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BOOK REVIEWS

METALLOGENETISCHE PROVINZEN IN SÜDAMERIKA. By Hannfrit Putzer. E. Schweizerbart'sche Verlagsbuchhandlung, Stuttgart, 1976. 316 pages, 44 figures, 3 tables. Price 114 DM (approx. $46.00).

The author studied ore deposits in South America over a 25-year period and is perhaps better qualified than anyone else to write this book. When writing this book he kept the mining industry particularly in mind. His explanations and discussions of the relationships between mineralization, geotectonics, and regional geology, as well as identification and definition of metallogenic provinces, certainly are useful for the mining profession. The author makes no attempt to utilize experimental data on dry phase equilibria or on aqueous ore solutions in his short discussions of the mechanisms responsible for mineral deposition. The book not only contains descriptions of mineralization in regions currently being mined but also of some unexploited disseminated ores that may become economic in the future.

The introductory chapter (11 pages) deals with metallogenic units and provinces, geological settings (geotectonic units in South America), the Brazilian shield, and the Andean geosynclines.

The volume is divided into five major sections: (1) the East Brazilian shield (100 pages), (2) the Central Brazilian shield (35 pages), (3) the Guyana shield (30 pages), (4) neso-cratons (20 pages), (5) the Andean orogeny (68 pages). In each of the five sections 2–6 pages are devoted to discussions of large-scale geological structures before the individual mines or mining regions are described. South America is endowed with a plethora of ore deposits, and it is not possible to discuss all of these in detail within a 300-page book. However, the author has been successful in obtaining a reasonable balance in his presentation of this vast subject. In most instances when the reader finds the descriptions too short and inadequate, references are provided to pertinent literature. The book contains a 35-page up-to-date list of references which contains about 900 entries. A casual check revealed that some references given in the text (examples, Derby 1879 and Gerth 1932) are not included in the bibliography list. The book contains a very useful 10-page locality index with about 1300 entries, and in addition has a 6-page subject index.

The volume is printed on good quality paper and is well bound. The figures are clear and informative. The tables are well organized. I found very few printing errors. The printers deserve credit for the quality displayed by this book.

This text will serve as a valuable source of information to anyone interested in South American ore deposits. It should find a place on the shelves of all geological and mining libraries.

GUNNAR KULLERUD
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CRYSTAL FORM AND STRUCTURE. Edited by Cecil J. Schneer. Benchmark Papers in Geology 34. Dowden, Hutchinson and Ross, Inc., Stroudsburg, Pennsylvania, 1977. 368 pages. $32.00.

The *Benchmark* series fills an important need. At a time when scientific literature is said to have a useful half-life of only five or ten years, it serves to both instruct students and to remind all of us of the heritage from which current ideas developed. And at a time, also, when fewer and fewer of our libraries can claim to be archival, it makes accessible those important works that were initially consigned to oblivion by semi-publication in obscure journals. The present volume succeeds on both counts, in collecting many of the important high points in the development of ideas relating crystal morphology to crystal structure in its broadest sense, which here includes the abstraction of the structure to a direct or reciprocal lattice. So we find selections from Haüy, Bravais, Friedel, Donnay, Buerger, Hartman, and many others equally expected. Many, like the famous 1901 paper by Wulff, or von Laue's little-known comment on it in 1943, appear here in English translation for the first time.

It seems to be customary for a reviewer to second-guess the anthologist in his selections, and I can't resist the temptation to point out the omission of Herring's generalized treatment of the equilibrium form [*e.g., Phys. Rev., 75,* 344–350 (1950)]. For the reader that is looking for a summary of the present situation rather than an historical development, the work of Herring (as well as that by some others that *are* included in the Schneer volume) is nicely reviewed in the papers that form Part III of P. Hartman's collection *Crystal Growth: An Introduction* (North-Holland Publishing Company, Amsterdam, 1973, p. 263–443).

Every editor of the *Benchmark* series has no doubt been faced with a flood of material in which to dip his bucket. Most have decided to select papers. Schneer has attempted to include more papers by excising large parts of some and simply summarizing others. The summaries of Niggli's 1920 paper and Fedorov's *Das Krystallreich* are so short they are hardly useful. Space might have been gained by completely leaving out such items as Barlow and Pope's misconceived paper on "valency volumes," and Peacock's long and incomprehensible dissertation on calaverite and Goldschmidt's mystical "Law of Complication."

Every anthology will inevitably and even usefully reflect the viewpoint of its editor. That's the obvious reason for the inclusion in this volume of two long papers on Brillouin zones, which most readers will find surprising but perhaps not very pertinent. The inclusion of two of Schneer's own papers is certainly not to be faulted, but he should have resisted the temptation to stake a future benchmark from his unpublished work (p. 10, and the Appendix—". . . Prepared expressly for this volume.")

