

Lake George Gem & Mineral Club

Club News

March, 2020



NOTE: LGGM Club meetings in October through March will start at 10:00 a.m.

Program for the Month: Saturday, March 14, 2020 10:00 a.m.

Collecting Chalcedony at Saddle Mountain, Arizona

Presented by **Bob Baker**

Bob will present information and photos of a recent trip on which he collected fire agate and chalcedony near Saddle Mountain Arizona.

SCHEDULE OF LGGM CLUB PROGRAMS, FIELD TRIPS & EVENTS

| Date(s) | What | Where | Leader/Notes |
|--|--|-------------------------|------------------------|
| Jan 1-Mar 31 | Membership applications are due. | | |
| Mar 14 10:00am | Collecting Chalcedony at Saddle Mountain, AZ | LGGM Club Presentation | Bob Baker |
| Mar 28 10:00-2:00 | Mineral Identification Class | Florissant Library | Bob Carnein |
| April 4 10:00 am - 12:00 noon | Rockhounding 101 | Lake George Comm. Ctr | John Rakowski |
| A special extra date and an annual class always looked forward to. | | | |
| Apr 4 12:30-4:30 | Wire Wrapping Class | Lake George Comm. Ctr. | Jerrolynn Kawamoto |
| Apr 11 9:00am | Rise of the Mammals | LGGM Club Presentation | Corral Bluffs Alliance |
| Apr 11 12:30-4:30 | Wire Wrapping Class | Lake George Comm. Ctr. | Jerrolynn Kawamoto |
| May 9 9:00am | Filing Claims & Recent Finds | LGGM Club Presentation. | Joe Dorris |
| July 11 9:00 | North Star Mine and Turquoise | LGGM Club Presentation | Clint Cross |
| TBD | Rare Earth Minerals | LGGM Club Presentation | Phil Persson |
| Aug 14-16 | LGGM Club Show | Lake George | Carol Kinate |
| Possibly | Birds – Living Relatives of the Dinosaur | LGGM Club Presentation | Paul Combs |

Presentations and Field Trips for 2020 will be added to in future newsletters after they are confirmed.

The following two free classes will complement each other:

Mineral ID Class is a GO! Bob Carnein reports that the March 28 Mineral ID class is now filled. He expects that a few people will drop the class and will accept applications for a waiting list. If interested, e-mail Bob at ccarnein@gmail.com or call at 719-687-2739.

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Rockhounding 101 On Saturday, April 4, 2020, from 10:00 a.m. to 12:00 noon, at the Lake George Community Center, Vice President **John Rakowski** will present rockhounding basics for our area and a

good review of how to recognize the formations, the minerals, and how to extract them. Beginning tool selection and safety tips will be discussed along with tool suggestions for more serious collectors. Examples of minerals and tools will be available. This may be a repeat for many club members but this is an excellent introduction for new folks in the hobby or new to collecting in this area.

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Jerrolynn Kawamoto and **Darlene Cotton** will offer two 4-hour classes in Basic Wire Wrapping of cabochons at the Lake George Community Center at 12:30-4:30 on Saturday, April 4th and again at 12:30-4:30 on April 11th (after the club monthly meeting). If you are interested in attending one of these classes, please contact Jerrolynn by email at jerrolynn@wildblue.net. Information on the tools and materials required for the class will be e-mailed to you in advance. There is no charge for the class if you bring your own cabochon, wire and tools. Jerrolynn will also have these items available for purchase before the class, or the tools can be rented for the day. Children who are old enough to follow directions and who have the manual dexterity to manipulate silver wires (probably 8 or older) are welcome to attend with a parent.

Tentative LGGM Club Events:

Bob Carnein canceled his Central Colorado Geology field trips last fall because only a half dozen people signed up. He will try to re-schedule the trip on two separate weekdays or weekends sometime this spring. He notes that he needs to have at least 10 registrants to justify all of the preparation involved.

COMING EVENTS OUTSIDE THE LGGM CLUB:

Mar 7, Sat., 10:00am-6:00pm...Free Scout Day...All Scouts and leaders IN UNIFORM receive free admission to the DRC. The presenters listed will be there from 10:00am-4:00pm and interactive activities will be available from 11:30 to 2:30. For more information on presentations and activities, go to <https://www.rmdrc.com/whats-happening/>

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RMGM PROMOTIONS PRESENTS

Colorado Mineral & Fossil Spring Show

APRIL 10-12, 2020

Crowne Plaza Denver Airport Convention Center,
15500 E 40th Ave, Denver, CO 80239

Hi Friends!! It's that time again! Come join us for the best show ever! April 10-12, 2020 We've expanded our Wholesale and Retail sections adding many more quality Mineral, Fossil, Meteorite and Jewelry Dealers! We've added more exciting workshops! Save the dates! We'll see you at the show! Free show admission, free parking! Register early for our popular workshops!

Show hours:
Friday - Saturday 10AM - 6PM & Sunday 10AM - 5PM
Free Admission! Free Parking!

120+ Wholesale and Retail Dealers
Minerals, Fossils, Meteorites, Gems,
Jewelry & More!
Jewelry & Photography Workshops!
Free Gold Panning Lessons!
\$5 Dinosaur Dig!
Mineral Drawings!
Free Rock Dig!

