

Mineralogy and Geology of Radioactive Raw Materials

By Prof. E. Wm. Heinrich. Pp. xiv + 654. (London: McGraw-Hill Publishing Company, Ltd., 1958.) 112s. 6d.

IN recent years more geologists have been engaged in explorations for radioactive ores than in any other hard-rock phase of the mineral industry, and since the lifting of security restrictions many thousands of research papers on radiogeology have seen the light of day. Prof. Heinrich has set himself the task of evaluating and summarizing this vast literature, and the result of his labours is the most outstanding monograph on uranium and thorium mineralization that has yet appeared in any language. The work begins with approximately 150 pages on systematic mineralogy, continues for 400 pages with a lucid and descriptive classification of the world's radioactive ore deposits, and ends with 100 pages of bibliography (1,000 items) and comprehensive indexes. Not all his views are uncontroversial: for example, the designation of the Witwatersrand and Blind River ore-fields as respectively mesothermal and hypothermal epigenetic mineralizations will find little acceptance in the placerist schools of South Africa and Germany. But all geologists concerned with the radioactive elements, academic workers and prospectors alike, will find interest and inspiration in these pages. Nearly all the 200 text-figures are new to text-book literature. Some minor errors in place-names, in the failure to recognize synonymous localities (for example, Kasolo and Shinkolobwe) and in the consistent mis-spelling of the mineral names thucholite and parsonsite should be corrected in the second edition, which will doubtless be required as soon as the present glut of uranium is taken up by industry and geologists are once again called on to find new ore fields.

C. F. DAVIDSON

Substitution at Elements other than Carbon

By C. K. Ingold. (The Fifth Weizmann Memorial Lecture Series, May 1958.) Pp. viii + 52. (Jerusalem: The Weizmann Science Press of Israel, 1959. Distributed by the Weizmann Institute of Science, Rehovot.) n.p.

THIS little book is a record of four lectures and is divided into two chapters. The first of these discusses substitution in some co-ordination compounds; principally derivatives of cobalt (III). Attention is directed to the stereochemical course of substitution by the unimolecular and bimolecular mechanisms, and to the particular problems associated with group replacements in molecules of octahedral symmetry. An appendix is also provided to support further the theory of a direct S_N2 mechanism.

The second chapter is concerned with nitration and nitrosation at nitrogen and oxygen atoms. There is much more evidence available in this field and the author has surveyed it lucidly and succinctly. The various reagents and mechanistic ambiguities are well set out and some ingenious experiments which exclude many of these alternatives are carefully detailed.

The work is clearly printed and the diagrams are well produced. There is no index, but a generous bibliography at the end of each chapter which is of greater value in a book of this length. The only error I noticed is the omission of the minus sign from NO_2^- in the last relevant equation on page 32.

This book is valuable both as a summary of the present position in this rather neglected study and

for the outlining "of a mechanistic pattern", to quote the author's own words. In his preface Sir Christopher suggests that prospects are extensive, and I feel that the analysis given in this work signposts the way well into a largely uncharted region.

R. I. REED

Contact Catalysis

By Dr. R. H. Griffith and J. D. F. Marsh. Pp. x + 300. (London: Oxford University Press, 1957.) 50s. net.

IN these days of many-volume treatises on catalysis, the smaller book also has its place; and the publication of a third edition of Dr. Griffith's well-known text-book on contact catalysis, now written with the collaboration of J. D. F. Marsh, is both timely and welcome. It continues to give a condensed and well-planned survey of many of the more important classes of reactions involved in heterogeneous catalysis, together with an adequate treatment of the underlying theory.

In order to accommodate, in a condensed form, the large amount of additional material which has resulted from the intense study which this subject is receiving, three new chapters have been added. These deal, respectively, with modern practice in the preparation and empirical evaluation of stable catalysts having a high specific surface, with the part played by electronic factors in determining the catalytic activity of metals, and with a number of reactions involving hydrocarbons. There has also been considerable rearrangement of the older sections of the book, and much of the descriptive matter on the promotion of catalysts by small amounts of subsidiary components and on the poisoning of catalysts has been revised and brought up to date. This applies also to the chapter on the part played by geometrical factors, and especially by interatomic distances, in accommodating without undue strain the reactive portions of catalysable substrates. The volume ends with a critical survey of modern progress in catalysis, with some forecasting of possible future developments. This book continues to form an excellent summary of modern trends in catalysis.

E. B. MAXTED

Practical Animal Ecology

By W. H. Dowdeswell. Pp. 316 + 16 plates. (London: Methuen and Co., Ltd., 1959.) 32s. 6d. net.

IN many British schools and universities lip-service is paid to the importance of field studies in zoology, whereas the actual practical effort is often limited to a few days at a field study centre or attendance at a single Easter-course in marine biology.

Here, almost for the first time, is a book which will really assist teachers and lecturers to introduce their students to modern animal ecology. The book lives up to its title. A wide range of methods and techniques is described which are applicable to the study of terrestrial, freshwater, marine and brackish water habitats. In some cases guidance is given on the construction of what would otherwise be expensive pieces of apparatus. To get the best out of this book, the student should be given considerable help by his teacher. So much is packed into it that many students let loose with it will suffer ecological indigestion.

On modern standards the price is reasonable, for in my opinion this book should have a major effect on the teaching of animal ecology in schools.

J. B. CRAGG