Hellyerite $NiCO_3 \cdot 6H_2O$

Crystal Data: Monoclinic. *Point Group:* $2/m$. As crystal fragments and microcrystalline coatings, to 2 mm. *Twinning:* Fine lamellar twinning parallel to the perfect cleavage.

Physical Properties: *Cleavage:* One perfect direction; two directions, less perfect, at 112° to one another and both approximately perpendicular to the first. Hardness = 2.5 D(meas.) = 1.97 D(calc.) = [1.98]

Optical Properties: Semitransparent. *Color:* Pale blue. *Luster:* Vitreous. *Optical Class:* Biaxial (–). *Pleochroism:* $X = Y$ = very pale greenish blue; Z = pale greenish blue. $\alpha = 1.455(2)$ $\beta = 1.503(2)$ $\gamma = 1.549(2)$ 2V(meas.) = 85°

Cell Data: *Space Group:* $C2/c$. $a = 10.770$ $b = 7.299$ $c = 18.681$ $\beta = 94.00°$ Z = 8

X-ray Powder Pattern: Lord Brassey mine, Tasmania, Australia.
9.4 (10), 6.06 (10), 3.65 (7), 3.40 (6), 2.38 (5), 3.11 (4), 2.78 (4)

Chemistry:

	(1)	(2)
NiO	32.9	32.93
CO_2	22.8	19.41
H_2O	45.0	47.66
Total	100.7	100.00

(1) Lord Brassey mine, Tasmania, Australia; CO_2 by LOI after H_2O determined by the Penfield method. (2) $NiCO_3 \cdot 6H_2O$.

Occurrence: Very rare, as coatings on shear surfaces in serpentinite.

Association: Zaratite, theophrastite, otwayite.

Distribution: From the Lord Brassey mine, near Heazlewood, Tasmania, Australia.

Name: Honors Henry Hellyer (1791–1832), first Surveyor-General of the Van Diemen's Land Company and explorer of northwestern Tasmania.

Type Material: Harvard University, Cambridge, Massachusetts, USA, 108400.

References: (1) Williams, K.L., I.M. Threadgold, and A.W. Hounslow (1959) Hellyerite, a new nickel carbonate from Heazlewood, Tasmania. Amer. Mineral., 44, 533–538. (2) Threadgold, I.M. (1963) The crystal structure of hellyerite and nacrite. Dissertation Abs., 24(1), 252–253.