

scattered around the craters are curiously twisted and bent, suggesting that they were torn in a plastic condition from the main masses by the force of the explosions. Further they show a partial obliteration of the lamellar structure with granulation of the kamacite, indicating that they reached a temperature of 850°C. The pieces of iron show different types of pitting resulting from subaerial and underground weathering, and they are all weathered remnants of larger masses, each consisting of a single crystal.

Silica-glass, which is of rare occurrence in nature, shows a remarkable development at Wabar. A snow-white, highly vesicular glass was formed by the fusion of the clean desert sand; and bombs of this material shot out from the craters were coated with a thin skin of black glass free from bubbles and containing iron and nickel in the same ratio as in the meteoric iron. This must have condensed on the surface from the vapours of silica, iron, and nickel, indicating temperatures up to 3,300°C. The silica-glass at Henbury is much less abundant, and being formed from a ferruginous sandstone it is less pure. These bombs of silica-glass present many points of resemblance to tektites.

DR. A. BRAMMALL AND MR. S. BRACEWELL: *Garnet in the Dartmoor granite: its petrogenetic significance.* Seventeen occurrences prove to be manganiferous almandines containing 3% to 22% of MnO. Two or more varieties may occur in a single hand-specimen of the granite. The more manganiferous varieties (7% MnO) are restricted to the top-horizons; the less manganiferous varieties occur (a) below these horizons, (b) in shale-contaminated facies of the granite, and (c) in xenolithic hornfelsed shale. Basic igneous inclusions are barren of garnet, and grossularite, *not* almandine, occurs in contact-altered spilites. The mineral is attributed to contamination of the granite by country-rock—probably deep-seated shales. Ten Lake District occurrences show a similar variation (1.3%–7.3% MnO).

MR. F. A. BANNISTER: *The identity of mottramite and psittacinite with cupriferos descloizite (cuprodescloizite).* (With chemical analyses by Mr. M. H. Hey). Oscillations, Laue and rotation photographs show that descloizite has an orthorhombic unit-cell with edges  $a=6.05$ ,  $b=9.39$ ,  $c=7.56\text{\AA}$ , and space-group  $Q_h^{16}$ . The unit cell contains 4  $\text{PbZn}(\text{VO}_4)(\text{OH})$ . Powder photographs of descloizite, cuprodescloizite, mottramite, and psittacinite from the type localities are identical with each other. New chemical analyses and determinations of the water content at various temperatures together with the x-ray work show that all these minerals may be represented by the general formula  $\text{Pb}(\text{Cu}, \text{Zn})(\text{VO}_4)(\text{OH})$ . The water of constitution is not evolved until a dull red-heat. Thin incrustations of minute black crystals on sandstone from Harmer Hill, Clive near Shrewsbury, collected by Mr. Arthur Russell, are shown to be identical with mottramite from Mottram, St. Andrew's, Cheshire (H. E. Roscoe, 1876), i.e. cuprodescloizite carrying little or no zinc.

## NEW MINERAL NAMES

### Harbortite

FRIEDRICH BRANDT: Ein Neuer Typ von Eisen-Tonerdphosphat-Vorkommen (Maranhao, Nordbrasilien). (A new type of iron aluminum phosphat occurrence, Maranhao, Northern Brazil). *Chem. Erde*, 7, pp. 383–433, 1932.

NAME: In honor of Prof. E. Harbort.

CHEMICAL PROPERTIES: A hydrous phosphate of aluminum.  $6 \text{Al}_2\text{O}_3 \cdot 4 \text{P}_2\text{O}_5 \cdot 17 \text{H}_2\text{O}$ . Analysis:  $\text{SiO}_2$  2.8,  $\text{TiO}_2$  1.0,  $\text{Al}_2\text{O}_3$  33.4,  $\text{CaO}$  1.2,  $\text{Na}_2\text{O}$  3.7,  $\text{P}_2\text{O}_5$  35.7,  $\text{H}_2\text{O}$  18.0; sum 99.6 (Eleven other analyses given.)

PHYSICAL AND OPTICAL PROPERTIES: Color white, yellowish, brownish.  $G. = 2.781\text{--}2.798$ .  $\text{Hd.} = 5\text{--}5 \frac{1}{2}$ . The indices of refraction lie between 1.602 and 1.618. Birefringence weak. Parallel extinction and fibers show negative elongation. Debye-Scherrer's diagrams show the two forms to be identical but different from wavelite or krauerite (dufrenite).

OCCURRENCE: Found in a lateritic iron oxide cap as spherulites or pseudomorphous octahedrons, with dufrenite, amorphous aluminum phosphates and limonite. The deposit probably owes its origin to the action of phosphatic solutions from guano upon laterite.

W. F. FOSHAG

### Kolbeckine

R. HERZENBERG: Kolbeckin  $\text{Sn}_2\text{S}_3$ , ein neues Zinnmineral (Kolbeckine  $\text{Sn}_2\text{S}_3$ , a new tin mineral). *Centr. Min., Abt. A.*, No. 11, pp. 354-355, 1932.

