

homogeneous should approximate the temperature of formation of the enclosing crystal. This might be true of some igneous minerals that have crystallized from an essentially anhydrous magma, but even then only for certain rare cases. It will not be true of vein and other hydrothermal minerals, which are the great bulk of those studied by the inclusion method. The reviewer has heated quartz crystals containing such inclusions to temperatures that were certainly above that at which the quartz grew, yet the inclusions showed no observable change.

The method suggested on page 111, of determining temperature and pressure by varying these factors until a perfect "fit" of crystal inclusions is obtained is ingenious but would be extremely difficult, if not impossible, experimentally.

There is a short index under the heading "Bibliography (Subjects)." Many important subjects, such as "critical phenomena," "supercritical phenomena," and "critical temperature" are omitted entirely. Others are very inadequately treated. For example, there are no individual mineral names in the index. If one wants information on liquid inclusions in quartz he must look up all the references to "Pegmatitic minerals, inclusions in," of which there are 55 and all the references under "Vein minerals, inclusions in," of which there are 82.

The book was produced by the photo offset method from typed copy, but it is on good paper so that it is quite as easy to read as most printing. It is by far the most complete summary that has appeared on inclusions in minerals as clues to their temperatures of formation. It will be the starting point for researchers in this field for years to come.

EARL INGERSON,

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NEW MINERAL NAMES

Latiumite

C. E. TILLEY AND N. F. M. HENRY, Latiumite (sulphatic potassium-calcium-aluminum silicate), a new mineral from Albano, Latium, Italy. *Mineralog. Mag.*, **30**, 39-45 (1953).

White to glassy material, massive and in elongated tabular crystals occurred in two ejected blocks of the Alban Hills, associated with hedenbergitic pyroxene, grossularite-andradite, melilite, leucite, haüyne, and in one specimen also with kaliophillite. Sp. gr. = 2.93, H. = 5½-6. Analysis by J. H. Scoon (combination of 2 partial analyses) gave SiO₂ 28.33, Al₂O₃ 24.67, Fe₂O₃ 0.50, FeO 0.55, MnO 0.02, MgO 0.76, CaO 29.41, Na₂O 1.11, K₂O 7.20, H₂O⁻ none, H₂O⁺ 0.27, SO₃ 5.42, CO₂ 1.60, Cl 0.14; sum 99.98 - (O = Cl₂) 0.03 = 99.95%. Further chemical and x-ray data are needed to determine the formula; two possibilities are X₈YZ₁₀O₂₅(SO₄) with X = 5.91 Ca, 0.40 Na, 1.73 K, Y = 0.76 Al, 0.16 Fe, 0.21 Mg, Z = 5.31 Si, 4.69 Al, SO₄ = 0.76, 0.40 CO₃, 0.02 Cl; or X₈Y₄Z₇O₂₅(SO₄) where X and SO₄ are as above, Y = 3.76 Al, 0.16 Fe, 0.21 Mg, and Z = 5.31 Si, 1.69 Al. The first would be a sheet structure, the second perhaps one of mixed groups (SiO₄)(Si₂O₇).

Latiumite is decomposed by weak acids leaving a silica pseudomorph. It fuses before the blowpipe and the resulting glass partly devitrifies at a low red heat to a fine-grained product that gave an x-ray powder photograph similar to that of melilite.

Latiumite is monoclinic. Weissenberg and oscillation photographs gave $a = 12.12$, $b = 5.13$, $c = 10.80$ Å, beta 108°. G. calcd. 2.93. X-ray powder data are given. There is a perfect cleavage (100) and this is also the twin plane. The mineral is variable optically, indices recorded being $\alpha = 1.600$, $\beta = 1.606$, $\gamma = 1.614$, also $\alpha = 1.603$, $\beta = 1.609$, $\gamma = 1.615$. Mottled extinction is characteristic, with $\alpha:c$ ranging from 16° to 28° and 2 V from 83°(+) to 72°(-). Presumably the variation in optical properties is due to variation in composition

of a solid solution. The optic axial plane is perpendicular to (010). Dispersion is marked $r > v$.

