

Discovering the Universe

By Sir Bernard and Lady Lovell. Pp. 136. (London: Ernest Benn, Ltd., 1963.) 25s. net.

SELDOM has a technical exploit aroused such widespread interest and excitement as did the launching of the first Russian *Sputnik* in 1957. It was at this time that the radio telescope at Jodrell Bank was first coming into operation and some of its initial observations were, of course, devoted to tracking the artificial satellite. So it was natural that the quickened scientific awareness of the general public should find a focal point in Prof. Lovell and the radio telescope. To quote the authors, "an avalanche of people and telephone calls descended upon us and there often seemed little distinction between night and day". This book has grown out of their efforts to cope with the flood.

No attempt is made to give an overall survey of astronomy and astronomical methods. The authors concentrate mainly on those aspects which are being studied at Jodrell Bank and approximately half the book is devoted to space research. After a general introduction there are chapters on Earth satellites, lunar and planetary space probes, man in space, etc., while later chapters are devoted to the solar system, our own Galaxy and the remote galaxies beyond. The text is profusely and attractively illustrated, and about 50 per cent of the surface area is given to diagrams, photographs and captions. This is not a specialist's book, but neither is it completely elementary. It contains a fair quantity of information in a readily assimilable form and should appeal to a wide variety of general readers.

In view of the joint authorship one might, perhaps, anticipate some comments of a more personal nature. What does it feel like to live under the shadow of the bowl, to partner a man whose name has become a household word? Such elements are difficult to detect save in the preface, "The life which we know before October 1957 has never quite returned". One can well imagine that this is something of an understatement.

A. HEWISH

Russian-English Physics Dictionary

By Irving Emin and the Consultants Bureau Staff of Physicist-Translators. Pp. xxx+554. (New York and London: John Wiley and Sons, Inc., 1963.) 105s.

THIS volume is an extremely well-thought-out and well-planned dictionary. It is, in fact, something more than a dictionary and certainly something more than a physics dictionary. It is intended to provide the physicist with all he needs to make himself acquainted with the work of Russian physicists and, within the limiting factor of a single volume, its compilers have been most successful.

In the first place the dictionary covers not only terms used in physics, but many drawn from the allied sciences of chemistry, geophysics and geology and from mathematics. Included also are names of instruments, parts of instruments and materials. This one might expect, but the compilers have also included common terms—such as 'in', 'out', 'up', 'down'—mistranslation of which can completely alter the meaning of a passage. There are also general terms together with prefixes and suffixes, obviously intended to make unnecessary the consultation of other dictionaries. Another useful feature is a list of Russian abbreviations for physical units, various terms, titles of publications and research institutes and the transliteration into Russian of the names of many non-Russian scientists. In the second place there is a valuable reference section which gives useful rules for transliteration, common Russian word endings and the difficult participles and gerunds.

The dictionary is well produced, the paper and binding are of good quality and the printing clear, the Russian terms being printed in heavy type. There is also an 'edge' index, which facilitates the speedy use of the dictionary.

It will be seen that this is a first-class book, but it cannot achieve the impossible. It is for scientists who have some knowledge of the Russian language—of its alphabet and of its structure and an elementary knowledge of Russian grammar. Without this, the best possible dictionary will misfire.

S. I. TOMKIEFF

Control of Hazards in Nuclear Reactors

By T. C. Sinclair. (Nuclear Engineering Monographs.) Pp. vii+84. (London: Temple Press, 1963.) 15s.

THE aim of the publishers of these monographs is to produce at low cost a broad treatment ranging from elementary principles to up-to-date summaries of more advanced theories. In this latest monograph, the author has met this requirement fairly well in the field he has chosen to cover, but the title is misleading in that the subject-matter is restricted almost entirely to one reactor type, the British nuclear power reactor. In a book which is "intended for university and technical college users who require a broad understanding of those topics of nuclear engineering outside their own field of study", some mention of hazards associated with other types of reactor should have been mentioned. In spite of this, it is a book which will be very useful to those to whom it is directed, but it is hoped that one or two important errors will be corrected. A number of important aspects such as shielding and reactor control are not covered but the author recognizes this and gives reference to other monographs on the subjects he has omitted.

A large bibliography of nearly eighty references is included which should allow the reader to extend his studies on any particular aspect and will offset to some extent the inherent shortcomings of such a monograph.

D. W. JEFFERSON-LOVEDAY

A Comprehensive Treatise on Inorganic and Theoretical Chemistry

By Dr. J. W. Mellor. Vol. 2, Supplement 3: The Alkali Metals, Part 2. Prepared under the direction of an Editorial Board. Pp. xvii+1459-2599. (London: Longmans, Green and Co., Ltd., 1963.) 300s. net.

THIS substantial volume completes the account of the alkali metals; lithium and sodium were dealt with in Part 1. It includes potassium, rubidium, caesium and francium. The main emphasis, as in the earlier volumes, is chemical, but physical properties receive adequate treatment, with collections of numerical data and useful equations, some empirical. On this side mention may be made of a good description of *F*-centres and a long section on alkali metal isotopes. The accounts of analytical chemistry are very good.

A notable feature is a long account of the biological properties of potassium, including the botanical and zoological aspects, and shorter accounts of this subject are given for the other elements. There are many tables and graphs, and the bibliographies, including Russian work, are very complete. The section on francium must be the most comprehensive available.

The recent change of atomic weight standard is not taken account of, either in the sections on atomic weights or in the presentation of data concerned with atomic or molar quantities. Such data will require to be recalculated as a result of this change, which affects a number of other treatises.

The treatment seems to be very complete and only a few omissions were noticed; although potassium percarbonates are included, those of rubidium and caesium are missing. The volume is one which should find a place in every chemical library, and if the amount of information, and the great expenditure of effort which must have gone into its preparation, are considered, the price must be regarded as reasonable.

J. R. PARTINGTON