gave multilined, unrecognizable X-ray patterns that differ from each other and from Mason's data on tocornalite.

DISCREDITED MINERALS

Alaskaite = mixture

S. KARUP-MØLLER (1972) New data on pavonite, gustavite and some related sulphosalt minerals. *Neues Jahrb. Mineral. Abhandl.* **117,** 19–38.

Re-examination of material from the type locality show it to contain pavonite, gustavite, tetrahedrite, and sphalerite.

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BOOK REVIEWS

PROBLEMES DE CRISTALLOGRAPHIE. By Pierre Ducros and Janine Lajzerowicz-Bonneteau. Dunod, Paris, 1967. xxii + 118 pages. Paperback. 15.5 × 24 cm. 18.50 Fr.

The reorganization of university degrees in France was already under way at the time this book appeared. The former "Licence" was to be replaced with the "Maîtrise" (master's degree), but crystallography examinations would still have to be prepared at about the same level as before. The book is intended to help the candidates, in this acutely examination-oriented system. As the jacket tells us, it is the first one of its kind ever published in France. Published sets of crystallographic problems are indeed rare. I know only two: one in English by Terpstra (1952), the other in Spanish by Garrido (1949). The present one came out as Number 3 in a series devoted to collecting problems in all kinds of sciences, which is being published under the direction of Henri Cabannes.

Such a book should prove intensely interesting to professors and students alike, outside of France, in that it will show them what is expected of their counterparts in a country that has a long crystallographic tradition. After a quick review of notations and definitions pertaining to symmetry, forty-three problems (Fr. *exercices*) are solved in detail, with sundry comments for the reader's benefit. They stress symmetry theory, crystal geometry and structure, diffraction, tensor properties, including crystal optics, without skipping either morphology or twinning. This first part reflects the teaching of Professor Ducros and his *Maître Assistant* at the University of Grenoble. The crowning testimony, however, comes in Part II in the form of sixteen sets of actual examination questions, asked in six universities (Caen, Grenoble, Lille, Nancy, Orsay, Paris) in the period 1959–1966. Answers are given, tersely. Each set of questions is referred to as one *problème,* although such a problem represents one complete final examination and may comprise up to eight related questions—a unified little research project, as it were. This type of examination is hard on the student, since a mishap in a single question can jeopardize the whole paper, and it certainly takes personal maturity as well as subject mastery for granted.

Without undue display of mathematical virtuosity, the authors simply use what they need: vectors throughout, matrices for symmetry operations and for tensor properties. They claim that, in matters of symbolism, they follow the *International Tables for X-ray Crystallography,* and indeed they do, though not blindly! Bravais' definition of the crystal systems, based on the point symmetry of the lattice, is faithfully maintained (bravo!). Another departure will be found in the symbol **n**, instead of **L**, for a lattice vector (if this was done to avoid using a capital letter for a vector, why not keep **r**—the initial of *réseau?*). The French conventional setting of co-ordinate axes requires turning the drawing 90° or 120° in its plane. The zero meridian and the sense of increasing ϕ on stereographic projections are also different from ours. The term *position* is still mostly used as a collective noun, as in "there are 8 atoms in the general position"—a very good usage. Two French advances are passed by: Ungemach's (1935) use of multiple indices in morphology, and the application of black-white symmetry to twinning, due to Curien and LeCorre (1958), are not mentioned in the relevant problems. (*Nul n'est prophète en son pays!*)

Better proofreading could have caught some omissions of the scalar-product dot between vectors and disconcerting insertions of said dot between scalars. It might also have detected a few bad slips, such as the 230 space groups being referred to as point groups (p. xxi), the *C*-centered cell of urea being oriented $\bar{4}2m$ instead of $\bar{4}m2$ (Problem No. 4) or the symmetry of a Laue diagram shown as a 2-fold axis and a single mirror through it (same Problem).

The language is particularly clear and simple. It should present no difficulty to an English-speaking crystallographer, who will readily understand such French newcomers as *indexer* and *indexation,* and should recognize *Laüe*'s name under the incongruous dieresis. This is a book worth buying.

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TERPSTRA, P. (1952) *A Thousand and One Questions on Crystallographic Problems.* Wolters, Groningen. Reviewed in *Amer. Mineral.* **38,** 421 (1953).

UNGEMACH, H. (1935) *Z. Kristallogr.* **(A)91,** 97–113.