\$100 Show Dealer Voucher Givaways
Opening Day every hour starting 11AM - 5PM
You need to be present to win

**Register early for our popular
workshops!**
www.RMGMPromotions.com



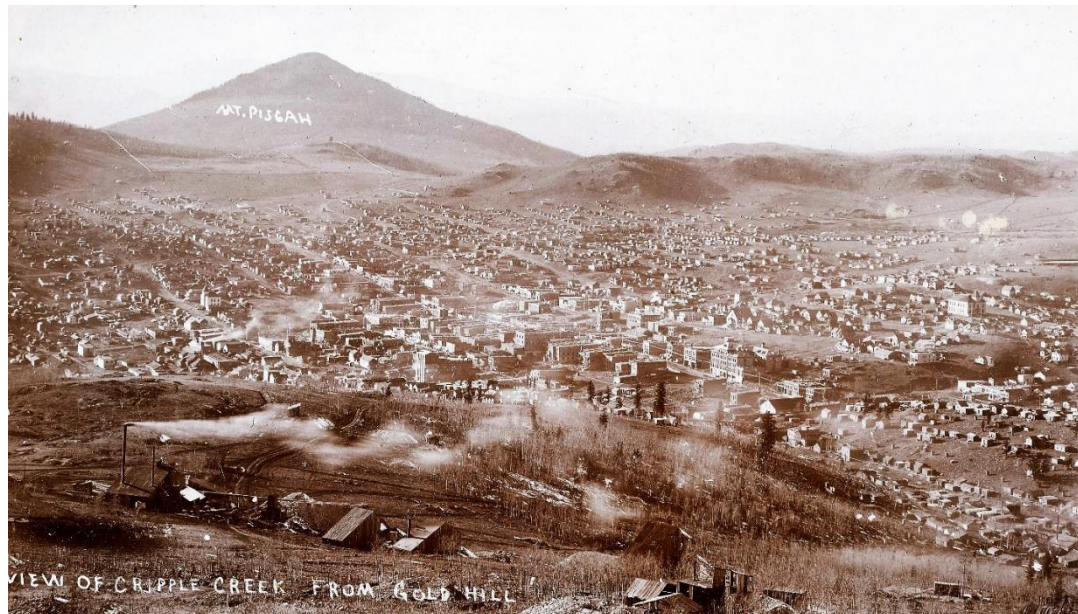
RMGM Promotions is bringing you the best in mineral and fossil shows! Our shows are for anyone who has a passion for rocks, minerals, fossils, meteorites, polished stones & jewelry. We have a big variety of mineral & fossil specimens for the meticulous collector as well as many specimens perfect for a new collector! Find a special gem or mineral treasure at the rock and mineral shows!

www.coloradomineralandfossilshows.com
www.rmgmpromotions.com

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Cripple Creek District Museum Starts A New Lecture Series

By **Steven Wade Veatch**



View of Cripple Creek, Colorado from Gold Hill in 1896. Photo by Edgar A. Yelton, courtesy of the Cripple Creek District Museum.

The Cripple Creek District Museum announces its "Visit with History" lecture series at the Cripple Creek Heritage Center. This educational series brings exciting regional history to the community with this exciting schedule: April 26, Railroad Chapel Cars with Ken Valles; May 17, History of Cripple Creek with Steve Antonucci; July 26, Labor Wars with Gary Horton; August 23, Untold Stories of the Cresson with Steven Veatch; September 20, Ol' Miner (portrayal by Jay Ridge telling History of Mining in Colorado); and November 22, Tipis 101 with Ed Held. All lectures will start at 2 pm at the Cripple Creek Heritage Center in the lower level theater room. The Heritage Center is located on Hwy 67 outside of Cripple Creek.

The Cripple Creek District Museum, in partnership with the City of Cripple Creek, offers this lecture series as a public service. Admission is free and includes refreshments. Check the Cripple Creek District Museum website or Facebook page for more information. Anyone interested in attending a "Visits with History" presentation may call 719-689-9540 to make reservations or send an email to ccdm1953@gmail.com.

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June 18-21 Rocky Mountain Federation of Mineralogical Societies 2020 Annual Conference and Gem and Mineral Show is being held in Big Piney, Wyoming. For more information and conference registration packet, click on the following link:

<https://rmfms.org/uploads/conferences/2020/2020%20RMFMS%20Convention%20Packet%20REV%2001.pdf>

OTHER COMING EVENTS OUTSIDE THE LGGM CLUB: (Nearby gem, mineral, fossil and geology events that you may enjoy.)

- **Cañon City Geology Club**, meets on the 2nd Monday of the month at 6PM in the United Methodist Church, Cañon City
- **Columbine Gem & Mineral Society**, meets on the 2nd Thursday of each month, 6:30PM in the meeting room, Mt. Shavano Manor, 525 W. 16th (at J St.), Salida
- **Colorado Springs Mineralogical Society**, meets on the 3rd Thursday of each month at 7PM in the Mt. Carmel Veteran's Service Center, 530 Communication Circle, Colorado Springs;
- **Pueblo Rockhounds**, meets on the 3rd Thursday of each month at 6:30PM in the Westminster Presbyterian Church, 10 University Circle, Pueblo.

Pete Modreski suggests the following upcoming events:

Thurs., Mar. 12, 7:30 p.m., bimonthly meeting, Friends of Mineralogy, Colorado Chapter, featuring Scott Werschky, Reno, NV, mining geologist, mineral dealer (Miner's Lunchbox, specializing in gold specimens and "investment quality mineral specimens"), and board member of the Rice Museum of Rocks and Minerals. Presentation topic TBA. Berthoud Hall Room 108, Colorado School of Mines campus, Golden. See <https://friendsofmineralogycolorado.org/> for more info when available.

Fri., Mar. 13, North Jeffco Gem & Mineral Club Silent Auction, APEX Community Center, 6842 Wadsworth Blvd., Arvada, setup at 5:30 p.m., auction begins at 6:45 p.m. All are welcome. For more info, Bill Jones, 303-503-6288, email sidewindermin@comcast.net .