The name is for the locality.

MICHAEL FLEISCHER

Cheralite

S. H. U. BOWIE AND J. E. T. HORNE, Cheralite, a new mineral of the monazite group. *Mineralog. Mag.*, **30**, 93-99 (1953).

Dark- to pale-green masses up to two inches across occur in a kaolinized pegmatite dike at Kuttakuzhi in Halkulam taluk (parish), Travancore, southern India, associated with black tourmaline, chrysoberyl, dark zircon, and smoky quartz. It also occurs sparsely in the adjacent wall-rock (kaolinized granite-gneiss) and in surface wash.

Hardness = 5, sp. gr. (pycnometer in CCl_4) = 5.3 ± 0.1 . Luster resinous to vitreous, fracture uneven, brittle. Optically biaxial, positive with indices $\alpha = 1.779$, $\beta = 1.780$, $\gamma = 1.816$, $2V$ measured 17.4 to 19.0° . Pale green in thin section; pleochroism faint, α and β green, γ green with a yellow tinge. Dispersion not perceptible. Cleavages and optical directions (tentative since crystal faces have not been identified certainly): cleavage (010) distinct, (100) difficult, parting on (001) poor, $\alpha = b$, $\gamma : c = 7^\circ$.

A sample purified by electromagnetic separation and immersion in hot dilute HCl was analyzed by the Radiochemical Division, Chemical Research Laboratory, Teddington, giving P_2O_5 26.80, SiO_2 2.10, ThO_2 31.50, U_3O_8 4.05, Ce_2O_3 14.21, La_2O_3 , etc. 13.35, Fe_2O_3 trace, Al_2O_3 trace, CaO 6.30, PbO 0.92, H_2O^+ 0.06; sum 99.29%. The La_2O_3 , etc., contained major La, Pr, Nd, minor Gd, Sm, Y. This gives $(\text{Ca}_{1.08}\text{Ce}_{0.84}\text{La}, \text{etc.})_{0.78}\text{Th}_{1.15}\text{U}_{0.14}\text{Pb}_{0.04}(\text{P}_{3.64}\text{Si}_{0.34})\text{O}_{16}$. A second, very similar analysis is given; this was made about 1916 by S. J. Johnstone on material supposedly from the adjacent Vilavancode taluk, but it is uncertain whether this represents another occurrence.

X-ray powder data are given for monazite (CePO_4), huttonite (ThSiO_4), cheralite, and synthetic $\text{CaTh}(\text{PO}_4)_2$; they are isostructural and there is a systematic decrease in spacings from monazite through cheralite to $\text{CaTh}(\text{PO}_4)_2$. From the powder data, unit cell dimensions of cheralite are computed to be $a = 6.74$, $b = 7.00$, $c = 6.43 \text{ \AA}$, beta 104.6° .

The name is "from Chera, the ancient Dravidian kingdom which corresponded roughly to the modern territory of Travancore."

M. F.

Görgeyite

HEIMO MAYRHOFER, Görgeyit, ein neues Mineral aus der Ischler Salzlagerstätte. *Neues Jahrb. Mineral.*, Monatsh. **1953**, No. 2, 35-44.

The mineral occurs with glauberite and minor halite and polyhalite in the Leopold horizon, Ischl salt deposit, Austria. Thin tabular crystals with $c(100)$ dominant, also $a(100)$, $s(111)$, and $m(110)$. Luster vitreous, colorless to yellowish, $H. =$ to or greater than that of anhydrite ($3\frac{1}{2}$). $G. = 2.75$ monoclinic-prismatic, $C_{2h} - 2/m$, $a : b : c = 2.53 : 1 : 2.70$, beta $113^\circ 14'$. Cleavage (100) distinct, fracture splintery.

