Book Reviews

Advances in Enzymology and Related Subjects of Biochemistry. vol. 15. F. F. Nord, Ed. Interscience, New York–London, 1954. x + 547 pp. Illus. $11.

There is little that one may add to past reviews of this well-established series. Volume 15 continues the high standard set by the previous volumes.

The topics reviewed were carefully selected to serve both general and special interests. From the table of contents, it is evident that there are several chapters for the many who follow the very rapid advances made in the field of metabolism. Not only are there three chapters concerned principally with enzyme mechanisms, but there are also sections of other articles that include the studies of the mechanisms proposed for the action of the particular enzyme system or systems reviewed. Articles that are well written and that serve a definite and worth-while purpose are never out of place. Therefore, in my opinion, the articles on virology and immunology need no rationalization for their inclusion.

The chapters are "The mechanism of enzymic oxidoreduction," by S. J. Leach; "Thermodynamique des reactions immunologiques," by Rene Wurmser; "Chemistry, metabolism, and scope of action of the pyridine nucleotide coenzymes," by Thomas P. Singer and Edna B. Kearney; "Alternate pathways of glucose and fructose metabolism," by Efraim Racker; "Enzymic mechanisms in the citric acid cycle," by Severo Ochoa; "The mechanism of action of hydrolytic enzymes," by H. Lindley; "Enzymatic synthesis of polysaccharides," by Maurice Stacey; "Urea synthesis and metabolism of arginine and citrulline," by S. Ratner; "Thiaminase," by Akiji Fujita; "Rennin and the clotting of milk," by N. J. Berridge; and "Die struktur des tabakmosaikvirus und seiner mutanten," by Gerhard Schramm.

HOWARD B. BENSUSAN

Department of Physiology,
University of Maryland School of Medicine

Limit Distributions for Sums of Independent Random Variables. B. V. Gnedenko and A. N. Kolmogorov. Trans. by K. L. Chung. Addison-Wesley, Cambridge, Mass., 1954. ix + 264 pp. $7.50.

K. L. Chung has rendered a service to students of probability theory by making available in English much material previously accessible only in Soviet periodicals. In the translator's preface he states:

> The systematic account presented here combines generality with simplicity, making some of the most important and difficult parts of the theory of probability easily accessible to the reader. Beyond a knowledge of the calculus on the level, say of Hardy's *Pure Mathematics*, the book is formally self-contained.

It seems to me that a more sophisticated mathematical background, including some knowledge of complex variable theory, is desirable if one is to read the book without considerable study. The majority of those to whom it would appeal no doubt possess the proper insight into this field of study. The book begins with a brief discussion of measure theory pertinent to the subject of probability, and to help the reader overcome the difficulties of this subject, an appendix by J. L. Doob is included. There are a considerable number of explanatory footnotes by the translator, and an extensive bibliography.

This might well serve either as a textbook or as reference reading in a course in advance probability.

The nine chapters are divided into three main parts: Introduction; General limit theorems; and Identically distributed summands. Chung suggests possible groupings of the material for several purposes to which the book seems suited. The first two chapters could serve as a rigorous course in probability. Other parts could be combined to serve the needs of those interested in the fundamental facts of stable laws, the law of large numbers, the central limit theorem, and asymptotic expansions.

CLAYTON M. ZIEMAN

Department of Electrical Engineering, Air University, U.S. Air Force Institute of Technology

The Use of Stereographic Projection in Structural Geology. F. C. Phillips. Edward Arnold, London, 1954. vi + 86 pp. Illus. $3. (Distr. by St Martin's Press, New York 17.)

As a means of determining the three-dimensional angular relationships that exist between structural units, stereographic projection has the advantages of rapidity, ease of visualization, and adaptability to field methods. This is widely realized in North America, where at least two standard textbooks of structural geology now include an introduction to stereographic procedure, and where Bucher and others have popularized its use in solving everyday structural problems. Although it fills no obvious gap in the literature on this side of the Atlantic, Coles Phillips' book is nevertheless of value as a fairly comprehensive guide to procedures already described in scattered writings elsewhere. It assumes no previous knowledge of the subject and possesses extreme clarity of expression and of illustration.

Problems of which the stereographic method permits rapid solution, and which are dealt with here, include the obtaining of true dip from apparent dips, either measured at outcrop or along inclined angles of sight at a distance, as is the case in the interpretation of oblique aerial photographs; of plunge from pitch in a known plane; and of the attitude of intersection of oblique planes. The latter, for example, may be used in determining the direction of ore shoots, of plunging fold axes, and of traces of structures on inclined fault planes. Also described is the procedure employed to find the former attitude of

doubly-tilted strata and to determine the dip of laminated beds, in which a key horizon is lacking, that are cut by nonparallel drill holes.

