

Books

Atoms and the Universe: An Account of Modern Views on the Structure of Matter and the Universe. By G. O. Jones, J. Rotblat, G. J. Whitrow. 254 pp. Charles Scribner's Sons, New York, 1957. \$4.50. *Reviewed by Ira M. Freeman, Rutgers University.*

The intrepid practitioner of science who essays to write an interpretative book on his subject may find that the product falls into one of two extreme classes: Plunging in with more zeal than forbearance, he may end up with what amounts to an emasculated textbook. Or, going to the other extreme, he may talk around his subject and never succeed in coming to grips with the issues involved.

It is a pleasure to report on a book that avoids both of these traps with such fine skill that it can truly take its place with the best contemporary popular writing in the physical sciences. With scientists themselves beginning to recognize the desperate need for informing the public adequately of their work, a book of this kind can assume an important role in public education.

The text is based on a series of popular lectures delivered before London audiences by the three authors. According to their preface, "the reception given to these lectures showed that men and women with no scientific experience or training were anxious to understand and discuss many of the most difficult questions in modern physics and astrophysics when these were explained to them in clear and simple terms." And they might have added that their success in presenting the broad sweep of our accomplishments in understanding the physical universe depended in no small measure on their willingness to jettison many mean and picayune topics that writers of less ability would feel indispensable.

The authors of the present book have set themselves a plan and they follow it consistently and successfully. In spite of the omission of mathematical formalism they manage to convey the essential spirit of such recalcitrant topics as the detailed structure of matter, quantum theory, relativity, and cosmology.

Particularly impressive is the chapter on matter in bulk. Here, in less than two-dozen pages, one finds a lucid, well-ordered account of the solid state and related topics which can be read with profit by laymen, by students of general physics and—for what it can teach them about clarity of presentation—by most physics teachers themselves. The material on relativity, too, is handled with consummate skill. In a scant five pages the reader is given a genuine idea of the flavor and

scope of the theory—an amazing accomplishment indeed.

Useful also is an appendix that discusses "Theories and the role of mathematics", "Laws, hypotheses and theories", and "The organization of scientific research". There is a bibliography of some fifty books for further reading.

The Life of Arthur Stanley Eddington. By A. Vibert Douglas. 207 pp. Thomas Nelson & Sons Ltd., New York, 1957. \$6.25. *Reviewed by J. Polkinghorne, University of Edinburgh.*

Sir Arthur Eddington is a curiously paradoxical figure. He achieved international fame for his researches into stellar motions, the internal constitution of the stars, and the theory of relativity, but spent the last twenty years of his life in an endeavor to synthesize the microscopic and the cosmological which met with such little acceptance from his contemporaries that today the adjective 'Eddingtonian' is scarcely considered polite. He was a brilliant writer both when addressing himself to scientists or to the general public and he was a highly successful public lecturer. Yet his university lectures at Cambridge were halting and in private conversation he was often diffident to the point of embarrassment.

Dr. Douglas has written a straightforward account of Eddington's life which is intended for the general reader. He has chapters devoted to his scientific work—that which refers to the Fundamental Theory is prefixed by a few bars from Schubert's Unfinished Symphony—but he does not enter too deeply into technicalities. Indeed it would scarcely be possible to write about Eddington today in any other fashion. Only after many years have elapsed will it be possible to fully assess the work of his later period. The discoveries in meson physics since Eddington's death have shown many inadequacies in his theory, but it would be surprising if beneath the nonsequiturs and fantastic numerical manipulations there does not lie some substratum of truth.

The most vivid impression left in this reviewer's mind by this book is the simplicity of Eddington's religious faith and character. Few were privileged to know him well but those who did must have found him a simple and a kindly man.

Atoms I. Vol. 35 of Handbuch der Physik. Edited by S. Flügge. 454 pp. Springer-Verlag, Berlin, Germany, 1957. DM 99.50 (if part of series DM 79.60). *Reviewed by B. T. Feld, Massachusetts Institute of Technology.*

There is an interesting, although accidental, contrast between the two articles contained in this volume. The first, "The Fundamental Constants of Atomic Physics", by E. R. Cohen and J. W. M. DuMond, ends with an Addendum in which it is pointed out that one of the basic measurements used in the 1955 least squares adjustment of the best values of the fundamental con-