

CELESTINE



Occurs primarily in Michigan as a vug mineral in various sedimentary rocks including limestone, dolomite, and sandstone. Associated minerals are calcite, dolomite, pyrite, sphalerite, marcasite, fluorite, native sulfur, and rare gypsum and strontianite. Also occurs as a minor accessory in evaporite rocks (salt and gypsum formations). Mainly Southern Peninsula.



Figure 51: Celestine crystals from the Woolmith quarry near Maybee, Monroe County. 4 x 5 cm. A. E. Seaman Mineral Museum specimen No. DM 23127, Jeffrey Scovil photograph.

Chippewa County: Drummond Island. In dolomite (Palache et al., 1951).

Eaton County: Cheney and Holden quarries near Bellevue: In Bayport Limestone (Mississippian) with pyrite, sphalerite, marcasite, and calcite (Dorr and Eschman, 1970).

Iron County: Bates mine, Iron River. In 1928, a large pocket lined with tabular blue crystals of celestine up to 7.5 cm across was encountered on the 1900' level (DeMark, 2000). Regretably, few specimens are preserved.

Kent County: Grand Rapids Gypsum Company mine at Grand Rapids: In gypsum (Dorr and Eschman, 1970).

Marquette County: 1. Republic mine at Republic: Reported by Morris (1983) as a rare species at the Republic iron mine. 2. Negaunee mine, Negaunee: Small blue-gray prismatic crystals to 1 cm in length occur with calcite in cavities in

"limonite." Verified by energy dispersion X-ray spectrometry; uncommon.



Figure 52: Celestine crystals on limestone from the Holloway (Rockwood Stone) quarry near Newport, Monroe County. 11.5 cm crystal aggregate. A. E. Seaman Mineral Museum specimen No. DM 23028, Jeffrey Scovil photograph.

Monroe County: 1. Woolmith quarry (now Michigan Stone and Supply Company quarry), halfway between Scofield and Maybee. One of the classic U.S. localities for celestine (Kraus, 1905b; Kraus and Hunt, 1906a, b). Fine crystals, pale blue in color, some transparent, others translucent, and most somewhat milky. The habit varies from simple and tabular, to more complex and prismatic. The following forms have been found: {100}, {010}, {001}, {110}, {120}, {410}, {111}, {122}, {10·55·44}, {011}, {102}. Tabular crystals as large as 20 cm long have been obtained. Curved crystals, parallel growths, and crystals with sulfur inclusions also are recorded (Medici, 1983). The crystals occur in solution cavities in dolomite overlying the Sylvania Sandstone. The openings range from a few centimeters to over a meter across. The sedimentary unit was formerly labeled as part of the old Monroe Formation and now would be placed in the lower part of the Detroit River Group of early Middle Devonian age. Associated minerals of the vugs are dolomite, sulfur, calcite, gypsum, pyrite, and rare strontianite. 2. Point aux Peaux and Stony Point near Monroe: This is probably the locality listed by Dana (1892) as "Brest." 3. Plum Creek quarry near Monroe. Partly altered to strontianite. 4. Raisinville quarries. Numbers 2 to 4 have similar occurrences (Sherzer, 1900). 5. Ida quarry, 2.4 km west of Ida: Celestine crystals up to 23 cm long have been found here; also strontianite "balls" as

much as 2.5 cm across (Medici, 1983), barite, and calcite (Morris, 1983). **6.** *The Detroit Edison Company's quarry* at the Enrico Fermi Atomic Energy plant at Monroe: Pods and vugs with massive celestine and crystal groups are very abundant in the impure dolomite of the Bass Island Group. They occur with calcite crystals and small pyrite grains. **7.** France Stone Company quarry, Monroe: With pyrite, marcasite, calcite, and dolomite (Morris, 1983). **8.** France Stone Company (Ida Plant) quarry, near Ida. **9.** Abandoned quarry at I-275 and Newport Road: Associated are calcite, fluorite, pyrite, and quartz (Morris, 1983). **10.** *Thompson - McCully quarry* near Newport: In pale blue crystals to several centimeters in length in vugs in dolostone with calcite. **11.** *Holloway (Rockwood Stone) quarry* near Newport: A variety of habits of pale gray-blue crystals several centimeters long associated with calcite and fluorite in vugs in dolomitic limestone. **12.** *London Aggregates quarry* near Milan: Prismatic gray-blue crystals several centimeters in length associated with calcite.

Newaygo County: In a drill core (location unspecified) from the Salina Group, as disseminated grains in rock salt (Dellwig and Briggs, 1953).

Wayne County: **1.** *Rockwood (Ottawa Silica) quarry*: In vugs in the Sylvania Sandstone as both delicate and thick blue crystals intergrown with calcite, some of which occur as "nailhead" crystals (Smith, 1918; Mihelcic, 1954; Dorr and Eschman, 1970). A vug measuring 56 x 38 x 20 cm has been found containing celestine crystals 6x 13 cm in size (*Rocks and Minerals*, **33**, page 104, 1958). Celestine crystals as long as 30 centimeters have been found, along with orange calcite crystals and small quartz crystals (Medici, 1983). **2.** Near Gibraltar. Disseminated crystals in dolomite (Smith, 1918). **3.** International Salt Company mine beneath Detroit: In halite-anhydrite beds. **4.** Sibley quarry, Trenton: Associated with calcite, fluorite, gypsum, epsomite, and rare sulfur (3, 4, Morris, 1983).



Figure 53: Celestine crystals on limestone from the Rockwood (Ottawa Silica) quarry, Wayne County. 5 x 6 cm. A. E. Seaman Mineral Museum specimen No. DM 23205, John Jaszcak photograph.

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.

UPDATE



A 5 x 7 cm aggregate of prismatic celestine crystals from the Homer mine, Iron County. A. E. Seaman Mineral Museum specimen No. DM 25653, George Robinson photograph.

Iron County: **1.** Homer mine, Iron River: As blue, orange, or gray-white prismatic to tabular crystals and aggregates of pinkish orange, rice grain-like crystals filling voids in brecciated, hematitic iron formation (Carlson, 2011). **2.** Hiawatha mine, Iron River: As masses of tightly intergrown orange-white crystals similar to above. Both occurrences verified by energy dispersion X-ray spectrometry.

UPDATE FROM: Robinson, G.W., and
Carlson, S.M., 2013, Mineralogy of Michigan
Update: published online by A.E. Seaman
Mineral Museum, Houghton, MI, 46p.