Flatirons Facets

Flatirons Mineral Club of Boulder County, Colorado

Volume 66, Number 4 July-August, 2023

Club members learn about Colorado's mining history during a tour of the Phoenix Mine outside of Idaho Springs. Recaps of this summer's field trips start on page 6. Credit: Rebecca Stetson.

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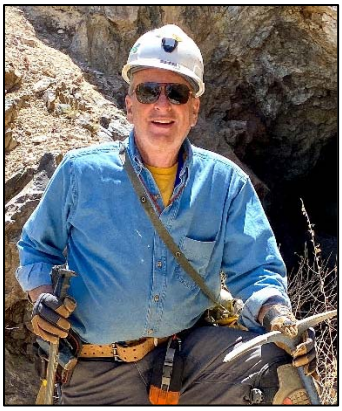


President's Message - A Journey to Uranium Mecca

Over the winter I read the book entitled, "Uranium Frenzy – Saga of the Nuclear West" by Raye C. Ringholz. It is the story of the 1950s uranium boom in the Four Corners area of Colorado, Utah, New Mexico, and Arizona. In March I attended a lecture at the Colorado School of Mines about Uranium Basics and Discovery. Attendees were encouraged to bring their best uranium ore to display. The entire back row of the lecture hall was filled with the "hottest" uranium I've ever seen in one place.

Uranium ores from one mine stood out. They were from the Mi Vida mine south of Moab, Utah. The Mi Vida was the first major discovery of commercial-grade uranium in the southwest. During the "Uranium Frenzy," a former petroleum geologist turned uranium prospector named Charlie Steen stood out. Charlie could not afford a Geiger counter, so he prospected using his stratigraphic knowledge. Down to his last dollar, he rented a drill coring machine for sampling. In 1952 he drilled to 197 feet before the coring pipe snapped. Frustrated, he headed back to his tarpaper shack north of Moab. Stopping at the local gas station, Charlie showed the owner his core samples. The gas station's Geiger counter needle went off the scale. Charlie had hit it big with a high-grade pitchblende vein at 68 feet. He named the mine, Mi Vida and became one of the richest men in Utah. This made Moab "The Uranium Capital of the World" until the uranium bust happened in 1960.

Mi Vida Mine today

In early June, I visited the remains of the Mi Vida mine. The mine was out in the middle of nowhere. I was warned not to enter the mine due to the extremely high radon gas. So, I prospected around the entrance and ore chutes. Charlie Steen did not disappoint me. The leftover ore was very "hot." I placed the ore in a sealed bucket with my radon detector. When I checked the reading at the day's end, the radon count exceeded the detector's upper limit. Thank goodness I wasn't a uranium miner in the 1950s.

The Steens have ties to Boulder County. Charlie purchased the Cash Mine near Gold Hill and his son, Mark, still owns it along with the Colorado Milling Company operation near Gold Hill.

I'll be presenting a detailed story of the 1950s uranium boom and the subsequent radon hazards this winter.

Best regards,
Brian Walko
FMC President

The Flatirons Mineral Club is a non-profit organization, which is dedicated to developing and maintaining interests in Earth science and associated hobbies. The purpose of this Club includes, but is not limited to, studying geology and Earth science, teaching others about our hobby, including young people, collecting gem, mineral and fossil specimens, and learning lapidary skills.

The Flatirons Mineral Club is affiliated with the Rocky Mountain Federation of Mineralogical Societies, the American Federation of Mineralogical Societies, and the Greater Denver Area Council of Gem and Mineral Societies.

Annual Club Picnic – Saturday, August 19

This year's annual picnic is at Harlow Platts Park, the same place as previous picnics. The main pavilion is located just south of the South Boulder Recreation Center at 1360 Gillespie Drive in Boulder. The picnic starts at 11:00 am. Folks with last names beginning with A-M are asked to bring a covered dish and folks with last names beginning with N-Z should bring a dessert. Roll-up sandwiches and beverages will be provided by the club.

At the picnic, we will fill grab bags for sale at the Denver Gem & Mineral Show and our club show this fall, plus honor our Rockhound of the Year and present other awards.

Filling grab bags at last year's club picnic.
Credit: Trick Runions

Upcoming FMC Field Trips in July and August

Will Rehm, Club Field Trip Chairperson

It's already been an exciting 2023 field trip season and there's plenty more to come! Here's what's happening.