The introduction and running comments fall short of the standard of other volumes of the *Benchmark* series, of which they are a regular feature. It is a difficult subject with a diverse history, in which any reader will have difficulty finding his way. But the map here is smudgy; to quote a few examples:

"Mineralogists and crystallographers, and even solid-state physicists studying periodic distributions considerably more complex than those of the metals of the early zone theories, might very well reconsider the metaphysics of number and space." (p. 4)

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"Thus, Fedorov showed that the Bravais rule established the lattice. As for the more detailed geometry of the polarities of the molecules of the lattice, these established the individuality of the polarities of an isomorphous series and the chemistry of the species." (p. 75)

Nevertheless, the treasures in this volume are scarcely corroded by such verbiage, and you (or your library) should buy it.

WILLIAM T. HOLSER
University of Oregon

NOTICES

A member, who has no further need for them, is offering 10 volumes (1965–1975) of *The American Mineralogist* to an institution which can use them. Please contact the Editorial Office if you are interested.

Career Planning Program

The Women Geoscientists Committee (WGC) of the American Geological Institute (AGI) has prepared a *Career Planning Program* which consists of a thirty-minute color slide show with accompanying script on career opportunities in academic institutions, government, and industry. The presentation includes a summary of AGI–WGC employment statistics, comments and suggestions from women geoscientists and a view of a variety of career paths. It is directed to upper-level undergraduate and graduate women students primarily. However, the Committee encourages anyone who wants to modify this program for use in high school or community career programs to do so.

Those wishing to borrow the program, should contact:

William H. Matthews III
Director of Education
American Geological Institute
Box 10031, Lamar University Station
Beaumont, Texas 77710

Abstractors Needed

Dr. R. V. Dietrich, who has succeeded Marjorie Hooker as the North American organizer for *Mineralogical Abstracts,* is asking for volunteeers to help with the regular abstracting of mineralogical journals. Interested persons are asked to write to Dr. Richard V. Dietrich, Department of Geology, Central Michigan University, Mount Pleasant, Michigan 48859.

The U.S. National Mineral Collection

The mineral collections of the National Museum of Natural History, Smithsonian Institution, among the largest in the world, are readily available to, and used by, the scientific community.

The museum maintains, in addition to the National study and exhibit collections, a repository for *type* and *described* mineral specimens, *i.e.,* those from which data have been gathered, and usually published. The *type* collection presently contains over 500 mineral species and the number of *described* mineral specimens presently exceeds 4700 specimens.

Preservation of the minerals for which analytical data of any form exist is a concern of all of us, for the data are far less significant when they cannot be verified, amended, or enhanced by subsequent, perhaps more sophisticated, studies. For the betterment of mineralogy, minerals described in published papers should not be deposited in drawers or cabinets by the authors and subsequently forgotten. Just as it is important to publish our research and disseminate knowledge, so also is it important to see to it that the specimens involved are preserved. Thus, authors are strongly encouraged to send all analyzed or otherwise described mineral specimens to the Division of Mineralogy, National Museum of Natural History, Smithsonian Institution, Washington, D.C. 20560. Acknowledgement of receipt will be by letter, and the specimens will be carefully curated. Postage franks are available upon request. In turn, the museum will continue to do its best to furnish research materials to the scientist upon written request.

We ask you, the responsible research mineralogist, to help us build the U.S. National Mineral Collection for the generations who will follow us. A photocopy of this page in a prominent place will be a helpful reminder. Thank you.

PETE J. DUNN
Smithsonian Institution

Announcement

Carl A. Francis has been appointed Curator in the Mineralogical Museum of Harvard University as of July 1, 1977. Mr. Francis, who received his A.B. from Amherst College in 1971 and who will soon receive his Ph.D. in mineralogy and crystallography from Virginia Polytechnic Institute and State University, will be responsible for the professional direction of the Museum formerly carried on by Dr. Clifford Frondel, now Professor Emeritus.

Inquiries and correspondence should be addressed to Mr. Francis at: Mineralogical Museum, Harvard University, 24 Oxford Street, Cambridge, Massachusetts 02138. Telephone: (617) 495-2356.

15th Annual short summer course in X-ray powder diffraction

The 15th annual two-week short course in modern X-ray powder diffraction will be offered at the State University of New York at Albany from June 19 to June 30, 1978. The course will be instructional and will develop the basic theory and techniques with practical applications starting from elementary principles. No previous knowledge or experience is required. The first week will cover basic principles, techniques, and practical applications, and the second week will continue with further fundamentals and practical applications. Emphasis in the first week will be on camera and film techniques; X-ray instrumentation, especially the diffractometer and its use; identification of powder patterns and multi-phase identification using the several indices; and fundamentals of quantitative analysis. The second week will cover more advanced principles and techniques with emphasis on diffractometer alignment, complex quantitative analysis, computer-assisted search-match of complex powder patterns, and other topics in depth. Equal time will be devoted to lectures and laboratory-problem-solving sessions. A suitable amount of time will be set aside for individual