Billingsleyite $Ag_7(As,Sb)S_6$

Crystal Data: Orthorhombic. *Point Group:* n.d. Fine-grained aggregates.

Physical Properties: *Tenacity:* Slightly sectile. Hardness = 2.5 VHN = n.d.
D(meas.) = 5.92(2) D(calc.) = 5.90

Optical Properties: Opaque. *Color:* Dark lead-gray. *Luster:* Metallic.
R_1–R_2: n.d.

Cell Data: *Space Group:* n.d. $a = \sim 14.82$ $b = \sim 14.82$ $c = 10.48$ $Z = 8$

X-ray Powder Pattern: Tintic, Utah, USA.
3.05 (10), 3.19 (7), 3.53 (6), 2.83 (6), 2.49 (6), 3.34 (5), 6.11 (4)

Chemistry:

	(1)
Ag	75.59
Cu	0.02
Fe	0.06
As	5.73
Sb	1.50
S	16.28
insol.	0.61
Total	99.79

(1) Tintic, Utah, USA; corresponding to $Ag_7(As_{0.86}Sb_{0.14})_{\Sigma=1.00}S_6$.

Occurrence: Believed to have occurred in a body of high-grade silver ore.

Association: Acanthite, tennantite, bismuthinite, galena, pyrite.

Distribution: In the North Lily mine, East Tintic district, Utah Co., Utah, USA [TL].

Name: For Paul Billingsley (1887–1962), mining geologist, who discovered the North Lily mine, and collected the type material.

Type Material: National School of Mines, Paris, France; Harvard University, Cambridge, Massachusetts, 110530; National Museum of Natural History, Washington, D.C., USA, R18987.

References: (1) Frondel, C. and R.M. Honea (1968) Billingsleyite, a new silver sulfosalt. Amer. Mineral., 53, 1791–1798.