## BUTTGENBACHITE

 $Cu_{19}Cl_4(NO_3)_2(OH)_{32} \cdot 2 H_2O$ 

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 funguslike growths on native copper in old stopes in the presence of abundant water and hot rising air.

FROM: Robinson, G.W., 2004 Mineralogy of Michigan by E.W. Heinrich updated and revised: published by A.E. Seaman Mineral Museum, Houghton, MI, 252p.