Fri.-Sat.-Sun., Mar. 13-15, Fort Collins Gem & Mineral Show; at Thomas M. McKee Building, at The Ranch/Larimer County Fairgrounds, 5280 Arena Circle, Loveland, CO (I-25 exit 259); hours 4-8 Fri., 9-6 Sat., 10-5 Sun.; adult admission \$4. Sponsored by the Fort Collins Rockhounds Club.

Thurs., Mar. 19, 7:00 p.m., Colo. Sci. Soc. Monthly meeting, **2019 Colorado Avalanches: A case history of destruction in Hinsdale County, impacts to historic mining dams, and how snow avalanches may influence development of rock glaciers**, by Jonathon Lovekin, Colorado Geological Survey. Berthoud Hall Room 241.

Fri.-Sat.-Sun., Apr. 10-12, Colorado Mineral and Fossil Spring Show, Crown Plaza Hotel - Convention Center, 15500 E 40th Ave., Denver, Colorado, 10-6 Fri. & Sat., 10-5 Sun., free parking & admission.

Thurs., Apr. 16, 5:30 p.m., Rise of the Mammals: Exceptional Continental Record of Biotic Recovery after the Cretaceous–Paleogene Mass Extinction (about the Corral Bluffs fossil mammal find), by Ian Miller and Tyler Lyson, Denver Museum of Nature and Science; at the **CSS Annual Past Presidents' Dinner**, to be held at the **Mount Vernon Canyon Club**

Sat., May 16, noon-4 p.m., Silent Auction, sponsored by Colorado Chapter, Friends of Mineralogy. All are welcome; setup at 11, auction begins at noon, live auction at 1 p.m. At a new location: Wheat Ridge United Methodist Church, 7530 W. 38th Ave., Wheat Ridge (38th Ave. at Wadsworth Blvd.).

Sat., May 16, 2020 Symposium on Water and Energy, to be held in Ricketson Auditorium, Denver Museum of Nature and Science. Cosponsored by the Colorado Scientific Society, Denver Museum of Nature & Science, Center for the American West, and others. Details forthcoming!

Sun, May 17, noonish, for the monthly FSS (Florissant Scientific Society) meeting, Christine Siddoway (Colorado College) will give a talk on the **Tava Sandstone** (the geologically famous “sandstone injectite dikes of the Pikes Peak region”) followed by a short field trip. Osborne Center, University of Colorado at Colorado Springs. All are welcome to attend; contact Beth Simmons, cloverknoll@comcast.net, for details or to be put on the FSS mailing list.

Fri.-Sat.-Sun., June 12-14, Pikes Peak Gem & Mineral Show, Norris-Penrose Event Center, 1045 Lower Gold Camp Road, Colorado Springs, CO 80905. Sponsored by the Colorado Springs Mineralogical Society. Hours: noon-7 pm Fri., 10-5 Sat, 10-4 Sun. Adult admission \$5.

Thurs.-Sun., July 23-26, Fairplay Contin-Tail Gem, Mineral, and Jewelry Show, Fairplay River Park.

Thurs.-Sun., Aug. 6-9, Buena Vista Contin-Tail outdoor gem and mineral show, Buena Vista Rodeo Grounds. Colorado's longtime famous and best attended tent & tailgate rock swap and show.

Fri.-Sun., Aug. 14-16, Lake George Gem and Mineral Show, sponsored by the Lake George Gem and Mineral Club. Also taking place nearby “down the road” is the **Woodland Park Rock, Gem and Jewelry Show**, Aug. 13-16.

Fri.-Sun., Sept. 18-20, 53rd Annual Denver Gem and Mineral Show, at the Denver Mart. 2020 theme is “Fabulous Fluorite”.

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For more lecture series during the year see:

Colorado Café Scientifique in Denver, monthly lectures on science topics held either at Blake Street Station or Brooklyn's, Denver; open to the public, no charge other than refreshments you may choose to purchase; see <http://cafescicolorado.org/> .

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Colorado Scientific Society (3rd Thursday, 7 p.m.), see <http://coloscisoc.org/> . Meets at Berthoud Hall Room 241, CSM campus, Golden, except when noted otherwise.

CU Geological Science Colloquium (Wednesdays, 4 p.m.)

see <http://www.colorado.edu/geologicalsciences/colloquium>

CSU Dept. of Geoscience Seminars (Fridays, 4 p.m.),

see <https://warnercnr.colostate.edu/geosciences/geosciences-seminar-series/>

Van Tuyl Lecture Series, Colorado School of Mines, (Thursdays, 4

p.m.): <https://geology.mines.edu/events-calendar/lectures/>

Denver Mining Club (Mondays, 11:30), see <http://www.denverminingclub.org/> .

Denver Museum of Nature and Science, Earth Science Colloquium series, 3:00-4:00 p.m., VIP Room unless noted, meeting dates and day of the week vary. Museum admission is not required;

see <http://www.dmns.org/science/research/earth-sciences/>

Denver Region Exploration Geologists Society (DREGS); usually 1st Monday, 7 p.m., Room 241 Bethoud Hall, CSM campus, Golden; <http://www.dregs.org/index.html>

Florissant Scientific Society (FSS); meets monthly in various Front Range locations for a lecture or field trip; meeting locations vary, normally on Sundays at noon; all interested persons are welcome to attend the meetings and trips; see <http://www.fss-co.org/> for details and schedules.

Friends of Mineralogy, Colorado Chapter, usually meets on the 2nd Thursday of odd-numbered months, 7:30 p.m., Berthoud Hall Room 108, CSM campus, Golden; see

<https://friendsofmineralogycolorado.org/>.

