

**Crystal Data:** Monoclinic. *Point Group:*  $2/m$ . As crusts and efflorescences of intergrown crystals individually  $\ll 1$  mm.

**Physical Properties:** *Cleavage:* None. *Fracture:* n.d. *Tenacity:* n.d. Hardness =  $\sim 1$   
*D(meas.)* = n.d. *D(calc.)* = 2.28 Rapidly hydrates on exposure to moist air; consequently, the physical and optical properties were measured partly on the synthetic equivalent.

**Optical Properties:** Translucent. *Color:* Pale blue. *Streak:* Pale blue (synthetic). *Luster:* Vitreous.  
*Optical Class:* Biaxial (+).  $\alpha = 1.555(2)$   $\beta = 1.561(1)$   $\gamma = 1.574(2)$   $2V(\text{meas.}) = 72(1)^\circ$   
 $2V(\text{calc.}) = 69^\circ$  *Orientation:*  $X = b$ ,  $Y \approx a$ ,  $Z \wedge c = \sim 19^\circ$  in  $\beta$  obtuse. Nonpleochroic.

**Cell Data:** *Space Group:*  $P2_1/n$ .  $a = 7.3940(5)$   $b = 7.4111(3)$   $c = 12.0597(9)$   $\beta = 106.55(1)^\circ$   $Z = 4$

**X-ray Powder Pattern:** North Mesa 5 mine, Temple Mountain district, Emery County, Utah, USA. 5.795 (100), 3.498 (90), 3.881 (48), 5.408 (37), 4.571 (20), 6.962 (11), 6.255 (11)

**Chemistry:** The chemical composition was established by crystal-structure solution and refinement.

**Occurrence:** On fractures surfaces in a silicified log with coalified margins within mineralized conglomerate. Oxidation of pyrite and montroseite formed a suite of secondary minerals (Utah). As a sublimate at an active volcanic fumarole (Tolbachik volcano).

**Association:** Ferricopiapite, kornelite, rozenite, szomolnokite, native sulfur, minasragrite, orthominasragrite (Utah); markhininite, shcherbinaite, pauflerite, karpovite, evdokimovite, microcrystalline Mg, Al, Fe and Na sulfates (Russia).

**Distribution:** From the North Mesa 5 mine, Temple Mountain mining district, Emery County, Utah, USA [TL]. At the First cinder cone of the North Breach of the Great Fissure Tolbachik volcano eruption, Kamchatka Peninsula, Russia.

**Name:** Honors Robert (*Bob*) Jones (b. 1926) of Arizona, USA, senior editor of *Rocks and Gems* for contributions to the mineralogical community through his writing, lecturing, and editing books, magazines and videos on minerals and their occurrence.

**Type Material:** Canadian Museum of Nature, Ottawa, Ontario, Canada (CMNMC 83759).

**References:** (1) Schindler, M., F.C. Hawthorne, D.M.C. Huminicki, P. Haynes, J.D. Grice, H.T. Evans Jr. (2003) Bobjonesite,  $V^{4+}O(SO_4)(H_2O)_3$ , a new mineral species from Temple Mountain, Emery County, Utah, U.S.A. *Can. Mineral.*, 41, 83-90. (2) (2003) *Amer. Mineral.*, 88(11), 1836 (abs. ref. 1). (3) Siidra, O.I., L.P. Vergasova, S.V. Krivovichev, Y.L. Kretser, A.N. Zaitsev, and S.K. Filatov (2014) Unique thallium mineralization in the fumaroles of Tolbachik volcano, Kamchatka Peninsula, Russia. I. Markhininite,  $TlBi(SO_4)_2$ . *Mineral. Mag.*, 78(7), 1687-1698.