some of the material were kindly determined, approximately, by Dr. Larsen to be as follows: $\alpha = 1.765 \pm .005$, $\beta = 1.78. \pm 01$, $\gamma = 1.79 \pm .01$, and an inspection of the following table will show the correspondence of these values with those of tephroite and the correctness of Dr. Schaller's identification.

REFRACTIVE INDICES OF TEPHROITE AND GLAUCOCHROITE FROM FRANKLIN, N. J.

	α	β	γ
Mineral in question	1.765 ± .005	1.78 ± 01	1.79 ± .01
Tephroite [1]	1.770	1.792	1.804
Tephroite [2]	1.759	1.786	1.797
Tephroite [3]	1.767	1.785	1.805
Glaucochroite [4]	1.686	1.722	1.735
Glaucochroite [5]	1.679	1.716	1.729

[1] Larsen, E. S., The Microscopic Determination of the Nonopaque Minerals, *U. S. Geol. Survey, Bull.* **679**, 143, 1921.

[2] *Ibid.* 270. Data for tephroite with 7.8 per cent of Mg_2SiO_4.

[3] Determined by Larsen on material similar to the described but from a different specimen (being studied by W. T. Schaller). Not hitherto published.

[4] Penfield's data.

[5] Determined by Larsen on Col. Roebling's specimen of original glaucochroite. Not hitherto published.

The change in identification necessitates a revision of the crystal forms described as new. Of these *r* (140), *d* (101), *k* (011), *l* (131) have already been described but the two forms (270) and (122) are new for tephroite. The letter *z*, assigned to (270) has already been given to (140); it is therefore changed to *j*. The letter *y*, assigned to (122) has been given to (150); it is therefore changed to *q*. In the table of forms and angles, given on p. 107, the following changes are therefore to be made. Star (as new forms) only *j* (270) and *q* (122). Omit *x* (103). Interchange the two letters *h* and *k* so as to read *h* (011) and *k* (021).

The writer is indebted to Dr. Schaller for the correct identification of the mineral, and to Dr. Larsen for the determination of the indices of refraction.

PROCEEDINGS OF SOCIETIES

NEW YORK MINERALOGICAL CLUB

Regular Monthly Meeting of November 8, 1922

The regular monthly meeting of the New York Mineralogical Club was held in the Assembly Room of the American Museum of Natural History on the evening of Wednesday, November 8th at 8:15 P.M. The President, Dr. George F. Kunz,

presided and there was an attendance of 19 members. The minutes of the last meeting were read and approved. On motion by the Secretary the following names were submitted to the Committee on Membership: Mr. J. S. Griggs, 64 West 8th Street, Whitestone, N. Y.; Mr. Charles Judson, 82 Beaver Street, New York City; Mr. Charles K. Cabeen, Dept. of Mineralogy, Columbia University.

Mr. Wintringham called attention to a paper by Pentti Eskola on "The Contact Phenomena between Gneiss and Limestone in Western Massachusetts." Dr. Kunz exhibited a photograph of the late Benjamin B. Chamberlin, a noted local collector, whose collection of New York City minerals constitutes the nucleus of the Club's present mineral collection.

Mr. Whitlock then delivered a short paper on "Field Tests for Recognizing the Crystal System of Minerals," in the course of which he emphasized symmetry as the essential key to identification of crystallized minerals in the field. Developing this line he outlined the symmetry of the seven systems and indicated many criteria for their recognition when crystals are only partly exposed to view. In the discussion of this paper Mr. F. I. Allen introduced the case of the cube as a limiting form of the rhombohedron, bringing up the relation of the Miller axial position in the rhombohedral system to the isometric. The meeting adjourned at 10:35 P. M.

HERBERT P. WHITLOCK, *Recording Secretary*

PHILADELPHIA MINERALOGICAL SOCIETY

Academy of Natural Sciences of Philadelphia, November 9, 1922

A stated meeting of the Philadelphia Mineralogical Society was held on the above date with the president, Mr. Vaux, in the chair. Twenty members and four visitors were present.