Golden Beer Talks (2nd Tuesday, 6-8 p.m.), at the Buffalo Rose, 1119 Washington Ave., Golden. Doors open at 6; Talk begins at 6:35; Intermission – 7-7:15; Q&A/clean up 7:15-8. “Golden’s grassroots version of TED talks, Expand your mind with a beer in your hand”, <http://goldenbeertalks.org/>

Nerd Night Denver is a theater-style evening featuring usually 3 short (20-minute) TED-style talks on science or related topics; held more-or-less monthly at the Oriental Theater, 4335 W. 44th Ave., Denver; drinks are available; for ages 18+. Admission is \$6 online in advance, \$10 at the door.

See <https://www.nerdnitedenver.com/> .

Rocky Mountain Map Society (RMMS); Denver Public Library, Gates Room, 3rd Tuesday, 5:30 p.m.), <http://rmmaps.org/>

Western Interior Paleontological Society (WIPS); beginning January 2020, WIPS will meet on the 1st Monday of the month, 7 p.m., in Petroleum Hall, Green Center, 924 16th St., Colorado School of Mines campus, Golden See <http://westernpaleo.org/> .

LGGM Club News:

Membership Applications:

Membership applications for 2020 must be received between January 1st and March 31st. Although non-members are welcome to attend the educational programs at the monthly meetings, you must be a member to participate in any field trips with the club. Go to <http://lggmclub.org/> then click on Be a Member to sign up, or print out the membership form on the last page of this newsletter and mail it back to the LGGM Club address on the form, or bring it with you to the March club meeting on March 14th.

The 2020 Lake George Gem & Mineral Show will be from Friday, August 14 thru Sunday, August 16.

Request for Specimens:

Our Annual Show Committee would like to request that all members who have small rock and mineral samples that they are willing to share bring them to any of our monthly meetings before our show in August. These specimens will be used for our kids’ activities.

Lake George Gem & Mineral Club

March, 2020

Update - The Publicity Committee (Gail Campbell/Chair) will be seeking new signage locations for our show, and we WILL have postcards this year for advertisement distribution. We hope to have these postcards ready by our March meeting. The Committee is also looking for a KIDS Activities Chair or Co-Chair. Please contact Carol Kinatec at kinatec@aol.com if interested.

* * * * *

Bob Baker has sent us the following information and photos of his two recent rockhounding adventures at Saddle Mountain, Arizona, and his visit to Quartzite, Arizona, as well. Club members who attend the March meeting will also see Bob's presentation of this information at the meeting.

Fire Agate and Chalcedony from Saddle Mountain, Arizona

By **Bob Baker**

Saddle Mountain, Arizona is located 50 miles west of Phoenix. This area has been known for many years as a favorite place to collect fire agate. The topography of the area is generally flat, broken by numerous small ranges of volcanic mountains. Tertiary lava flows deposited basalt and compressed material into large breccia boulders (1). The fire agate and chalcedony were formed in "amygdules", which are mineralized gas pockets within the lava. Fire agate and chalcedony are both varieties of quartz (SiO_2). The fire agate in this area ranges in color from orange to dark red (see figures). The chalcedony varies from colorless to blue-grey with most of the material being a whitish color (2). We also found some chalcedony with a pink hue. In addition to fire agate and chalcedony, another common mineral in this area is quartz.

To get to Saddle Mountain, take I-10 west from Phoenix to Exit 94 (Tonopah). Proceed south to Salome Hwy, then west 5 miles to Courthouse Rd. Turn left on Courthouse Rd., then after about half a mile, turn left again (south) on one of the many dirt roads and proceed to the base of Saddle Mountain at the end of the road. Dispersed camping is permitted on BLM land in this area. At the time we visited in January, 2020, there were about 50 vehicles in the vicinity of the collecting site. It was not crowded at all. The dirt roads vary from pretty decent to 4-wheel-drive ATV roads, or motorcycle only. Some of these roads circumnavigate the mountain.





Because of its popularity and ease of access, the easy collecting sites have been picked over. If you are satisfied with smaller pieces, just look around your vehicle. If you are interested in larger and better specimens, you will have to move to a less disturbed area. We hiked and biked through the area, and had our best success collecting on the southwest side of the mountain in an area that had not been extensively collected. We also located several petroglyphs on the north face of the mountain.

We definitely will return to this location, both for its great rock collecting and for the good camping available.

Quartzite, Arizona

Seventy-five miles west of Tonopah is the small town of Quartzite, Arizona, known as “the Boondocking Capital of the World”. Quartzite receives 2 million visitors annually yet has very few permanent residents or support facilities. Quartzite sits in a valley, so as you approach from either the east or the west, your first view is a sea of trailers surrounding the town. “Snowbirds” (people who come from snowy climates to the southwest during the winter) come for the warm winter weather, a huge RV show, and the rock and gem shows. There are 70 RV parks and 11,000 acres of BLM Long Term Visitor Area camping, as well as BLM free dispersed camping areas where visitors can stay for 5 to 14 days (3).

We came for the Desert Gardens Gem Show (January 1 through the end of February). It had a good variety of minerals, fossils, and vendors, comparable to the Contin Tail Buena Vista show. There was also a second rock show called the Tyson Wells Show, but this turned out to be more of a flea market.

The most visited spot in Quartzite is the Hi Jolly Monument. This monument celebrates the pre-Civil War United States Camel Corps, created by Secretary of War Jefferson Davis (who was soon to be the president of the Confederate States). Hi Jolly is a corruption of Hadji Ali, who was an Ottoman hired to handle the US Army’s camels. At the start of the Civil War, the camels were sold or turned loose into

the surrounding desert. Sightings of wild camels still occur, but the last verified camel sighting was in the 1942.

While we were camped in this area, we used our camping site as a base to travel to Joshua Tree National Monument, about 100 miles to the west, and to Lake Havasu, about 50 miles to the north. Both of these are interesting places to visit.