SOLID STATE CHEMISTRY. Edited by R. S. Roth and S. J. Schneider, Jr. Institute for Materials Research, National Bureau of Standards, Washington, D. C., 20234. 1972. xv + 783 pages. $7.50.

This book presents the proceedings of the Fifth Materials Research Symposium on Solid State Chemistry held in October, 1971, at the National Bureau of Standards in Gaithersburg, Maryland. The book is divided into four sections: I. Oxides (37 papers), II. Borides, Carbides, Silicides and Related Materials (10 papers), III. Chalcogenides (12 papers), and IV. Open Discussion (4 impromptu lectures on nonstoichiometry). A list of participants as well as author and subject indexes is included. Edited versions of the floor discussions are included with most of the papers.

A wide range of topics including crystal chemistry, single crystal X-ray structures, phase systems, electron diffraction, defect structures, crystal synthesis, order-disorder relations, solid solubility, magnetic properties, *etc.*, was covered in this symposium. In fact, the major weakness of this volume is in the broad spectrum of topics covered, resulting in a lack of continuity between papers. (Some readers may be irritated by the omission of a few papers because the authors did not meet the necessary deadline. Only brief abstracts are included for these.)

Although most of the papers deal with synthetic compounds, some of the information is applicable to topics of the geologically–oriented mineralogist. Among these are papers on phase changes in Cu_2S, the Cu-Fe-S system, *etc.*

The preface to this volume states, "The purpose of this conference was to explore the realm of new inorganic materials, emphasizing crystal–chemical and structural aspects, thus providing a forum for discussion of new research problems and techniques." This goal appears to have been well met by this symposium.

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NOTICES

International Symposium: Pore Structure and Properties of Materials

An International Symposium on Pore Structure and Properties of Materials will be held in Prague, Czechoslovakia, September 18–21, 1973. The Symposium is jointly sponsored by RILEM (Bureau of the International Union of Testing and Research Laboratories for Materials and Structures) and IUPAC (International Union of Pure and Applied Chemistry).

Topics to be covered include (1) Pore structure: models and geometry of pore structure, methods of determination (adsorption, diffusion, permeametry, mercury penetration, microscopy, *etc.*); (2) Relations between pore structure and properties of materials: mechanical (strength, deformation behavior, *etc.*) and physical (mass and heat transport, accompanied by chemical reaction, acoustic properties, problems of durability, *etc.*).

Correspondence relating to the Symposium should be addressed to: Technical University of Prague, Building Research Institute, Symposium RILEM/IUPAC 1973—Ing. S. Modrý, Solinova 7, Prague 6, Dejvice, Czechoslovakia.

Nominations for Awards, Honors and Elected Officers of MSA

Members of the Society are urged to take an active part in making nominations for the awards of the Society. Nominations with adequate documentation should be sent to the Secretary no later than June 1 for transmittal to the appropriate Committee. The nominator must be a member of the Society; the nominator's name will be withheld from the Committee. The various awards are as follows.

1. The ROEBLING MEDAL is the highest award of the Mineralogical Society of America for scientific eminence as represented primarily by scientific publication of outstanding original research in mineralogy. The science of mineralogy is defined broadly for purposes of the Roebling Award, and a candidate need not qualify as a mineralogist; rather his published research should be related to the mineralogical sciences and should make some outstanding contribution to them. Service to mineralogy, teaching, and administrative accomplishment are not to be considered as a primary merit for the award. The award is not restricted to Americans. Nationality, personality, age of the candidate, or place of employment shall not be considered.

2. The MINERALOGICAL SOCIETY OF AMERACA AWARD is given in recognition of an outstanding contribution within the fields of interest of the Society. The work for which the award is given must be published in a single paper or series of papers prior to the month in which the candidate's 35th birthday falls. Candidates are limited to persons who shall not have reached the age of 37 before January 1 of the year in which the award is decided upon (1973). The Award shall be made without regard to nationality, personality, or place of employment. Membership in the Mineralogical Society of America or publication in *The American Mineralogist* is not prerequisite.

3. FELLOWSHIP nominations are invited and forms may be obtained from the Secretary. Three members of the Society must sponsor each nominee.

4. Suggestions for nominations for all offices of the Society are welcome; documentation need not be as extensive as for the awards.

Joan R. Clark, Secretary