Ralphcannonite $AgZn_2TlAs_2S_6$

Crystal Data: Tetragonal. *Point Group*: $\bar{4}$ 2*m*. As intergrown equant crystals to 50 μm, displaying {110}, {001}, {101}, {111}, and {100}.

Physical Properties: *Cleavage*: None observed. *Fracture*: Irregular. *Tenacity*: Brittle. Hardness = 2-2.5 VHN = 116-128, 120 average (30 g load). D(meas.) = n.d. D(calc.) = 4.927

Optical Properties: Opaque. *Color*: Black; grayish in reflected light, with very weak internal reflections. *Streak*: Black. *Luster*: Metallic.
Optical Class: n.d. *Anisotropism*: Weak; grayish to light blue.
R_1-R_2: (471.1) 25.8- 27.1, (548.3) 25.2-26.6, (586.6) 24.6-25.8, (652.3) 23.9-24.8

Cell Data: *Space Group*: $I\bar{4}$ 2*m*. a = 9.861 (2) c = 11.125(3) Z = 4

X-ray Powder Pattern: Calculated.
2.954 (100), 4.100 (85), 3.471 (40), 2.460 (39), 2.465 (24), 2.656 (20), 3.118 (17)

Chemistry:	(1)
Cu	2.01
Ag	8.50
Zn	10.94
Fe	3.25
Hg	7.92
Tl	24.58
As	18.36
Sb	0.17
S	24.03
Total	99.76

(1) Lengenbach quarry, Binn Valley, Wallis, Switzerland; average electron microprobe analysis; corresponding to $(Ag_{0.63}Cu_{0.25}Zn_{1.35})Fe_{0.47}Hg_{0.32}Tl_{0.97}(As_{1.97}Sb_{0.01})_{\Sigma=1.98}S_{6.03}$.

Occurrence: In massive to interstitial sulfosalt accumulations in metamorphosed (upper greenschist to amphibolite facies) dolostone.

Association: Dufrénoysite, hatchite, realgar, baryte.

Distribution: From the Lengenbach quarry, Binn Valley, Wallis, Switzerland.

Name: Honors *Ralph Cannon* (b. 1956) for his contributions to the mineralogy of the Lengenbach quarry.

Type Material: Museum of Natural History, University of Florence, Italy (3145/1).

References: (1) Bindi, L., C. Biagioni, T. Raber, P. Roth, and F. Nestola (2015) Ralphcannonite, $AgZn_2TlAs_2S_6$, a new mineral of the routhierite isotypic series from Lengenbach, Binn Valley, Switzerland. Mineral. Mag., 79(5), 1089-1098. (2) (2016) Amer. Mineral., 101, 2130 (abs. ref. 1).