

zinc phosphates—hopeite, parahopeite, and tarbuttite. It is named after Mr. L. J. Spencer, of the British Museum.

E. L. Bruce: *Magnesian tourmaline from Renfrew, Ontario*. Brown crystals occur at the contact between crystalline limestone and gneiss in a limestone quarry at the town of Renfrew. Analysis showed the presence of 14.53 % of magnesia.—Abstd. from *Nature*, **97**, 374, 1916.

REVIEWS AND ABSTRACTS

MINERALOGIC NOTES, SERIES 3. WALDEMAR T. SCHALLER. U. S. Geological Survey *Bull.* **610**, 164 pp., 1916.

Contents: Koechlinite (bismuth molybdate), a new mineral. Inyoite and meyerhofferite, two new calcium borates. Lucinite, a new mineral,—a dimorphous form of variscite. Schneebergite. Romeite. The natural antimonites and antimonates. Velardinite, a new member of the melilite group. The melilite group. The composition of cebollite. The crystallography of thaumasite. The chemical composition of tremolite. New occurrences of some rare minerals. Gigantic crystals of spodumene. The probable identity of mariposite and alurgite. The amblygonite group of minerals—fremontite = (natramblygonite). The crystallography of fremontite. The chemical composition of nephelite. Large crystals of bloedite. Alunite from Marysville, Utah. The composition and relations of custerite. The composition of hodgkinsonite. Crystals of pisanite from Ducktown, Tenn. The refractive indices of strengite. The calculation of a mineral formula.

S. G. G.

CASSITERITE IN SAN DIEGO COUNTY, CALIFORNIA. WALDEMAR T. SCHALLER. U. S. Geological Survey *Bull.* **620 P**, 351-354, 1916.

Note describing an occurrence of cassiterite in the pegmatites of California, with quartz, feldspar, lepidolite, columbite and transparent blue tourmaline.

S. G. G.

XANTHOPHYLLITE IN CRYSTALLINE LIMESTONE. ARTHUR S. EAKLE. *J. Wash. Acad. Sci.*, **6** (11), 332-335, 1916.

The rare brittle mica xanthophyllite is reported as occurring at an isolated hill of crystalline marble and granodiorite situated

at Crestmore, about eight miles west of Riverside, California. The xanthophyllite occurs mainly as isolated hexagonal shaped basal plates of a deep grass-green color—the variety known as valuevite [given in German form waluevite in original]—varying greatly in size, some measuring 3 to 4 cm. in diameter and 2 to 3 cm. thick. The plates are transparent with a brilliant and somewhat pearly luster, but the edges are dull, rounded and grooved. The plates are brittle with a hardness of 4–5. The thicker plates show polysynthetic twinning like the micas. The thinner crystals and cleavage plates give a good biaxial figure with an apparent optic angle of about 20° . Measurements of the optic angle in Na light showed a variation of from 12° to 18° . The optic axial plane is (100) and the mineral is optically—. The refractive indices β and γ which lie in the basal section are practically the same and were determined as 1.660. An analysis of the material showed: Sp. Gr. 3.081; SiO_2 16.74, Al_2O_3 42.70, Fe_2O_3 2.85, FeO 0.41, CaO 13.09 MgO 20.03, Ign. 4.49, sum 100.31.

Associated with the valuevite is a sky-blue calcite and monticellite of a pale brown color and somewhat greasy luster, scattered thru the calcite as small masses and grains, no crystal faces being visible. The xanthophyllite and monticellite are regarded as products of the hydrothermal metamorphism of the limestone.

S. G. G.

THE DISPERSION PHENOMENA AND THE INFLUENCE OF TEMPERATURE ON THE OPTIC AXIAL ANGLE OF SANIDINE FROM THE EIFEL. S. Kōzū. *Mineral. Mag.*, **17** (82), 237–252, 1916.

