

PHYSICS

Electricity and Magnetism

An Introduction to the Mathematical Theory. By Prof. John B. Whitehead. (Electrical Engineering Texts.) Pp. xi+221. (New York and London: McGraw-Hill Book Co., Inc., 1939.) 19s. 9d.

THE professor of electrical engineering of the Johns Hopkins University has written a compact introduction to electricity and magnetism in which stress is laid on the physical and mathematical theories. The historical order is adopted, and the first six chapters are concerned with electrostatics. A single chapter on magnetism is followed by chapters on electrodynamics and electromagnetism, and the electrical units receive special attention. The chapters on alternating currents are of value and deserve mention, as they include an elementary account of modern methods of computation. Finally, a brief description is given of the theory of conduction in gases. To condense so much into little more than two hundred pages is a noteworthy feat, and the author is to be congratulated on his presentation of the subject.

Matter, Motion and Electricity

A Modern Approach to General Physics. By Henry De Wolf Smyth and Prof. Charles Wilbur Ufford. Pp. xiii+648. (New York and London: McGraw-Hill Book Co., Inc., 1939.) 25s.

UNIVERSITY teachers of physics who are not fettered by examination requirements and can plan their own courses will find this stimulating volume suggestive and helpful. Designed for a first-year course at Princeton, the book does not profess to cover the whole range of physics; but it deals with subjects related to the great theme of atomic and molecular constitution. It will therefore appeal to the chemist as well as to the eager student who wishes to plunge at once into the latest results of modern research on the properties of matter and of electricity. The advantages of the practical electrical units are so great that the authors have been led to adopt from the outset the M.K.S. (metre-kilogram-second) system of units.

Cosmic Rays

Three Lectures, being the revision of the 1936 Page-Barbour Lectures of the University of Virginia and the 1937 John Joly Lectures of Trinity College, Dublin. By R. A. Millikan. Pp. viii+134+22 plates. (Cambridge: At the University Press, 1939.) 8s. 6d. net.

THE first and perhaps the most important lecture is of a general character, in which, together with an account of the historical development of the subject, Millikan provides an answer to the often recurring question: What good are cosmic rays? He discusses the supreme social importance of abstract scientific knowledge, first in its applications to everyday life, although these may be delayed for generations, secondly in providing the example of a network of established fact to such subjects as economics, politics, etc.

The second lecture is an account of the various particles—positive and negative electrons, protons, photons and mesotrons, and of their discovery. It is noteworthy that throughout the book there is no mention of the instability of the mesotron, nor except in a footnote of its theoretical importance.

The last and longest lecture is a study of the latitude effects, both at sea-level and high in the atmosphere. It is valuable in giving in one place a full account of all the work of Millikan and his collaborators in this field, but is somewhat confusing reading, especially to those unfamiliar with the subject, as the historical development is given in detail. All the misconceptions, difficulties and mistakes of the past are treated with equal emphasis as the extent of our present knowledge.

PSYCHOLOGY

General Psychology

By J. P. Guilford. Pp. xii+630. (London: Chapman and Hall, Ltd., 1939.) 18s. net.

THIS book is divided into six parts. The first contains a discussion, on traditional lines, of the scope of the subject and a brief outline of the nervous system. A thorough and highly satisfactory section follows dealing with sensory activities and the processes of attention. The chapters on vision and hearing are noteworthy. The remainder of the book deals with the following topics: motivation of behaviour; acquiring new adjustments; symbolic activity, that is, images, concepts and language; and individual differences in ability and personality. The weakest chapters are those on human personality, which do not reach the standard set by the rest of the work.

The book is designed as an introductory experimental text, and each chapter concludes with a series of questions planned to test the student's grasp of the chapter. There are numerous diagrams and graphs, and the material is presented with clarity and simplicity. The student of psychology in Great Britain will welcome this interesting and up-to-date exposition of his subject.

The Mind of the Bees

By Julien Françon. Translated by H. Eltringham. Pp. xi+146. (London: Methuen and Co., Ltd., 1939.) 6s. net.

THIS little book is a reliable translation of "L'Esprit des Abeilles," the author of which is an original investigator and a good observer. His work has been carried out on foraging bees and not on bees within the hive. He appears, however, to under-estimate the importance played of odours in bee-behaviour, and claims that the first-comer communicates the location of a food source to the other foragers, who are thus enabled to find it. These and many other observations are carried out in a scientific manner, but the deductions made therefrom are more open to criticism. In spite of whatever defects the book may have, it is suggestive and well worth reading.