

NEW MINERALS

Hibbenite

Alexander H. Phillips: NEW ZINC PHOSPHATES FROM SALMO, BRITISH COLUMBIA. *Am. J. Sci.*, [4] **42**, (3), 275-278, 1916.

NAME: After President John Grier Hibben, of Princeton University.

PHYSICAL PROPERTIES

Color: pale yellow, almost white. Translucent. Luster, somewhat pearly. Form: tabular crystals. H. about 3.75. Sp. gr. 3.213.

CRYSTALLOGRAPHIC PROPERTIES

Orthorhombic. $a:b:c=0.589:1:0.488$.

Habit: tabular, $\parallel a$ (100). Principal forms: a (100), b (010), s (120), p (111), and d (101).

OPTICAL PROPERTIES

Double refraction weak. Ex. \parallel on all three pinacoidal sections. Ax. pl. $\parallel c$. Optically -. $Bx_{ac}=b$. [The indices of refraction and axial angle, important diagnostic properties, are not given.]

CHEMICAL PROPERTIES

Comp. $2(Zn_3(PO_4)_2) \cdot Zn(OH)_2 \cdot 6\frac{1}{2}H_2O$.

ANALYSES

	1.	2.	Theoretical.
ZnO	57.51	57.60	57.625
P ₂ O ₅	28.77	28.88	28.721
H ₂ O	13.74	13.68	13.653
	<u>100.02</u>	<u>100.16</u>	<u>99.999</u>

Observed with smithsonite, calamine, spencerite and an undetermined basic zinc phosphate (believed to be new) at the Hudson Bay mine, Salmio, British Columbia.

[The above properties are rather close to those of hopeite—Ed.]
S. G. G.

ABSTRACTS OF MINERALOGICAL LITERATURE

GUIDE TO THE MINERAL COLLECTIONS. HERBERT P. WHITLOCK, of the N. Y. State Museum. *Rept. Director Sci. Div., Univ. State N. Y.*, **12**, 45 pp., 1916.

A concise and well-balanced introduction to the science of Mineralogy, with

the special headings: classification, occurrence, and crystallization. A brief description of each of the minerals represented in the general mineral collection of the N. Y. State Museum at Albany is given. The collection of gems and gem minerals is also described and its arrangement explained. E. T. W.

CATALOG OF THE COLLECTION OF METEORITES. OLIVER C. FARRINGTON. Field Museum of Natural History, *Publ., Geol. Ser.* **3**, (10), 231-312, 1916. 5 plates.

A catalog of the collection of meteorites in the Field Museum of Natural History (Chicago). 657 falls, with a weight of 7,566 kilograms are listed alphabetically, with a brief description, weight, and date of fall or find of each specimen. This large representation is due to the acquisition in 1912 of the Ward-Coonley collection (620 falls; 2,495 kilograms), which included the collection of James R. Gregory of London (406 falls), and that of Count Julien de Siemascho of Petrograd (402 falls). S. G. G.

THE CHEMISTRY OF MINERALS. JOSEPH E. POGUE of Northwestern University. *Eng. Mining J.*, **102**, (6), 255-259, 1916. Abstract reprinted by permission from *Chemical Abstracts*, **10**, (18), 2335, 1916.

A summary of our knowledge concerning variability in the composition of minerals. It is pointed out that while definiteness in composition has long been considered a fundamental feature of minerals, there are many cases now known where composition may vary within certain limits, and this variation may indeed be characteristic of a mineral rather than an accidental circumstance. "To focus upon the constancy of minerals and overlook their variability is to miss half their meaning." Crystals may contain inclusions and these may vary down to submicroscopic sizes, yet still be detected by analysis. Colloidal phenomena, especially adsorption, frequently cause variability in composition. In crystallized minerals isomorphism causes extensive replacement of one element by another. Non-isomorphous substances may also form solid solutions of mix-crystal type. Finally the instability of minerals may result in alteration, and accordingly in variability in composition. Many illustrations of these relations are cited. E. T. W.

