

A
SYSTEM
OF
MINERALOGY.

DESCRIPTIVE MINERALOGY,

COMPRISING THE
MOST RECENT DISCOVERIES.

BY

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CRUSTACEA, ETC.

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"Hæc studia nobiscum peregrinantur....rusticantur."

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C

3. *Burby; File Ore* (Ziegeler's *Germ.*). Brick-red or reddish-brown and earthy, often mixed with red oxyd of iron; sometimes nearly black.

The *Apatimora*, or *iber-ora*, of Breithaupt has a liver-brown color. Von Bibra found (J. pr. Ch., xvi. 208) the file-ore of Algodon bay, Bolivia, to contain chlorine, and to be a mixture of atacamite, cuprite, hematite, and other earthy material; he obtained for one, atacamite 81.32, cuprite 10.85, sesquioxyd of iron 20.50, gangue 84.42, water, antimony, and loss 2.87. In two others, atacamite 28.40, 33.25, cuprite 12.77, 13.02, limonite 25.00, 19.07, gangue 30.81, 32.57, water, antimony and loss 8.02, 2.08.

Fyr., etc.—Unaltered in the closed tube. B.B. in the forceps fuses and colors the flame emerald-green; if previously moistened with muriatic acid, the color imparted to the flame is momentarily azure-blue from chlorid of copper. On charcoal first blackens, then fuses, and is reduced to metallic copper. With the fluxes gives reactions for oxyd of copper. Soluble in concentrated muriatic acid.

Obs.—Occurs at Camisdorf and Sealfeld in Thuringia; at Les Capanne Vecchie in Tuscany; on Elba, in cubes; in Cornwall, in fine translucent crystals with native copper and quartz, at Wheal Gorland and other Cornish mines; in Devonshire near Tavistock; in isolated crystals, sometimes an inch in diameter, in lithomarge, at Oheesy, near Lyons, which are generally coated with malachite; at Katherinenberg in Siberia; in South Australia; also abundant in Obill, Peru, Bolivia, the crystals in which regions, as far as examined by D. Forbes, are simple cubes (private communication); very fine crystals from Andacollo near Coquimbo.

It has been observed at Schuyler's, Somerville, and Flemington copper mines, N. J., crystallized and massive, associated with chrysocolla and native copper; also near New Brunswick, N. J., in red shale; 2 m. from Ladenton, Rockland Co., N. Y., with green malachite in trap; at Cornwall, Lebanon Co., Pa.; in the Lake Superior region.

When found in large quantities this species is valuable as an ore of copper.

Named *cuprite* by Haldinger from the Latin *cuprum*, copper. Chapman's name *ruberite* (from the Latin *ruber*, red) is prior in date (l. c.); but the laws of derivation would change it to *rubrite*; and instead of introducing this altered name, that next in priority, already long used, is here adopted.

Alt.—A deoxydation of this oxyd of copper sometimes takes place, producing native copper. It also becomes carbonated and green, by means of carbonated waters, changing to malachite or azurite; or through a silicate in solution it is changed to chrysocolla; or by taking oxygen it becomes melaconite. Limonite occurs as a pseudomorph by substitution after cuprite.

173. PERIOLASITE. Periclasia Scacchi, Mem. Min., Naples, 1841. Periklas *Germ.*

Isometric. Figs. 1, 2. Cleavage: cubic, perfect. Also in grains.

H. = nearly 6. G. = 3.674, Damour. Color grayish to dark-green. Transparent to translucent.

Comp.—Mg; or magnesia, with 1 part in 25 of protoxyd of iron. Analyses: 1, Scacchi (l. c.); 2, 3, Damour (Ann. d. M., IV. iii. 360, and Bull. Soc. G. Fr., 1849, 313):

| | | |
|----|----------|--------------------------|
| 1. | Mg 89.04 | Fe 8.56 = 97.60 Scacchi. |
| 2. | 93.86 | 5.97 = 99.83 Damour. |
| 3. | 93.98 | 6.01 = 99.99 Damour. |

Fyr., etc.—B.B. unaltered and infusible. With cobalt solution after long blowing assumes a faint flesh-red color. The pulverized mineral shows an alkaline reaction when moistened, and dissolves in mineral acids without effervescence.

Obs.—Occurs disseminated through ejected masses of a white limestone, and in spots of small clustered crystals, on Mt. Somma, sometimes with forsterite and earthy magnesite.

Named from *περί*, about, and *ελάσις*, cleavage.

Artif.—Formed in crystals of a cubo-octahedral form by making lime to act at a high temperature on borate of magnesia (Ebelmen); by the action of etherhydric gas on magnesia (Deville); by the action of chlorid of magnesium on lime (Daubrée).