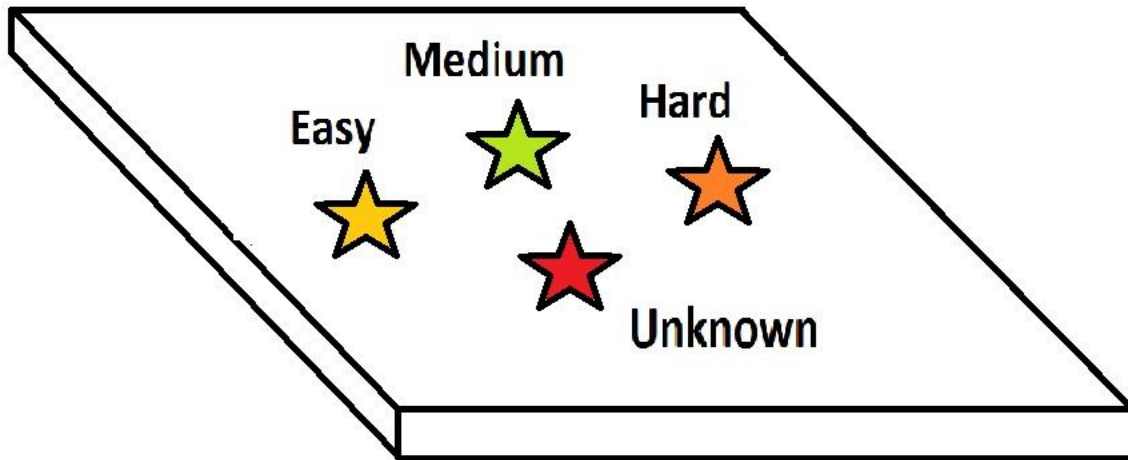
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- (1) Ort, M.H. and S. Skotnicki, 1993 *Geologic Map of Saddle Mountain, Maricopa County, Arizona*; Arizona Geological Survey Open File Report 93-6.
- (2) Chesterman, C.W., 1979, *National Audubon Society Field Guide To North American Rocks and Minerals*: New York, Alfred A. Knopf, Inc.
- (3) www.ci.quartzite.az.us , accessed February, 2020.

The latest installment of “**Bench Tips**” by **Brad Smith**: (www.BradSmithJewelry.com)

IDENTIFYING UNMARKED SOLDERS

There are plenty of ways to mark your sheet or wire solders, but suppose you forgot to mark them and have a couple that you can't identify. The answer is to compare the melting temperature of the unknowns with that of a known solder. What I do is take a thick scrap of copper or nickel and arrange several solders on it. Ideally, I would have a sample of easy, medium and hard known solders surrounding the unknown solder. Then I heat the plate from the bottom and watch the order in which the solders melt.



INEXPENSIVE ELECTRIC WAX PEN

You can make your own wax pen from a small soldering iron plugged into a light dimmer switch for heat control. Both components are easily found at a big hardware store or at Harbor Freight. As an example of the components, see items # 43060 and # 47887

File the tip of the soldering iron into the shape you prefer or even better get a soldering iron with replaceable tips. Then you can make several tip shapes for different tasks. Set the dimmer control just

hot enough to melt the wax without producing any smoke.

A tip design that I find ideal for some work is a length of small gauge wire that lets me reach in around the model to melt some wax. The wire is 18ga and about 15mm long. I use Sterling wire to conduct heat easily to the tip, and I silver solder it into a hole on the end of a copper or brass rod that fits into the soldering iron.

Work Smarter With Brad's "How To" Jewelry Books
www.Amazon.com/author/bradfordsmith

Happy hammering,
- Brad

Notes from the Editors

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Colorado Type Minerals: Creedite

by **Bob Carnein**

This is the second of several articles that will feature minerals first described from occurrences in Colorado. The first article, on zunyite, can be found in the December, 2019 LGGMC Newsletter. This month's article deals with creedite.

Creedite, $\text{Ca}_3\text{Al}_2(\text{SO}_4)(\text{OH})_2\text{F}_8 \cdot 2\text{H}_2\text{O}$, often occurs as lustrous transparent purple crystals that are, because of its color, popular with mineral collectors. Crystals are monoclinic, have a hardness of 4, and have one perfect cleavage (Mindat.org, accessed February, 2020). This, combined with their generally small size, means that creedite isn't suitable for use as a gemstone.

Creedite was first described by Larsen and Wells (1916) from the Colorado Fluorspar mine, at Wagon Wheel Gap, near Creede, Mineral County, Colorado. At the type locality, it occurred as whitish or violet sprays embedded in white, sugary textured barite, as radiating sprays of crystals, and as loose, doubly terminated crystals in halloysite, which is a clay mineral (Eckel, 1997). Associated minerals include fluorite, barite, kaolinite (another clay), and pyrite (Mindat.org, accessed February, 2020). Most specimens from the type locality are relatively unattractive and are rarely available for sale. A good summary of the mineralogy of the locality can be found in Korzeb, 1993.