July 15 NCAR Boulder, 11 am

An FMC/Public invitational at an iconic location. Club members, *please bring your neighbors and pals along to introduce them to the wonders of geology*. We'll walk along the mesas and hogbacks and decode them. Bring a bagged lunch, be ready to do some walking, and have some fun. Led by Will Rehm

July 29 Florissant Fossil Quarry, Florissant CO

This fossil site yields leaf and bug fossils - and the occasional fish - from the late Eocene period of 34-35 million years ago. The private quarry is located very close to the Florissant Fossil Beds National Monument. **This Is a pending trip that will not happen without a leader.** *Please contact Will to volunteer or nominate someone.*

August 12 & 13: The Calumet Iron Mine AND the Contin-Tail Mineral Show/Sale

Salida and Buena Vista, respectively, with camping

This field trip bundles the Calumet Iron Mine AND the Contin-Tail show into one trip, with a camping option. We'll start at Calumet and nearby sites on Saturday the 12th, then head to Buena Vista on Sunday the 13th for the show. Camping and stargazing will be part of it. Calumet has epidote crystals, magnetite, quartz and more. Contin-Tail is a legendary event that has folks selling all kinds of stuff from the trunks of their cars. Led by Johnny Reyes (Thanks, Johnny!)

August 19th FMC Annual Club Picnic, Boulder CO

Well, it's not actually a field trip, but let's get it on your calendar. You can call it the Annual Harlow Platts Field Trip, Picnic & Specimen Bagging trip if you like. Further details about the picnic are on page 3, and make sure to put this on your calendar! It's always fun to hang out with friends, eat good food and geek out about rocks, minerals, and the epic adventures we have.

All graphics created by Will Rehm.

Special Field Trip Leader Shout Out

A special shout out to both **Anita Colin** and **Dennis Gertenbach** for leading recent FMC field trips. Dennis led the FMC Magnetite trip on June 24th, and Anita led the Hartsel Blue Barite trip the next day, on June 25th. Both were big successes, as you can tell from the trip report on page 13.

Without their leadership, neither trip would have happened. Thanks, Anita and Dennis!

Heroic FMC trip leaders hoist minerals skyward, as imagined by Bing AI

Field Leaders Needed

We still have upcoming trips that need leaders! Leading a trip is a rewarding experience that benefits everyone and yields positive geological karma (just made that up). Please reach out if you're thinking about leading a trip. We need you! – Will (wmrehm8@gmail.com, 212-300-6331)

Wanted: Field Trip Photos

During field trips this summer, consider taking photos during your trip and of your best finds for future newsletters. Please send your best ones to Dennis Gertenbach at gertenbach1@gmail.com.

Member Profile: Terry and Tally O'Donnell

Anita Colin

When I first met Terry and Tally O'Donnell on a club trip, I looked from one to the other and asked, "Are you twins?" Terry replied, "Yes! But Tally was born six years after me. Our mother had a very difficult delivery!" That was my first taste of Terry's apparently bottomless store of jokes and puns.

The O'Donnell brothers had the good fortune to be born in Boulder, Colorado. When Terry was six, he was invited to go on an expedition with a local group of rockhounds. This was so long ago that the Flatirons Mineral Club wasn't even formed yet! When Tally was old enough to join his "twin" brother, the two went on many rock-hunting expeditions together. Although they have lived their whole lives in Boulder, they are avid world travelers.

In addition to rock-hounding, they both love the outdoor sports of Colorado. Despite having broken seven bones in his feet falling as a teenager, Terry has climbed all of Colorado's fourteeners and has climbed a third of them for the second time! Tally is a technical rock climber and continues to lead difficult climbing expeditions. In addition to rock-climbing, Tally is an expert in astronomical photography.

After admiring cut and polished rocks for most of his life, Terry finally decided to buy himself a Genie rock grinder/polisher and has been cutting and polishing his own rocks ever since. He joined the Flatirons Mineral Club in 1997 after meeting Charlotte Morrison at the Denver show. Both brothers have been very active in the club, leading field trips, serving on the FMC board and the Denver Gem and Mineral Show board, and helping set up and run the FMC annual show as well as the Denver Show. In addition, Terry shares his lapidary skills with the junior geologists, teaching them to cut and polish cabochons for their lapidary badge. Keep it up, fellows! We love everything you have done for our club!

Field Trip Report: CU Boulder Map Library Field Trip Reveals Many Treasures

Will Rehm

FMC and CMS members tour the CU Boulder Map Library on May 20th.

Maps make sense of things. They can take us back in time, reveal complex landscapes, and give us new perspectives on the world. Plenty of people love maps, including those in the Flatirons Mineral Club (FMC) and the Colorado Mineral Society (CMS), who met up recently for a private tour of the map collection at the CU-Boulder's Earth Sciences and Map Library.

