

BOOK REVIEWS

PRÉCIS DE MINÉRALOGIE (TEXTBOOK OF MINERALOGY). By Guy Aubert, Claude Guillemin, and Roland Pierrot. Masson-BRGM, Paris, 1978. 335 pages. 160 Fr. fr.

This textbook is designed for beginning students in geology and also for serious amateur mineralogists. It comprises five main divisions:

- (1) general principles of mineralogy, including crystallography, structure, chemistry, and chemical substitutions in minerals.
- (2) the methods of mineralogy, including field and laboratory determinations.
- (3) descriptive mineralogy, which comprises about half the book and includes descriptions of about 800 species.
- (4) elements of geochemistry, petrology, and ore genesis.
- (5) economic mineralogy, and gemstones.

The style is concise and clear, a useful characteristic in any book which tries to cover so many topics in such a small number of pages, and the breadth of treatment is such that it should provide a useful mineralogical basis for geologists in many fields. For those wishing to specialize to any extent in mineralogy, however, the treatment of many topics is too brief to be of much value, such as 4½ pages for optical methods, and 2 pages for X-ray techniques.

In the descriptive section, 185 minerals are given more-or-less complete descriptions, with enough physical and chemical characteristics to serve as some basis for identification. No powder data are given. Many of these species are illustrated with black and white photographs which, while interesting, would be of little help as an aid to mineral recognition. There are also 64 half-page color plates of minerals; these are well chosen and the color and quality of reproduction good, so that they do serve as an aid to recognition of the species concerned.

For the 600-odd minor minerals for which the description is brief, generally 3 to 5 lines only, there is too little information to be of much use. A simple listing of the mineral name, its formula, crystal system, and color, as in the Glossary of Mineral Species, would have been about as useful.

There are several innovative sections for a book of this type, such as: a section on the classic mineral localities in France; one on the classic localities of the rest of the world; a short discourse on meteorites; and a section on gems.

Altogether, it would seem that the principal audience for this text will be the large number of serious amateur mineral collectors, for which the style and scope of the work is ideally suited.

It is to be regretted that a number of typographical errors were noticed (such as the incorrect formula for beryl), even upon a rather rapid scanning of the book, and many more probably went undetected. Nevertheless these are not serious enough to detract from the book, which I would unhesitatingly recommend to any beginning mineralogist who understands French.

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KRISTALLOGRAPHIE—Eine Einführung für Naturwissenschaftler. By Walter Borchardt-Ott. Springer-Verlag, Heidelberg Taschenbücher, Berlin-Heidelberg-New York, 1976. 188 pages (13.5 × 20.3 cm), 140 illustrations. \$8.20.

This is a brief text designed by Dr. Borchardt-Ott to be used directly in connection with his lectures in a beginning course in crystallography at the Westfälische-Wilhelms-Universität in Münster. The 140 illustrations were selected so that the student will always have the appropriate figures at hand during the lectures. The aim of this book is to allow the student to pay close attention during the lectures without taking notes or attempting to sketch the models and slides. The notes and figures will then be available to each student to be used at his leisure.

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ATLAS PHOTOGRAPHIQUE DES MINÉRAUX D'ALLUVIONS (Photographic Atlas of Detrital Minerals). By Pierre Devismes. Mémoire 95 du Bureau de Recherches Géologiques et Minières (BRGM), Nantes, 1978. 204 pages, 641 color photographs. 400 Fr. fr., approx. \$100.00.

This handsomely-produced volume illustrates with color photographs 183 mineral species found in detrital deposits. Included in these 183 species are several which can only occur under rather unusual circumstances, e.g. humite, grandidierite, plumbogummitte, autunite, uranocircite, vivianite, cerussite, wulfenite, valentinite. On the whole the color photographs (three to five on each page) give an excellent reproduction of the mineral in question, but in a few of them a too-dark background tends to obscure the mineral itself. The brief text and the captions for each mineral are given both in French and in English. As befits the source of the book, the majority of the specimen localities are in France, but many countries are included, with strong representation from Morocco, Republic of Congo, Zaire, and Madagascar. The minerals are complemented by a few pages of illustrations of rock fragments and natural and artificial glasses.

BRIAN MASON
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OPTICAL DETERMINATION OF ROCK-FORMING MINERALS (after W. E. Tröger). By H. U. Bambauer, F. Taborszky and H. D. Trochim. Part I, Determinative Tables. English edition of the fourth German edition. E. Schweizerbart'sche Verlagsbuchhandlung (Nägele u. Obermiller), Stuttgart, 1979. 188 pages, 1 chart of interference colors, 2 stereograms, 112 diagrams, 264 figures. Cloth DM48, approx. \$27.20.

This volume is the English translation (Chr. Hoffman, translator) of the 1971 edition of *Optische Bestimmung der gesteinsbildenden Minerale*. This translated work follows the arrangement of minerals which was introduced by the late W. E. Tröger in earlier editions of the same book. The translation differs from the original German edition only in that the last column of the tables which is titled "occurrence" contains, for some minerals, more recent information than was used in the 1971 edition. The tables have been typeset rather than photocopied from typed originals as was done in the German edition, and as a result their appearance is considerably improved. The numerous illustrations of the relationship of

the optical parameters to the crystal morphology are, as always, beautifully executed and very informative. The back of the book contains a large edition of the standard Michel Lévy Color Chart published by Carl Zeiss. Two large stereograms for face poles and twin axes as a function of the optical indicatrix of the plagioclase series are also found in the back part of the book.

