Stokesite **$CaSnSi_3O_9 \cdot 2H_2O$**

Crystal Data: Orthorhombic. *Point Group:* $2/m\ 2/m\ 2/m$. As prismatic crystals with {100} and {211} dominant; also spherical and radial fibrous aggregates, to 3 cm.

Physical Properties: *Cleavage:* Perfect on {101}, imperfect on {100}. *Fracture:* Conchoidal. *Tenacity:* Brittle. Hardness = ~6 D(meas.) = 3.185 D(calc.) = 3.211

Optical Properties: Transparent. *Color:* Colorless to white; colorless in thin section. *Streak:* White. *Luster:* Vitreous, pearly on {100}.
Optical Class: Biaxial (+). *Orientation:* $X = c$; $Y = a$; $Z = b$. *Dispersion:* $r < v$. $\alpha = 1.609$–1.618 $\beta = 1.612$–1.619 $\gamma = 1.619$–1.628 2V(meas.) = 69.5° 2V(calc.) = 66°40′–70°23′

Cell Data: *Space Group: Pnna.* $a = 14.465$ $b = 11.625$ $c = 5.235$ Z = 4

X-ray Powder Pattern: Roscommon Cliff, England.
3.99 (100), 2.89 (100b), 7.25 (80), 1.556 (70), 5.82 (60), 4.54 (60), 3.55 (60)

Chemistry:

	(1)	(2)	(3)
SiO_2	43.1	42.89	42.61
SnO_2	33.3	35.79	35.62
FeO		0.00	
MnO		0.00	
CaO	13.45	12.86	13.25
H_2O	8.6	[8.46]	[8.52]
Total	98.45	[100.00]	[100.00]

(1) Roscommon Cliff, England. (2) Do.; by electron microprobe, H_2O by difference; corresponding to $Ca_{0.97}Sn_{1.00}Si_{3.01}O_9 \cdot 2.03H_2O$. (3) Corrégo do Urucum, Brazil; by electron microprobe, H_2O by difference; corresponding to $Ca_{1.00}Sn_{1.00}Si_{3.00}O_9 \cdot 2.0H_2O$.

Occurrence: On axinite (Roscommon Cliff, England); in miarolitic cavities in a quartz-albite pegmatite (Věžná, Czech Republic).

Association: Axinite, cassiterite (Roscommon Cliff, England); albite, titanite, beryl, microlite, quartz (Corrégo do Urucum, Brazil).

Distribution: On Roscommon Cliff, St. Just, and in the Halvosso quarry, Longdowns, Cornwall, England. From Ctidružice and Věžná, Czech Republic. In the Pitkäranta district, Lake Lagoda, Karelia. Large spherical masses of crystals from Corrégo do Urucum, near Galiléia, Minas Gerais, Brazil. In the USA, in the Himalaya mine, Mesa Grande district, San Diego Co., California. From the Iwaguro Sekizai quarry, Tahara, Gifu Prefecture, Japan.

Name: For Sir George Gabriel Stokes (1819–1903), Professor of Mathematics, Cambridge University, Cambridge, England.

Type Material: Mineralogical Museum, Cambridge University, Cambridge, England.

References: (1) Dana, E.S. and W.E. Ford (1909) Dana's system of mineralogy, (6th edition), app. II, 100. (2) Gay, P. and Rickson, K.O. (1960) X-ray data on stokesite. Mineral. Mag., 32, 433–435. (3) Vorma, A. (1963) Crystal structure of stokesite, $CaSnSi_3O_9 \cdot 2H_2O$. Mineral. Mag., 33, 615–616. (4) Couper, A.G. and A.M. Clark (1977) Stokesite crystals from two localities. Mineral. Mag., 41, 411–414.