

BOOK REVIEWS

THE AMERICAN MINERALOGICAL JOURNAL, Vol. I.
by Archibald Bruce, M.D. Introduction by John C. Greene
and Foreword by George W. White. Hafner Publishing
Co., N. Y., 1968. 270 pages + index. Price not indicated.

Lovers of mineralogia nostalgia attend! Are you interested in fragile shistus? Can you identify swine-stone (lapis suillis)? What were the best known American localities for collecting fluates of lime? Did you realize that an infusion of red cabbage gives like results to litmus; that natural waters ought to be tested with tincture of galls? Were you aware of the identity of columbium and tantalum but that tantalium is nothing more "than tin combined with an earth?" Do you recall that in 1812 the price of firewood in New York City was increasing so rapidly that coal had ought to be considered as an alternative heat source? Between 1790 and 1810 the price of wood more than doubled (shades of Phase 3!). We all know granites, but what about its relatives, granitines, granitells and granitites? Staurotide readily identifies staurolite, but surely disthene perihexaedre is an elegant anonyam for kyanite. If these antique tidbits have so far escaped you, then it would be prudent to peruse this facsimile of the 1814 edition of the first *Mineralogical Journal* published in the United States and bring yourself back-to-date.

The journal, which struggled for four tremulous years, has been reproduced, with an affectionate introduction by John C. Greene, as Volume I in Hafner's series "Contributions to the History of Geology." *The American Mineralogical Journal* was the precursor of the *American Journal of Science*. Though its title involved mineralogy, articles in numerous geological domains appeared. Not the least of the curious inversions that appear with time is Bruce's plaint to Colonel Gibbs (July, 1811) "For the sake of mineralogy do send me something for No. 11 and that too, soon, or the Journal dies." What editor today would not count it a boon to be blessed with at least an occasional paucity of manuscripts.

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RUTLEY'S ELEMENTS OF MINERALOGY, 26th ed. By
H. H. Read. 1970. xii + 560 pages, 151 figs. Murby,
London, £2.50 paperback, £3.75 cloth (U.K.), Hafner,
New York, \$9.95 cloth (U.S.A.).

This is the latest version of a well known British introductory text on mineralogy. *Rutley's Elements* has had a position and long history analogous to those of its American counterpart, *Dana's Manual of Mineralogy*.

Read's authorship began in 1915 with the 19th edition. Since then, the book has been extensively revised twice; the 23d edition of 1936 and the present one. One other edition, the 24th (1948), had a significant change in the form of the addition of a short chapter on crystal structures. All other editions have had only minor alterations and corrections.

The new edition has been reset in larger, more legible type. Not only have numerous new figures been added, all figures have been reproduced on a larger, clearer scale. The coverage includes: chemistry of minerals (39 pages), physical properties (25 pages), morphological crystallography (84 pages), crystal optics and the petrographic microscope (22 pages), occurrence of minerals (21 pages), classification of minerals (7 pages), and description of minerals (315 pages). The principal change from the 25th edition (1962), and for that matter the 24th (1948), seems to be the removal of former chapter 4 ("The Atomic Structure of Minerals") and dispersal of its contents to the chapters on chemical and physical mineralogy and crystallography. In addition, a two-page description of stereographic projection has been inserted in the chapter on crystallography.

The essential nature of *Rutley's Elements* can, perhaps, be conveyed best by noting that it is a handbook for mineral identification of the sort that was traditional before World War II. Indeed, the current edition differs surprisingly little in style and substance from earlier editions going back at least to the 23d (1936).

Two features of this book might be of interest to American readers. First, *Rutley's Elements* has long contained a brief, simple treatment of optical mineralogy and has included simple optical properties in many of the descriptions of minerals. Only relatively recently has the polarizing microscope become widely used in American courses on introductory mineralogy. Second, the classification of minerals used is quite different from the Dana-Bragg-based schemes used in most other books. The classification here is intended to be a practical one and is based on the principal metal present, taken in order of appearance in the periodic table.

I am unable to determine for whom the book is well suited. In view of its compactness and relatively modest price (compared to most books today), it might be useful to some people as a field guide. Unfortunately, it cannot serve as a text in college or university level courses in mineralogy. It does not begin to develop the principles, attitudes, and techniques needed by students today.

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APATITE. by D. McConnell. Vol. 5, *Applied Mineralogy*. Springer-Verlag, New York, 1973. vii + 111 pages. \$17.40.

This short book of 111 pages consists of the following chapter headings and the number of pages devoted to each: (1) Introduction, 4 p.; (2) Earlier Work on Apatite, 6 p.; (3) Physical Properties, 6 p.; (4) Structure, 5 p.; (5) Crystal Chemistry, 11 p.; (6) Synthetic Apatites: Applications, 6 p.; (7) Carbonate Apatites, 9 p.; (8) Phosphorites, 8 p.; (9) Geology: Igneous and Metamorphic Occurrences, 12 p.; (10) Biologic Apatites, 13 p.; and (11) Critique, 6 p. There are 253 numbered references plus 23 late additions which

are given letter designations. Several references are as recent as 1972. The author lists 35 (31 as senior author) of his own publications that cover a period of work on apatite dating back to 1937.