DIAMONDS OF SMITH'S FLAT. BURR EVANS, of Placerville, Cal. *Eng. Mining J.* **102**, (19), 814-815, 1916.

A record of the finding of diamonds in Tertiary gravels at this place in Eldorado Co., Cal. The size, color, weight, and disposition of some 33 diamonds are tabulated, and it is stated that in all at least 47 genuine stones have been found, some of them over a carat in weight. The original source of these stones is unknown, being probably covered by the lava and volcanic ash which appears at the surface over most of the region. E. T. W.

SOME NOTES ON JAPANESE MINERALS. S. ICHIKAWA. *Am. J. Sci.*, [4], **42**, (2) 111-119, 1916.

Comprises articles on: Natural etching of galena crystals; natural etching of calcite crystals; pinite: a mica pseudomorph after cordierite in trillings from Torihama; and on the crystal-aggregates of native arsenic. S. G. G.

COMPOSITION OF SELENSULFUR FROM HAWAII. GLENN V. BROWN, of Bucknell Univ. *Am. J. Sci.*, [4], **42**, (2), 132-134, 1916.

An analysis of selensulfur, occurring as minute needle-like crystals and

orange-red to sulfur-yellow crystalline impregnations in a slaggy, vesicular lava, gave the following results: moisture 3.16, S 12.44, Se 0.68, insoluble 83.72%, which when recalculated gives S 94.82, Se 5.18 or S:Se=45.5:1.

This mineral can hardly be considered more than a variety of sulfur, and Prof. Brown suggests that the term "seleniferous sulfur" would be more appropriate than selenosulfur. S. G. G.

MINERALOGICAL NOTES. B. K. EMERSON, of Amherst College. *Am. J. Sci.*, [4], **42**, (3), 233-234, 1916.

A brief description of anhydrite occurring in bluish-white tabular aggregates in trap at Larrabee's Quarry on the north line of Holyoke, and the third Westfield quarry, Old Hampshire Co., Mass., associated with pyrite, calcite, diabantite, and limonite. The latter mineral is a pseudomorph after diabantite, which in turn replaces anhydrite.

The following paragenesis was observed:

A. Quarry No. 1, Westfield. Anhydrite, calcite, datolite, solution of anhydrite, diabantite replacing anhydrite, calcite, chalcidony, calcite, change of diabantite to limonite.

B. Cheapside quarry, Greenfield. Anhydrite, quartz, solution of anhydrite.

C. Anhydrite, datolite and calcite, calcite, solution of anhydrite.

S. G. G.

SULFATIC CANCRINITE FROM COLORADO. ESPER S. LARSEN and GEORGE STEIGER, of the U. S. Geological Survey. *Am. J. Sci.*, [4], **42**, (4), 332-334, 1916.

A number of specimens of uncomphagrite (a coarse-grained igneous rock made up largely of melilite with considerable pyroxene, magnetite, perovskite and apatite) collected from Beaver Creek, a tributary of Cebolla Creek, on the Uncomphaggre quadrangle, Gunnison Co., Colo., showed cancrinite (apparently derived from the original melilite) in which nearly half the CO₂ was replaced by SO₄.

Physical properties.—Nearly colorless. H about 5. Sp. Gr. 2.443. Cleavage, one—poorly developed || to the prism faces; rod-like inclusions and negative crystals are commonly arranged in the same direction.

Optical properties.—Optically +; $\omega = 1.509$, $\epsilon = 1.500$, $\omega - \epsilon = .009$, (all $\pm .002$).

Chemical properties.—Analysis by Steiger gave: SiO₂ 33.70, Al₂O₃ 29.40, CaO 4.18, Na₂O 18.52, K₂O 1.45, H₂O— .72, H₂O 4.24, TiO₂ .07, CO₂ 3.18, SO₃ 4.65, SrO .08, sum 100.19. Fuses readily with intumescence; readily soluble in acid with effervescence, yielding gelatinous silica on heating.

