$\label{eq:shifted_states} \begin{array}{c} \textbf{SHIGAITE} \\ [\mathrm{AlMn}^{2+}{}_2(\mathrm{OH})_6]{}_3(\mathrm{SO}_4){}_2\mathrm{Na}(\mathrm{H}_2\mathrm{O})_6 \{\mathrm{H}_2\mathrm{O}\}_6 \end{array}$

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.



Figure 126: A 9 mm shigaite crystal from the Bengal (Cannon) mine, Stambaugh, Iron County. A. E. Seaman Mineral Museum specimen No. DM 23024, Jeffrey Scovil photograph.

In the first edition of this book, an unidentified sulfate from the Bengal mine was reported as a possible new mineral species (Heinrich, 1976). This hunch was proven correct when the mineral in question was positively identified as the very rare manganese sulfate species, shigaite (DeMark, 2000). Unfortunately, the original Bengal mine samples became "lost," and shigaite was described as a mineral species from Japan in the interim. Shigaite crystals from this occurrence are among the finest known. Northern Peninsula.

Iron County: 1. *Bengal (Cannon) mine*, Stambaugh: Discovered in 1951 by A. T. Broderick on the 118 foot sublevel above the 6th level (mine coordinate position 1200 S / 1700 E). The shigaite was associated with a sussexite vein in manganiferous iron ore, and its cinnamon brown crystals somewhat resemble books of phlogopite up to a centimeter across. Associated minerals include hematite, rhodochrosite, and rare seamanite (q.v.); only a few specimens were found (James et al., 1968; DeMark, 2000). **2.** *Homer-Wauseca mine*, Iron River: Similar, but smaller (2 to 3 mm), tan-brown crystals of shigaite coating brecciated hematite ore have been found at the Homer-Wauseca mine (DeMark, 2000).