THE DISPERSION PHENOMENA OF SOME MONOCLINIC FELDSPARS. S. Kōzū. *Mineral. Mag.*, **17** (82), 253–273, 1916.

CHABAZITE AND ASSOCIATED MINERALS FROM COUNTY ANTRIM. G. F. HERBERT SMITH. *Mineral. Mag.*, **17** (82), 274–304, 1916.

Description of chabazite (phacolite, gmelinite), analcite, natrolite, mesolite and calcite found in the amygdaloidal basalts at Whitehead, Killyflugh, and Craighulliar, in County Antrim, Ireland.

Dr. Smith considers chabazite and gmelinite as one species, reserving the term gmelinite for the apparently hexagonal crystals, and using phacolite in a somewhat widened sense for all crystals, invariably twinned, of rhombohedral habit.

The following are the principal forms observed: on phacolite: r ($10\bar{1}1$) the most prominent form, usually striated, e ($01\bar{1}2$) common, generally small, s ($02\bar{2}1$) small and smooth, a ($11\bar{2}0$) small, rather rare; on gmelinite: f ($20\bar{2}3$) characteristic, m ($10\bar{1}0$) usually striated, c (0001) rare. Twinning plane: of gmelinite, r ; of phacolite, c . Cleavage plane: of gmelinite, m ; of phacolite, r .

The following analyses were made by Dr. Prior on exceptionally pure crystalline material:

	Gmelinite		Phacolite		
	Whitehead		Craigahulliar	Killyfugh	
SiO ₂	46.64	46.75	47.81	48.61	48.82
Al ₂ O ₃	20.04	19.79	19.73	18.06	18.53
CaO.....	7.00	8.25	5.01	8.19	8.81
SrO.....	0.22	0.23	0.02	0.60	0.26
K ₂ O.....	0.63	0.33	0.31	2.13	1.20
Na ₂ O.....	3.81	2.17	6.13	0.33	0.37
H ₂ O.....	21.84	22.09	21.56	21.68	22.09
	100.18	99.16	100.57'	99.60	100.08
Sp. Gr.....	2.09	2.07	2.06	2.06	2.09

There is an excess of SiO₂ and H₂O excepting in the first analysis over the usually accepted formula (Ca,K₂,Na₂)Al₂Si₄O₁₂.6H₂O.

The following reasons are given for supposing gmelinite to be a variety of chabazite: 1. The values of the axial ratios, whether calculated from the phacolite or gmelinite type of crystal, are the same within the limits of error of observation; 2. gmelinite is evidently rhombohedral and not hexagonal in symmetry, because the twin individuals always occur in sets of three; 3. all types of crystals may be met with between the simple rhombohedron and the complexly twinned pseudohexagonal crystals; 4. the chemical composition of gmelinite does not differ materially from that of any other type of chabazite; the principle of isomorphism will account for any difference there may be.

S. G. G.

THE NATROLITE OCCURRENCE NEAR KINBANE
(WHITEHEAD), COUNTY ANTRIM. F. N. ASHCROFT.
Mineral. Mag., 17 (82), 305-308, 1916.

Description and analysis of natrolite, usually incorrectly labeled Giant's Causeway.

S. G. G.

PROUSTITE FROM COBALT, ONTARIO. ARTHUR L. PARSONS. *Mineral. Mag.*, **17** (82), 309-313, 1916.

Examination of a number of crystals of proustite from Cobalt showed two types, one characterized by a rhombohedron and a prominent prism, and the second consisting of certain scalenohedral faces in addition to the above. The following forms were noted: a (11 $\bar{2}$ 0), b (10 $\bar{1}$ 0), r (10 $\bar{1}$ 1), e (01 $\bar{1}$ 2), s (02 $\bar{2}$ 1), Γ (07 $\bar{7}$ 2), v , (21 $\bar{3}$ 1), and y_1 (13.7.20.6) new. Axial ratio: $a:c=1:0.8015-0.8027$.

