BOOK REVIEW

AN INTRODUCTION TO CRYSTAL CHEMISTRY. R. C. EVANS. vii+388 pp., 59 Tables, 113 Figs. Cambridge, at the University Press. (New York: The Macmillan Company.) 1939. Price $4.50.

This volume is designed primarily as a text for university students, but will be of interest to many others. No specialized crystallographic training is necessary for the reader. Very little attention is given to detailed structural or crystallographic features, nor is there any attempt to make a complete survey of all structures which have been analyzed. The main emphasis is on the correlation of typical structures with their chemical and physical properties. The various chapters consider interatomic binding forces, quantitative lattice theory, metallic elements, alloy systems, homopolar, ionic and molecular compounds. The material is clearly presented and well illustrated.

L. S. RAMSDELL

NEW MINERAL NAMES

Trieuite

L. DE LEENHEER: Trieuit, een nieuw kobaltmineraal. *Natuurw. Tijdeschr.*, Nr. 4–5 91 (1935); Sur la Trieuite et les Minéraux associés. *Comité Spécial du Katanga; Ann. Serv. Mines*, **8**, 3–13, 1937 (1938), 3 figs., 1 pl.

NAME: In honor of Robert du Trieu de Terdonck, Chief Geologist of the Union Miniére du Haut-Katanga.

CHEMICAL PROPERTIES: A hydrated cobalt copper oxide: $2Co_2O_3 \cdot CuO \cdot 6H_2O$. Analysis: Co_2O_3 53.38, CuO 22.63, SiO_2 1.50, H_2O 20.16, CO_2 1.36. Sum 99.23.

PHYSICAL AND OPTICAL PROPERTIES: Black, luster vitreous and brilliant, streak black-brown, fracture conchoidal. $H=3.5$. $G=3.128$. In thin section brown, isotropic. $n=1.85$.

OCCURRENCE: As a secondary mineral associated with malachite and quartz at the Etoile du Congo mine, near Elisabethville, Belgian Congo. Formerly called heterogenite.

W. F. FOSHAG

Cupro-asbolane

L. DE LEENHEER: Sur quelques minerais de manganése du Katanga. *Comité Spécial du Katanga, Ann. Serv. Mines*, **8**, 32–64, 1937 (1938), 11 figs., 1. pl.

NAME: From its relationship to asbolane—a copper bearing asbolane.

CHEMICAL PROPERTIES: A hydrated manganese cobalt copper oxide, of variable composition. Analysis (from Katanga): Residue 6.88, CuO 20.79, Fe_2O_3 ($-Al_2O_3$) 5.04, MgO 0.90, Co_2O_3 13.40, Mn_2O_3 38.67, H_2O 11.51. (Analyses of cupro-asbolane from other Congo localities also given.) Easily soluble in hydrochloric acid with liberation of chlorine.

PHYSICAL PROPERTIES: Color black, streak black, soft. G. about 2.37.

OCCURRENCE: Found at Katanga, Ruashi, and other localities in belts of the Belgian Congo, associated with quartz, malachite, carnotite (at Ruwe) etc., the so-called "Black Ore" of this district.

DISCUSSION: The psilomelane group of minerals is considered essentially manganese dioxide with adsorbed oxides of other metals: with manganese oxide, psilomelane or wad; with cobalt, asbolane; with copper, lampadite; with lithium, lithiophorite.

Cupro-asbolane is an intermediate member with important amounts of both cobalt and copper.

W. F. F.

Sharpite

J. MÉLON: La sharpite, nouveau carbonate d'uranyle du Congo belge. *Bull. Inst. Roy. Colonial Belge*, **9**, 333–336 (1938).

NAME: In honor of R. R. Sharp, who discovered the uranium deposits of Chinkolobwe in 1915.

CHEMICAL PROPERTIES: A hydrated uranium carbonate: $6UO_3 \cdot 5CO_2 \cdot 8H_2O$. Analysis: UO_3 81.04, CO_2 10.20, H_2O 6.81, CaO 2.70. Sum 100.85. Contained 1.6% insoluble matter. Dissolves easily with effervescence in dilute acids.

CRYSTALLOGRAPHICAL PROPERTIES: Orthorhombic (?).

