RUTILE

TiO_2

One of the most common and widely distributed titanium minerals. It usually occurs in microscopic grains as an accessory mineral in a great variety of igneous and metamorphic rocks and is thus very common in the Northern Peninsula. It occurs also as a heavy detrital accessory mineral in sands and sandstones (Stewart, 1937). Of the many recorded occurrences, nearly all are of microscopic material. Northern and Southern Peninsulas.

Iron County: Lake Ellen kimberlite, SW ¼ section 27, T44N, R31W: Red-to-yellow-brown grains to nearly 1.5 mm, and tiny acicular inclusions in clinopyroxenes in eclogite xenoliths. Except for a minor iron content, these rutiles closely approach pure TiO_2 (McGee and Hearn, 1983).

Marquette County: **1.** Mitchell mine, Ishpeming: Small, prismatic red-brown crystals disseminated in a vuggy unit of iron formation. **2.** Southeast of Marquette: Needles in granite. **3.** National mine, Ishpeming: In mafic dike cutting iron ore. Also as prismatic, red-brown crystals to 1 cm with specular hematite in altered Goodrich Conglomerate. **4.** Yellow Dog peridotite, sections 11 and 12, T50N, R29W: A minor accessory with ilmenite (q.v.), magnetite (q.v.), chromite (q.v.), and various sulfide minerals (Klasner et al., 1979). It occurs as single irregular grains up to 0.1 mm long. One crystal was color-zoned in yellow, orange, and dark red-brown bands. **5.** Beacon Hill: Reported as epitactically oriented crystals on ilmenite (T. M. Bee, written communication, 1985). **6.** Champion mine, Champion: As prismatic red crystals several millimeters in length epitactically oriented on bladed hematite crystals in quartz.

Menominee County: Site 73 kimberlite, north of Hermansville: Prismatic, orange-brown rutile occurs as inclusions in olivine phenocrysts. The rutile inclusions occur principally in the rims of olivine crystals, and often appear concentrated at the boundary between their cores and rims (S. M. Carlson, personal communication, 1995).

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UPDATE

(see Part IV, Baraga County)

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