BOOK REVIEWS

ADVANCES IN X-RAY ANALYSIS: VOL. 27. Proceedings of the Thirty-Second Annual Conference on Applications of X-ray Analysis, Snowmass, Colorado, 1983. Edited by J. B. Cohen, J. C. Russ, D. E. Leyden, C. S. Barrett and P. K. Predecki. Plenum Press, New York, xvii + 579 pages. $69.50.

This book consists of some 62 papers which were originally presented at the 1983 Denver Conference on Applications of X-ray Analysis (38 presented papers do not appear in this volume) which was held jointly with the American Crystallographic Association for the first time. Papers are organized into sections according to the subjects of the special sessions in which they were presented; these include:

1. J. D. Hanawalt Award Session on Search/Match Methods. 9 papers plus the first J. D. Hanawalt Powder Diffraction Award Lecture by L. K. Frevel.
2. X-ray Strain and Stress Measurement. 16 papers.
3. Position Sensitive Detectors and X-ray Instrumentation. 9 papers.
4. Quantitative Phase Analysis by XRD. 3 papers.
5. J. Gilfrich Honorary Session on Trends in XRF Instrumentation. 4 papers.
6. Applications of XRF to Archeological, Geochemical and Industrial Materials. 7 papers.

In addition there are 5 general papers dealing with XRD applications and 8 with XRF.

As is usual with the papers in this series, many are concerned with industrial applications or with technical aspects of instrumentation/methodology which are of limited interest to earth scientists. A major exception are the papers dealing with XRD search/match methods, and these papers, although generally dealing with specialized subjects, will allow the reader to get a sense of the state of the art. In addition, a paper by Black et al. dealing with energy dispersive diffraction in a diamond cell, and the 3 papers on quantitative phase analysis are of special interest to mineralogists. The many papers dealing with XRF instrumentation, theory and practice, as with those on XRD, are specialized but still reflect a sense of the state of the art for the general reader, and would all be valuable to the XRF specialist.

As is true with the other volumes in this series, this is principally a library reference book, although those who specialize in powder XRD and XRF data analysis would find it useful in a personal reference collection.

DONALD R. PEACOR
The University of Michigan

THE M.A.C. CRYSTALLOGRAPHIC LABORATORY MANUAL. By G. Donnay and J. D. H. Donnay. Published by Mineralogical Society of Canada, 1984.

This work represents the reprinting of a handbook originally published by McGill University over a decade ago. The manual is devoted about equally to crystal morphology and crystal structure. The crystal morphology exercises are fairly standard in content but exhaustive in scope. Structure assignments include single crystal studies using the precession, rotation and Weissenberg techniques. Finally, there is a powder camera exercise and an assignment on twinning in plagioclase. This book would provide a useful base for the practical portion of a graduate course in X-ray crystallography, especially in schools that had sufficient X-ray equipment for hands on work. The book is, however, only a laboratory manual and few, if any, of the exercises could be used for a class without providing a considerable amount of background material.

Although the authors claim the book has been edited for general consumption, in several places it lapses into a McGill class manual, outlining the number of light tables available to the student and so on. Despite these occasional lapses the book seems to have been carefully written and thoughtfully produced. The price is not quoted, however it appears to have been produced cheaply to encourage classroom use.

IAN DUNCAN
Southern Methodist University

MICROSCOPIC DETERMINATION OF THE NONOPAQUE MINERALS. By M. Fleischer, R. E. Wilcox and J. J. Matzko. U. S. Geological Survey Bulletin 1627, 1984. 453 pages. $12.00.

This revision of Bulletin 848 by Larsen and Berman (1934) includes new optical data as well as an update of determinative methods in optical crystallography (e.g., use of spindle stage). In tables 3–7 (pages 30–315) some 3000–4000 minerals are subdivided according to optical character (i.e., isotropic, uniaxial (+), etc.) and then arranged in order of increasing refractive index. Other useful properties such as $2V$ angle, optical orientation, crystal system, etc. are included to aid in identification. Tables 8–38 (pages 316–401) list optical properties for 30 different mineral groups. As pointed out by the authors, these tables "cannot be regarded either as complete or entirely correct. The reliability of the individual listings varies widely and for some minerals cannot be estimated ...". In spite of this shortcoming, Bulletin 1627 contains a wealth of information at a very modest price. Like its predecessor, it will be a valuable asset to those whose teaching and research interests involve some aspect of optical crystallography.

George Lager
University of Louisville

GEM AND CRYSTAL TREASURES. By Peter Bancroft. Published by Western Enterprises/Mineralogical Record. 488 pages, ≈1,000 photos. $64 postpaid.

