In test measurements of 2 E for muscovite the average of five readings agreed within a degree with the value obtained with a universal apparatus. Muscovite, however, provides unusually good material for such measurements. The apparatus, it seems, may nevertheless be relied upon to give angles that are within 2 or 3 degrees of the correct values in all cases where a good image may be secured in the microscope. Axial angles with 2 E as high as 120° have been measured successfully. The results secured, however, depend largely upon the nature of the material. The measurements of axial angles for fragments mounted in liquids should be corrected for the effect of the mounting medium. This correction is usually small and may be overlooked in ordinary work or may be rendered unnecessary if one end of a fragment under investigation is fastened to the glass with a small amount of viscous Canada balsam and the observation is made on the opposite end in air alone. No correction need be made if an oil is used with an index of refraction equal to β.

PROCEEDINGS OF SOCIETIES

PHILADELPHIA MINERALOGICAL SOCIETY

Academy of Natural Sciences, May 8, 1924

A stated meeting of the Philadelphia Mineralogical Society was held on the above date with the president, Mr. Vaux, in the chair. Twenty-two members and five visitors were present. Upon favorable recommendation of the council, the following were elected active members: Messrs. J. Carroll Moerk, Thomas J. Lewis, and Harold Rosen. Mr. Boyle proposed the following for active membership: Messrs. J. H. Boyle and Herbert Haas.

Mr. Morrell G. Biernbaum addressed the society on *Gemstones, Real and Otherwise.* Data were given regarding the dispersion and refractivity of the principal gemstones. Commercial stones were classified as real, imitations (chiefly glass), "doctored" (doublets and triplets), substitutes, synthetic, and reconstructed. The manufacture and composition of the latter were described, followed by a list of trade names of many gems.

Mr. Samuel G. Gordon presented a paper on *The Composition of Thomsonite.* The formula ratios of over seventy analyses were calculated and plotted. The results were interpreted as indicating that thomsonite represents mixed crystals of calciothomsonite: $CaO \cdot Al_2O_3 \cdot 2SiO_2 \cdot 3H_2O$, and a soda compound: $Na_2O \cdot Al_2O_3 \cdot 3SiO_2 \cdot H_2O$, which is natrolite with but one molecule of water. The latter can enter into the mixed crystals only to the extent of about 50%. Any intermediate compound would have the formula: $n(CaO+Na_2O) \cdot n(Al_2O_3) \cdot 2n+1(SiO_2) \cdot 3n-2(H_2O)$, where n is the sum of the formula ratios of CaO and Na_2O the latter being considered as 1.

Trips to Moore Station were described by Messrs. Lewis and Biernbaum, on which much stilbite, calcite, and natrolite were obtained. Mr. Cienkowski reported a visit to Mullica Hill, and Mr. Millson, one to Mineral Hill, where the usual minerals were obtained.

SAMUEL G. GORDON, *Secretary.*

Academy of Natural Sciences, June 12, 1924

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

Mr. Frederick Oldach addressed the society on the "*Pyroxenes and Amphiboles.*" The crystallographic relations of the pyroxenes and amphiboles were described, followed by a discussion of their classification, and a review of the older and more modern theories of their composition. Many specimens were exhibited. A vote of thanks was extended to the speaker for his instructive communication.

Messrs. Trudell, Biernbaum, and Cienkowski described various phases of the Society's excursion to Falls on French Creek on May 30-June 1, participated in also by Messrs. Vaux, Gordon, McClure, White, Rosen, Faust, Hoadley, Boyle, Arndt, Moerk, Wills, and Frankenfield. Specimens of apophyllite, pyrite, erythrite pyrrhotite, and chalcopyrite were exhibited.

Mr. Biernbaum described a trip to Branchville, Conn. with Mr. Hoadley. Smoky quartz, beryl, albite, microcline, and spodumene were collected. Four trips to Moore Station, New Jersey were reported by Messrs. Boyle, Wills, Benge, Trudell, Gordon, Biernbaum, Thatcher, and Frankenfield. Many fine specimens of stilbite, natrolite, and calcite were found. Mr. Benge exhibited vivianite from Mullica Hill.

Mr. Gordon reported an excursion to the Line Chrome Pit in Maryland on May 2, with Drs. Schaller, Shannon, Foshag, and Ross. Williamsite, kammererite, magnesite, and chromite were found. On May 10, he visited Quincy, Mass., in company with Drs. Palache, Larsen, and Gilson, finding some riebeckite.

On behalf of the special class in mineralogy at the Northeast High School, Mr. Rosen presented Mr. Biernbaum with specimens of realgar and tennantite from the Binnenthal, as an expression of their appreciation for his instruction.

SAMUEL G. GORDON, *Secretary.*

BOOK REVIEWS

MIKROSKOPISCHE PHYSIOGRAPHIE DER MINERALIEN UND GESTEINE. Rosenbusch-Wülfing, 5th edition, fully revised. Vol. I, First Half, octavo, pages 253-532 with 349 text figures and 2 plates. E. Schweizerbart'sche Verlagsbuchhandlung, *Stuttgart*, 1921.

This delivery constitutes the second section of volume one of this standard reference work. (For review of the first section see *Am. Min.*, 1922, **7**, 211.)

The subjects discussed include geometrical optics, the hand lense and its use, the microscope and its use, including the measurement of lengths, surfaces, and angles, the determination of extinction angles, and the application of the universal methods of Fedorow. The text is profusely illustrated. E. H. KRAUS