

BOOK REVIEWS

TABLES FOR THE MICROSCOPIC AND X-RAY DETERMINATION OF THE OPAQUE MINERALS ("TABLAS PARA LA DETERMINACIÓN MICROSCÓPICA Y RAYOS X DE MINERALES OPACOS") 2d enlarged edition, by ALEJANDRO NOVITZKY. Universidad Técnica de Oruro, Biblioteca de Estudios Técnicos No. 2, Oruro, Bolivia, 1957, 268 pages, 13×10 inches. Price \$12.00.

This work is a compilation of nearly all existing data for the microscopic and *x*-ray determination of 298 opaque minerals. An introductory table of six pages lists all of the minerals, arranged in groups of isotropic, weakly anisotropic, strongly anisotropic, and minerals frequently showing internal reflections. Each group is divided into three sub-groups according to "polishing hardness," with galena and chalcopyrite as index minerals for comparison. Each sub-group of the weakly anisotropic minerals is further divided into three categories showing very weak, weak, and noticeable birefringence. The groups are divided into 17 columns by color. This arrangement, into some 130 sub-groups, facilitates the use of the main tables which follow, each of which deals with one of the 17 color classes. In the second group of tables, each mineral is named, and its composition, crystal system, density, hardness, magnetism, macroscopic observations—color and cleavage—color 'hue' or tint, with comparison to other minerals, reflectivity, pleochroism, zoning, cleavage, Talmage and polishing hardness, optical phenomena in cedar oil such as color, reflectivity, and pleochroism are given. These data all refer to observations under parallel nicols, and are followed by similar data under crossed nicols, in air and cedar oil, of anisotropy, internal reflections, and twinning. Next, a list of associated minerals, diagnostic criteria, and provenance are tabulated.

These tables, including the six introductory pages, comprise 95 pages of the work. There follows a seven page section on microchemical reactions of the various metals present in ore minerals. Then 28 pages give for each such metal a tabular list of minerals containing it, with brief diagnostic microscopic criteria. Forty-five pages follow on etch-reactions, first arranged according to reagents employed, then there is an alphabetical listing of minerals giving their specific etch-reactions. Eighteen pages contain reflection data, in air and oil, by photo-electric cell and photometric ocular (data for O and E), for various wave lengths of light. The *X*-ray Section of 73 pages concludes the book. The first four pages list all the minerals in order of the strongest of the three main lines of the diffraction pattern. The other 69 pages give complete powder data for each mineral, with reference to the source of the data.

Evidently, Novitzky has compiled in one volume for Spanish speaking workers the data of Short, Harcourt and Uytendogardt, in English, and of Schneiderhöhn and Ramdohr in German, as well as information from other sources. There is little outside of some of the *x*-ray data not already available in the several standard works mentioned, but it is convenient to have it all in classified tabular form in a single volume.

The typography and grade of paper are good, though the paper cover may require re-enforcement if the book is to be used steadily for reference.

For Spanish speaking mineralogists, to whom the English and German texts are not readily available, and where an *x*-ray diffraction film library is lacking, Novitzky's work will be especially useful and welcome.

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KLEINE METEORITEKUNDE by FRITZ HEIDE (Second Edition). vii+142 pages, 107 figures. Springer Verlag, Reichpietscufer 20, Berlin W 35, Germany, 1957. Price D.M. 7.80 (ca \$1.90).

This little book is Volume 23 in Springer's popular science series. It is considerably larger than the first (1934) edition, having had 23 pages of text and 15 illustrations added.

The new edition has the same chapters and sections as the original one; additional material has been added to individual sections. The chapter headings are Fall Phenomena, Material of Meteorites, and Source and Origin of Meteorites. An appendix gives a list of German collections of meteorites, a table of the concentrations of the elements in meteorites, a table of the minerals of meteorites, and a four page section on tektites.

The book is a compact summary of general information on meteorites. It is well illustrated with pictures of many types of meteorites and their thin and polished sections. A map shows the distribution of the principal meteorite craters of the world and there are photographs, diagrams, cross sections, and detailed maps for more than half of these.

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THE LIVING ROCKS. Photographs by STÉVAN CÉLÉBONOVIC; preface by Andre Maurois; commentary by Geoffrey Grigson; translation by Joyce Emerson and Stanley A. Pocock. The Philosophical Library, 15 East 40th St., New York 16, N. Y., 1957. 94 pages, 64 plates. Price, \$6.00.

The Living Rocks is a photographic essay by Stevan Célébonovic based on specimens in the Museum d'Histoire naturelle de Geneve, the Museum National d'Histoire naturelle de Paris, the British Museum (Natural History) and the Geological Survey and Museum in London. It is intended as the first of an *Art and Nature Series* to be photographed by Célébonovic, with future volumes to consist of a pictorial survey of natural and man-made materials, both living and inorganic, both ancient and modern.