Upon the recommendation of the council, the following were elected to active membership: Messrs. Paul Wikul, John F. Deegan, Clarence F. Treston, and Ralph D. Pearse. Mr. Clay proposed Mr. Wilfred Broadwell for active membership.

Mr. Frank J. Keeley addressed the society on "Inclusions in Minerals." Inclusions of minerals, glass, liquids, and gases in a number of minerals were described including quartz, microcline, albite, oligoclase, garnet, muscovite, phlogopite, emerald, topaz, beryllonite, calcite, and corundum. By the aid of four microscopes illustrations of the following were exhibited: Brownian motion in inclusions of liquids in blue quartz from Bucks County, liquid and gas bubbles (CO_2) in topaz, films of quartz in muscovite, and chalcodite on byssolite from the calcite of French Creek.

Mr. Gordon presented briefly a paper on "Calciothomsonite, hodgkinsonite, leucophoenicite, and datolite from Franklin, N. J." A thomsonite in beautiful radiating masses associated with colorless barite showed on analysis a ratio of $CaO:Na_2O = 5:1$; with indices of refraction very much higher than those listed for this mineral. Druses of small reddish crystals on franklinite—willemite ore, alleged to be the recently announced, but not described, holdenite, proved on crystal measurement to be hodgkinsonite of unusual habit, with several new forms. Beautiful specimens of radiating masses of rhomboclasite from Peru were also exhibited.

Dr. Wills reported a trip to Moore Station, N. J. with Mr. Gordon, finding much stilbite. Mr. Boyle described an excursion to the French Creek mines, with Messrs. Clay, Jones, and Frankenfield. Very good apophyllite was obtained.

SAMUEL G. GORDON, *Secretary*

BOOK REVIEW

ELEMENTS OF OPTICAL MINERALOGY—AN INTRODUCTION TO MICROSCOPIC PETROGRAPHY. N. H. WINCHELL AND A. N. WINCHELL. Second Edition, Part I, Principles and Methods, entirely rewritten and much enlarged by A. N. Winchell. Octavo, XVI + 216 pages, with 250 text figures. John Wiley and Sons, *New York*, 1922.

Since the publication of the first edition in 1908, many important advances in optical mineralogy have been made, among which are the methods developed for the study of mineral powders and fragments, and small crystals immersed in liquids. In this edition the author has endeavored to present not only the material necessary for the study of minerals occurring in thin sections but also in powders and fragments and involving immersion in liquids. Much of the text has been used for several years in the Extension Division of the University of Wisconsin, and therefore is based upon actual experience with students.

The fundamentals of crystallography, as applied to the microscopic study of minerals, are discussed in two chapters. The physical and chemical characters are then taken up, followed by chapters on the Elementary Conceptions of Optics, Optical Properties of Isotropic Minerals, Microscopes, Preparation of Material for Microscopic Study, and the Nicol Prism. The optical properties of isotropic, uniaxial, and biaxial minerals are then treated in detail.

The book is well written, the style being clear and concise. The illustrations are numerous and well chosen. The directions for laboratory work found at the end of many of the chapters form an important feature of the book. The text should serve as an excellent introduction to the microscopic study of minerals.

EDWARD H. KRAUS

NEW MINERALS: DOUBTFUL SPECIES

CLASS: SULFIDES. DIVISION: R : S = 1 : 2.

"Corynite," "Kallilite," "Villamaninite"

E. THOMSON: A mineralographic study of the pyrite group. *Univ. Toronto Studies, Geol. Ser., No.* **12**, 32–39, 1921.

DISCUSSION: These alleged species are clearly shown by mineragraphic study to be mixtures, and should be removed from lists of minerals. E. T. W.

"Weibullite"

T. L. WALKER AND E. THOMSON: An examination of lillianite and galenobismutite. *Univ. Toronto Studies, Geol. Ser., No.* **12**, 11–15, 1921.