When I was asked to review this book, I felt both anticipation to see this opus, so long awaited among the world of collectors, but also trepidation at having to evaluate a work that would be viewed quite differently by collectors and academics. Fortunately for all, I found a refreshingly different book that offers much to both groups, particularly to those like myself who wonder at the history of mining and, hence, mineral producing localities. Peter Bancroft, who also produced *The World's Finest Minerals and Crystals*, a more typical work in the realm of collector oriented books, has spent a great deal of time doing research on mineral localities from around the world, including visiting many sites and tracking down those people with an in depth knowledge of mining or collecting history. Since many of the sites have long been mined out and the miners or collecting entrepreneurs who once worked the sites will slowly but inexorably die along with their knowledge and recollections, *Gem and Crystal Treasures* may in large part be considered a recording of the vanishing oral history of mining localities.

With so much attention to history, the title could be considered somewhat of a misnomer. To be sure, this is largely a picture book. However, it is refreshing to see that *Gem and Crystal Treasures* is not just another album of portraits of "world-class" mineral specimens. There are many superb new photographs of fine mineral specimens (including a few of specimens from the museum with which I am affiliated), but there is a much greater wealth of historical photographs and other graphic material obtained from miners, mining companies, the author's friends in the mineral business and not an insignificant number of Peter Bancroft's own photographs. When leafing through upon first receipt, aside from a very few grim pictures showing what can befall the prospector, minor or his family and the thought that I was looking through parts of a scrapbook of several members of the mineral collector's community, I was greatly impressed with the quantity of pictures, many quite historic, that transformed localities from images of specimens to images of places and people.

The subject of the book is 100 localities that are famous for the mineral or gem specimens that they produced. The selection was based upon the availability of sufficient information, graphic material, photographable specimens and a few other criteria. Consequently, whereas many of the most important localities are included (Franklin, New Jersey; Yogo Gulch in Montana, the Himalaya Mine in Mesa Grande, California; Guanajuato, Mexico; Muzo, Columbia; Virgem da Lapa, Brazil; Tsumeb, Namibia; Zabargad, Egypt; Alston, England; Kongsberg, Norway; Tokovaya in the Ural Mtns., USSR; Mogok, Burma; Broken Hill, Australia; and 87 others), some are not. I am only guessing, but I suspect locations like Haddam, Connecticut; Paterson, New Jersey; Kimberley, South Africa; and Langban, Sweden are absent because either there was not sufficient material available, they were too similar to other localities described in the text, or the locality has been adequately covered in the author's other book or elsewhere. The treatment of localities is even handed; only 24 U.S. localities are included and several that are very difficult for Westerner's to get access to or information on, such as those in East Germany, Burma and the USSR, are very welcome. Moreover, as noted, this book is not just a rehashing of previously recorded information but, in most cases, includes material or information that has not been previously published. These details are put forth as the telling of history or, as in some cases, the recounting of the author's own experiences on visiting a locality.

There are a few aspects that are either missing or could be improved in *Gem and Crystal Treasures*. The most obvious problem is the binding; my copy broke its back within the first five minutes I received it. Owners will either have to be very careful or instantly have to go and get the book rebound—*librarians beware*! The treatment of the geology and mining techniques are very minimal, but fortunately there are a few citations on each locality at the end of the book for those who want to search beyond the information provided. I also suspect that some readers would like to see a few maps to more accurately place the localities. There are some minor inconsistencies of dates or facts that might have been cured with further proof reading. However, all in all, these are relatively minor complaints.

Gem and Crystal Treasurers is a very interesting and readable book that will provide those interested in the sources of mineral specimens and the history of mining a great deal of information and pleasure. Let's hope that the author is successful with this publication so that if he has the stamina, we may see a future edition for localities that were not covered in the present one.

George E. Harlow
American Museum of Natural History

NOTICES

VII IAGOD Symposium
August 18–22, 1986

The Seventh Symposium of IAGOD, the International Association on the Genesis of Ore Deposits, will be held in Luleå, Sweden, August 18–22, 1986. Abstracts (300–450 words) for the scientific program are due November 30, 1985. Send abstracts to Dr. Ebbe Zachrisson, Geological Survey of Sweden, Box 670, S-751 28 Uppsala, Sweden. For information on registration, symposium, excursions, fees, travel, and accommodations, write to Mrs. Inger Wallin, Centek Conference, S-951 87 Luleå, Sweden.

