

Apart from some very minor quibbles, such as the inclusion of photographs of galaxies which appear in so many books, some poor diagrams due, rather to size of reproduction than draughtsmanship, a limited bibliography and a 'typical' instead of 'actual' graph of sunspot activity, I feel that Mr. Baxter has achieved his purpose admirably. Perhaps next time he will include a chapter for the amateur radio astronomer, for as yet we have little detailed discussion of this most promising field of enjoyable amateur activity. It is a book which should not only inspire the individual enthusiast but also should be used by schoolmasters for advanced projects taking pupils beyond the laboratory. It is entirely complementary to Prof. Ellison's book, *The Sun and its Influence*.

Also complementary to *The Sun and its Influence*, is the well-known text on *The Sun* by G. Abetti. This is a revision of the second edition already widely reviewed. The revision takes the form of a number of additions to the individual chapters, but contained in one appendix. There is also a short new section on the Sun and cosmic rays. Doubtless this technique has enabled the publishers to produce the book cheaply. It is perhaps worth reminding the reader that *The Sun* contains the most detailed account of solar physics at the descriptive level published in Britain. Further, it contains the unusually large number of 149 plates, most of which are worth including. With the large number of astronomical books on the market I wonder if writers could stop inserting photographs of objects or apparatus which are largely irrelevant. Baxter includes four photographs of distant galaxies—Why not four more of his own photographs or a very detailed layout of a spectroscope? Abetti includes the Jodrell Bank radio telescope and a large dish used in Australia; it would have been better to have inserted a photograph of a rhombic or the Australian solar radio spectrohelioscope. Radio observations of the Sun are not dealt with satisfactorily in this revision. The tables classifying solar radio waves on pp. 314 and 339 are not well explained, a fact which can only be put down to lack of space.

A new edition of *The Sun* ought to have included a detailed chapter on solar radio astronomy. It should not have increased the cost of the book greatly. Indeed, fifteen extra pages come available if the list of illustrations is omitted from the beginning: each one is labelled in the text; this is quite sufficient.

The book is written in a form which makes revision easy and is likely to be a best seller for many years. However, I make one plea for future editions—a better bibliography!

J. HEYWOOD

THINKING ANEW ON MODERN PHYSICS

Understanding Physics Today

By W. H. Watson. Pp. xiii + 219. (London: Cambridge University Press, 1963.) 30s. 5.50 dollars.

THIS new book by Prof. Watson was stimulated, as he says, by the reprinting of *On Understanding Physics*, written twenty-five years ago, and by a period of philosophical reflexion during the past three years. It is not a text-book on physics in the ordinary sense but a serious discussion on where the physicist stands today in his approach and attitude towards the subject in the light of the advances made in micro-physical phenomena.

The author's basic quest is for an intuitive grasp of atomic existence, and he discusses very fully the relation between atomic and modern physics. His attitude is that physics is not based on any formal philosophy, but depends on training and practice, and on human behaviour that has evolved with the growth of experience in doing

physics, a point of view from which very few would dissent.

Throughout the discussion Prof. Watson very cleverly introduces simple analogies to make his points, and to show the confusion into which a student might be drawn, he poses many pertinent questions. For example, in the chapter on atomic existence he asks: "When an electron is detected in a counter, on what grounds are we willing to accept the triggering pulses that actuate the electronic recorder as signifying events in the crystal or gas counter due to the electrons we wish to count?" This and similar questions are certainly thought-provoking, and there is no doubt that Prof. Watson fervently desires that physicists should think deeply on these things, as he undoubtedly has done himself.

The first three chapters of the book are intended to prepare the reader for the basic questions concerning existence, substance, motion and atomic connexion which are discussed in the remainder of the book. As is to be expected, quantum mechanics is well to the fore in the discussion, but the book is not intended to explain this topic or how it is applied; the aim is to look on the mathematical system of quantum mechanics not merely as a mathematical invention but as the reasonable way to represent atoms in the continua of classical physics.

Although it has been said earlier, this is no ordinary text-book on physics, yet, apart from the thought-provoking discussion, there is a wealth of knowledge in every chapter from which the young student can derive great benefit.

Undoubtedly the book is a brilliant piece of work and the discussion developed in a highly successful way; it is well written, and I am convinced that it is the result of very deep and sincere thinking. It should be in the hands of all physicists young and old, for by studying its contents they will certainly be stimulated to think anew.

[The late] T. M. YARWOOD

AFRICAN STRATIGRAPHY

The Stratigraphic History of Africa South of the Sahara
By Dr. S. H. Haughton. Pp. xii + 365. (Edinburgh and London: Oliver and Boyd, Ltd., 1963.) 63s.

THE geographical, economic and political factors which, to a greater or lesser extent, govern the pace and direction of the development of any branch of science have had a striking influence on the course of geological research in Africa. For obvious reasons less is known about the geology of most of Africa than of the more highly developed countries, but the inaccessibility of some of the literature and the limited number of geologists who are able to work astride political boundaries means that much valuable information, which has already been gathered, is not being used to the full.

One of the organizations which has devoted itself to the dissemination of geological knowledge is the Commission for Technical Co-operation in Africa South of the Sahara. It is fitting that Dr. Haughton who, until recently, was the Commission's international scientific correspondent for geology, should bring together the main features of the stratigraphy of the area, which fell under the aegis of the Commission, into one volume.

The Precambrian accounts for the first nine chapters of the book. Seven of these describe the stratigraphy on a regional basis while the other two discuss general topics. Further chapters are devoted to the Palaeozoic; the Karroo System; the Jurassic and Cretaceous Systems; Mesozoic igneous activity; the Tertiary and Quaternary sedimentary rocks; and the Tertiary and Quaternary volcanicity. These groupings may appear surprising to the geologist more accustomed to working in the northern hemisphere, as may the amount of space allotted