Creedite is a rare mineral, but there are two other notable occurrences in Colorado. Fine specimens of radiating bluish purple embedded crystals (Figure 1) and well formed, pale purple



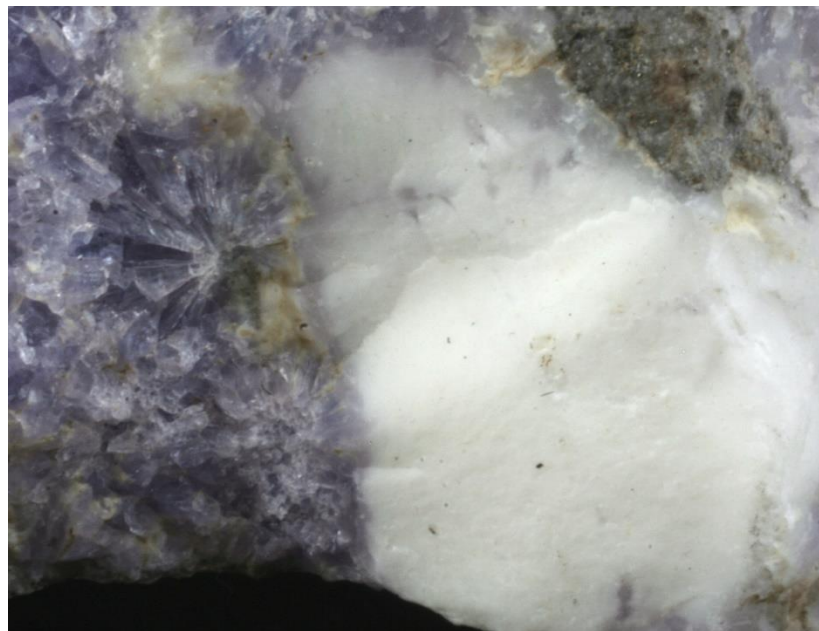
Figure 1. Creedite, Cresson open pit, Victor, CO



Figure 2. Creedite, Cresson open pit.

Carnein specimens and photos

cavity filling crystals (Figure 2, 3) were found in the Cresson open pit, in Victor, Teller County, Colorado, in 2001 (Carnein and Bartos, 2005). Specimens from this find often contain associated pyrite and dull white gearsutite (Figure 4) (a complex aluminofluoride mineral that also occurs in the cryolite deposits near St. Peters Dome). Rarely, samples from this find include orangish, botryoidal rhodochrosite and greenish gray to yellow celestine crystals (Figures 5, 6). The creedite also occurs as sparkly white aggregates that were originally misidentified as gearsutite.



Figures 3, 4. Creedite (left) and creedite with gearsutite (right), Cresson open pit, Victor, Colorado. (Carnein specimens and photos)



Figure 5. Creedite with rhodochrosite and celestine. Cresson open pit, Victor, CO.



Figure 6. Celestine with creedite. Cresson open pit, Victor, CO.

Although the 2001 find was the first reported occurrence of creedite in the Cripple Creek district, the writer discovered specimens of creedite misidentified as fluorite from the Cresson mine for sale at a rock shop in Cañon City in 2016. The shop owner told me that they were collected at the Cresson mine by Pos Kessler and Edwin Gunn about 1964. Interestingly, they were still unsold and mis-labeled when the writer returned to the shop in 2018.

In addition, the writer identified a single undated and unattributed specimen in the collection of the Cripple Creek District Museum in 2014 (catalog no. RO2012158). The specimen contains massive to radiating aggregates of pale purple creedite in a slightly vuggy quartz vein containing thin, curved, striated iridescent plates of calaverite (?) with abundant pyrite on phonolite. Unfortunately, the museum's collection contains many superb Cripple Creek/Victor specimens that have no accurate documentation or for which the documentation is questionable. The point is that specimens of creedite predating the 2001 find probably exist but were misidentified because of their resemblance to fluorite and amethystine quartz, both of which also occur in the Cripple Creek district.

The other notable Colorado creedite occurrence was in the Henderson molybdenum mine, Dailey mining district, Clear Creek County (Figure 7, 8). Creedite from the Henderson mine occurs as scattered small clusters and coatings of very pale pinkish purple crystals coating



Figures 7, 8. Typical creedite coating a fracture surface from the Henderson molybdenum mine. Carnein specimen and photos.

fractures. Associated minerals include pyrite, quartz, and molybdenite. The specimens are immediately recognizable—they don't look like any other credites the writer has seen. Specimens from this find, which were found in 2007, were readily available for several years, but the mine has been an "on again, off again" operation for some time. Specimens rarely escape from the mine because of the automated mining and milling process.

Besides Colorado, there are some notable credite occurrences from other localities in the U.S. The best of these is the Hall mine, in Nye County, Nevada, where fine purple crystals were produced. Specimens from a few other localities in Nye County (Liberty mine; Tonopah) are featured among the hundreds of photos on Mindat.org (accessed February, 2020). California and New Mexico also produce scarce specimens.

By far the most prolific credite occurrence, world-wide, is the Navidad mine, Abasolo, Rodeo Municipality, Durango, Mexico (Figure 9). Thousands of well crystallized ball-like clusters and groups of clusters began to flood the specimen market around 2009. The credite occurred in clay-filled pockets in breccia (Mindat.org, accessed February, 2020) and was associated with purple to green fluorite. Interestingly, the fluorite turned pink when exposed to sunlight. The credite, arguably the world's best, ranges from bright orange to pale orange to white in color. Hundreds of photos of Navidad credite can be seen at Mindat.org. Other lesser but notable Mexican localities include the West Camp and East Camp, Santa Eulalia mining district, in Chihuahua.