The book is not a comprehensive or definitive work on apatite; it is a review of highlights of apatite mineralogy as seen by the author, and therein lies its real value. The author has devoted more than 35 years to the study of apatite, the greater part, probably, in the biological realm of apatite in teeth and bones. All students of apatite, therefore, will welcome this compilation of the author's many and diverse contributions, along with his present-day views on apatite mineralogy.

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Errata Supplied by the Author

The author and/or Professor D. Jerome Fisher report that the following errors have been found in *Apatite*:

- p. 5, line —9: for "Synt. CaCl:Apatit" read "Synt. NaCl:Apatit".
- p. 8, legend for Figure 6: for "Schlaggenwald" read "Slavkov". The same correction should be made on p. 105. Delete "2.6" under Figure 6.
- p. 8, the legend for Figure 7 should read: "Similar crystal from Airolo, Switzerland, showing additional pyramidal forms: *a* (11.2), *r* (10.2), and the uncertain form *t*. (Goldschmidt [74].)".
- p. 10, line —4: for "*kh.l*" read "*(kh.l)*".
- p. 11, line 6: for "contains" read "contain".
- p. 15, Table 3.3: The caption should read: "Data for Dispersion of Apatite"; the same correction should be made on p. XIII.
- p. 18, footnote for Table 4.2: after "data" add "(see also Fig. 16)".
- p. 30, line —16: for "(OH" read "OH".
- p. 60, line —4: for "later" read "last".
- p. 74, Fig. 16: for "1.11" read "11.1".
- p. 87: in title, for "Rclated" read "Related".
- p. 95, ref. 73: for "pertifications" read "petrifications".
- p. 97, ref. 125: for "Developments. Appl. Spectral" read "Developments Appl. Spectros."

GEOLOGY OF SALINE DEPOSITS. Edited by G. Richter-Bernburg. Unipub, UNESCO, Paris, 1972. 316 pages. \$22.00.

This volume contains the proceedings of the Hanover Symposium of May 15–18, 1968, which was organized by Unesco and the Bundesanstalt für Bodenforschung, and sponsored by the International Union of Geological Sciences. About 160 specialists in saline deposits from 28 countries participated in the symposium. The symposium volume, the seventh of the Earth Sciences Series published by UNESCO, contains 39 contributions. One third of these are summaries; the other two thirds are papers delivered at the symposium.

The contributions have been divided into four sections: 1. Origin and sedimentation of saline deposits in relation to physico-chemical conditions and to paleogeographical configurations (15 papers); 2. Geological and geochemical analysis and comparison of salt formations in various regions of the world (12 papers); 3. Methods for stratigraphical correlation in salt rocks (4 papers); and 4. Processes of metamorphism and tectonics affecting salts and surrounding rocks (8 papers). The last two papers in the fourth section are a review of saline deposits in Germany by G. Richter-Bernburg and a review of scientific work in the field of geochemistry and the genesis of salt deposits in the U.S.S.R. by M. G. Valyashko.

The volume is a welcome addition to the literature on saline deposits. It suffers somewhat, like all such symposium volumes, from a heterogeneity of subject matter covered, and from a somewhat uneven quality and originality of the individual contributions. I was particularly pleased with Holser, Wardlaw, and Watson's continuing involvement with the Br content of halite, with Nielsen's discussion of sulfur isotopes in evaporites, and with the several papers which contributed new data on the regional geology of evaporites in various parts of the world.

If the conference had been held a bit later, there would surely have been more emphasis on the relationship between global tectonics and the origin of evaporite basins. Unfortunately the volume already tends to make a somewhat dated impression, and one can only hope that a subsequent conference will summarize the important new data on evaporites in areas such as the Red Sea, the Gulf of Mexico, and the edge of the continental shelves.

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MÖSSBAUER EFFECT DATA INDEX, COVERING THE 1971 LITERATURE. Edited by John G. Stevens and Virginia E. Stevens. Plenum Publishing Corporation, New York, 1972. x + 430 pages. \$32.50.

The number of papers on Mössbauer spectroscopy increases every year. The mineralogist might suppose his interest in the Mössbauer technique to cover only a small fraction of the total, but much work done in other fields is of relevance to mineralogical work, and mineralogists and others using the Mössbauer technique are well aware that a wealth of information is spread widely through the literature of physics, chemistry, and mineralogy. A comprehensive digest of the literature is therefore of great value, and the Mössbauer Effect Data Index (MEDI) has proved its worth in the editions of past years. This present volume collates and classifies nearly 1000 references.