PHYSICAL AND OPTICAL PROPERTIES: Color yellowish green. H=above $2\frac{1}{2}$. G.>3.33. Extinction parallel, elongation positive. $\alpha=1.633$, γ near 1.72. Birefringence very high. Pleochroism feeble; X=brownish, Z=clear yellow—slightly greenish.

OCCURRENCE: Found as a radially fibrous crust with uranotile on a mass of curite and becquerelite.

W. F. F.

Teineite

TOYOHUMI YOSIMURA: Teineite, a new tellurate mineral from the Teine Mine, Hokkaido, Japan. *Jour. Faculty Science, Hokkaido Imp. Univ.*, Series IV, Nos. **3–4**, Geol. & Mineral., 465–470 (1939), 7 figs.

NAME: From the Teine mine, where this mineral was first found.

CHEMICAL PROPERTIES: A hydrated tellurate-sulfate of copper. $10CuTeO_4 \cdot 3CuSO_4 \cdot 26H_2O$. Analysis: CuO 28.0,$TeO_3$ 48.0, SO_3 6.6, H_2O 12.2, insol. 6.1. Sum 100.9. Soluble in HCl to a greenish yellow solution; in HNO_3 to a blue solution, first with separation of white telluric oxide, then to complete solution. In closed tube, gives off water. Fusible, 2, to a black bead.

CRYSTALLOGRAPHICAL PROPERTIES: Orthorhombic, prismatic. $a:b:c=0.705:1:0.786$. $m \wedge m''=70°27'$ ($\pm 5'$); $e \wedge e'$ 76°20′ ($\pm 10'$). Forms: *b* (010), *m* (110), *e* (011), *f* (073).

PHYSICAL AND OPTICAL PROPERTIES: Color cerulean blue, often cobalt blue or bluish gray. Streak bluish white. Pleochroic X=greenish blue, Y=blue, Z=indigo blue. Absorption Z>Y>X. Biaxial, negative. 2V=36°; plane of the optic axes parallel to (010); X=*a*, Y=*b*, Z=*c*. $\alpha=1.767$, $\beta=1.782$, $\gamma=1.791$.

Cleavage (010) good; (001), (100) weak. H=2.5, brittle, G.=3.80.

OCCURRENCE: Found in the oxidized portion of the Takinosawa vein that carries, besides pyrite, tetrahedrite and blende, tellurium and sylvanite, in a gangue of chalcedonic quartz and barite.

W. F. F.

Kasoite

Barium-albite

TOYOHUMI YOSIMURA: Studies on the minerals from the manganese deposits of the Kaso Mine, Japan. *Jour. Faculty Science, Hokkaido Imperial University*, Series IV, Nos. **3–4**, Geol. and Mineral., 313–453 (1939), 19 plates, 13 text figs.

CRYSTALLOGRAPHIC PROPERTIES: Crystal habit of the adularia type. Twinning absent.

CHEMICAL PROPERTIES: A barium feldspar: $Cn_{49.6}Kp_{32.5}(Ab, Ne)_{17.9}$. Analysis: SiO_2 38.48, Al_2O_3 23.61, Fe_2O_3 0.60, MgO 0.97, MnO 2.67, CaO 0.85, BaO 25.50, Na_2O 1.85, K_2O 5.10, Ign. loss 0.98. Sum 100.61.

PHYSICAL AND OPTICAL PROPERTIES: Biaxial, negative, $2V=80°$. Plane of the optic axes parallel to (010) (or nearly so). $c \wedge X$ on $010=2°–3°$ in acute β; $a \wedge Z$ on $011=28°–29°$ in obtuse β. Extinction angle on $(001)=10°–13°$. $\alpha=1.564$, $\beta=1.568$, $\gamma=1.572$. $G=3.003$. $H.=5\frac{1}{2}$.

OCCURRENCE: Found as veinlets, with rhodonite or as impregnations in slate wall rock.

DISCUSSION: Kasoite is distinguished from other celsian feldspars by its high content of the kaliophilite and nepheline molecules. Other feldspar names: *Barium albite*, $Ab_{44} \cdot Or_{42} \cdot Cn_{14}$, found in manganhedenbergite veins.

