

active membership by Dr. Wills, Mr. Millson, and Mr. Cienkowski; Messrs. J. Carroll Moerk, Thomas J. Lewis, and Harold Rosen.

Mr. Horace Blank addressed the society on *The minerals of the rare earths*. The discovery of the rare earth elements and their difficulty of separation were described, introductory to an account of their chemical relationship and classification. The principal rare earth elements were then described, illustrated by many specimens, as well as a number of prepared salts. The absorption spectra of solutions of some of the salts were exhibited in a spectroscope. A rising vote of thanks was extended to the speaker for his interesting communication.

The following trips were described: Mineral Hill and Lima, Delaware County, by Mr. Biernbaum; Germantown quarries, by Mr. Knabe; Howellsville, by Dr. Wills; Wissahickon quarries, by Mr. Cienkowski; and Vanartsdalen's quarry, by Mr. Hoadley.

Mr. Cienkowski proposed that a series of prizes be offered to the boys of the Northeast High School for the best collections of minerals formed during the year. Mr. Biernbaum's special class in field mineralogy for the High School boys had proven so popular that it has been necessary to change the meeting place from Mr. Boyle's home to the High School. After a brief discussion, the chair suggested that if Mr. Cienkowski would draw up a plan, it would be approved by the society.

SAMUEL G. GORDON, *Secretary*.

NOTES AND NEWS

On May 26th Colonel Washington A. Roebling, Vice-president of the Mineralogical Society of America, celebrated his eighty-seventh anniversary. On this occasion a luncheon was served at his home for a few relatives and friends.

Industries Bulletin No. 101 of the South African Geological Survey gives full details regarding the recent discovery of platinum in South Africa. The bulletin was prepared by Percy A. Wagner and Tudor G. Trevor. The prevailing country rock is a felsite underlain by granite. There are numerous quartz-impregnated faults in the region and the main platinum lode occupies one of them. An abstract of this bulletin will be found on page 510 of *Science*, June 6, 1924.

Mr. Earl V. Shannon has recently described in the proceedings of the U. S. National Museum a new argentiferous sulphobismuthite of lead and copper. The mineral has been named *benjaminite*, in honor of Dr. Marcus Benjamin of the U. S. National Museum.

ABSTRACTS

THE POLYNARY MISCIBILITY OF GARNET MINERALS. W. EITEL. *Z. Krist.*, **56**, 526-31, (1921).

Of the garnets examined 15% were quaternary or quinary mixed xls., 60% ternary, and 17% binary mixtures. Elaborate 5-component diagrams showing the relationships are given.

PAUL BOONE.

STABILITY OF THE GLASS AND CRYSTAL PHASES OF SILICA. RUDOLF WIETZEL. *Z. anorg. allgem. Chem.*, **116**, 71-95, (1921); thru *Chem. Abstr.*, **16**, 3575, 1922.

The following systems were studied: quartz glass-cristobalite, quartz glass-quartz crystal, and cristobalite-quartz glass. There is a discussion of the relative solubilities of the various modifications of SiO₂.

E. F. H.

THE VAPOR PRESSURES OF THE OXIDES OF SILICON, ALUMINUM, CALCIUM, AND MAGNESIUM. OTTO RUFF AND PAUL SCHMIDT. *Z. anorg. allgem. Chem.*, **117**, 172-90, (1921); thru *Chem. Abstr.*, **16**, 190, (1922).

SiO_2 melts as α -cristobalite, at $1696 \pm 10^\circ$. Its boiling point is 2230° .

E. F. H.

THE BINARY SYSTEMS OF SULFATES, CHROMATES, MOLYBDATES AND WOLFRAMATES OF LEAD. F. M. JAEGER AND H. C. GERMS. *Z. anorg. allgem. Chem.*, **119**, 145-73, (1921); thru *Chem. Abstr.*, **16**, 1190, (1922).

Equilibrium diagrams are given for PbO-PbSO_4 , $-\text{PbCrO}_4$, $-\text{PbWO}_4$, $-\text{PbMoO}_4$, and for most of the possible systems of the types Pb(S,Cr)O_4 . PbSO_4 and PbWO_4 are dimorphous, with transition at 864° and 877° , respectively. Application of the results is made in the study of mineral composition.

E. F. H.

X-RAY ANALYSIS OF THIRTEEN COMMON METALS. A. W. HULL. *Phys. Rev.* **17**, 571-88, (1921).

Powder analysis was the method used. Cr, Mo, and Ta are body-centered cubic, with sides respectively 2.895, 3.143, and 3.272 Å. Co, Ni, Rh, Pd, Ir and Pt are face-centered cubic, 3.554, 3.540, 3.820, 3.950, 3.805, and 3.930. Co, Zn, Cd, Ru are hexagonal close packed, of axial ratios 1.63, 1.86, 1.89, and 1.59; the sides of the triangular prisms are 2.514, 2.670, 2.960, and 2.686. In is face-centered tetragonal, side of prism 4.58, axial ratio 1.06.

E. F. H.

THE FORMATION AND STABILITY OF MODIFICATIONS OF POLYMORPHOUS SUBSTANCES BELOW THEIR TRANSFORMATION TEMPERATURE. R. BRAUNS. *Centr. Mineral.* 225-9, (1921).

A number of examples (S , HgI_2 , KNO_3 , and others) are given of polymorphous substances that exist below their inversion point. They obey the law of Ostwald, that the form obtained thru a spontaneous departure from a state (such as a solution) is that which involves the least loss in free energy.

E. F. H.

REFRACTOMETER FOR THE DETERMINATION OF SOLID AND LIQUID SUBSTANCES. C. LEISS. *Z. Krist.*, **56**, 524-6, (1921).

This is a description with a figure of an instrument of the hemisphere type with several new appliances increasing its convenience and accuracy.

PAUL BOONE.

A REFRACTOMETER FOR THE DETERMINATION OF LIQUID MIXTURES. H. H. THOMAS AND A. F. HALLIMOND. *Mineralog. Mag.*, **19**, 124-129, (1921).

An apparatus designed to replace refractometers of the Pulfrich type for the determination of indices of immersion liquids. The new instrument depends upon the deviation of a ray of light incident on the oblique face between a prism of glass and the liquid to be determined. A direct vision spectroscope is used in which the liquid takes the place of the glass prism. To eliminate errors two rays are used, derived from two opposite inclined faces of a right-angled prism placed with the hypotenuse face perpendicular to the axis of the instrument. These rays form images on both sides of the eye piece-scale, the distance between the images recording the difference in index between prism and liquid in which the prism is immersed. Readings accurate to one unit in the third decimal place can easily be obtained. To cover the range of liquids from 1.47 to 1.74 it is desirable to have four prisms with indices 1.51; 1.58; 1.65; and 1.72, respectively.

W. F. H.