

## DOLOMITE



(see also *ankerite*)

A common and abundant mineral occurring in a wide variety of rocks and mineral deposits. It is the dominant species in dolostone, and is abundant in many limestones, marbles, iron formations, and hydrothermal veins. Northern and Southern Peninsulas.

**Alpena County:** **1.** Squaw Bay near Alpena: The large concretions that occur in the base of the black Antrim Shale have long been considered to consist of calcite, variety “anthraconite.” It has now been shown that the chief mineral is a ferroan dolomite (Wardlaw and Long, 1982). This dolomite forms long, slim, brown, prismatic crystals in subparallel to semi-radial patterns. The concretions are rimmed by 1 to 2 cm of pyrite, and the percent of dolomite decreases from their center to margin (90 to 50%). Quartz also is present, and marcasite has been reported. When broken, the carbonate yields the odor of crude oil, which has been entrapped in microscopic disseminated films and blebs. Because of this pungent odor, this variety of dolomite has been called “stinkstone” (Poindexter et al., 1939). The disseminated oil also is the cause of the dark color. **2.** *Paxton (LaFarge) quarry*, Alpena: Attractive, pale pink saddle-shaped crystals line vugs in dolomitic limestone. Sometimes associated with micro pyrite crystals.

**Charlevoix County:** Along the Lake Michigan shore, south of Norwood: Variety anthraconite in Antrim Shale (Alpena County) (Hawke, 1976).

**Delta County:** Limestone quarry south of Bark River: As saddle-shaped, pink, rhombohedral crystals with calcite lining vugs in limestone (M. J. Elder, personal communication, 2003).

**Dickinson County:** **1.** *Just north of Felch*: Crystals in vugs in iron formation (Pratt, 1954). **2.** *Norway mine*: Fine 2.5 cm red crystals in a fine-grained red matrix (iron formation?) **3.** Metronite quarry, Rian’s quarry, and several other unnamed quarries northeast of Randville: Exposures of Randville Dolomite. The Randville Dolomite, of Lower Huronian age, is correlative with 1) the Saunders Dolomite of the Iron River district, 2) the Kona Dolomite of the Marquette district, and 3) the Bad

River Dolomite of the Gogebic district. All these formations contain major amounts of dolomitic marble. **4.** *Section 33, T39N, R28W*: “exquisitely fine crystals” lining vugs in iron ore breccia (Rominger, 1881, pages 172 to 173). **5.** *Vulcan mine*: In the Vulcan Iron Formation in general in veins up to 7.5 cm wide. The dolomite is white to dark pink, probably due to small amounts of manganese (verified by energy dispersion X-ray spectrometry). Also in vugs as brownish yellow, flat rhombohedral crystals with curved faces, commonly associated with calcite crystals. Some dolomite crystals are perched on calcite crystals (Bayley, 1904). **6.** *Ludington mine*, Iron Mountain: Pale pink-to-white rhombohedral crystals to 5 mm lining cavities in brecciated iron formation. Some of these have been labelled “siderite” in the past, but energy dispersion X-ray spectra show they are clearly ferroan dolomite. **7.** *Chapin mine*, Iron Mountain: Occurrence similar to Ludington mine. **8.** Millie mine, Iron Mountain: As small, colorless rhombohedrons with included hematite in cavities in iron formation.

**Gogebic County:** **1.** In the Bad River dolomitic marble. **2.** In the Ironwood Iron Formation, especially abundant where siderite ore has been oxidized to either hematite or magnetite, as coarse-grained, patchy, mottled grains as large as 5 cm (Laberge, 1964). Some of these are slightly ankeritic. **3.** It is also in the Ironwood siderite-chert rock as a minor to primary constituent and in veinlets (Mann, 1953). **4.** Copp’s mine, near Marenisco: With chalcopyrite, galena, sphalerite, and pyrite (Dana, 1892).

**Houghton County:** **1.** Isle Royale mine: Veins of dolomite (Lane, 1911). **2.** Baltic Number 2 mine: Crystals (Hawke, 1976).

**Huron County:** The Bayport Limestone (uppermost Mississippian) contains dolomitic beds. Small crystals of dolomite occur with calcite, millerite, and other minor sulfides in quartz geodes at the Wallace Stone Co. quarry, near Pigeon.

**Iron County:** **1.** In the Saunders Formation, consisting of dolomitic marble and quartzite. **2.** Cannon mine: With manganese minerals in Young’s iron ore body in the Riverton Iron Formation (Kustra, 1961).

**Jackson County:** In vugs in Bayport Limestone at Jeffrey quarry, NE ¼ section 30, T2S, R2W with calcite, aragonite, and pyrite (Squire, 1972).

**Keweenaw County:** 1. Phoenix mine (Dana, 1892). 2. Clark mine: Rare, minute cream-colored rhombohedra with prehnite, copper, and tenorite (Bee and Dagenhart, 1984).

