Reviews and Notices.

On the remarkable new Mineral locality in Fairfield County, Connecticut, &c., by GEO. J. BRUSH and E. S. DANA.

UNDER this title the authors describe* a remarkable assemblage of seven well-defined mineral phosphates, four of which, viz., Eosphorite, Dickinsonite, Triploidite, and Lithiophilite, have already been adverted to in the pages of the Mineralogical Magazine, vol. II, p. 100. The other three are named Reddingtonite, Fairfieldite, and Fillowite respectively.

The chief characters of all the seven are given in a tabular form below for easy reference.

	H	G	APPEARANCE.	FUS.
Eosphorite ..	5	3·132—3·145,	often resembles green elæolite	4
Triploidite ..	4·5-5	3·697 ..	yellowish to reddish-brown	1
Dickinsonite ..	3·5-4	3·338 ..	various shades of green ..	1
Lithiophilite ..	4·	3·424 ..	salmon-coloured	1-1·5
Reddingtonite	3-3·5	3·102 ..	yellowish-white	2
Fairfieldite ..	3·5	3·15 ..	white to pale straw-yellow	4·5
Fillowite ..	4·5	3·41—3·45	yellowish to reddish-brown	1·5
Altered *Lithiophilite*	3-4	3·26—3·40	black to purple	

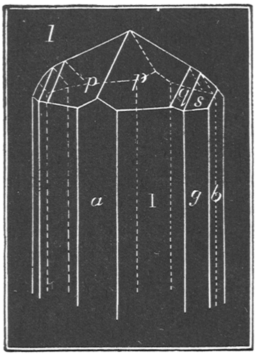
Lithiophilite is anhydrous, the others are hydrous; all are soluble in HCl or HNO_3; all are transparent to translucent.

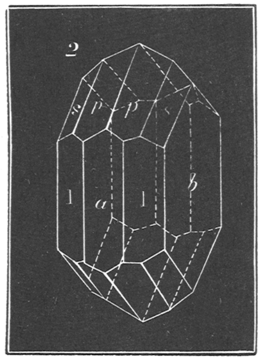
The formulæ of the minerals is given below.

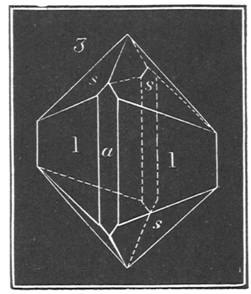
Eosphorite ..	$R_2Al_2P_2O_{10}, 4H_2O$	or	$Al_2P_2O_8+2H_2Mn(Fe)O_2+2H_2O$
Triploidite ..	$R_4P_2O_9, H_2O$	or	$Mn_3(Fe_3)P_2O_8+Mn(Fe)H_2O$
Dickinsonite	$4(R_3P_2O_8), 3H_2O$	or	$4(MnFeCaNa_2)\ 3P_2O_8+3H_2O$
Lithiophilite	$LiMnPO_4$	or	$Li_3PO_4+Mn_3P_2O_8$
Reddingtonite	$R_3P_2O_8, 3H_2O$	or	$Mn_3(Fe_3)P_2O_8+3H_2O$
Fairfieldite ..	$R_3P_2O_8, 2H_2O$	or	$Ca_3(Mn_3Fe_3)P_2O_8+2H_2O$
Fillowite ..	$3R_3P_2O_8, H_2O$	or	$3(MnFeCaNa_2)_3P_2O_8\ ;\ H_2O$

* Am. Journ. Sci., July and August, 1878, and May 1879.

Eosphorite is Rhombic in crystallization, the form being related to Childrenite as shewn in the accompanying figures, where fig. 1 represents one of the crystals, while fig. 2 is a crystal of Childrenite, from Hebron, Maine; and fig. 3 a crystal of Childrenite, from Tavistock; the three crystals being drawn in similar positions.

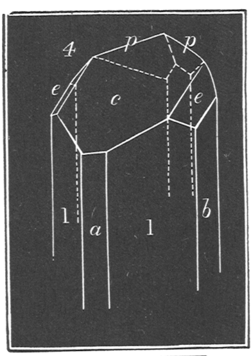




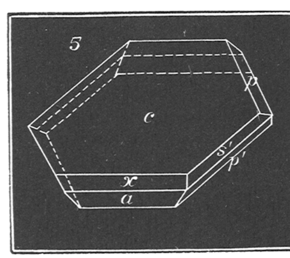


In order to bring the crystals of Childrenite into this position, the clinodome (n of Miller) is made the unit prism. The crystals are distinctly trichroic. The axial colours are as follows:—

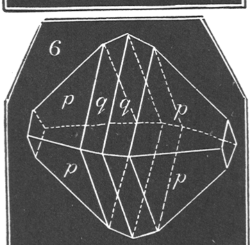
α (b Miller) yellowish.
β (a Miller) deep pink.
γ (c Miller) faint pink.