Map treasures, carefully curated and displayed for our visit.

Our hosts Ilene and Naomi were ready for us with perfectly curated and displayed maps, atlases, and aerial images that they had prepared for our visit. There were wall maps, insurance maps, USGS maps, maps of the West, ones of other countries, maps of mines, and more.

Turns out that they have over 200,000 maps, 3,000 atlases, 25,000 aerial images - and they are all available to the public. People use CU's maps for different things, some research mine claims, some are interested in history, others geology, geography, stratigraphy and more. Some folks even use resources at the library to write novels.

Combining resources can give you map superpowers. Using CU's maps and aerial images together lets you see and understand specific locations, buildings, and landforms over time. The aerial images, from the Forest Service and private companies, span the 1930s to today. Zero in on your house, or workplace, or favorite mine to see how it developed - you may be surprised!

The library is open to the public and is very welcoming. Those interested in Colorado and the West will be impressed by CU's collections - they include rare and important maps from the hands of Hayden, Powell, Renshaw, Lakes, Holmes, and other legends of cartography, geology, and the West.

You can easily access the library's collections online, via the link below, or to visit them in the Benson building on the CU-Boulder campus. The summertime is an especially good time to visit as the campus is less crowded compared to other times. For more information you can email the library at maplib@colordo.edu, call them at (303) 492-7578, or go to their website at https://www.colorado.edu/libraries/libraries-collections/earth-sciences-map-library.

An "Aha!" moment, as field trip participants discover another lost gold mine.

Many thanks to Ilene and Naomi, our gracious CU hosts who came into work on a Saturday to host us!

The Earth Sciences and Map Library is located in the Benson Earth Sciences Building, 2200 Colorado Avenue, Boulder, CO 80309.

Field Trip Report: Phoenix Gold Mine AND the Argo Mill & Tunnel

Will Rehm

FMC members tapped into Colorado's rich mining history in Idaho Springs during a "double-header" field trip to both the Phoenix Gold Mine, AND the Argo Mill and Tunnel. The combined trip on a lovely June day gave us a chance to get inside mines,

FMC at the "Mighty" Argo Mill & Tunnel in Idaho Springs, June 20.

tunnels, and mills to learn about blasting, tunneling, ore transport, milling, and the historic technology behind it all.

Starting off at the Phoenix Mine, we learned about tunneling, drilling, blasting, mucking, and the gold content of ore. Dave Mosch of the Phoenix Gold Mine is an FMC fan who participated in our field trips as a young lad. Here we also learned about flotation processing, saw shaker tables for separating heavy gold from lighter materials, and saw drifts that chased the ore downward in deep chutes.

For the second part of our double-header, we visited the "Mighty" Argo Mill and Tunnel. A technological marvel when built in the early 1890's, the tunnel was driven 4 miles towards Central City and Blackhawk, to make ore transportation and mine drainage easier, and to provide a centralized milling and transport center for the mine networks. Over 200 mines used the centralized services of the mill, which boasted many new technologies and processes, including a Nicolas Tesla-designed energy system.

Left: Dave Mosch inside the Phoenix mine. Right: Members pan for gold at Argo.

Our Argo tour guide made special note of the human cost of the mill, as its technological improvements were not matched by social ones. For instance, the mill used children to spread mercury atop gold ore during critical processing phases. Mercury poisoning often ensued. In addition, the mill was so loud that new employees near the machinery often became deaf within days. A tragedy in 1943 closed the tunnel forever, after an unwise blasting decision flooded the tunnel and high-pressure water shot equipment out of the tunnel and across the valley.

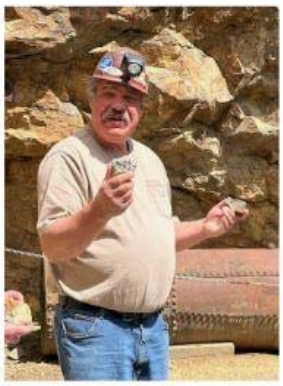
Gold panning at the Argo. Everyone came home with some flecks of gold.

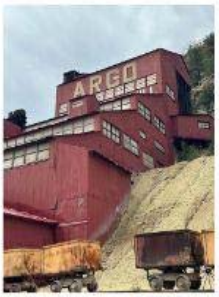
This was the club's second trip to Idaho Springs this year. During an earlier trip we visited the Edgar experimental mine run by the Colorado School of Mines. The mine is used to teach student mining engineers how to blast, operate drills, muck, and much more.

