Curetonite **$Ba(Al,Ti)(PO_4)(OH,O)F$**

Crystal Data: Monoclinic. *Point Group:* $2/m$. Crystals commonly euhedral, to 3 mm, may be elongated along [001], showing {100}, {010}, {001}, {011}, and $\{\overline{2}01\}$; may be wedgelike. *Twinning:* Polysynthetic, common on {100}, producing broad lamellae with imperfect composition planes.

Physical Properties: *Cleavage:* On {011}, good; a parting on {010}. *Tenacity:* Brittle. Hardness = 3.5 D(meas.) = 4.42(5) D(calc.) = 4.31

Optical Properties: Semitransparent. *Color:* Bright yellow-green to nickel-green; colorless in thin section. *Streak:* White.
Optical Class: Biaxial (+). *Pleochroism:* In patchy yellows. *Orientation:* $X = b$; $Z \wedge c = 30°$. *Dispersion:* $r < v$, weak, strongly inclined. *Absorption:* $X \gg Y = Z$. $\alpha = 1.676$ $\beta = 1.680$ $\gamma = 1.693$ 2V(meas.) = 60° 2V(calc.) = 58.4°

Cell Data: *Space Group:* $P2_1/n$. $a = 6.977(2)$ $b = 12.564(4)$ $c = 5.223(1)$ $\beta = 102.15(2)°$ Z = 4

X-ray Powder Pattern: Near Golconda, Nevada, USA.
3.230 (10), 3.286 (8), 2.991 (6), 2.816 (6), 4.290 (5), 2.848 (5), 3.568 (4)

Chemistry:

	(1)	(2)
P_2O_5	23.39	22.83
V_2O_5	1.27	0.65
TiO_2	6.84	4.08
Al_2O_3	12.81	13.20
MgO		0.27
SrO		0.10
BaO	53.09	51.30
F	n.d.	6.46
H_2O	2.46	[2.50]
$-O = F_2$		2.72
Total	99.86	[98.67]

(1) Near Golconda, Nevada, USA; by electron microprobe, Ti and V by wet methods, H_2O by the Penfield method. (2) Do.; by electron microprobe, H_2O calculated from stoichiometry; corresponds to $(Ba_{1.02}Mg_{0.02})_{\Sigma=1.04}(Al_{0.79}Ti_{0.16})_{\Sigma=0.95}[(P_{0.98}V_{0.03})_{\Sigma=1.01}O_4][(OH)_{0.85}O_{0.11}]_{\Sigma=0.96}F_{1.04}$.

Occurrence: A rare mineral, in veins cutting a replacement barite deposit.

Association: Orthoclase, barite, variscite, montgomeryite, englishite, sulvanite, hisingerite, "opal".

Distribution: In the Redhouse Barite mine, near Golconda, Potosi district, Humboldt Co., Nevada, USA.

Name: In honor of Forrest Ellsworth Cureton II (1932–), mineral dealer and collector, Tucson, Arizona, USA, and Michael Edward Cureton (1960–), mineral collector, Stockton, California, USA, who first found the mineral.

Type Material: The Natural History Museum, London, England, 1979,205; Harvard University, Cambridge, Massachusetts, 119100; National Museum of Natural History, Washington, D.C., USA, 145621.

References: (1) Williams, S.A. (1979) Curetonite - a new phosphate from Nevada. Mineral. Record, 10, 219–221. (2) (1980) Amer. Mineral., 65, 206 (abs. ref. 1). (3) Cooper, M. and F.C. Hawthorne (1994) The crystal structure of curetonite, a complex heteropolyhedral sheet mineral. Amer. Mineral., 79, 545–549.