Much of the book consists of variation diagrams which, as the preface notes, "rarely allow a determination better than $\pm 2-5$ molecular %." However, in many mineral groups the representation of optical parameters as a function of binary composition series is a serious oversimplification. Clearly, diagrams that attempt to portray such variations for, e.g., the tschermakite component in common hornblende can be used only as a first approximation of composition. Even in the relatively simple Mg-Fe amphibole series, cummingtonite-grunerite, small amounts of Mn can cause considerable change in the optical parameters. As such, the variation diagrams for essentially binary series are diagnostic, but in the case of many of the common rock-forming minerals the optically predicted compositions can only be used as guides to further chemical work. For the quantitative characterization of minerals and the possible comparison of natural and synthetic systems (a very common practice in modern petrology) more refined compositional data must be obtained, such as by electron microprobe techniques.

This volume is a very useful and well-presented compilation of optical data and variation diagrams for close to 300 entries. It is a handy reference for obtaining relatively exact compositional information from optics for some minerals, and can be used for the approximation of composition for major rock-forming mineral groups. As all of the content is presented in diagram or table form, it is somewhat disheartening that an English translation was found necessary. Some knowledge of German and a dictionary should have enabled the English-speaking reader to use the 1971 German edition just as well.

CORNELIS KLEIN
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GEOCHEMISTRY OF COLLOID SYSTEMS FOR EARTH SCIENTISTS. By S. Yariv and H. Cross. Springer-Verlag, Berlin, Heidelberg, New York, 1979. xii + 450 pages, 86 figures. \$49.50.

The introduction of this comprehensive book defines the colloidal state, silicate structures, and water structure. Thereafter the chapters are: 1. Some Geologic Colloid Systems, 2. Physical Chemistry of Surfaces, 3. Formation of Aqueous Solution and Suspensions of Hydrophobic Colloids, 4. Surface Coatings on Rocks and Grains of Minerals, 5. Kinetic Properties of Colloid Solutions, 6. Colloid Geochemistry of Silica, 7. Colloid Geochemistry of Clay Minerals, 8. Interaction Between Solid Particles Dispersed in Colloid Systems, 9. Rheology of Colloid Systems, 10. Colloid Geochemistry of Argillaceous Sediments. Each chapter gives references to literature. Author, mineral and subject indexes are included.

The systems of sediments, soils, volcanoes, atmosphere, oceans, and hydrocarbons are addressed. The breadth attempted insures that the coverage must be uneven, of course. Literature is employed with little attention to key discoveries as opposed to the major advances, which of course have historical perspective, which the reader misses. As examples, Ihler's contributions to silica solubility are not given full weight, and Craddock's 1972 solution to the imogolite structure is omitted. Likewise, the most simple concepts and elementary beginnings are interspersed with 0003-004X/80/0304-0410\$00.50

major concepts and advanced mathematical treatments. The book is therefore an interesting reference work, but would scarcely be applicable to a single course level or even to a single course within a discipline.

This reference book will be valued by earth scientists for the cross section it brings together and documents by random slices through planet earth systems. General descriptions of the atmospheric strata are quantified for a few aerosolic substances, natural dusts, and man-made substances over land and spray over the ocean. A few minerals are modeled in general. Interfacial tension is depicted. Adsorption of molecules and cations is treated in several chapters. Activation of hydrogen from water by surfaces is noted. Various mineral weathering phenomena are brought up in different chapters. Abrasion of minerals and abrasion pH of resulting aqueous suspensions are discussed. Silicic acid and silicates are given much attention, although there is no way silicic acid could give pH 4 as implied on p. 277-278. Interactions of particles and rheology receive attention. Burial diagenesis of clays is given interesting coverage in relation to fuel deposition.

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NOTICES

Northeastern Geology

Volume 1 of a new journal devoted to the geology of the northeastern United States has just appeared. Its purpose is to publish original articles on topics of interest to geologists in the northeastern U.S.A., especially papers of regional interest. The 1979 volume consists of only one issue; the 1980 volume will consist of 2 issues. Thereafter, 4 issues are planned for each year. Prices for subscriptions are \$6 for 1979 and \$7 for 1980. Subscriptions and manuscripts should be addressed to *Northeastern Geology*, Department of Geology, Rensselaer Polytechnic Institute, Troy, New York 12181.

3rd International Platinum Symposium

The third International Platinum Symposium will take place in Pretoria, South Africa on July 6-7, 1981. A presymposium excursion will concentrate on the platinum mineralization in the Bushveld Complex. The Symposium will form part of the biennial geological congress of the Geological Society of South Africa (Geocongress '81). The other main theme of the congress will be Southern African Contribution to the International Geodynamics Project. For further information, write to:

Symposium Secretariat S.217
CSIR
P.O. Box 395
Pretoria, 0001
Republic of South Africa

Call for Papers

The Mackay School of Mines, University of Nevada-Reno, and the U.S. Bureau of Mines, U.S. Department of the Interior, are co-sponsoring a conference on Electrotechnology in Metal and Non-Metal Mining, November 11-14, 1980. For further information, contact:

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