and historical remarks. Some points worth mentioning: Detailed treatment of elements of combinatorics in Chapters I-II; definition of conditional probability of an event given a random variable, without use of the Radon-Nikodym theorem, Chapter VII; an article on the measurement of the signal-to-noise ratio of a random variable, Chapter VIII; treatment of convergence in distribution by the method of characteristic functions, including in Chapter IX the proof of the inversion formulas for characteristic functions, in Chapter X the proof of the "continuity theorem of Probability Theory." A trivial flaw: the definition of a function, p. 269, is not correct.

In conclusion, it may be appropriate to compare this work with the classic treatise in the field, Feller's "Introduction to Probability Theory and Its Applications." At the price of limiting himself to the discrete case Feller achieves a mathematically admirable and completely self-contained treatment. The reviewer feels, however, that Parzen's book is to be preferred as an undergraduate textbook: it is considerably easier to understand and also treats the continuous case.

DEPARTMENT OF MATHEMATICS  
UNIVERSITY OF ROCHESTER  
ROCHESTER, NEW YORK

LOUIS SUCHESTON

**British Medical Bulletin. Volume 16. Number 3. Insulin.** F. G. YOUNG, Scientific Editor. Medical Department, The British Council, 65 Davies Street, London, W. 1, England. 1960. pp. 175-264. 22 × 28.5 cm. Price, \$3.25.

The issue "Insulin" of the British Medical Bulletin series is a worthy companion of its forerunners. In a group of 17 titles, the subject ranges from the chemical structure of insulin, its measurement in pancreatic extracts and in blood, the role of insulin (and hence the metabolic defects in diabetes) in carbohydrate, fat and protein metabolism, to more clinically oriented subjects including the chemistry and uses of synthetic hypoglycemic agents.

After a historical perspective and preview of the subject matter by the scientific editor, Charles H. Best describes in fine historical perspective his pioneer work with Banting on active insulin preparations, and his efforts to get on with

studies of the physiological effects of insulin in the face of pressing problems in the commercial production of the life-saving hormone. Supplementing a never-tiring description of his classical work on insulin structure, the article by F. Sanger is followed by an excellent treatment by Ieuan Harris on the structures of oxytocin, vasopressin, corticotropin and MSH with emphasis on the relation of structure and amino acid replacements to biological activity. Of theoretical interest but also of great practical import are the articles dealing with the measurement of insulin concentrations, the metabolic fate of insulin and the presence of insulin antagonists and antibodies in blood. These subjects comprise five articles by G. A. Stewart, A. J. Kenney, P. J. Randle and K. W. Taylor, J. Vallance-Owen, and P. H. Wright.

There follows a group of four articles concerned with the action of insulin on metabolism, particularly at the tissue and enzyme levels. In weighing many reports, R. B. Fisher is led toward the conclusion that the stimulation of carbohydrate metabolism is through the increased transport of glucose into the cell, while S. J. Folley and A. L. Greenbaum present the case for a possible primary role of insulin in the synthesis of fatty acids, and A. Korner and K. L. Manchester gather information which indicates a direct effect of insulin on the biosynthesis of protein. Finally P. J. Randle and F. G. Young provide a critical and provocative paper with a unifying concept of insulin action based on its effect on cell permeability, which may account in ways not entirely clear at the present time, for the apparent diversity of actions of insulin on metabolism.

The issue is concluded with articles by R. Fraser on the interplay of insulin with other hormones, by W. Oakley on the types of insulin available for clinical practice, and finally articles on the chemistry of the newer hypoglycemic agents (R. F. Mahler) and their clinical use (J. D. N. Nabarro).

In summary, "Insulin" provides a useful collection of concise, factual and well-documented articles of diverse nature, making it valuable for medical scientists as well as physicians.

UNIVERSITY OF ROCHESTER SCHOOL  
OF MEDICINE AND DENTISTRY  
ROCHESTER, NEW YORK

ELMER H. STOTZ

**The Biosynthesis and Secretion of Adrenocortical Steroids.** Biochemical Society Symposium No. 18 held at Senate House, University of London on 14 February, 1959. Organized by J. K. GRANT. Edited by F. CLARK and J. K. GRANT. Cambridge University Press, 32 East 57th Street, New York 22, N. Y. 1960. vii + 111 pp. 16 × 25.5 cm. Price, \$5.00.

An excellent section on laboratory technology as applied to the elucidation of new structures of adrenal and other steroids opens this symposium. The usefulness of micro techniques using several paper chromatographic systems in conjunction with the preparation of derivatives to eliminate "mimics" is stressed and practical examples of these are given.

Most significant findings (up to 1959) concerned with the biogenesis and control of secretion of adrenocortical steroids are reported. In conjunction with these subjects the symposium authors have given liberal play to their ideas and the possible without unbridling fancy at the expense of facts. Most importantly, attention is drawn to areas requiring re-