An account is given of the manner in which stereographic projection aids the construction of block diagrams for illustrative purposes, while a further chapter, headed "Tectonic syntheses," deals with fabric analysis on equal-area and stereographic diagrams by procedures familiar to structural petrologists. An appendix explains the use of simple spherical trigonometry in verifying the correctness of plotting and, when necessary, as a more accurate substitute for the latter. A series of problem exercises and their answers and an extensive bibliography are provided. This latter partially mitigates the lack of more than passing reference to projection protractors and other field aids that have been devised by earlier authors.

J. M. CARR
Department of Geology, University of Illinois

Tropical Soils. A critical study of soil genesis as related to climate, rock and vegetation. E. C. J. Mohr and F. A. Van Baren. N. V. Uitgeverij, W. Van Hoeve, The Hague and Bandung; Interscience, London–New York, 1954. 498 pp. Illus. + plates. $9.

Mohr is a recognized authority on tropical soils and is well known for his monumental work on the soils of equatorial regions, which he wrote between 1933 and 1938, and which Robert L. Pendleton translated from the Dutch and made available to English readers in 1944. The present volume was written at the invitation of the Royal Tropical Institute of Amsterdam and is much broader in scope than its predecessor, treating all tropical soils rather than just those of the former Netherlands Indies. In the task Mohr had the collaboration of an able younger associate, F. A. Van Baren.

The title calls attention to the climatic basis of soil formation and the first chapter, comprising one-fifth of the book, is entitled "Fundamental considerations of atmospheric climate and soil climate" In the earlier edition Mohr devoted a great deal of attention to the seasonal march of soil moisture and in this book the authors go even further and say that "in the study of soil genesis it is soil climate . . . which should be given foremost attention."

Of course, they do not overlook the role of rocks and rock minerals in soil formation. In fact, since both men are soil experts this is the part of their book in which they excel. One might wish that they had done as well with the climatic theme. It is probable that the real answers to the problem of origin of tropical soils will not be forthcoming until the methods of microclimatology and topoclimatology are understood and pressed into service. The authors intimate as much in their concluding section when they say that "the *overhead climate* is not the essential factor in soil genesis but *soil climate,* and many different soil climates can occur in one and the same zonal region looked at from an overhead-climate point of view."

There is no doubt that this is a very important book—important not to soil scientists alone but also to climatologists, geographers, and botanists as well. It should be highly recommended.

C. W. THORNTHWAITE
Laboratory of Climatology, Johns Hopkins University

The Sun, the Sea, and Tomorrow. F. G. Walton Smith and Henry Chapin. Scribner's, New York, 1954. xii + 210 pp. Illus. $3.50.

The writing team of Chapin and Smith got off to an indifferent start with *The Ocean River,* but this book is so much of an improvement that it does not seem to have been written by the same people. Of late we have been bombarded with all sorts of opinions about the infinite riches of the sea, the billions of kilowatts to be generated from tidal energy, and the inexhaustible bowls of plankton soup that are to be had for the asking, that it is something of a shock to find a book in which these expectations are reduced to sensible orders of magnitude. This does not mean that the authors are gloomy pessimists; they have simply presented their discussion of "potential sources of food, energy and minerals from the sea" in a realistic manner, with adequate recognition of the magnitude of problems to be overcome and without extravagant estimates of food for untold billions of mouths. Their main emphasis is on the need for research and political and economic cooperation. We are only at the threshold of knowledge required to improve our utilization of the sea and its resources. In this context more emphasis should have been given to the fluctuations in pelagic stocks, such as that of the California pilchard, which may make a fishery uneconomical and seriously impair an established source of food.

Ostensibly a book for lay readers, *The Sun, the Sea, and Tomorrow* deserves the attention of those optimistic economists who have placed too much faith in Sunday supplement pieces.

JOEL W. HEDGPETH
Scripps Institution of Oceanography

Abhandlungen aus der Sowjetischen Physik. Folge III. Gesellschaft für Deutsch-Sowjetische Freundschaft. Robert Rompe, Ed. Verlag Kultur und Fortschritt, Berlin, 1953. 347 pp. Illus. + plates.

The book *Abhandlungen aus der Sowjetischen Physik* is a translation (in German) of 24 papers apparently representing typical or outstanding products of Soviet research. The exact reasons for bringing them forth in this form are not stated. The topics covered range widely but include statistical theory, Brownian motion, luminescence, cosmic rays, gas discharges, organic chemistry, and spectroscopy, to name a few. Of these, experimental and theoretical aspects of luminescence are the most strongly represented, with 10 papers.