Stringhamite $CaCuSiO_4 \cdot H_2O$

Crystal Data: Monoclinic. *Point Group:* $2/m$. Crystals well-formed, but smaller than 0.1 mm, dominated by {011} and {101}; also as botryoidal fracture fillings. *Twinning:* Common, perhaps pervasive, on an undetermined law.

Physical Properties: Hardness = n.d. D(meas.) = 3.16–3.18 D(calc.) = 3.67

Optical Properties: Transparent to translucent. *Color:* Deep azure.
Optical Class: Biaxial (+). *Pleochroism:* X = light blue-gray; Y = light blue; Z = dark blue.
Orientation: $X = b$; $Y \wedge c = 2.5°$. $\alpha = 1.709$ $\beta = 1.717$ $\gamma = 1.729$ 2V(meas.) = n.d.
2V(calc.) = 80°

Cell Data: *Space Group:* $P2_1/c$. $a = 5.030(2)$ $b = 16.135(3)$ $c = 5.343(1)$
$\beta = 102.96(1)°$ Z = 4

X-ray Powder Pattern: Bawana mine, Utah, USA.
2.768 (100), 2.523 (40), 3.236 (39), 8.049 (35), 3.928 (34), 1.614 (23), 4.884 (21)

Chemistry:

	(1)	(2)
SiO_2	26.95	28.11
Al_2O_3	0.07	
FeO	0.77	
CuO	33.41	37.22
MgO	0.01	
CaO	25.40	26.24
H_2O	[13.39]	8.43
Total	[100.00]	100.00

(1) Bawana mine, Utah, USA; by electron microprobe, H_2O by difference. (2) $CaCuSiO_4 \cdot H_2O$.

Occurrence: A retrograde reaction product between copper-bearing solutions and diopside in diopside-magnetite tactites (Bawana mine, Utah, USA).

Association: Thaumasite, tenorite, kinoite, calcite (Bawana mine, Utah, USA); kinoite, apophyllite (Christmas, Arizona, USA).

Distribution: In the USA, in the Bawana mine, about six km northwest of Milford, Beaver Co., Utah; at Crestmore, Riverside Co., California; and from the Christmas copper mine, Gila Co., Arizona. In the El Bronce mine, Tierra Amarilla, Copiapó, Chile.

Name: In honor of Bronson Ferrin Stringham (1907–1968), Professor of Mineralogy, University of Utah, Salt Lake City, Utah, USA.

Type Material: National Museum of Natural History, Washington, D.C., USA, 128031; The Natural History Museum, London, England, 1976,421.

References: (1) Hindman, J.R. (1976) Stringhamite, a new hydrous copper calcium silicate from Utah. Amer. Mineral., 61, 189–192. (2) Hawthorne, F.C. (1985) The crystal structure of stringhamite. Tschermaks Mineral. Petrog. Mitt., 34, 15–24.