MUSCOVITE

$KAl_2\square AlSi_3O_{10}(OH)_2$

A widespread and abundant mica. It occurs in igneous rocks (granites and granitic pegmatites), metamorphic rocks (slates, phyllites, mica schists, and micaceous gneisses), sediments and sedimentary rocks (chiefly sands and some sandstones), wall rocks of various ore deposits, and as a replacement of various primary silicates (plagioclase, andalusite, etc.) as the variety "sericite."

Muscovite is widespread in the Portage Lake Volcanics of the Keweenaw (often referred to as "sericite") in a variety of parageneses (Livnat, 1983). While the varietal name "sericite" has been used for any fine-grained muscovite, it is best applied to secondary fine-grained muscovite that has replaced other pre-existing silicates by low-temperature potassium metasomatism. "Phengite" defines a series of potassium micas with compositions intermediate between muscovite and celadonite or aluminoceladonite. "Fuchsite" is an obsolete name for a green chromian muscovite. Northern and Southern Peninsulas.

Dickinson County: **1.** Approximately a kilometer east of the Groveland iron mine: Found in a pegmatite in granite as books up to 8 cm in diameter and as radial, plumose aggregates (Pratt, 1954). **2.** *Central part of county*: In coarser-grained post-Animikie pegmatites as books several centimeters across with quartz, feldspar, biotite, tourmaline, and beryl (James et al., 1961). **3.** Pale green "sericite" (possibly chromian?) occurs in green Sturgeon Quartzite on the north side of the Menominee trough (Bayley, 1904). Green quartzites usually are colored by chromian muscovite ("fuchsite") (Heinrich, 1965b).

Gogebic County: Wakefield iron pit and Geneva-Davis mine: Three occurrences of chromian muscovite (1M type) in altered dikes (Bailey and Tyler, 1960).

Houghton County: **1.** Isle Royale lode: "Sericite" occurs with calcite as amygdule fillings and replacements of breccia. It is found as massive, soft, unctuous, green to yellowish-green, minute scales (Palache and Vassar, 1925). **2.** Baltic lode (Klein, 1939). **3.** Superior lode (Klein, 1939). **4.** Arcadian mine (Klein, 1939). **5.** Kearsarge lode: Generally found with "adularia," which grades into "sericite" at depth (Klein, 1939). **6.** Wolverine mine, Kearsarge: Variety "sericite" (Morris, 1983). **7.** Quincy mine: Dark green, waxy, barrel-shaped pseudohexagonal crystals up to 1 cm (pseudomorphous after chlorite?) occurred in a large pocket of calcite crystals associated with native copper on the 7th level, approximately 100 meters NE from the Number 2 Shaft.

Iron County: Iron River district: As the 2M1 type in oxidized iron formation (Bailey and Tyler, 1960).

Keweenaw County: **1.** Central mine: "Sericite" forms tan, velvety coatings on calcite. **2.** Northeast of Gay: In Jacobsville Sandstone in section 16, T56N, R30W; contains 1.5 to 4% Cr_2O_3 and ~1% V_2O_3 (L. L. Babcock, personal communication). **3.** Dan's Point, section 27, T59N, R27W: A very fine-grained vanadian muscovite occurs with calcite in veinlets less than 1 mm thick on the faces of bleached joints in a silty Keweenawan sandstone. Microprobe analysis shows it contains 15 to 17% V_2O_3 and 1 to 3% Cr_2O_3 (L. L. Babcock, personal communication).

Marquette County: **1.** Locality unspecified: As the 2M1 type in iron ore (Bailey and Tyler, 1960). **2.** Palmer area (drill cores) and the Winthrop mine: Two occurrences of chromian muscovite (1M type) in oxidized iron formation (Bailey and Tyler, 1960). **3.** Republic area, sections 7 and 17, T47N, R29W: In pegmatite (Snelgrove et al., 1944). **4.** *Pegmatite dike* exposed in roadcut, NE1/4 SE1/4 section 20, T47N, R29W: As pale yellow to colorless books associated with microcline, quartz, minor fluorite, and rare britholite-(Y) and xenotime-(Y). **5.** Michigamme area: In a pegmatite with apatite and andalusite in the Negaunee Formation (Snelgrove et al., 1944). **6.** *Champion mine*: In several varieties. On the 36th level, in a quartz vein cutting magnetite ore with copper sulfides, molybdenite, and tourmaline (Babcock, 1966a, b); as rare, granular, sub-angular aggregates of green chromian muscovite 1 to 2 mm across; and as masses of silvery white crystal aggregates several centimeters across associated with quartz, black tourmaline, and other minerals. **7.** Palmer area: In Kona Dolomite near its contact with the Republic Granite (Lamey, 1935). **8.** Crockley pegmatite, section 22, T47N, R29W

(Heinrich, 1962a). **9.** Ropes gold mine: As "sericite" in shear zones in Keewatin basaltic lavas (Broderick, 1945). **10.** Drill core, section 28, T47N, R26W: A mixed layer (1M and 2M) muscovite in feldspathic altered Palmer Gneiss (Gair and Simmons, 1968). **11.** Yellow Dog peridotite, sections 11 and 12, T50N, R29W (Klasner et al., 1979): "Sericite" is a component of the alteration suite of the plagioclase lherzolite which includes serpentine (q.v.), chlorite (q.v.), actinolite, brown hornblende, biotite, talc, carbonate, clinozoisite, and spinel (in total, 5 to 10% of the rock). The combination of late biotite and "sericite" indicates late reaction of early Mg-bearing silicates with K-bearing fluids. **12.** Goose Lake, section 23, T47N, R26W: Rominger (1881, page 60) reports small streaky seams of "agalmatolite" in "sericite" schists south of Goose Lake. "Agalmatolite" is an obsolete name for massive, megascopically structureless aggregates of various micaceous minerals or mixtures thereof (e.g., pyrophyllite, talc, muscovite, chlorite, etc.). Probably "sericite" or talc.

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