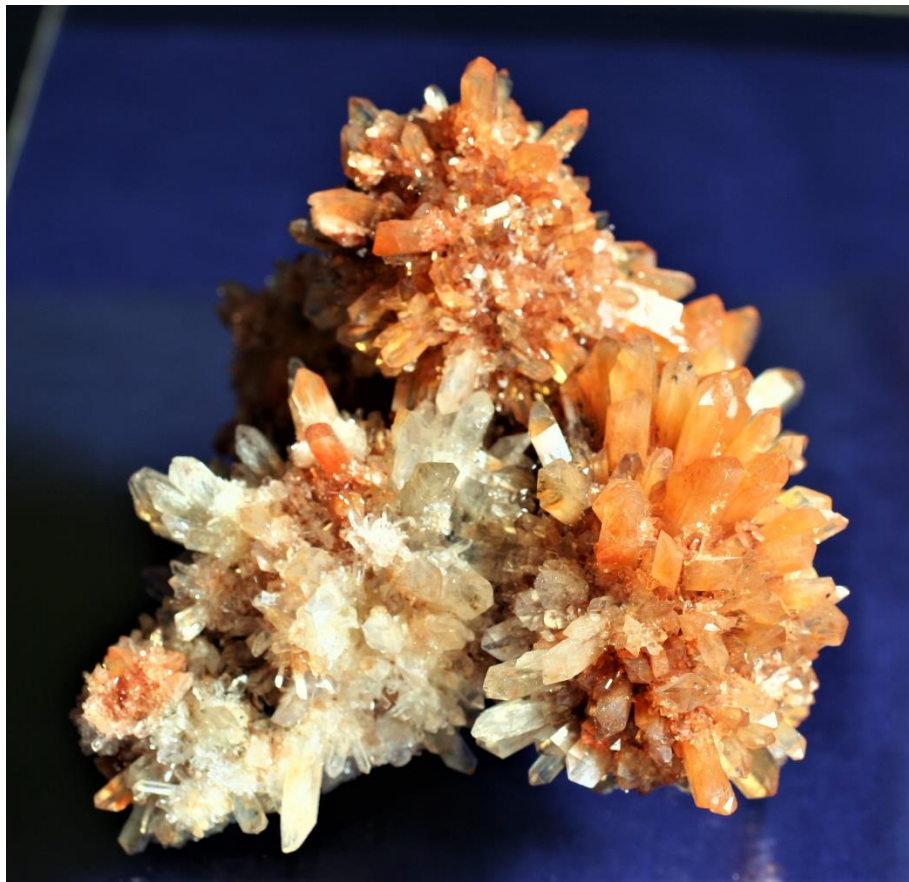


Figure 9. Creedite crystals from the Navidad mine, Durango, Mexico (Carnein specimen and photo).

A few credite localities outside of North America are worth mentioning. Some superb purple specimens came from the Akchatau mine, Karaganda Region, Kazakhstan, but they rarely appear on the specimen market. A more prolific recent find, consisting of light brown to purple crystals, was made

in Quinglong County, Qianxinan, Guizhou, China. Other limited finds have been made in Italy, Greece, and Australia. A good summary of world-wide occurrences can be found in Cook, 2008.

References Cited

Carnein, C.R., and P.J. Bartos, 2005, Famous mining localities: the Cripple Creek mining district, Colorado: *The Mineralogical Record*, vol. 36, p. 143-185.

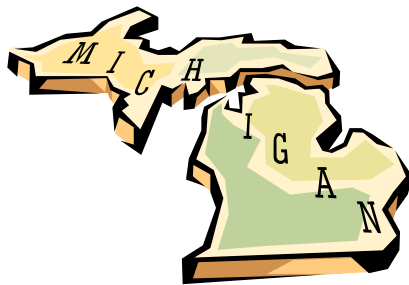
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The Michigan Puddingstone Steven Wade Veatch

Michigan's puddingstones are intriguing rocks that look like globs of pudding stuffed with raisins, nuts, and bits of cranberries. These white rocks, with small red, brown, purple, and black pebbles, are not a Michigan product. During the last ice age, they hitched a ride into Michigan in an ice sheet and got off in the southern part of the state when the ice melted.



Fig. 1. An unpolished puddingstone from Michigan. Some contain trace amounts of gold and diamonds. These rocks are commonly found just after farmers plow their fields. Puddingstones were brought to Michigan by Ice Age glaciers. Jo Beckwith Specimen. Photo by S. W. Veatch.

Puddingstones underwent several processes (in what is now part of Ontario in Canada), before they went on their journey to Michigan. First, a network of rapidly flowing streams tumbled red and coffee-brown jasper, funeral-black chert, hematite, and quartz in their churning water. Next, the streams

deposited the material as sedimentary fill in eroded troughs and, when the streams reduced their velocity, scattered the colorful pebbles in alluvial fans (Lowey, 1985; Baumann et al., 2011). Then, the sand and pebbles hardened beneath the Earth's surface and, over time, formed sedimentary rocks known as conglomerates (Slawson, 1933). Later, intense heat and pressure metamorphosed the matrix of sand into a light-colored, coarse-grained, sugary-textured quartzite that tightly held the pebbles (Schaeztl, n.d.). These geological forces formed the puddingstones around 2.3 billion years ago.

During the last ice age, puddingstones traveled south with the immense Laurentide Ice Sheet as it flowed at a glacial pace down from Canada. This ice plucked the puddingstones from the underlying bedrock, carried them hundreds of kilometers, and delivered those rocks to Michigan about 24,000 years ago. This slowly advancing ice plowed across the landscape for thousands of years until rising temperatures, brought on by a climatic shift, ended their movement in Michigan. As the glacial ice melted, it deposited glacial till that contained the puddingstones.

Geologists now recognize these conglomerates as part of the Lorrain Quartzite of the Cobalt Series (Door and Eschman, 1970). This rock formation occurs as thick beds at Saint Joseph Island in Northern Ontario, Canada. The conglomerates also are found by the Saint Mary's River north of the Bruce Mines. This area is located 65 km (40 miles) east of Sault Sainte Marie in Ontario.

