## Skinnerite

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**Crystal Data:** Monoclinic. *Point Group:* 2/m. As irregular grains, to 0.1 mm. *Twinning:* Microscopic to submicroscopic about  $\{001\}$ .

**Physical Properties:** Hardness = n.d. VHN = 148-166 (50 g load). D(meas.) = n.d. D(calc.) = 5.10

**Optical Properties:** Opaque, transparent in very thin sections. *Color:* In polished section, pale bluish gray, with deep red internal reflections; very deep red in transmitted light. *Luster:* Metallic. *Pleochroism:* Weak. *Anisotropism:* Distinct; pale purple to grayish yellow.  $R_1-R_2$ : n.d.

**Cell Data:** Space Group:  $P2_1/c$ . a = 7.814(1) b = 10.242(1) c = 13.273(1)  $\beta = 90.29(1)^{\circ}$  Z = 8

X-ray Powder Pattern: Synthetic.

2.830 (100), 2.628 (90), 2.619 (90), 3.911 (80), 3.208 (70), 3.192 (70), 3.048 (70)

Chemistry:		(1)	(2)
	Cu	46.08	46.66
	Ag	2.01	
	$\mathbf{Sb}$	29.06	29.80
	S	22.79	23.54
	Total	99.94	100.00

(1) Ilímaussaq intrusion, Greenland; by electron microprobe, average of 15 analyses; corresponding to  $Cu_{3.06}Ag_{0.08}Sb_{1.01}S_{3.00}$ . (2)  $Cu_3SbS_3$ .

**Occurrence:** In a complex of analcime-natrolite veins cutting naujaites (Ilímaussaq intrusion, Greenland).

**Association:** Sénarmontite, valentinite, tetrahedrite, antimony, chalcostibite, löllingite, galena, natrolite, analcime, ussingite, sodalite, feldspars, acmite, arfvedsonite, steenstrupine-(Ce) (Ilímaussaq intrusion, Greenland).

**Distribution:** From the Ilímaussaq intrusion, southern Greenland [TL]. In the Clara mine, near Oberwolfach, Black Forest, Germany. At Košice, Czech Republic. From near Belmont, Belmont district, Nye Co., Nevada, USA.

**Name:** In honor of Professor Brian John Skinner (1928–), Australian-American economic geologist, Yale University, New Haven, Connecticut, USA.

**Type Material:** University of Copenhagen, Copenhagen, Denmark, 1979.1121; Mineralogical-Petrographical Institute, University of Bern, Bern, Switzerland.

References: (1) Karup-Møller, S. and E. Makovicky (1974) Skinnerite, Cu<sub>3</sub>SbS<sub>3</sub>, a new sulfosalt from the Ilímaussaq alkaline intrusion, South Greenland. Amer. Mineral., 59, 889–895.
(2) Makovicky, E. (1994) Polymorphism in Cu<sub>3</sub>SbS<sub>3</sub> and Cu<sub>3</sub>BiS<sub>3</sub>: the ordering schemes for copper atoms and electron microscope observations. Neues Jahrb. Mineral., Abh., 168, 185–212.
(3) Makovicky, E. and T. Balić-Žunić (195) The crystal structure of skinnerite, P2<sub>1</sub>/c-Cu<sub>3</sub>SbS<sub>3</sub>, from powder data. Can. Mineral., 33, 655–663.