

BOOK REVIEWS

HANDBOOK OF CHEMICAL MICROSCOPY, Volume 1. Principles and Use of Microscopes and Accessories. Physical Methods for the Study of Chemical Problems. Third Edition, by ÉMILE MONNIN CHAMOT and CLYDE WALTER MASON. John Wiley and Sons, Inc., New York, N. Y., 1958. xii+502 pages, 1 fold-in color plate Michel-Levy scale of birefringence, 125 Figures, Price, \$14.00.

Mineralogists, particularly those engaged in the study of chemicals, ceramic and similar products, will welcome the Third Edition of this well-known and most useful handbook. From a practical point of view, this book has two important and distinguishing features: (1) It contains many suggestions and remedies for the everyday as well as the unusual problems which face the practicing microscopist, and (2) It has several thousand literature references, many to special problems and applications, all arranged in convenient footnote form.

Several of the chapters of the Third Edition under review have been revised and modernized to a great extent from the previous edition (published in 1938); but, in some chapters, very few changes have been made. This edition contains a short chapter on the electron microscope. The discussion of the relation of optical properties to structure of crystals and aggregates has been enlarged and given chapter status; the added material is mostly basic crystallography. Newer techniques, such as phase contrast microscopy, are conveniently added to previously existing chapters.

In any attempt to completely modernize a textbook some of the older material might be expected to survive and we have no exception here. The reader will find several illustrations of somewhat antiquated equipment. In general, the illustrations are well chosen but this reviewer believes the petrographic microscope deserves more than a three inch sketch (of an older model) especially when, for example, a photographic eyepiece and attached camera receive about one-half page. Some examples of past eras are still to be found within the text; for example, we might infer (p. 275) that the "cap" analyzer is still rather commonly used. These points are minor especially when we consider that literature references as late as 1958 are included.

The entire subject of optical crystallography is covered in about 50 pages, distributed among several chapters, in an order which would be unappealing to most mineralogists. Although all important subjects are covered, many are quite sketchy. The authors, however, do not intend their coverage to be adequate for all workers in the field and refer the reader to standard texts, many of them mineralogical. A new feature of the Third Edition is the Michel-Levy scale of birefringence provided by the Bausch and Lomb Optical Company and adapted from "Optical Mineralogy" by Rogers and Kerr. Unfortunately, the mineral names on the chart by Rogers and Kerr have been removed resulting in a chart with neither minerals nor chemical compounds illustrating the various birefringences. Under any condition, the usefulness of a Michel-Levy birefringence chart in this book is questionable.

There can be no doubt, however, that this book will be, quite deservedly, well received and continue to be one of the most widely used on the subject. In the opinion of the reviewer, this book illustrates the fact that mineralogists, with their superior training in petrographic methods, are far better equipped to tackle many problems in the general areas of chemical microscopy than are microscopists entering the field from other sciences. Teachers of optical mineralogy would do well to impress upon their students the value of the polarizing microscope in the ever increasingly important study of textiles, polymers, pigments, and other organic and inorganic materials of interest to industry.

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GRUNDZÜGE DER LITHOLOGIE; Lehre von den Sedimentgesteinen. By L. B. RUCHIN, edited in the German edition by A. Schuller; translated from the Russian by J. BARNITZKE. 806 pages, 304 illustrations, 46 tables. Akademie-Verlag, Mohrenstrasse 39, Berlin W 8. 56 DM. 1958.

In translating this work from Russian to German, the editor and translator have made a valuable work more readily available to European and American geologists and in the course of this service have completed an outstanding job of organizing and presenting a vast amount of information on sedimentary rocks. Reportedly French and Chinese translations of this work also have been prepared. For 25 years the author has been associated with the Geological Faculty of Leningrad University, at which he presently is Professor. The book has been awarded the State Prize of the USSR.

Fundamentally the book deals with the development of sedimentary regions and their relationships to the preceding tectonic history, with special reference to erosional and depositional features. In the developing of this theme, the author has organized his material in five parts: I. Sedimentary rocks; II. Stages and conditions for the formation of sedimentary rocks; III. Facies and methods of facies analysis; IV. Sedimentary formations, and V. The present geologic epoch and its sedimentary deposition. Probably the only United States book of comparable plan and scope is "Stratigraphy and Sedimentation" by Krumbein and Sloss (W. H. Freeman and Co.).

Topics discussed in Part I include: lithology as a science, divisions of sedimentary rocks, clastic rocks, argillaceous rocks, chemical and organic sedimentary rocks, and sedimentary rocks as geologic units. In Part II are included discussions of weathering, transportation, deposition, consolidation, and the most important theories on the formation of sedimentary rocks. The section on facies is divided into chapters on general characteristics, and field and laboratory methods of facies analysis. Part IV includes descriptions of formations and their distribution, the most important geosynclinal formations, tectonically affected formations in transitional regions, tectonically affected formations on shelves, some laws in the formation of sedimentary formations. The last part deals with the topics, recent ocean sediments, recent deposits in marine geosynclinal basins, recent deposits on submarine shelves, recent lagoonal deposits, recent continental deposits in low relief regions under a moist temperate climate, recent continental deposits in low relief regions under a hot arid climate, recent continental deposits in mountains, and general characteristics of the present geologic epoch and its deposits. These subject titles (28 chapters) serve as a sample of the coverage of the work.

Charts, diagrams, and line drawings are adequate to good throughout, but reproductions of photographs are generally drab and detail-poor. The list of references includes 161 entries, given first in Russian, followed by the German translation. A very high percentage of the references is to Russian publications. There are two indexes—author and subject.

The American student of sedimentary rocks and processes will look in vain for reference to some of the familiar publications in English and to classic examples with which he is familiar. It is in this substitution of European (and particularly of Russian) ideas, examples, and references that the monograph will be of especial value to all serious workers in sedimentary petrogenesis in this country. To the relatively scanty library of general works in this field, its availability is welcome and its inclusion is desirable.

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