

counters, and Geiger counters are treated extensively in separate chapters, followed by a brief mention of counting losses, the build-up of pulses during rapid counting and the statistics of ionization chambers.

The way in which the author treats the complex material he presents is admirably clear most of the time, although occasionally, especially in certain parts of the discussion of Geiger counters, his arguments seem a bit difficult to follow. On the whole, however, the detailed and organized analysis of counter phenomena given in this volume should be of great value to many readers.

Counting Tubes, by Curran and Craggs, does not attempt a rigorous study of counter theory, although a good deal of the well-established information is mentioned in the first few chapters. Detailed descriptions of such recent developments as scintillation, crystal, and spark counters are given, along with construction details for a number of more conventional types. Various circuits having application to counter use are discussed, with diagrams and component values included most of the time. However, the actual utility of this feature is doubtful for American readers because of certain differences in tube nomenclature between English usage and our own. The numerous applications of counters are gone into in some detail, including discussions of their use in cosmic-ray work, the inspection of materials, radioactivity monitoring, prospecting and radioactive tracers.

This book is certain to command a far greater audience than that of Wilkinson by virtue of its wider range of interests. For this very reason its coverage of specific points is sometimes lacking in thoroughness, but the liberal bibliography that is included should enable the reader desiring further information on a given topic to obtain it readily elsewhere. *Counting Tubes* can be recommended to all interested in counters, with specialists and nonspecialists alike certain to find much that will be of value to them.

Arthur Beiser
New York University

The Sea

The Sea Around Us. By Rachel L. Carson. 230 pp. Oxford University Press, New York, 1951. \$3.50.

For those who were fortunate enough to follow Miss Carson's three-part profile of the sea which appeared during June in the *New Yorker*, little need be said of the author's skill in treating oceanography and its neighboring sciences in a completely entertaining fashion. Her book, *The Sea Around Us*, upon which the profile was based, moves as swiftly and with perhaps more convincing and absorbing action than most best-selling novels. More important, she brings to this book a fresh enthusiasm which is as often lacking as it is needed in contemporary popular science writing.

A graduate of the Pennsylvania College for Women, Miss Carson continued her graduate studies in biology at Johns Hopkins University (where she later taught) and at the Marine Biological Laboratory at Woods Hole, Massachusetts. For a time she served as an aquatic bi-

ologist on the staff of the United States Bureau of Fisheries, and she is at present editor-in-chief of the United States Fish and Wildlife Service. As these biographical facts would suggest, her central interest lies in biology. But while the story she tells is largely an account of the teeming life of the oceans, her book at the same time gives a carefully integrated picture of the complexly interrelated physical conditions under which marine life is maintained. It is precisely this artful blending of the accumulated knowledge of many sciences that makes the work extraordinary. The relatively few pages and Miss Carson's casually fluid writing style are misleading, for the book is tightly constructed and every line is packed with information.

The picture given of the great water masses of the earth shows the sea to be only vaguely understood after centuries of exploration and of charting its surface, for although most of its length and breadth is known, the task of probing its third dimension with the help of modern instruments of science has little more than begun. Knowledge of the topology of the ocean bottom, for instance, was based on about fifteen thousand depth measurements (or roughly one laboriously made sounding for an area of six thousand square miles) by the time workable sonic devices were first developed for echo sounding. During recent years echo sounding instruments have plotted continuous profiles of the bottom beneath moving ships and gradually a body of detailed information about the ocean floor is being accumulated.

The hydrodynamic picture of the sea (a region of extreme changes in temperature, pressure, volume, and rate of flow of currents) is not understood in any detail—although, as the author points out, most of the bewildering phenomena of the oceans are presumably direct consequences of events brought about by some combination or another of these factors. Atmospheric climates are also sensitively related to the behavior of the seas, a fact which has made oceanography a subject of considerable interest to the meteorologist. A wide variety of modern instruments have been applied to studies of the state of the sea and a growing mass of information is being compiled concerning ocean currents, wave action, and related matters. The greatest of the ocean's waves, seasick-prone readers will be happy to learn, are invisible and lie deep beneath the surface. The water masses of some of these submarine waves are extremely great and the waves themselves can be as much as three hundred feet high. Although their existence has been recognized for a number of years, it has only been recently that the development of adequate hydrographic instruments has made their study possible.

Miss Carson's conception of the sea as a challenge to scientists of widely separate disciplines is convincingly stated and the book is likely to be read with the greatest pleasure by anyone whose professional interest has ever touched upon one or more of the many problems of the ocean. It will just as likely be appreciated, however, by the nonprofessionals who simply like to wade in the

surf, or even by the inlanders whose closest contact has come from reading Melville.

The Sea Around Us has, according to the publishers, won for the author two awards: a Eugene F. Saxton Fellowship to aid her in completing the book, and the George Westinghouse Science Writing Award for the best scientific writing of 1950, based on one of the chapters (*The Birth of an Island*), which appeared as an article in the *Yale Review*. The awards are understandable.