The mineral is biaxial, positive, ns (Na) $\alpha = 1.560$, $\beta = 1.569$, $\gamma = 1.584$, $2V = 79^\circ$. Analysis by W. Zuricker gave: SO_3 54.08, Cl 0.06, CaO 30.04, K_2O 10.82, Na_2O 1.77, R_2O_3 0.18, H_2O^- 0.34, H_2O^+ 2.82, gangue 0.08; sum 100.9%. This corresponds to $\text{K}_2\text{SO}_4 \cdot 5\text{CaSO}_4 \cdot 1-1\frac{1}{2}\text{H}_2\text{O}$, after deducting a little NaCl. Na may replace Ca or may be present as glauberite. The mineral loses little or no weight when boiled in water, but the surface becomes rough.

The name is for R. Görgey, who published many papers on the petrography of Austrian salt deposits.

DISCUSSION: The compound $K_2SO_4 \cdot 5CaSO_4 \cdot H_2O$ has been reported as a phase in the system $K_2SO_4-CaSO_4-H_2O$; see A. E. Hill, *J. Am. Chem. Soc.*, **56**, 1071-1078 (1934).

M. F.

Huntite

G. T. FAUST, *Am. Mineral.*, **38**, 4-24 (1953).

Faheyite

M. L. LINDBERG AND K. J. MURATA, *Am. Mineral.*, **38**, 263-270 (1953).

Sahamalite

H. W. JAFFE, ROBERT MEYEROWITZ, AND H. T. EVANS, JR., *Am. Mineral.*, **38**, 741-754 (1953).

Manganpyrosomalite

CLIFFORD FRONDEL AND L. H. BAUER, *Am. Mineral.*, **38**, 755-760 (1953).

Hydrohausmannite

CLIFFORD FRONDEL, *Am. Mineral.*, **38**, 761-769 (1953).

Woodruffite

CLIFFORD FRONDEL, *Am. Mineral.*, **38**, 761-769 (1953).

Roentgenite

GABRIELLE DONNAY, *Am. Mineral.*, **38**, 868-870 (1953).

GABRIELLE DONNAY AND J. D. H. DONNAY, *Am. Mineral.*, **38**, 932-963 (1953).

Faustite

R. C. ERD, M. D. FOSTER, AND P. D. PROCTOR, *Am. Mineral.*, **38**, 964-972 (1953).

Moraesite

M. L. LINDBERG, W. T. PECORA AND A. L. DE M. BARBOSA, *Am. Mineral.*, **38**, 1126-1133 (1953).

Burbankite

W. T. PECORA AND J. H. KERR, *Am. Mineral.*, **38**, 1169-1183 (1953)..

Calkinsite

W. T. PECORA AND J. H. KERR, *Am. Mineral.*, **38**, 1169-1183 (1953).

Hidalgoite

R. L. SMITH, F. S. SIMONS, AND A. C. VLISIDIS, *Am. Mineral.*, **38**, 1218-1224 (1953).

Montroseite

A. D. WEEKS, E. A. CISNEY, AND A. M. SHERWOOD, *Am. Mineral.*, **38**, 1235-1241 (1953)

H. T. EVANS, JR. AND STANLEY BLOCK, *Am. Mineral.*, **38**, 1242-1250 (1953).

M. F.

DISCREDITED MINERALS

Magnalumboxide (= Spinel)

D. P. SERDIUCHENKO AND V. A. MOLEVA, Spinel from the Archean rocks of Southern Yakutiya. *Doklady Akad. Nauk. S.S.S.R.*, **88**, 547-550 (1953).

The material described by Bobkov and Kazitsyn (see *Am. Mineral.*, **37**, 360 (1952)) as a solid solution of $Mg(Al, Fe)_2O_4$ was re-examined. Three new chemical analyses are given including one from the Gon River; all give $RO:R_2O_3$ very nearly 1:1 and the optical and x-ray data correspond in every way to spinel. The analysis cited by Bobkov and Kazitsyn, which gave FeO 0.99, Fe_2O_3 11.37, was apparently in error, the new analysis from Gon River giving FeO 8.23, Fe_2O_3 3.28%.

