

## REVIEWS

KRYSTALLOGRAPHISCHE UND STRUKTURTHEORETISCHE GRUNDBEGRIFFE. P. Niggli. Handbuch der Experimentalphysik, Bd. 7, t. 1. 317+xii pp., 131 figs. Akademische Verlagsgesellschaft M. B. H. Leipzig, 1928. Price 32.50 marks.

The nature of this work is well set forth in the author's preface, which may here be translated in part: "Corresponding to the purpose of the *Handbuch der Experimentalphysik*, the presentation of the geometrical foundations of crystal-calculation and crystal structure-determination proceeds from the structure of crystals. It has not been possible to develop all formulas and relations in detail. The fundamental principles are elucidated, and beyond that it is attempted to render the book usable in practice by comprehensive summary presentations. For crystal calculation all the important formulas are collected in a few specified places.

"The book contains a series of new viewpoints, which may prove important in further structural-geometric investigations. For example, the reduction of quadratics is treated in full detail. In the presentation of symmetry-properties new plans are introduced. The rules of selection (*Auswahlregeln*) have been taken as fundamental, and topologic structure-analysis is treated as to its characteristic features.

"Literature references are appended to each chapter. These naturally make no claim to completeness, but will nevertheless suffice for orientation in the different modes of treatment of problems at hand. Especially full are the references to older works, so that historical developments, not specially treated in the text, can be traced. Many of the figures are wholly new although some are taken from other works."

The eight chapter headings are: 1. The general geometrical properties of crystals and crystal-space. 2. General calculation and graphical treatment of crystallographic problems. 3. Specialization of translation-groups. 4. Special crystallographic relations of the lattice-types. 5. The special symmetry of crystal-space; the analytical-geometrical investigation of space-systems. 6. The homogeneous lattice complexes, the structure-vector, and the rules of selection. 7. Topologic structure-analysis. 8. Aids in geometric structure-analysis.

The book will be useful to all crystallographers working along modern lines of space-group theory. Like all of Niggli's works (how does he manage to write so many?) it gives evidence of great care in preparation, and ingenuity in mode of presentation of abstruse mathematical ideas. It is an important contribution to crystallographic literature.

EDGAR T. WHERRY

## PROCEEDINGS OF SOCIETIES

## NEW YORK MINERALOGICAL CLUB

*Minutes of the February Meeting.*

A regular monthly meeting of the New York Mineralogical Club was held at the American Museum of Natural History on the evening of February 20, 1929, with Vice-President George E. Ashby in the chair. Twenty-six members were present.

Mr. Philip Krieger, Mr. Arthur Montgomery, and Miss Mary B. Sayles, of New York City, and Mr. Alexander F. Mitchell of Hartsdale, N. Y., were elected to membership.

The Club voted to contribute \$50 from the treasury to the fund for the support of the family of the late Prof. Tschermak of Vienna.

Dr. Paul F. Kerr, of Columbia University, a former president of the Club, addressed the meeting on "*Observations and Collections at the St. Francis Dam, California.*" This dam was located on the San Francisquito Creek, and impounded part of the water supply of the city of Los Angeles. The dam failed and caused great loss of life and property damage in the valley below. The failure was not due to faulty construction of the dam itself, but to failure to consider the properties of the rocks on which it was built. One end of the dam rested upon the Sespe Sandstone, which contains an appreciable quantity of gypsum, a mineral soluble in water. The other end was built upon the surface of a schist whose platy structure was parallel to the side of the canyon, permitting the rock to pull apart under stress.

The lecture was illustrated with many lantern slides and with specimens of the rocks. Specimens of pyrite in coal from the mines near Scranton and Wilkesbarre, Pa., were also exhibited by one of the members.

HORACE R. BLANK, *Secretary*

### NEW YORK MINERALOGICAL CLUB

#### *Minutes of the March Meeting*

A regular monthly meeting of the New York Mineralogical Club was called to order by the president, Dr. Herbert P. Whitlock, at the American Museum of Natural History on the evening of March 20, 1929. Fifty-three members and guests were present.

Mr. Ernest E. Fairbanks, of New York City, and Miss Sallie Mitchell, of Yonkers, N. Y., were elected to membership.

A nominating committee was elected to nominate officers for the year 1929-30, to be elected at the Annual Meeting in April.

The speaker of the evening, Mr. L. H. Bauer, of the New Jersey Zinc Company, was then introduced, the title of his address being, "*A Practical Treatise on the Minerals of Franklin and Sterling Hill, New Jersey.*" Of the 140 minerals now listed as occurring at these localities, Mr. Bauer confined his remarks to the following 16, which he considers the most important.

#### ORE MINERALS

Franklinite  
Willemite  
Zincite  
Calamine  
Chalcophanite

#### WASTE MINERALS

Calcite  
Garnet  
Rhodonite (bustamite and fowlerite)  
Mica (manganophyllite)  
Feldspar (hyalophane)  
Pyroxene (schefferite)  
Amphibole  
Tephroite  
Hancockite  
Sphalerite  
Gahnite

Each of these was discussed in detail, unusual and little known characteristics of the material found at Franklin being given particular attention.

At the conclusion of his talk the speaker demonstrated the fluorescence and phosphorence of certain Franklin minerals under the ultra-violet light. The lecture was also illustrated by means of a large number of fine specimens. Crystals of franklinite showing the cube modifying the octahedron, pale green crystals of sphalerite, and blue willemite were a few of the unusual exhibits.

The meeting adjourned with a vote of thanks to Mr. Bauer for his very interesting address.

HORACE R. BLANK, *Secretary*

#### PHILADELPHIA MINERALOGICAL SOCIETY

*Academy of Natural Sciences of Philadelphia, March 7, 1929.*

A stated meeting of the Philadelphia Mineralogical Society was held on the above date with the president, Mr. Trudell, in the chair. Forty-seven persons, including thirty-eight members were present.

Upon favorable recommendation by the council, the following were elected junior members: Messrs. F. Becker, and Rolin Harrold. Mr. Toothaker proposed Mr. Ruben Lobel for active membership. Mr. Cienkowski proposed the following for junior members: Messrs. Theodore Gran, and F. Schwan.

Mr. O. Ivan Lee addressed the Society on "*The Chemistry and Mineralogy of Hafnium.*" Details regarding the discovery of element No. 72 were given, introductory to a description of the chemistry of this element. The methods of separating it from zirconium were outlined, and attention called to the occurrence of hafnium in various zirconium minerals, particularly in zircon, cyrtolite, and eudialyte. This interesting address was illustrated by a large number of minerals containing hafnium, by lantern slides and specimens of some of the first salts prepared by Coster and Hevesy, and by a lead dish used by James, one of the first American chemists to work with hafnium. A rising vote of thanks was given the speaker.

Dr. Newcomet discussed briefly the preparation of radiographs. Mr. Cienkowski outlined a proposed competitive exhibit of minerals by the High School students of Philadelphia. The chair appointed Messrs. Biernbaum, Toothaker, and Arndt as a committee to report on the project.

SAMUEL G. GORDON, *Secretary*