Analysis of the material by H. V. Ellsworth gave: Ag 64.12, As 15.90, S 19.28, Sb 0.08, Fe 0.25, Co (including tr. of Ni) 0.12, insoluble in HNO₃ 0.38 = 100.13. Deducting for pyrite, smaltite, and pyrargyrite the analysis shows a nearly pure proustite with a small excess of As. S. G. G.

CRYSTALLOGRAPHIC RELATIONS OF ALLIED SUBSTANCES TRACED BY MEANS OF THE LAW OF VALENCY-VOLUMES. W. BARLOW. *Mineral. Mag.*, **17** (82), 314-323, 1916.

DEMONSTRATION SIMPLE DE LA LOI DE MILLER. (A SIMPLE DEMONSTRATION OF MILLER'S LAW.) G. CESÁRO. *Mineral. Mag.*, **17** (82), 324-325, 1916.

THE CRYSTALLOGRAPHY AND DEHYDRATION OF TORBERNITE. A. F. HALLIMOND. *Mineral. Mag.*, **17** (82), 326-339, 1916.

Measurements of 11 crystals of torbernite gave the following results (calculated). c (001), e (101), o (103), l (112), m (110). $c:l=64^{\circ}34'$, $c:o=44^{\circ}45'$, $c:e=71^{\circ}25'$, $c:m=90^{\circ}$; several vicinal faces, u , w , g , were also noted. The axial ratio is: $a:c=1:2.974$.

The limits of temperature and vapor-pressure within which torbernite can exist are very narrow; in fact, little outside the variations which occur from day to day in the condition of the atmosphere. The change is one of dehydration, and occurs in the open air at about 130°C., the products being known as meta-torbernite I and II. Experiments showed that the alteration is marked by well-defined changes in the optical properties.

S. G. G.

CRYSTALS OF IRON PHOSPHIDE (RHABDITE) FROM A BLAST-FURNACE. L. J. SPENCER. *Mineral. Mag.*, **17** (82), 340-343, 1916.

The crystals came from a "bear" or mass of metal from a blast-furnace, and occurred sparingly in drusy cavities, being absent in the metal itself. The cavities are lined with "fir-tree crystallites" of metallic iron, and resting on these are the bright needles of iron phosphide often extending completely across the small spaces. The needles of rhabdite are tin-white in color with a brilliant metallic luster, and sometimes a yellow tarnish. They are brittle, and break with a sub-conchoidal cross fracture. The forms present on the crystals are a (100), m (110) and o (111); $mo = 63^{\circ}52'$; the axial ratio, $a:c = 1:0.3469$. S. G. G.

A (SEVENTH) LIST OF NEW MINERAL NAMES. L. J. SPENCER. *Mineral. Mag.*, **17** (82), 344-362, 1916.

An annotated list of all mineral names which have come into use since 1913, with a systematic list of new minerals classified chemically. S. G. G.

STUDIES OF BRAZILIAN FAVAS. OLIVER C. FARRINGTON, of the Field Museum of Natural History, Chicago. *Am. J. Sci.* [4], **41** (4), 355-360, 1916.

A number of these objects, heavy-mineral pebbles obtained in diamond washings, have been analyzed and are described. One type consists of TiO_2 with 0.6% H_2O , and the new varietal name *paredrite* is suggested for it. Another lot proved to be gorceixite, another barium-bearing hamlinite, another an impure hydroxide of aluminium, and still others mixtures too complex for determination of the constituents. Favas closely resembling each other in physical characters may thus differ widely in composition. [Before the new name "*paredrite*" is accepted by mineralogists some information will have to be obtained as to whether the material is a variety of rutile, brookite, octahedrite, or a colloidal form of titanium dioxide; whether essential distinctness in physical or optical properties is shown; and whether the water is present as inclusions, is adsorbed, or is chemically combined. The paper contains no such data nor, indeed, any optical observations on the other minerals, without which the analyses are of little significance. E. T. W.