W. F. F.

Iron knebelite
Manganknebelite
Iron tephroite
Picrotephroite

TOYOHUMI YOSIMURA: Studies on the minerals from the manganese deposits of the Kaso Mine, Japan. *Jour. Faculty Science, Hokkaido Imperial University*, Series IV, Nos. **3–4,** Geol. and Mineral., 313–453 (1939), 19 plates, 13 text figs.

Names given for various members of the knebelite-tephroite series are:

Fayalite	100–95% Fe_2SiO_4
Maganfayalite	95–80
Iron knebelite	80–60
Knebelite	60–40
Maganknebelite	40–20
Iron tephroite	20– 5
Tephroite	5– 0

Of this series, those from iron knebelite to iron tephroite are found at the Kaso Mine. Also included is a magnesian member picroknebelite.

	Iron knebelite	Picro-knebelite	Mangan-knebelite	Iron tephroite
α	1.796	1.787	1.795	1.787
β	1.830	1.815	1.830	1.811
γ	1.845	1.830	1.840	1.819
2V	50°	56°	50°	60°
G.	4.16	3.98	4.01	3.96
Fe_2SiO_4	57.0	26.3	24.0	16.3
Mn_2SiO_4	29.1	59.0	68.2	76.7
Ca_2SiO_4	4.5	4.2	0.6	—
Mg_2SiO_4	9.4	10.5	7.2	7.0

W. F. F.

Manganactinolite
Mangantremolite

TOYOHUMI YOSIMURA: Studies on the minerals from the manganese deposits of the Kaso Mine, Japan. *Jour. Faculty Science, Hokkaido Imperial University*, Series IV, Nos. **3–4,** Geol. and Mineral., 313–453 (1939), 19 plates, 13 text figs.

Among the amphiboles of the Kaso Mine are two, given new terms:

	Manganactinolite	Mangantremolite
$Fe_2Si_2O_6$	26.8	18.3
$Mn_2Si_2O_6$	11.0	13.1
$Ca_2Si_2O_6$	26.7	25.3
$Mg_2Si_2O_6$	35.5	43.3
α	1.648	1.637
β	1.661	1.650
γ	1.668	1.660
2V	74°	84°
$c \wedge Z$	16°	15°

W. F. F.

Ca-Fe-spessartine
Fe-Ca-spessartine

TOYOHUMI YOSIMURA: Studies on the minerals from the manganese deposits of the Kaso Mine, Japan. *Jour. Faculty Science, Hokkaido Imperial University*, Series IV, Nos. **3–4,** Geol. and Mineral., 313–453 (1939), 19 plates, 13 text figs.

The garnet minerals of the Kaso Mine show some variation, two of which have been given distinct terms:

	Ca-Fe-spessartine	Fe-Ca-spessartine
$3CaO \cdot Fe_2O_3 \cdot 3SiO_2$	—	0.9
$3CaO \cdot Al_2O_3 \cdot 3SiO_2$	23.7	29.6
$3FeO \cdot Al_2O_3 \cdot 3SiO_2$	17.7	15.5
$3MnO \cdot Al_2O_3 \cdot 3SiO_2$	57.4	51.7
$3MgO \cdot Al_2O_3 \cdot 3SiO_2$	1.2	2.3
n	1.790	1.788
G.	3.83	3.97

W. F. F.

Ca-rhodochrosite
Fe-rhodochrosite
Fe-Mn-calcite

TOYOHUMI YOSIMURA: Studies on the minerals from the manganese deposits of the Kaso Mine, Japan. *Jour. Faculty Science, Hokkaido Imperial University*, Series IV, Nos. **3–4,** Geol. and Mineral., Vol. IV, 313–453 (1939), 19 plates, 13 text figs.

The carbonate minerals of the Kaso Mine include some intermediate members among which are the following:

	$FeCO_3$	$MnCO_3$	$CaCO_3$	$MgCO_3$	ω	G.
Fe-Mn-calcite	24.6	16.5	53.6	5.3	—	3.38
Ca-rhodochrosite	7.2	74.7	11.8	6.3	1.795	3.51
Ca-rhodochrosite	4.3	53.8	37.5	4.4	1.731	3.05
Fe-rhodochrosite	12.7	75.0	6.9	5.4	1.790	3.38

These carbonates occur with rhodonite and other manganese-iron silicates.

W. F. F.