**BUTTGENBACHITE**
\[ \text{Cu}_{19}\text{Cl}_4(\text{NO}_3)_2(\text{OH})_{32} \cdot 2\text{H}_2\text{O} \]

A very rare supergene mineral in some copper deposits. Northern Peninsula.

**Houghton County:** Centennial mine: Found in various areas between the 4,000’ and 5,000’ levels in cavities and fractures in basalt. Associated minerals are copper, cuprite, malachite, atacamite, paratacamite, and calumetite (Williams, 1963b). This mineral, along with other secondary copper salts, is post-mining in origin, forming as fungus-like growths on native copper in old stopes in the presence of abundant water and hot rising air.