Briefly Noted

Applied Nuclear Physics

The second edition of the well-known book *Applied Nuclear Physics*, by Ernest C. Pollard and William L. Davidson, is essentially a revision of the original material to bring it up to date, with the addition also of sections on such modern developments as cosmic rays, chain reactions, pile theory, etc. The presentation is intended to serve primarily as an introduction to nuclear physics from a practical viewpoint for the many people who make use of the methods and results of this field in their work, and for this purpose it is certainly adequate. However, despite the contention of the authors, the book seems entirely unsuited for textbook use in a physics curriculum, although it would be satisfactory as an auxiliary reference. The essentially descriptive nature of *Applied Nuclear Physics* is far from a handicap for its use by nonspecialists, but the absence for the most part of an ordered analytical approach to the subject renders it ineffective for use in a course in nuclear physics. (352 pp. John Wiley and Sons, Inc., New York, 1951. \$5.00.)

German-English Dictionaries

Two German-English technical dictionaries have been published recently, both of which should prove useful to those engaged in translating technical material printed in the German language. The *German-English Technical and Engineering Dictionary* (by Louis De Vries; 928 pp. McGraw-Hill Book Co., Inc., New York, 1950; \$20.00) presents a compendium of approximately 125,000 entries including a vast addition of new technological nomenclature.

The *German-English Technical Dictionary*, two volumes, is now available commercially through the joint efforts of the U. S. Air Force, Charles A. Meyer and Co., Inc., and S. F. Vanni, Publishers and Booksellers, New York, at the price of \$35.00 for both volumes. It was compiled by the Dictionary Unit of the Air Documents Research Center, established in 1945 by the U. S. Strategic Air Forces in Europe to screen and process the mass of air-technical information captured from the defeated Germans. Since much of the terminology found in the secret documents had been created in wartime Germany, the Center found it necessary to develop its own dictionary in order to facilitate assimilation of the new data by American and British scientists.

Books Received

ELECTROPHORESIS IN PHYSIOLOGY. By Lena A. Lewis. 66 pp. Charles C. Thomas, Springfield, Illinois, 1950. \$1.85.

AIRPLANE DESIGN MANUAL (Third Edition). By Frederick K. Teichmann. 382 pp. Pitman Publishing Corporation, New York, 1950. \$7.50.

THE PROPERTIES OF ASPHALTIC BITUMEN—WITH REFERENCE TO ITS TECHNICAL APPLICATIONS. Edited by the late J. Ph. Pfeiffer, in collaboration with H. Eilers, J. W. A. Labout, R. N. J. Saal, M. C. Siegmann, and H. W. Slotboom. 286 pp. Elsevier Publishing Company, Inc., New York, 1950. \$6.00.

FUNDAMENTALS OF STEEL CASTING DESIGN. Prepared by C. W. Briggs. 32 pp. Steel Founder's Society of America, Cleveland, Ohio, 1950. \$0.20.

PHYSICS: ITS LAWS, IDEAS, AND METHODS. By Alexander Kolin. 890 pp. McGraw-Hill Book Company, Inc., New York, 1950. \$6.50.

AN INTRODUCTION TO THE CALCULUS OF VARIATIONS. By Charles Fox. 271 pp. Oxford University Press, New York, 1950. \$4.50.

PHOTOMETRY AND THE EYE. By W. D. Wright. 127 pp. The Hatton Press Ltd., London, England, 1949. \$2.00.

TECHNICAL OPTICS. Volume II. (Revised and enlarged edition of AN INTRODUCTION TO APPLIED OPTICS.) By L. C. Martin. 344 pp. Pitman Publishing Corporation, New York, 1950. \$7.50.

THE HEBREW IMPACT ON CIVILIZATION. Edited by Dagobert D. Runes. 922 pp. The Philosophical Library, New York, 1951. \$10.00.

MATHEMATICAL ENGINEERING ANALYSIS. By Rufus Oldenburger. 426 pp. The Macmillan Company, New York, 1950. \$6.00.

ELASTICITY. Volume III. Proceedings of the Third Symposium in Applied Mathematics of the American Mathematical Society. Editorial Committee: R. V. Churchill, Eric Reissner, and A. H. Taub. 233 pp. McGraw-Hill Book Company, Inc., New York, 1950.

PULMONARY VENTILATION AND ITS PHYSIOLOGICAL REGULATION. By John S. Gray. 82 pp. Charles C. Thomas, Springfield, Illinois, 1950. \$2.00.

A HUNDRED YEARS OF PHYSICS. By William Wilson. 319 pp. The Macmillan Company, New York, 1950. \$3.50.

AERODYNAMICS OF SUPERSONIC FLIGHT: AN INTRODUCTION. By Alan Pope. 184 pp. Pitman Publishing Corporation, New York, 1950. \$4.00.

THE ATOM AT WORK. By Jacob Sacks. 327 pp. The Ronald Press Company, New York, 1951. \$4.00.

PHYSICS. By S. G. Starling and A. J. Woodall. 1301 pp. Longmans, Green and Company, Inc., New York, 1951. \$8.50.

APPLIED NUCLEAR PHYSICS (Second Edition). By Ernest C. Pollard and William L. Davidson. 352 pp. John Wiley and Sons, Inc., New York, 1951. \$5.00.

CRYSTAL GROWTH. By H. E. Buckley. 571 pp. John Wiley & Sons, Inc., New York, 1951. \$9.00.

AN INTRODUCTION TO THE SCIENCE OF PHOTOGRAPHY. By Katherine Chamberlain. 292 pp. The Macmillan Company, New York, 1951. \$4.75.

RADIATION MONITORING IN ATOMIC DEFENSE. By Dwight E. Gray and John H. Martens. 122 pp. D. Van Nostrand Company, Inc., New York, 1951. \$2.00.