

**Crystal Data:** Hexagonal. *Point Group:*  $6/m\ 2/m\ 2/m$ . As microscopic hexagonal plates, flattened on {0001}; typically in dense stony aggregates.

**Physical Properties:** *Cleavage:* On {0001}, good. Hardness = n.d.  $D(\text{meas.}) = 2.45$   
 $D(\text{calc.}) = 2.45$  Slowly hygroscopic in air, altering to bütschliite, which may then leach to calcite.

**Optical Properties:** Transparent. *Color:* Colorless; light gray to bluish gray in aggregates.  
*Optical Class:* Uniaxial (-).  $\omega = 1.533$   $\epsilon = 1.498$

**Cell Data:** *Space Group:*  $P6_3/mmc$ .  $a = 5.294(1)$   $c = 13.355(2)$   $Z = 2$

**X-ray Powder Pattern:** Synthetic.  
3.192 (100), 2.646 (70), 2.699 (30), 2.168 (20), 2.225 (16), 6.67 (14), 2.039 (14)

**Chemistry:** (1) Analyses of nearly pure natural material apparently do not exist; identification depends on coincidence of other properties with those of synthetic material.

**Polymorphism & Series:** Dimorphous with bütschliite.

**Occurrence:** Formed from fused wood ash in partially burned trees.

**Association:** Bütschliite, calcite.

**Distribution:** In the USA, many occurrences in forests from trees struck by lightning. Some studied are: from the Grand Canyon National Park, Coconino Co., Arizona; in the Kaniksu National Forest, near Coolin, Bonner Co., Idaho. From near Eganville and Deseronto, Ontario, Canada.

**Name:** Honors John Gifford Fairchild (1882–1965), analytical chemist, U.S. Geological Survey.

**Type Material:** National Museum of Natural History, Washington, D.C., USA, 105675, 105676, 162622.

**References:** (1) Palache, C., H. Berman, and C. Frondel (1951) Dana's system of mineralogy, (7th edition), v. II, 222. (2) Pertlik, F. (1981) Structural investigations of synthetic fairchildite,  $\text{K}_2\text{Ca}(\text{CO}_3)_2$ . Zeits. Krist., 157, 199–205. (3) NBS Mono. 25, 8, 48.