Yeatmanite $Mn_9^{2+}Zn_6Sb_2^{5+}Si_4O_{28}$

Crystal Data: Triclinic. *Point Group:* $\bar{1}$. As euhedral crystals, typically lath-shaped, rarely pseudohexagonal by twinning; as warped foliae. *Twinning:* Multiple lamellar on {010}; also on {023}.

Physical Properties: *Cleavage:* Perfect on {100}. *Tenacity:* Brittle. Hardness = 4
D(meas.) = 5.02 D(calc.) = 5.04

Optical Properties: Semitransparent. *Color:* Clove-brown. *Streak:* Very light brown. *Optical Class:* Biaxial (–). *Orientation:* $X \perp$ {100} cleavage. *Dispersion:* $r > v$, distinct.
$\alpha = 1.864(4)$ $\beta = 1.895(4)$ $\gamma = 1.905(2)$ 2V(meas.) = 52° 2V(calc.) = 59°

Cell Data: *Space Group:* $P\bar{1}$. $a = 5.604(2)$ $b = 11.602(7)$ $c = 9.058(4)$ $\alpha = 92°10(3)'$
$\beta = 100°54(2)'$ $\gamma = 77°18(5)'$ Z = 1

X-ray Powder Pattern: Franklin, New Jersey, USA.
2.969 (100), 2.782 (60), 2.587 (60), 2.474 (60), 1.605 (60), 2.547 (40), 2.146 (40)

Chemistry:

	(1)
SiO_2	14.7
Sb_2O_5	18.9
FeO	1.0
MnO	37.8
ZnO	29.1
MgO	0.0
Total	101.5

(1) Franklin, New Jersey, USA; by electron microprobe, corresponds to $Mn_{8.89}Zn_{5.97}Sb_{1.95}Fe_{0.23}Si_{4.08}O_{28}$.

Occurrence: In veins in massive granular ore in a metamorphosed stratiform zinc deposit.

Association: Sarkinite, willemite, calcite, diopside, andradite, roméite.

Distribution: From Franklin, Sussex Co., New Jersey, USA.

Name: For Pope Yeatman (1861–1953), mining engineer at Franklin, New Jersey, USA.

Type Material: National School of Mines, Paris, France; Harvard University, Cambridge, Massachusetts, 92878; National Museum of Natural History, Washington, D.C., USA, C6290.

References: (1) Palache, C., L.H. Bauer, and H. Berman (1938) Yeatmanite, a new mineral, and sarkinite from Franklin, New Jersey. Amer. Mineral., 23, 527–530. (2) Moore, P.B. (1966) Catoptrite and yeatmanite – stuffed pyrochroite structures? Amer. Mineral., 51, 1494–1500. (3) Moore, P.B., T. Araki, and G.D. Brunton (1976) Catoptrite, $(Mn_5^{2+}Sb_2^{5+})(Mn_8^{2+}Al_4Si_2)O_{28}$, a novel close-packed oxide sheet structure. Neues Jahrb. Mineral., Abh., 127, 47–61. (4) Dunn, P.J. and P.B. Leavens (1980) Yeatmanite: new data. Amer. Mineral., 65, 196–199. (5) Kato, T. (1986) The crystal structure of yeatmanite. Mineral. J. (Japan), 13, 53–64.