N. EFREMOV

Crestmoreite, Riversideite (= mixtures of Tobermorite and Wilkeite)

H. F. W. TAYLOR, Crestmoreite and riversideite. *Mineralog. Mag.*, **30**, 155-165 (1953).

X-ray study and a new chemical analysis, made on type materials, show that both crestmoreite and riversideite are submicroscopic intergrowths of tobermorite ($CaSiO_3 \cdot nH_2O$) and wilkeite.

MICHAEL FLEISCHER

Belyankite (= Creedite)

L. P. ERMILOVA AND V. A. MOLEVA, Creedite from Kazakhstan. *Doklady Akad. Nauk S.S.S.R.*, **88**, 905-908 (1953).

A new analysis, x-ray powder data and optical data, and differential thermal analysis show that belyankite is identical with creedite. Compare *Am. Mineral.*, **37**, 785-790 (1952).

M. F.

Arequipite (= Bindheimite)

BRIAN MASON AND C. J. VITALIANO, The mineralogy of the antimony oxides and antimonates. *Mineralog. Mag.*, **30**, 100-112 (1953).

Arequipite, described in 1878 by Raimondi as a silicoantimonate of lead, is found by optical and x-ray study of type material to be a mixture of bindheimite and quartz.

M. F.

Coronguite (= argentian Bindheimite)

B. MASON AND C. J. VITALIANO, *op. cit.*

Coronguite, described in 1878 by Raimondi as an antimonate of lead and silver, gave an x-ray powder photograph identical with that of bindheimite and is presumably an argentian variety, perhaps intermediate between bindheimite and stetefeldtite.

M. F.

Flajolotite (= Tripuhyite)

B. MASON AND C. J. VITALIANO, *op. cit.*

X-ray study shows that flajolotite (Lacroix, 1910) is identical with tripuhyite (Hussock and Prior, 1897). Since tripuhyite is found to be isostructural with bystromite, the formula $FeSbO_4$ is more probable than $Fe_2Sb_2O_7$.

M. F.

Chlorastrolite (=Pumpellyite)

D. S. COOMBS, The pumpellyite mineral series. *Mineralog. Mag.*, **30**, 113-135 (1953).

The light bluish-green pebbles from Isle Royale, Lake Superior, named chlorastrolite by Whitney in 1847, had previously been referred to thomsonite and to prehnite, but are shown to be pumpellyite by optical, x-ray, and chemical study.

M. F.

Buszite (=Bastnaesite)

J. GONI AND C. GUILLEMIN, Une espèce minérale discréditée. Buszite=Bastnaésite. *Bull. soc. franc. mineral. et crist.*, **76**, 124-129 (1953).

Buszite, described in 1929 as a rare earth silicate from Khan, S. W. Africa, is shown by chemical analysis, optical and x-ray study, goniometric measurements, and differential thermal analysis to be bastnaesite.

M. F.

Apoanalcite (=Natrolite)

CHRISTOFFER OFTEDAHL, On "apoanalcite" and hydronephelite. *Norsk Geol. Tids.*, **30**, 1-4 (1952).

This supposedly new zeolite (Ofstedahl, 1947) is shown by optical and x-ray study to consist mainly of natrolite with a small amount of another mineral, perhaps hydronephelite.

M. F.

Zebedassite (=Saponite)

FIorenzo MAZZI, Riesame della zebedassite. *Rend. soc. mineral. Ital.*, **8**, 134-140 (1952).

Chemical analysis, x-ray powder data, differential thermal analysis, and base exchange determinations show zebedassite to be a saponite.

M. F.

Cryptomorphite (=Ginorite)

M. H. HEY AND F. A. BANNISTER, The identity of cryptomorphite and ginorite. *Mineralog. Mag.*, **29**, 955-959 (1952).

X-ray, optical, and chemical data show that cryptomorphite (How, 1861) is a mixture of sodium sulfate and ginorite (D'Achiardi, 1934). The name cryptomorphite should be dropped.