Today, farmers in the southern part of Michigan find puddingstones after spring plowing. Since tightly cemented puddingstones can be cut and polished, they are in demand by Michigan artists and crafters, who make jewelry and ornaments out of them. Puddingstones are commonly found as garden decorations that adorn Michigan homes and farms. People also collect and display puddingstones for their striking colors and appearance. In fact, as grandparents and parents take children outside to hunt for puddingstones, they pass an interest in puddingstones and geology down through generations of Michigan families. The tradition of looking for these goes back to the settlement of Michigan, and there is no sign of this interest ending anytime soon.



Fig. 2. Since puddingstones are so hard, they take a nice polish as seen in this example. Steven Veatch specimen. Photo by S.W. Veatch.

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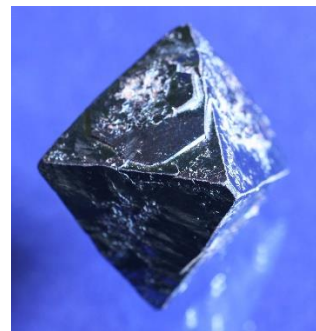
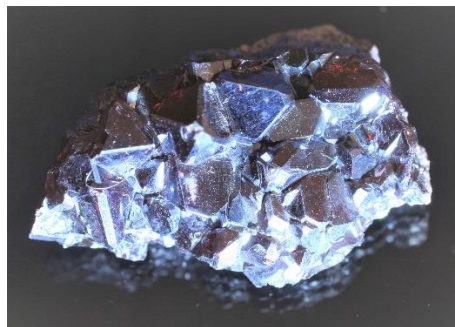
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Monthly Mineral Quiz

Last Month's Mineral. Vanadinite, $Pb_5(VO_4)_3Cl$, is one of a large group of minerals that form in the oxidized zone (above the water table) of mineral deposits containing galena (lead sulfide) and other sulfide minerals. It can be recognized by its high specific gravity (averages about 7), symmetrical hexagonal crystals, low hardness (3-4), and normal yellow to red color (but beware, this is pretty variable). It is an important ore of vanadium. However, it is gradational with mimetite, $Pb_5(AsO_4)_3Cl$, so the composition is variable. Fine specimens come from several localities in Morocco, Mexico, and Arizona, among other places.



This Month's Mineral. Here's another common mineral that occurs in the oxidized zones of sulfide deposits. Recently, fine specimens have been coming out of Mexico (left and middle photos) and Russia (right photo). Although specimens often look black in reflected light (left and right samples in photos above), they commonly are cherry red in transmitted light. It has a red streak. The mineral occurs with a wide variety of other oxidized minerals, including azurite, malachite, anglesite, cerussite, hemimorphite, smithsonite, and goethite. It has a high specific gravity (about 6) and often occurs as isometric crystals (octahedral, as in the photos, but also cubes or dodecahedrons). Fine specimens that have been replaced by malachite (called pseudomorphs) occur at localities in France, Greece, and Zambia. What is this mineral?



The Lake George Gem and Mineral Club is a group of people interested in rocks and minerals, fossils, geography and history of the Pikes Peak/South Park area, Indian artifacts, and the great outdoors. The Club's informational programs and field trips provide opportunities to learn about Earth science, rocks and minerals, lapidary work and jewelry making, and to share information and experiences with other members. Guests are welcome to attend, to see what we are about!

The Club is geared primarily to amateur collectors and artisans, with programs of interest both to beginners and serious amateurs. The Club meets on the second Saturday of each month at the Lake George Community Center, located on the north side of US Highway 24 on the east edge of town, sharing a building with the county highway shops. **In the winter, we meet at 10:00AM. From April through September, we meet at 9:00AM, to allow more time for our field trips.**

Our organization is incorporated under Colorado law as a nonprofit educational organization, and is a member of the Colorado, Rocky Mountain, and American Federations of Mineralogical Societies. We also sponsor an annual Gem and Mineral Show at Lake George, where collectors and others may purchase or sell rocks, minerals, fossils, gems, or jewelry. Annual membership dues (Jan. 1 through Dec. 31) are \$15.00 for an individual (18 and over), and \$25.00 for a family (parents plus dependents under age 18). New memberships and renewals are only accepted Jan 1 through March 31 each year.

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MEMBERSHIP APPLICATION, 2020

Date: ____/____/20____

Name(s)*:

(last) (first) (PLEASE PRINT)

Address: _____ (city) _____ (state, zip) _____

Telephone () _____ - _____ E-mail _____
(please print)

Names/ages of minors (family memberships): _____

Dues for Jan. 1 through Dec. 31: _____ Individual (18 or older): \$15.00

_____ Family (includes dependents under 18): \$25.00

Please Note: MEMBERSHIP MUST BE CURRENT TO PARTICIPATE IN ANY FIELD TRIP OR CLUB CLAIM!
Membership renewal and application occurs Jan. 1-March 31, after which membership is closed for current year.
Membership/e-mail list will be purged April 1 for current year.

I agree to abide by the Club constitution, by-laws, and rules regarding field trips and club-claim visits:

Signed: _____ Date: ____/____/____

* I am or have previously been a member of the LGGMClub. ____ yes; ____ no.

* My interest areas include (check all that apply): ____ minerals; ____ fossils; ____ lapidary;

____ Colorado geology; ____ micromounts; ____ Pebble Pups (ages 7-17); ____ mining history;

____ crystallography; other: _____

* I am willing to give a talk/class to (the club) (Pebble Pups) on: _____

and/or lead a field trip to: _____

* I can help out in the following ways: ____ Club officer; ____ Newsletter editor/writer; ____ local show Committee;
____ nominating committee; ____ program committee; ____ field trips; ____ art (badges); ____ membership coordinator;
____ website assistance; ____ Pebble Pups; ____ other (be specific)

Questions about the Club or activities? Visit us at www.lggmclub.org or talk to a club officer.