Pre- and post-symposium excursions of 5–7 days will cover the metallogeny of the Oslo paleorift; a stratabound base-metal and magnetite deposits of the central Scandinavian Caledonides; massive sulfide deposits of the Skellefte district; mineral deposits of southwestern Finland and Bergslagen, Sweden; Proterozoic mineral deposits of central Finland; Precambrian mineral deposits of northernmost Scandinavia; Proterozoic mineralization associated with granitoids; and Precambrian geology of northern Scandinavia. One- to two-day post-symposium excursions will visit the Enåsen gold deposit and the Alnö alkalic complex.

B. F. Leonard
IAGOD Regional Councillor for North America

Geochemistry of the earth surface and processes of mineral formation

I. International Symposium on Geochemistry of the Earth Surface.

II. International Symposium on Crystal Growth Processes in Sedimentary Environments.

JOINT MEETING ORGANIZED BY: International Association of Geochemistry and Cosmochemistry. Working Group of Geochemistry of Weathering, Diagenesis and Sedimentary Processes; and International Mineralogical Association. Commission on Crystal Growth of Minerals. Granada (Spain) 16–22 March 1986.

It is the aim of this meeting to provide a forum to report and discuss recent achievements of the studies of geochemical processes and physical backgrounds of mineral formation on and near the earth's surface, and eventually to find common languages among geochemists, mineralogists, sedimentary petrologists and crystal growth scientists who are interested in such problems. The demand for such a forum have been increased among scientists of many disciplines in recent years.

The Second International Symposium on Crystal Growth Processes in Sedimentary Environments and the First International Symposium on Geochemistry of the Surface, will take place concurrently in the same Conference site, and plenary sessions will be provided for the topics of mutual interest. Namely two Symposia will take place in parallel in the same Campus of the University of Granada. The major part of communications will be presented in the form of posters, but the plenary conferences will be conjoint and refering to topics of mutual interest. Efforts will be made to facilitate as much as possible the "open forum" nature of the meeting for specialists coming from different fields.

Those who are interested in these Symposia may obtain further information from: Dr. R. Rodriguez Clemente. National Museum of Natural Sciences c/José Gutiérrez Abascal, 2, 28006 Madrid. Spain.

Penrose Conference Announcement

A Geological Society of America Penrose Conference, "Migmatites and Crustal Melting," will be held June 8–13, 1986, probably at the University of Massachusetts Conference Center, Amherst, Massachusetts. Convenors are Robert J. Tracy (Dept. of Geology and Geophysics, Yale University, New Haven, CT 06511), 203-436-3539; Fred Barker (Branch of Alaskan Geology, USGS, 4200 University Drive, Fairbanks, AK 99508), 907-786-7435; and Elaine Padovani (Office of Earthquakes, Volcanoes and Engineering, USGS, Reston, VA 22092); 703–860–7875.

Conference Goals:

Many earth scientists from a wide variety of disciplines are now working on diverse aspects of melting in the earth's crust, and the time is opportune for getting these investigators together to discuss their data and models. The objective of this Penrose Conference is to discuss crustal melting and migmatite formation with respect to: (1) the nature of the melts formed; (2) subsequent deformation of the molten terrane; and (3) the tectonic environments in which melting may occur.

Major Topics and Questions:

Discussions topics will include tectonics (both convergent regimes involving crustal thickening and divergent ones involving crustal thinning), physical and chemical conditions of melting, phase equilibrium in melting systems, major and minor element geochemistry of melt-solid systems, structural mechanisms operating in partially molten materials, and thermal modelling and thermal energy considerations. Major questions to be addressed include: (1) how is melting initiated in the crust; (2) what are the sequences of melting reactions in different protoliths; (3) how are elemental and isotopic characters of the melts related to melting reactions and protoliths; (4) how should the field geologist deal with migmatites—what features are most significant and how should collecting and description be systemized; (5) can plutons emplaced at shallow levels be related to crustal melting and migmatite formation at depth; and (6) which subdisciplines of the earth sciences should be brought together in collaborative projects aimed at developing a coherent picture of crustal melting.

Field Trip:

The conference location in the classic high-grade metamorphic terrane of central New England presents the opportunity to examine a number of well-characterized field occurrences of crustal melting and migmatite formation. A one-day field trip midway through the conference will allow many of the discussion topics to be argued "on the outcrop".

Registration:

Interested persons should write to Robert J. Tracy at the above address. They should note specific reasons for wanting to attend the conference, and include a description of past or present research relevant to the conference theme. Graduate students are welcome to apply, but should be actively involved in research related to crustal melting. Limited support will be available to a few qualified graduate students. Although most of the conference will be devoted to discussion, there will be opportunities for oral and poster papers to be presented. Persons interested in making a presentation should note this in their applications. The deadline for applications is February 1, 1986. The registration fee has not been established, but is expected to be approximately $500 or less, to include lodging, meals, and the field trip.