Bobkingite $Cu_5Cl_2(OH)_8 \cdot 2H_2O$

Crystal Data: Monoclinic. *Point Group*: 2/*m*. Crystals to 200 μm are tabular (<5 μm) on {001} with dominant {001}, minor {100} and {110}.

Physical Properties: *Cleavage*: Perfect on {001} and fair on {100}. *Tenacity*: Brittle. *Fracture*: Conchoidal. Hardness = 3 D(meas.) = n.d. D(calc.) = 3.254

Optical Properties: Transparent. *Color*: Pale blue. *Streak*: Pale blue. *Luster*: Vitreous. *Optical Class*: Biaxial (-). α = 1.724(2) β = 1.745(2) γ = 1.750(2) 2V(meas.) = 33(6)° 2V(calc.) = 52° *Orientation*: $Y = c$, $Z = b$, $X \wedge a = 22°$ in β obtuse. *Pleochroism*: Distinct; X = pale blue, Z = pale greenish blue.

Cell Data: *Space Group*: $C2/m$. a = 10.301(8) b = 6.758(3) c = 8.835(7) β = 111.53(6)° Z = 2

X-ray Powder Pattern: New Cliffe Hill Quarry, Stanton-under-Bardon, Leicestershire, England. 8.199 (100), 5.502 (100), 2.883 (80), 2.188 (50), 5.029 (40), 2.693 (40), 2.263 (40)

Chemistry:

	(1)
CuO	70.46
Cl	12.71
H_2O	[19.19]
-O = Cl	2.87
Total	99.49

(1) New Cliffe Hill Quarry, Stanton-under-Bardon, Leicestershire, England; average electron microprobe analysis, H_2O calculated from structure; corresponds to $Cu_{4.99}Cl_{2.02}(OH)_8(H_2O)_2$.

Occurrence: In a quarry on crusts of malachite and azurite that overlie massive cuprite in oxidized waste material containing native copper hosted by diorite in a laccolith.

Association: Malachite, azurite, cuprite.

Distribution: At the New Cliffe Hill Quarry, Stanton-under-Bardon, Leicestershire, England.

Name: Honors mineralogist Robert King (b. 1923), formerly at the Department of Geology, Leicester University, and a founding member of the Russell Society.

Type Material: Canadian Museum of Nature (CMNNG 83270) and the X-ray Diffraction Laboratory at the Geological Survey of Canada, Ottawa, Ontario, Canada.

References: (1) Hawthorne, F.C., M.A. Cooper, J.D. Grice, A.C. Roberts, and N. Hubbard (2002) Description and crystal structure of bobkingite, $Cu^{2+}{}_5Cl_2(OH)_8(H_2O)_2$, a new mineral from New Cliffe Hill Quarry, Stanton-under-Bardon, Leicestershire, U.K. Mineral. Mag., 66, 301-311.
(2) (2003) Amer. Mineral., 88, 251 (abs. ref. 1).