The 1971 literature is classified in four ways: a section covering the literature for each isotope, that for iron being by far the largest; a "Topical Reference List" covering aspects such as instrumentation, theory, reviews, *etc.*, but not referring to individual isotopes; a "Master Reference List" containing the whole bibliography; and an author index. There are also supplementary lists for 1969 and 1970 literature, and a partial index for 1972. Multiple entries are made in the

subject indices where necessary. The use of the MEDI is clearly explained in an introductory section. The editors state that the experimental results are "selected values" from a critical review of published results. The only lapse in compilation which the reviewer has found is that two different abbreviations appear for "Mössbauer Effect Methodology."

The report for each individual isotope is preceded by a summary sheet which includes a clear diagrammatic representation of the parent decay schemes, and a simplified nuclear level scheme for the isotope, together with a table of the Mössbauer parameters which have been derived from these properties. Literature citations then give an abbreviated summary of the content of each paper, including numerical results where appropriate, and a code to the bibliography. Because of the volume of data for ^{57}Fe and ^{119}Sn these sections are subdivided so that, for example, in the section for ^{57}Fe all work on mineral spectra is grouped together under a sub-heading. The references for each isotope are listed after the data index for that isotope, as well as in the Master Reference List.

Four new sections appear in the 1971 MEDI, replacing the miscellaneous appendices of previous years. The rearrangement is welcome. These sections contain: instructions on the use of the Index; two invited papers; a number of manufacturers' advertisements; and some "Useful Tables and Graphs." Under the last heading, it is a pity that the Editors have not included again the summaries of useful data for ^{57}Fe and ^{119}Sn which appeared among the invited papers in the 1970 MEDI. These, revised if necessary, would be worthy of annual inclusion.

The data indices and reference lists are printed from computer output. This is the only practicable way to produce a book of this kind, but has the usual disadvantages—the most noticeable being that subscripts cannot be printed as such. However, upper- and lower-case printing is used, and the layout is good. Abbreviation in the isotope data indices is severe but sensible, and can, in most cases, be understood without referring to the list of abbreviations. The arrangement of the index as a whole is easily understood. In all, the book is legible and easy to use.

For most mineralogists, this will be a book to be searched through once in a library, rather than bought for frequent reference. As such, it will prove a valuable aid in the daunting task of keeping up to date.

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KRISTALLOGRAPHIE. Technik-Wörterbuch. Englisch, Deutsch, Französisch, Russisch. By Karl-Otto Backhaus. VEB Verlag Technik Berlin, 1972. 132 pages. Price 20.-M. (Distributed in the U. S. by Adler's Foreign Books Inc., 162 5th Av., New York, N. Y. 10010.)

This is a dictionary for finding equivalent technical terms in four languages in the fields of geometrical crystallography,

physico-chemical crystallography, crystal chemistry, and crystal physics. The principal language of the book is English. In a section of 88 pages about 3600 crystallographic terms are listed in four parallel columns in English, German, French, and Russian in the English alphabetical order. Each term is also given a symbol, e.g., Z 10 for zone, Z 14 for zone melting, etc. In this section the genders of the equivalent terms in German and French are indicated by *m*, *f*, or *n* and by *m* or *f* respectively.

The sections for the other languages are much shorter, German and French 14 pages each, Russian 16 pages. In these sections the terms are listed alphabetically according to the language of the section, followed only by the symbol taken from the first section. For instance, for the French term *onde elastique* one finds the symbol E 19. Looking this up in the principal section, which is based on English, one finds the English term *elastic wave* and also the equivalent German and Russian terms.

This book will be useful to anyone who has occasion to find equivalent crystallographic terms among the several languages covered, mostly terms not found in ordinary dictionaries. The book is stated to be based on the *International Tables for X-Ray Crystallography* and other technical sources. Strangely, a few mineralogical terms, e.g., *adularia*, *alabaster*, *agate*, *anatase*, *ruby*, *rutile*, *scheelite*, etc. have been included. The basis for selecting some mineral names for listing is not explained.

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DICTIONARY OF QUANTITIES AND UNITS. By J. V. Drazil. International Scientific Series. CRC Press, Cleveland, Ohio, 1971. vii + 230 pages. \$19.00.

This Dictionary of Units includes not only SI units but those of other presently used systems, their up-to-date symbols, and useful conversion factors. The lead entries are in alphabetical order and boldface so as to stand out. For example:

frigorie	(fg)	
	unit of heat (for refrigeration)	
	$4.185\ 50 \times 10^8$	
1.0		kcal ₁₅

During a time when several systems of units are simultaneously in use, this book should serve as a reference for scientists and engineers. French and German indices are provided so that the book will also serve French- or German-speaking persons with only an elementary knowledge of English.

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