174. BUNSENITE. Nickeloxydul *A. Bergemanns*, J. pr. Ch., lxxv. 243, 1858. Protoxyd of Nickel. Bunsenite *Dana*.

Isometric. In octahedrons, sometimes having truncated edges.

H. = 5.5. G. = 6.398. Lustre vitreous. Color pistachio-green. Streak brownish-black. Translucent. [Characters of minute crystals half a line

in diameter.] Artificial crystals observed in slags have a metallic lustre, and brownish-black color.

Comp.—Ni, or pure protoxyd of nickel.

Obs.—Occurs in cavities with other nickel ores, and ores of uranium, at Johannsorgenstadt (C. Bergemann, *J. pr. Ch.*, lxxv. 239).

Named after Prof. Bunsen, who observed long since artificial crystals of this oxyd of nickel.

175. WATER.

Hexagonal. Usual in compound stellate forms, one form of which is shown in f. 136.

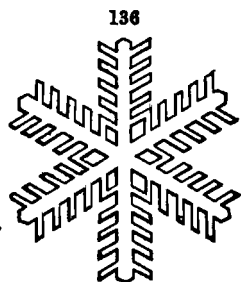
G.=0.918, Brummer; 0.9178 at 32° F., L. Dufour. Colorless. Inodorous. Tasteless. Liquid above 32° F., and boils at 212° F. A cubic inch of pure water at 60° F., and 30 inches of the barometer, weighs 252.458 grains.

Comp.—HO=Oxygen 88.89, hydrogen 11.11=100.

Obs.—The density of water is greatest at 39° 1 F., according to Joule and Playfair. Despretz obtained 39° 176; Mallström 39° 38; Blagden and Gilpin 39°; Hope 39° 5; Muncke 38° 804. Below this temperature it expands as it approaches 32°, owing to incipient crystallization.

Water as it occurs in nature is seldom pure. It ordinarily contains some atmospheric air, often pure oxygen and carbonic acid, besides various saline ingredients, as salts of magnesia, lime, iron, soda, potash, and sometimes traces of zinc, arsenic, lead, copper, antimony, and even tin, these ingredients being derived from the rocks or soil of the region. For citation of numerous recent analyses of waters, see Keungott's *Uebersicht*, 1844-1862; also the *Jahresbericht f. Ch.*, etc.

Obs.—See on the Crystallization of Ice, Leydolt, *Ber. Ak. Wien*, vii. 477. Also A. E. Norden-skiöld, who states that it is dimorphous; one form probably orthorhombic (*J. pr. Ch.*, lxxxv. 431).



176. ZINCITE. Red Oxyd of Zinc *A. Bruce*, *Bruce's Min. J.*, i, No. 2, 96, 1810. Zinkoxyd, *Rothzinkerz, Germ.* Zinc oxyd *Fr.* Red Zinc Ore. Zinkit *Haid.*, *Handb.*, 548, 1845. Spar-talite *B. & M.*, 218, 1852.

Hexagonal. $O \wedge 1 = 118^\circ 7'$; $a = 1.6208$. In quartzoids with truncated summits, and prismatic faces I . $1 \wedge 1 = 127^\circ 40'$ (to $43'$), Rose; $I \wedge 1 = 151^\circ 53'$; $152^\circ 20'$, Levy. Cleavage: basal, eminent; prismatic. Sometimes distinct. Usual in foliated grains or coarse particles and masses; also granular.

H.=4-4.5. G.=5.43-5.7. 5.684, orange-yellow crystals, W. P. Blake. Lustre subadamantine. Streak orange-yellow. Color deep red, also orange-yellow. Translucent—subtranslucent. Fracture subconchoidal. Brittle.

Comp.—Zn=Oxygen 19.74, zinc 80.26=100; containing oxyd of manganese as an unessential ingredient. Analyses: 1, Bruce (l. c.); 2, Berthier (*Ann. d. M.*, iv. 483); 3, 4, Whitney (*Pogg.*, lxxi. 169); 5, A. A. Hayes (*Am. J. Sci.*, xlviii. 261); 6, W. P. Blake (*Mining Mag.*, II. ii. 94, 1860):

| | Zn | Mn | Mn | Fe | |
|-----------|-------|------|----|------|--------------------------------------|
| 1. Red | 92 | — | — | 8 | =100 Bruce. |
| 2. " | 88 | — | 12 | — | =100 Berthier. |
| 3. " | 84.45 | — | — | tr. | Frankl. 4.49, ign. 1.09=100.03 Whit. |
| 4. " | 96.19 | — | — | 3.70 | undec. 0.10=99.99 Whitney. |
| 5. " | 93.48 | 5.50 | — | 0.36 | scales Fe 0.44=99.78 Hayes. |
| 6. Yellow | 99.47 | — | — | 0.68 | ign. 0.23=100.38 Blake. |