

## TENORITE



A widespread but rarely abundant mineral in the upper oxidized parts of copper deposits. Common as a black coating on native copper from numerous copper mines in the Keweenaw. The massive variety has been referred to by the obsolete names “melaconite” or “melanochalcite.” Northern Peninsula.

**Houghton County:** 1. Franklin mine: As black coatings on native copper. 2. Osceola mine: As black patina on native copper. 3. Lake Superior mine: As black patina on native copper.

**Keweenaw County:** 1. Allouez mine: With chrysocolla, malachite, and cuprite (Spiroff, 1938, 1964; Mihelcic, 1954). 2. *Hays Point, Copper Harbor*: Formerly abundant (Butler and Burbank, 1929). The “black oxide” of copper was found in 1832 near the Fort Wilkins compound first as residual boulders very rich in the mineral. This led to the digging of two shafts and the removal of 23.6 metric tons of black oxide ore. However, the 15-centimeter wide vein of “completely pure” tenorite pinched out at a depth of 4.5 meters. It has been suggested that this vein was the continuation of the chrysocolla-rich vein (“la roche verte”) on the shore of Hays Point east of the lighthouse. 3. Phoenix mine: In chrysocolla, and as a black patina with cuprite on native copper. 4. Silver Creek, Eagle River (Morris, 1983). 5. Clark mine: Coatings on copper and calcite crystals (Bee and Dagenhart, 1984). 6. Wolverine Number 2 mine: Coatings on copper, calcite, quartz, and epidote (T. M. Bee, written communication, 1985). 7. Cliff mine: Early mining yielded 45 metric tons of “black oxide” ore. 8. Central mine: As a black patina with cuprite on native copper (q.v.). 9. Mendota mine: With native copper and malachite in calcite (A. Blaske, personal communication, 1998). 10. Waterbury mine: As black, radiating crystal aggregates up to 0.5 mm associated with orange-red, iron-stained calcite rhombohedra in prehnite vugs in basalt. Verified by X-ray diffraction and energy dispersion X-ray spectrometry.

**Ontonagon County:** 1. *Algoma mine*: With paramelaconite (q.v.) (Butler and Burbank, 1929; Williams, 1962a). Black, massive, pitchy

“melanochalcite” (Wilson, 1967). 2. Mass mine (Mihelcic, 1954). 3. Minesota mine: As brilliant black needle-like crystals up to 2 mm long lining interstitial voids in the Minesota Conglomerate. Associated minerals are cuprite and malachite (T. Rosemeyer, personal communication, 2000).

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