Plancheite $Cu_8Si_8O_{22}(OH)_4 \cdot H_2O$

Crystal Data: Orthorhombic. *Point Group:* $2/m\ 2/m\ 2/m$. Crystals fibrous by extension on [001], striated; commonly as compact radial aggregates.

Physical Properties: Hardness = 6 D(meas.) = 3.65–3.80 D(calc.) = [3.85]

Optical Properties: Translucent. *Color:* Pale blue to deep blue, pale greenish blue.
Luster: Satiny.
Optical Class: Biaxial (+). *Pleochroism:* Marked; X = very pale blue; $Y = Z$ = blue.
Orientation: $X = c$; $Y = b$; $Z = a$. *Absorption:* $Z > X > Y$. $\alpha = 1.697$ $\beta = 1.718$ $\gamma = 1.741$
2V(meas.) = 88.5°

Cell Data: *Space Group: Pcnb.* $a = 19.043(3)$ $b = 20.129(5)$ $c = 5.269(1)$ Z = 4

X-ray Powder Pattern: La Rioja, Argentina.
10.11 (100), 4.06 (85), 6.94 (70), 4.87 (50), 9.56 (40), 3.95 (40), 3.31 (40)

Chemistry:

	(1)	(2)
SiO_2	37.16	41.05
Fe_2O_3	trace	
CuO	59.20	54.34
H_2O	4.50	4.61
Total	100.86	100.00

(1) Mindouli, Congo. (2) $Cu_8Si_8O_{22}(OH)_4 \cdot H_2O$.

Occurrence: A rare secondary mineral in the oxidized portion of copper deposits.

Association: Chrysocolla, dioptase, malachite, conichalcite, tenorite.

Distribution: From Mindouli, Renéville, and Tshiniama, Congo Republic. In Congo (Zaire), fine material from Tantara, Mindigi, and M'sesa, near Kambove, Katanga (Shaba) Province. From Tsumeb, Guchab, and Okatumba, about 80 km east of Windhoek, Namibia. In England, at the Driggith mine, Caldbeck Fells, Cumbria; the Gunheath china clay pit, St. Austell, Cornwall; and the Engine vein, Alderley Edge, Cheshire. In the USA, in Arizona, from the Table Mountain mine, Galiuro Mountains, and the Azurite mine, Tortolita Mountains, Pinal Co.; in the Bighorn district, south of Aguila, Maricopa Co.; in the Harquehala Mountains, Yuma Co.; and elsewhere. In Michigan, from the Algomah mine, Ontonagon Co. In the Kurokawa mine, Gifu Prefecture, and the Kisanmori mine, Akita Prefecture, Japan. From La Rioja, Argentina.

Name: For a Mr. Planche, who provided the original material for characterization.

Type Material: n.d.

References: (1) Dana, E.S. and W.E. Ford (1909) Dana's system of mineralogy, (6th edition), app. II, 81–82. (2) Evans, H.T., Jr. and M.E. Mrose (1977) The crystal chemistry of the hydrous copper silicates, shattuckite and planchéite. Amer. Mineral., 62, 491–502.