

Confucian vision of the universe was constructed on a moral basis.

In a work of this length, with so many quotations from Chinese works, it is to be expected that one often feels unable to accept the author's translations. But one cannot pass without comment the section on Mohist logic. Dr. Needham has not given sufficient warning to the reader that, in the majority of cases, the text has been so radically and so extensively emended that the translation is of an exceedingly tentative nature. There are, for example, no good grounds for thinking that proposition Cs 14 (p. 179) is concerned with whether evidence is independent of morals, or that Cs 51 (p. 180) approximates to Hegelian dialectical logic.

Incidentally, there are fairly frequent mistakes in the Romanized readings of Chinese characters.

Although I have dwelt mainly on parts of the book which are more open to criticism, I should like to make it quite clear that this is the most significant work in English that has appeared in this field for many a long year. In fact, it is because the book is so full of stimulating ideas that it inevitably provokes disagreement.

D. C. LAU

THE PHYSICS OF MODERN RADIOLOGY

Radiology Physics

An Introductory Course for Radiologists, Radiographers and Medical Students. By Prof. John Kellock Robertson. Third edition. Pp. xvi+329. (London: Macmillan and Co., Ltd.; New York: St. Martin's Press, Inc., 1956.) 36s. net.

IONIZING radiations, in the form of X-rays and nuclear radiations, have been used in medicine for some sixty years, and lately the scope and intensity of their application have been immensely increased. In this time, however, comparatively few text-books have been available which both present to the student the basic radiation physics and show how it is applied to radiological practice. Among them is Prof. J. K. Robertson's "Radiology Physics", first published in 1940 and now in its third edition. The author has extensively revised the earlier editions and has added much new material. The result is an up-to-date book written to the standard required for an introductory course for radiologists, radiographers and medical students.

The first six chapters cover the subjects of alternating currents, production of high voltage, cathode rays, positive rays and isotopes, Roentgen tubes, rectification and diode and triode valves, discussing broadly the physical phenomena leading to, and underlying, the production of X-rays. The next five chapters describe the physical properties of X-rays and their measurement, including the dosimetry of X-rays in radiotherapy and including also a new chapter on the physical principles of X-ray diagnosis. Of the remaining five chapters, one is devoted to natural radioactivity, one to super-voltage tubes and particle accelerators, two to the transmutation of matter and artificial radioactivity, and the last, a new chapter, to uranium fission and nuclear reactors. Radiation protection is dealt with somewhat briefly in an appendix.

Most of the chapters have been revised and contain new material. The substance of two chapters

in the earlier editions has been omitted. There is now no chapter on infra-red, visible and ultra-violet radiations, and the material on high-frequency currents has been reduced to two short sections at the end of Chapter 6. Although the omission of these subjects leaves the book free from material strictly extraneous to radiological physics, I am sorry that they have gone for, hitherto, "Radiology Physics" has been one of the few books to which the medical student could turn for simple relevant information on infra-red and ultra-violet rays and on so-called short-wave therapy. The value of the chapter on dosimetry would have been appreciably enhanced if, in addition to the detailed description of a well-known make of condenser dose meter, more consideration had been given to electronic methods. Extension of the section on valve amplification to include an elementary explanation of the principle of negative feed-back could have led to a discussion of modern dose and dose-rate meters using stable valve amplification.

Prof. Robertson's style is lucid and direct, and physical principles are presented clearly with the necessary mathematical expression where this is required. The many numerical examples worked out in the text are valuable both as an aid to the student's understanding and as a constant reminder that a numerical approach is imperative in the medical use of radiations which must always be regarded as potentially harmful and which possibly can be lethal.

The book is well designed to give the basic understanding of radiation and nuclear physics to the student radiologist. It is perhaps more detailed and more quantitative than is required by the other readers named specifically on the title page; but both radiographers and medical students will find the new edition helpful. Physicists teaching the elements of radiation and nuclear physics to the increasing numbers of those who use ionizing radiations will welcome this book as an aid to their work.

F. W. SPIERS

PHYSICS FOR NON-PHYSICISTS

Descriptive College Physics

By Prof. Harvey E. White. Pp. x+485. (Princeton, N.J.: D. Van Nostrand Company, Inc.; London: Macmillan and Co., Ltd., 1955.) 42s.

The World of Atoms

An Introduction to Physical Science. By Prof. J. J. G. McCue, with the assistance of Prof. Kenneth W. Sherk. Pp. xiii+659. (New York: The Ronald Press Company, 1956.) 6.50 dollars.

EXPERIENCE alone can determine whether the needs of a group of non-specialists are better satisfied by a conventional course in physics adjusted to their capacity, or by a more general approach attuned to their outlook; but one would feel that either method, if only it can arouse and hold their interest, can achieve success. These two books, each the work of an enthusiastic and resourceful teacher, seem admirably suited to the needs of the non-scientist students for whom they are intended.

Prof. Harvey White, in selecting material for a short physics course for arts students at the University of California, Los Angeles, appeals to the spectacular experiment and uses very little mathematics. Nevertheless, the elementary mechanics is presented