The data as yet available are not sufficient to show clearly the relation between cancrinite and sulfatic cancrinite. It is suggested, however, that they may form a complete isomorphous series from normal cancrinite to a mineral in which all the carbonate is replaced by sulfate, the sulfatic cancrinite described above representing an intermediate compound. Sulfatic cancrinite has a much lower birefringence than cancrinite, and it is not unlikely that a member of the group somewhat richer in sulfate has zero birefringence and that the pure sulfate member is optically negative. S. G. G.

THE SO-CALLED GRAPHIC INTERGROWTHS OF BORNITE AND CHALCOCITE. AUSTIN F. ROGERS, of Stanford University. *Econ. Geol.* **11**, (6), 582-593, 1916.

The author describes bornite-chalcocite aggregates from six localities, and

concludes that: 1. The so-called graphic intergrowth of bornite and chalcocite is the result of a local, very irregular replacement of bornite by chalcocite or is the result of the replacement of such minerals as klaprotholite ($\text{Cu}_4\text{Bi}_4\text{S}_9$) which in turn had replaced bornite at an earlier stage; 2. This irregular replacement is the result of ascending solutions, and is probably brought about by a decrease in temperature as well as by a change in the character of the solutions.

S. G. G.

OPTICALLY POSITIVE CORDIERITE. I. C. CHACKO, State Geologist, Trivandrum, Government of Travancore, South India. *Geol. Mag.*, [6], 3, (10), 462-464, 1916.

Cordierite (iolite) was found as violet particles or spots at Teruwulla, Travancore, in a kind of diorite, associated with monazite, magnetite or ilmenite, garnet and biotite. In sections the mineral shows numerous globular inclusions surrounded by pleochroic halos, the larger identifiable as monazite. Some of the cordierite gives a positive figure, probably due to the increase of the value of $2V$ beyond 90° ; $2V$ being very variable in cordierite—the lower the refractive index, the greater this value. No section was found suitable for the determination of $2V$, but as the refractive index was determined approximately as 1.53, it was concluded that $2V$ is probably large. Particles that floated in a heavy solution in which a quartz crystal would just sink gave: H_2O 1.74, SiO_2 49.74, Fe_2O_3 5.65, FeO 3.00, Al_2O_3 35.21, CaO 1.05, MgO 4.30, total 100.69. The Fe_2O_3 content is remarkable, but there is a possibility of error in the determination of the iron oxides.

S. G. G.

ZIRCON-BEARING PEGMATITES IN VIRGINIA. THOMAS L. WATSON, of the Va. Geol. Survey. *Bull. Am. Inst. Mining Eng.*, (July), 1916, 1237-1243. Abstract by P. A. v. d. Meulen, reprinted by permission from *Chemical Abstracts*, 10, (18), 2336, 1916.

Zircon occurs in pegmatite cutting a biotite gneiss in Amelia and Hanover counties. The interesting features in these localities are the occurrence of zircon in massive forms of unusual size, and its association in the two localities with an entirely different group of rarer minerals, altho the pegmatites of each area are of granitic composition. The pegmatites of the Amelia Co. area contain orthoclase, microcline, albite, quartz, and muscovite with the rarer minerals fluorite, spessartite, black tourmaline, beryl, helvite, allanite, zircon, columbite, microlite, apatite, and monazite; those of the Hanover Co. area contain both K and Ca-Na feldspars, quartz, muscovite, and biotite, and as the rarer constituents original rutile, sometimes in large masses, ilmenite, and occasional apatite.

EXCHANGE NOTICES

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B. C. Beegle, 52 Chadwick Ave., Newark, N. J. Zeolites and associated minerals from the well known Watchung Mountain zeolite deposits.

John Holzman, 182 Ridgewood Ave., Newark, N. J. Zeolites and associated minerals; write for list.

A. Van De Graaff, P. O. Box 375, Ogden, Utah. Oolitic sand from Great Salt Lake (as described in all the larger Geology text-books) offered for any geological specimen accompanied with descriptions.