CHEMICAL PROPERTIES: A sulfide of tin:  $\text{Sn}_2\text{S}_3$ . Analyses (after deducting impurities): S 6.11, 3.68, Sn 14.7, 9.00. In closed tube yields sulfur. Soluble in hydrochloric and sulfuric acids with evolution of hydrogen sulfide. Soluble in alkali hydroxides and alkali sulfides, from which HCl precipitates tin sulfide. Insoluble in ammonia.

PHYSICAL PROPERTIES: Color black, resembling fine grained pyrolusite.

OCCURRENCE: Found at the Maria-Teresa mine near Huari station between Oruro and Uyuni, as a filling in cavities and joints in a spongy cassiterite.

DISCUSSION: Ramdohr has examined a section of this ore but could detect no new mineral with certainty. He found, in the order of their abundance, quartz, pyrite, cassiterite, sphalerite, teallite (?), stannite, arsenopyrite and chalcopyrite.

W. F. F.

### Enalite

KENJIRO KIMURA AND YASUO MIYAKE: On Enalite, a New Variety of Uranothorite, found in Naegi, Gifu Prefecture. *Jour. Chem. Soc. Japan*, 53, 93-100, 1932 (In Japanese).

NAME: From the locality: Ena Prefecture, Gifu District.

CHEMICAL PROPERTIES: A hydrous silicate of thorium and uranium:  $(\text{Th}, \text{U})\text{O}_2 \cdot n\text{SiO}_2$ . Analysis:  $\text{CaO}$  0.73,  $\text{PbO}$  0.95,  $\text{Al}_2\text{O}_3$  3.01,  $\text{Fe}_2\text{O}_3$  0.88,  $\text{Ce}_2\text{O}_3$  11.59,  $\text{Nd}_2\text{O}_3$  12.57,  $\text{ThO}_2$  28.96,  $\text{UO}_2$  10.63,  $\text{SnO}_2$  4.81,  $\text{TiO}_2$  1.37,  $\text{SiO}_2$  5.82,  $\text{P}_2\text{O}_5$  12.52, ign. 5.59. Sum 99.43.

CRYSTALLOGRAPHICAL PROPERTIES: Tetragonal.

PHYSICAL AND OPTICAL PROPERTIES: Color orange yellow.  $G. = 4.873$ .  $n = 1.68$ . Birefringence weak.

OCCURRENCE: Found in sands associated with cassiterite and monazite at Kotzugusawa in Takayama, Fukuoka Village, Ena Prefecture, Gifu District, Japan.

W.F.F.

## Stewartite

ALPHEUS F. WILLIAMS: The Genesis of the Diamond. vol. 2, p. 471, 1932. London.

NAME: From Mr. James Stewart, for many years manager of the De Beers concentrating plant.

A magnetic variety of bort. Polar.

W.F.F.

## REDEFINITION OF SPECIES

## Valleriite

P. RAMDOHR AND O. ÖDMAN: Valleriit (= "unbekanntes Nickelerz" = fragliches pleochroitisches Mineral), *Geol. Fören. Förhandl.*, **54**, 89-97, 1932. Also Schneiderhöhn, H., and Ramdohr, P.: *Lehrbuch der Erzmikroskopie*, Vol. II, p. 127-130, 1931.

CHEMICAL PROPERTIES: A sulfide of iron and copper— $\text{Cu}_2\text{Fe}_4\text{S}_7$ . Analysis: Cu 14.37, Fe 24.03, S 24.96,  $\text{Al}_2\text{O}_3$  6.54, MgO 19.25, insol. 2.81. Easily soluble in warm hydrochloric acid.

CRYSTALLOGRAPHICAL PROPERTIES: Probably hexagonal or pseudo-hexagonal, with the forms: (0001), (1010), and a steep pyramid.

PHYSICAL PROPERTIES: Color black. Soft, can be cut with the fingernail and marks paper like graphite. Luster is fairly high on surface but dull on cross fracture. Cleavage good.

MINERALOGRAPHICAL PROPERTIES: Color white to cream yellow, almost like pentlandite. Reflection pleochroism strong, O=pale yellow toward rose, E=dull gray, somewhat bluish. Strongly anisotropic. Extinction parallel to the cleavage. Sometimes shows twinning lamellae. Etching: with nascent Cl positive. HCl (conc.),  $\text{HNO}_3$  (conc.) and aqua regia, negative.

OCCURRENCE: Found in bean-shaped grains up to the size of a hazel-nut and distinctly layered, concentric about a nucleus; or as a felted fine grained aggregate in carbonate rock at Kaveltorp, Sweden. Also intimately intergrown with chalcopyrite and pentlandite in the basic rocks of the Bushveld complex.

W. F. F.