The full page photographs (quarto size), which are bled into the margins, are in two groups: Nos. 1-24 of minerals and Nos. 25-64 of fossils. Illustrations of minerals, which include opal, limonite, anatase, malachite, axinite, pseudomalachite, aragonite, copper, silver, vanadinite, pyrrhotite, stibnite, clinocllore and quartz, serpentine, heulandite, and scolectite, epidote and calcite, fluorite, pennine, manganite, descloisite, manganese dendrites, and collinsite, under from 4-20X magnification and skillful lighting, are a phantasmagoria of forms and groups, sharply etched in shade and sheen. Although chosen principally for the stunning optical effects of their shapes and patterns, many photographs also are resplendent in crystallographic and paragenetic details.

The collection of fossils photographed in equally effective not only in satisfying the eye but also in restoring to a thought of life the creatures whose remains are registered. This section contains a simplified geologic column.

The text, a short delightful discourse prepared for the layman, proves more than just edible to the mineralogist or paleontologist and in many places is beautifully phrased. Most of the localities to which reference is given are in England.

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STRUKTUR UND EIGENSCHAFTEN DER KRISTALLE by HELMUT G. F. WINKLER, pp. viii+314, 111 illustrations, 82 tables, 2 plates, Springer Verlag, Berlin-Göttingen-Heidelberg, 1955. Price 2.80 D.M. (stiff binding), 29.60 D.M. (linen).

The first edition of this book was reviewed in Volume 37 of this journal (pp. 132-133, 1952). The second edition is a considerably expanded (20 per cent) and revised book. There are 49 additional illustrations.

Part A, entitled "Einführung und Kristallgeometrische Grundlagen," consists of a revision of the former parts, entitled "Einführung und Anhang-Erläuterung einiger kristallographischer Begriffe und Symbole," and presents a general introduction to crystallography with emphasis on considerations pertaining to the space groups. These sections are now illustrated and contain 27 figures and 2 photographs.

Part B is entitled "Kristallstrukturen und Eigenschaften" and deals with six different kinds of bonding in crystals, isomorphism, polymorphism, and ideal and real crystals.

Part C, entitled "Eigenschaft und Kristallstrukturen," takes up the physical properties of crystalline substances (thermal conductivity, compressibility, thermal expansion, optical properties, hardness, and cleavage) and relates them to the crystal structures of the substances concerned. Those who studied physical crystallography or crystal physics 25 years or more ago will recognize in this section a clear presentation of the modern approach to the subject.

This book should appeal especially to professors teaching courses in advanced mineralogy and crystal chemistry, and to their graduate students.

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DIE SILIKATISCHEN TONMINERALE by K. JASMUND: 2nd enlarged edition, Monograph No. 60 "Angewandte Chemie" und "Chemie-Ingenieur-Technik." Verlag Chemie, G.M.B.H., Bergstrasse, Weinheim, Germany, 1955, 192 pp., 43 fig., 74 tables, Price 17.80 D.M.

The first edition of this book was reviewed in Volume 36 of this journal on page 924. This reviewer can only laud still further the excellence of this new edition. Jasmund has made a thorough search of the literature and has added about 277 new references, of which 45 have been added as lettered variants of a given number such as 393, 393a, 393b. The book has been increased by about one-third the number of pages in the first edition. References include some papers as late as 1954.

In writing this book, Jasmund has prepared a text which will appeal particularly to mineralogists and petrologists. The organization, arrangement, and presentation are well done. It is difficult to keep a book up-to-date in a field, such as clay mineralogy, which is changing so rapidly. Despite this handicap, Jasmund has written an excellent treatise. The reviewer strongly recommends this book.

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S. JAMES SHAND MEMORIAL VOLUME. *Annals of the University of Stellenbosch*, Volume 33, Section A, Nos. 1-11, 575 pp., edited by M. S. Taljaard, 1957.

Attention should be called to this volume which presents a collection of significant, well-illustrated papers dealing mainly with regional studies in South Africa. The articles are of special interest in the fields of petrology, tectonics, geomorphology, stratigraphy, and economic geology.

A Critical Review of Superimposed and Antecedent Rivers in Southern Africa.....
.....by S. Maske
The Diorites of Yzerfontein, Darling, Cape Province.....by S. Maske
On the Tectonic History and Some Related Sedimentational Aspects of the Witwatersrand

- and Ventersdoy's Systems in the Far East Rand, During Upper-Witwatersrand, Pre-Transvaal Time by A. F. Cluver
- Morphological Reconstruction of the Kimberley-Elsburg Series, with special reference to the Kimberley Group of Sediments in the East Rand Basin by F. S. J. de Jager
- The River Evolution and the Remnants of the Tertiary Surfaces in the Western Little Karoo by C. J. Lenz
- The Mineralogy and Genesis of the Lead-Zinc-Vanadium Deposit of Abenab West in the Otavi Mountains, South West Africa by W. J. Verwoerd
- The Application of the "Stereographic Projection" to Problems in Structural Geology by V. Vellet
- The Dyke Rocks of Cape St. Martin by J. D. T. Otto
- The Geology of the Klein Letaba Gold Mine, Sutherland Range, North-East Transvaal by B. F. Weilers
- A Petrographic Study of the Waterfall Gorge Profile at Insizwa by D. Bruynzeel
- On the Granite-Hornstone Contact at Slippers Bay by J. R. McIver

The volume (paper-bound) may be obtained through the Registrar, University of Stellenbosch, Stellenbosch, South Africa. Price £5-5-0.

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