Belyankite (=Creedite)

M. FLEISCHER, *Am. Mineral.*, **37**, 785-790 (1952).

**Cervantite, Stibianite, Volgerite,
Hydroromeite (all =Stibiconite)**

C. J. VITALIANO AND BRIAN MASON, *Am. Mineral.*, **37**, 982-999 (1952).

Arsenostibite (=Arsenian stibiconite)

VITALIANO AND MASON, *loc. cit.*

Stibioferrite (=Mixture of bindheimite and jarosite)

VITALIANO AND MASON, *loc. cit.*

Rivotite (= Mixture of stibiconite and malachite)VITALIANO AND MASON, *loc. cit.***Barcenite (= Mixture of stibiconite and cinnabar)**VITALIANO AND MASON, *loc. cit.***Guadarramite (= Mixture of ilmenite and monazite)**G. SWITZER, *Am. Mineral.*, **37**, 1061 (1952).

M. F.

Ferroschallerite (= ferroan friedelite)CLIFFORD FRONDEL AND L. H. BAUER, *Am. Mineral.*, **38**, 755-760 (1953).**Christensenite (= tridymite)**BRIAN MASON, *Am. Mineral.*, **38**, 866-867 (1953).**Duplexite (= bavenite)**MICHAEL FLEISCHER AND GEORGE SWITZER, *Am. Mineral.*, **38**, 988-993 (1953).**Nicolayite, Hydrothorite, Maitlandite, Mackintoshite, Hyblite
(all = thorumite)**CLIFFORD FRONDEL, *Am. Mineral.*, **38**, 1007-1018 (1953).**Tinzenite (= manganoox axinite)**C. MILTON, F. A. HILDEBRAND, AND A. M. SHERWOOD, *Am. Mineral.*, **38**, 1148-1158 (1953).

M. F.

NEW DATA

TobermoriteG. F. CLARINGBULL AND M. H. HEY, A re-examination of tobermorite. *Mineralog. Mag.*, **29**, 96-962 (1952).A new analysis of tobermorite (Heddle, 1880) by D. I. Bothwell gave SiO₂ 46.17, Al₂O₃ 4.26, FeO 0.15, MgO trace, CaO 35.15, Na₂O 0.56, K₂O 0.25, H₂O 13.47; sum 100.01%. G. = 2.458, mean *n* 1.558. X-ray powder data show the mineral to be distinct from gyrolite and to be close to synthetic hydrated calcium silicate. The composition is regarded as CaSiO₃·H₂O with replacement of 3Ca by 2Al and of Ca by (Na, K)₂.

M. F.

PartziteBRIAN MASON AND C. J. VITALIANO. The mineralogy of the antimony oxides and antimonates. *Mineralog. Mag.*, **30**, 100-112 (1953).

X-ray study of type material (Arents, 1867) showed it to be mainly composed of a bindheimite-like mineral, with quartz and limonite present. Considerable variations in index of refraction (1.61 to 1.82) and specific gravity (2.98 to 3.96) were observed; spectro-

graphic determinations showed variations, but Cu and Sb were dominant in all specimens, with some Fe and Ag present, and Ca ranging from a trace to several per cent. Partzite may be regarded as the copper analogue of bindheimite.

M.F.

Stetefeldtite

BRIAN MASON AND C. J. VITALIANO, The mineralogy of the antimony oxides and antimonates. *Mineralog. Mag.*, **30**, 100-112 (1953).

X-ray study of type material from Belmont, Nevada (Riotte, 1867) showed that it consisted of a bindhemite-like mineral with chalcocite and pyrite. Spectrographic analysis showed that silver and antimony were the major metallic elements. Recalculation of the original analysis gives per unit cell $\text{Ag}_{8.3}\text{Sb}_{11.4}(\text{O}, \text{OH}, \text{H}_2\text{O})_{60.6}$. Stetefeldtite is therefore the silver analogue of bindheimite.

M.F.