**Mackinac County:** Good crystals in road cuts and outcrops along U.S. Highway 2, west of St. Ignace (Hawke, 1976).

**Marquette County:** 1. In general, dolomite occurs in iron formation of the Marquette district as accessory primary grains and secondary veinlets in siderite-chert rock (Mann, 1953) and as large patches in oxidized siderite ore (Laberge, 1964). 2. Ropes gold mine near Ishpeming: In veins in serpentinite with talc (Broderick, 1945). Bornhorst et al. (1999) note that much of the dolomite is ferroan, and may contain a small amount of magnesite. 3. Dead River: Iron-bearing dolomite occurs in quartz-carbonate veins with copper sulfides (Puffet, 1966). 4. Champion mine: Manganoan dolomite forms veins with minor pyrite, quartz, and hematite cutting somewhat brecciated jaspilitic iron formation (Babcock, 1966a, b). 5. Wheat mine: In iron formation as botryoidal masses of tiny crystals. 6. Presque Isle: In veins with serpentine and as an alteration of olivine and pyroxene in the Presque Isle ultramafic body. Vugs in the fissure veins may be lined with



*Figure 73: Ferroan dolomite crystals on stalactitic goethite from the McComber (Lucy) mine, Negaunee, Marquette County. 4.5 × 12 cm. A. E. Seaman Mineral Museum specimen No. DM 11486, Jeffrey Scovil photograph.*

rhombs of white dolomite (Brooks, 1873; Rominger, 1881; Creveling, 1926). 7. Bluffs northeast of Goose Lake: Flesh-colored rhombs in exposures of the Kona Dolomite Formation. 8. *Lindberg quarry* south of Marquette: The Kona Dolomite here has been brecciated and contorted and is prized as an ornamental stone. Locally it contains fossil algal remains (Markert, 1961). 9. Palmer area: Slightly ferruginous Kona Dolomite Formation. Pieces of the formation included in quartz veins stemming from the Republic Granite have been recrystallized as dolomite rhombs as large as 5 cm (Lamey, 1935). 10. NE ¼ section 33, T47N, R26W: Pods of dolomite and dolomite-quartz (up to 1 by 6 meters) in Palmer Gneiss (Gair and Simmons, 1968). 11. *Republic iron mine*: Tan-white rhombohedral crystals up to 4 mm lining cavities in brecciated hematite ore. Associated minerals include barite, quartz, calcite, chalcopyrite, and minor malachite. 12. Verde Antique quarry, Ishpeming (11, 12, Morris, 1983). 13. Spectacular exposures of algal stromatolites occur in the Kona Dolomite south of Marquette just north of Harvey in precipitous outcrops on the west side of U.S. Highway 41. The scalloped banded structures, consisting of dolomitized calcite, are Michigan's oldest macrofossils. Other

examples are in the Randville Dolomite in Dickinson County and in the Bad River Dolomite in the Western part of the Northern Peninsula (Dorr and Eschman, 1970, Figures IV-3, XV-3).

**14.** American mine: granular masses of tan-white rhombohedral crystals. **15.** Dalliba mine near Champion: As small, etched, saddle-shaped rhombohedra on quartz with goethite. **16.** Silver Lead mine, SE ¼ SE ¼ section 30, T46N, R24W (on the bank of Silver Lead Creek approximately 20 meters from its crossing with Marquette Co. Rd. 460): Pink cleavages, with galena, chalcopyrite, and pyrite in quartz veins. **17.** *McComber (Lucy) mine*, Negaunee: As aggregates of pale pink, tan, or white crystals coating stalactitic goethite, and as brownish “nailhead” habit crystals (often overgrown by tiny rhombohedra in parallel crystallographic orientation), also on stalactitic goethite. Some such specimens have been called “rhodochrosite” in the past, but X-ray diffraction and energy dispersion X-ray spectrometry analyses show most of these to be dolomite or ferroan dolomite. **18.** Bessie mine, near Humboldt: As white rhombohedral crystals several millimeters across associated with microcrystals of hematite lining vugs in limonitic ore.

**Monroe County:** **1.** Lower Devonian siliceous dolomite beds have fissures and vugs commonly lined with white to pink dolomite crystals showing curved faces (Sherzer, 1900). **2.** *France Stone* quarry near Monroe: Veinlets with 2 cm white rhombs.

**Newaygo County:** Glen Bradley Number 4 well, section 11, T12N, R13W: Microscopic rhombs and rounded grains in anhydrite layers in the Salina Group, pale red-brown with a dusty black nucleus (Dellwig, 1955).

**Ontonagon County:** **1.** National mine (Dana, 1892). **2.** “In a gully of a small creek flowing into Sandstone Creek along the east side of U.S. Highway 45 about ten miles north of Bruce Crossing, . . . just below the crest of Military Hill on the north side” (Hawke, 1976, page 28). Good crystals.

**Ottawa County:** In Raisin River Dolomite (Silurian).

**Wayne County:** International Salt Company mine at Detroit: Similar to Newaygo County occurrence (above). Associated are halite,

anhydrite, gypsum, pyrite, quartz, carnallite, and polyhalite (Dellwig, 1955).

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#### UPDATE

**Presque Isle County:** Lafarge Presque Isle Quarry (Stoneport), section 2 and surrounding area, T33N, R8E: Small (~1 mm) crystals of dolomite occur with calcite in vugs in the middle Devonian Dundee Limestone (A. Blaske, personal communication, 2007).

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