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other developing aspects of geology with the help of such articles as those on Micropaleontology, the Antarctic, or on Ocean waves. All libraries should have it.

R. A. H.

DE KUN (NICOLAS). The mineral resources of Africa. Amsterdam (Elsevier), 1965. xxvi+740 pp., 136 figs., 172 tables. Price £12.

In Africa today a shift is becoming apparent away from the traditional 'precious' mineral mining industries towards a more intensive exploitation of industrially important minerals. This transformation is of considerable significance on a continent where mining has long been a major force in social as well as economic life. The first section of this book attempts a review of African mineral deposits by countries whereas the larger second section deals with minerals classified into various economically related groups, e.g. iron-bauxite group, base metal group, etc. Despite the massive nature of this compendium it nevertheless appears to give frustratingly few details of particular deposits or of individual minerals: under indium for example we are told that sphalerite contains 0.0024 % In, but no locality or reference is given. A 44-page appendix lists more than 2000 names and addresses of companies, individuals, and organizations having interests in the African mineral industries but the main index of equal length is so constructed that to track down monazite the reader finds it neither under that name nor under cerium but is forced to look up some of the hundred or so entries under rare earth metals and thorium: crocidolite asbestos is similarly difficult to locate. This book represents an immense amount of work in compilation but will probably be of more interest to economists and geographers than to mineralogists.

R. A. H.

PARK (C. F., Jr.) and MACDIARMID (R. A.) Ore Deposits. San Francisco and London (W. H. Freeman & Co.) 1964. 475 pp. Price 70s.

This medium priced book, written by two American professors (one a former student of the other), is aimed at students and professional geologists concerned with ore deposits.

Twenty short chapters cover a galaxy of topics pertinent to metalliferous deposits. After a short introduction, a rapid historical review of ideas relating to ore genesis follows, and leads up to recent theories of ore deposition. Within this section emphasis is placed on Lindgren's genetic classification, which is upheld as a guiding star.

It is the authors' contention that ores are formed from fluids whether igneous, metamorphic, or meteoric in origin. Their nature, mobility, and reactivity, together with physical and chemical controls, whether temperature, porosity, or structure, form the subject-matter of the early chapters. Wall-rock alteration, paragenesis and zoning, and geothermometry are fairly extensively dealt with in three chapters and these

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topics naturally lead on to discussion of classificatory schemes. The authors adhere to Lindgren's classification throughout the remaining chapters. Each chapter is devoted to a particular type of deposit and generally two or three well-selected illustrated examples of each type are given. In the chapter dealing with magmatic segregation deposits the Bushveld complex is given a welcome respite. For each described deposit the geological setting, form, mineralogy, and paragenesis are presented in an interesting, readable manner and long boring mineral lists are omitted. Examples are given of deposits that owe their origin to magmatic segregation, pegmatitic, igneousmetamorphic, hypothermal, mesothermal, epithermal, telethermal, xenothermal, sedimentary, and weathering processes. The last two chapters deal with supergene sulphide enrichment and metamorphism of ores, the latter merely emphasizing the paucity of data on such a topic.

Throughout the work, in which detectable errors are few, emphasis is placed on field observations and expounding principles as an aid to discovering future deposits. Unbiased controversy is rife to acquaint students with the many arguments that rage over ore deposition. Line drawings are numerous and clear, and many points in the text are additionally emphasized by photographs. References cited are quoted at the end of each chapter and chapters dealing with specific types of deposits contain an additional reference list to selected deposits.

This absorbing book presents a welcome approach by bringing together in one place in a clearly defined fashion, numerous aspects of ore deposits; it should improve students' understanding of, and teaching approaches to metalliferous deposits.

A. LIVINGSTONE

THRUSH, (P. W.), editor. A dictionary of mining, mineral, and related terms. Washington (Bureau of Mines, Dept. of the Interior), 1269 pp., 1968. Price \$8.50.

This volume edited and compiled by the staff of the U.S. Bureau of Mines carries about 150 000 definitions of about 55 000 terms in three columns. The terms in the Dictionary are stated to 'apply to metal mining, coal mining, quarrying, geology, metallurgy, ceramics and clays, glassmaking, minerals and mineralogy, and general terminology'. 'Petroleum, natural gas, and legal mining terminology—has been excluded'.

Over 300 different sources are cited including many authoritative publications of the type issued by the ASTM and the British Standards Institution. Mineralogical definitions are mostly taken from the 6th and 7th editions of Dana's *System*, the current Dana-Hurlbut, George English's *List* (1939), Fleischer's *Index* (1966), Larsen and Berman (1934), Hey's *Index* (1955), and Sinkankas' *Gemstones of North America* (1959). For igneous petrology reliance now seems to be placed on Johannsen but there are also citations to CIPW.

The coverage of geological terms is extensive, much material being taken from the the AGI Glossary. Modern trends are reflected in the inclusion of thermodynamic