Triploidite is oblique and homeomorphous, with Wagnerite; the form of the crystals is given in fig. 4.



Dickinsonite is also oblique, but the crystals have a marked rhombohedral (hexagonal) aspect, as seen in fig. 5. It is distinctly dichroic.

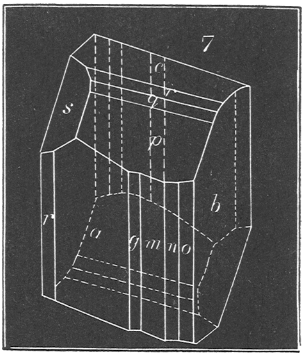


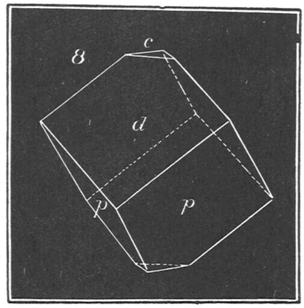
Reddingtonite is *Rhombic*, and nearly related in form to Scorodite and Strengite (this Magazine Vol. II, p. 99). The axial ratios of the three species are as follows:

	c *(vert)*	$\bar{b}$	$\breve{a}$
Reddingtonite....	1·0930	1·1524	1·
Scorodite (*Vom Rath.*)	1·1020	1·1530	1·
Strengite *(Nies)*....	1·1224	1·1855	1·

Fig. 6 represents a crystal of Reddingtonite.

Fairfieldite is Anorthic, as shewn in fig. 7.





Fillowite is oblique, but with distinctly rhombohedral aspect, as shewn in fig. 8.

STIBIANITE.—(E. GOLDSMITH, *Proc. Acad. Nat. Sci., Philadelphia,* 1878, *p.* 154.)—This mineral is from Victoria, Australia. It is massive, somewhat porous, reddish-yellow, but not uniformly; dull; H=5; G=3·66 BB on with soda C, yields antimony reactions, gives no colour to a bead of micro. In matrass yields water, soluble in HCl, Aqua Regia, KHO and SHAm; the solubility in KHO indicates absence of antimonious acid, while a solution of sulphate of copper shews presence of antimonic acid.

Analysis shews—94·79 p.c. of antimonic anhydride, and 5·21 of water, yielding the formula $Sb_2O_5H_2O$.

STAFFELITE.—(*Ibid p.* 157).—This occurs on the well-known Amazon stone of Pike's Peak, Colorado.

HUNTILITE.—(*Wurtz. Engineer and Min. Journ., N. Y., Jan.* 25, 1879). Occurs in two varieties. The most abundant variety is amorphous—often porous, dark slate-grey or almost black; dull. The crystalline variety is cleavable in one direction, and of a lighter slate-colour. H about 2·5, streak bronze-coloured, sub-malleable. Probable formula $As Ag_3$. Occurs at the Silver Islet Mine, Lake Superior. Named after Dr. Sterry Hunt.

RANDITE.—(G. A. KOENIG, *Proc. Acad. Nat. Sci., Phil.,* 1878, 408.) Earthy probably crystalline; H=2·3. Probable formula $Ca_5 U_2 C_6 O_{20} + 3H_2O$, which would place it near Liebigite. Named after Dr. D. Rand, of Philadelphia.

ANIMIKITE.—(*Ibid.*)—Occurs alone or with Huntilite; G=9·45; white or grayish-white; fracture fine granular; conchoidal. Analysis gives

Sb.	11·18
As.	·35
S.	1·49
Hg.	·99
Ag.	77·58
Co.	2·10
Ni.	1·90
Fe.	1·68
Zn.	·30
Gangue.	1·68
Total	99 25

Found at Silver Islet Mine, Lake Superior. Named from an Indian word meaning *Thunder*—whence Thunder Bay.

HANNAYITE.—(VOM RATH. BALL, *Soc, Min.*, *France*, 79, 1879.)—Triclinic. Basal cleavage perfect, less perfect parallel to two prismatic planes. G=1·893. Mean of two analyses gave

P_2O_5	45·70
MgO	18·90
NH_3	8·09
H_2O	28·20
	100·89

21·08 p.c. of water lost between 100° and 120° C. Found at the Skipton Caves, Victoria.

NEWBERYITE.—(*Ibid.*)—Rhombic. Cleavage brachydiagonal, perfect; basal, imperfect; analysis gave

P_2O_5	41·25
MgO (diff) ..	23·02
H_2O	35·73
	100·00

Probable formula $Mg_2P_2O_7 + 7Aq$. Found at Skipton Caves, Victoria, with Hannayite.