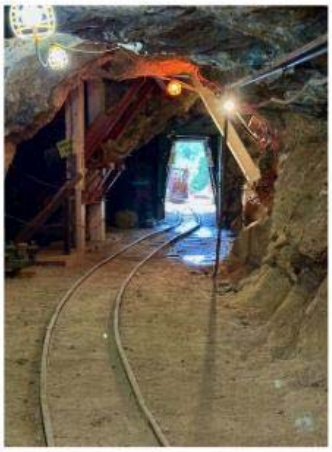
FMC members in the Edgar Experimental Mines Underground Classroom in April.

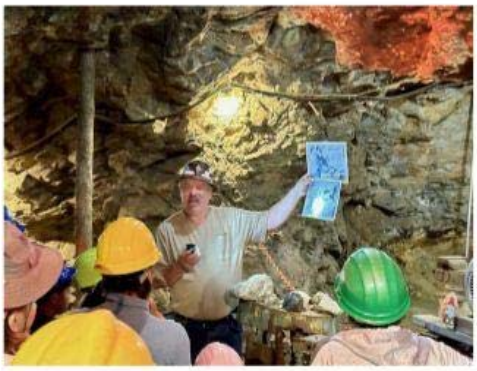
Photo Gallery
FMC Phoenix Gold Mine
AND Argo Mill And Tunnel,
Idaho Springs CO

Courtesy and copyright
Rebecca Stetson





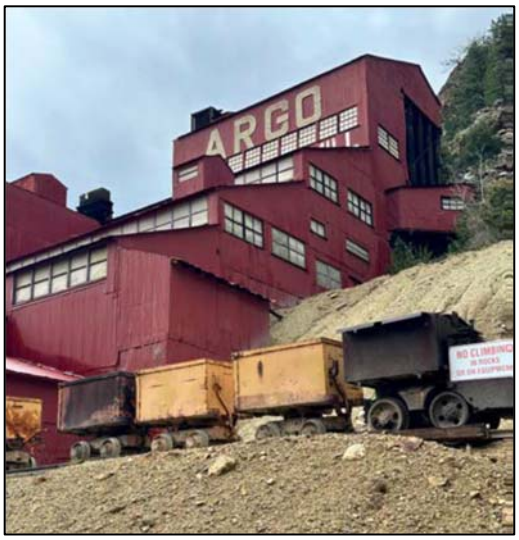




Thanks, Rebecca! FMC members: Field trip photos are always welcome and appreciated!

Double Header Mine Report

Axel Gray, age 8



Touring both gold mines was very interesting. I learned that most mining terms are often Cornish in origin. One of the first science books printed was called ***On the Nature of Metals***, written by a German miner in the 1500's, and that quartz is not naturally made but quartzite is.

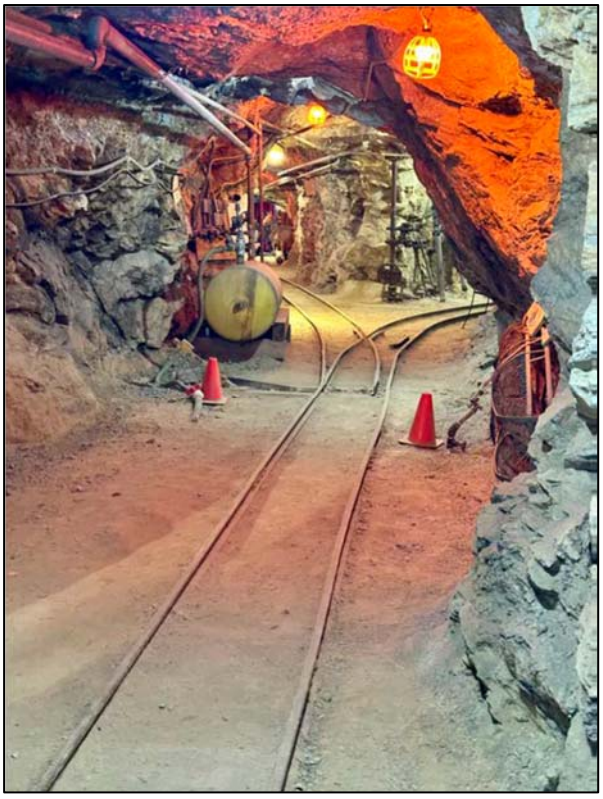
I did like the tour of the Phoenix Gold Mine better because you could go further into the tunnels.

My favorite parts were at the Phoenix Gold Mine when Dave, our guide, turned all the lights off to show how dark it really is, and at the Argo Mill, when we had a chance to pan at the end.

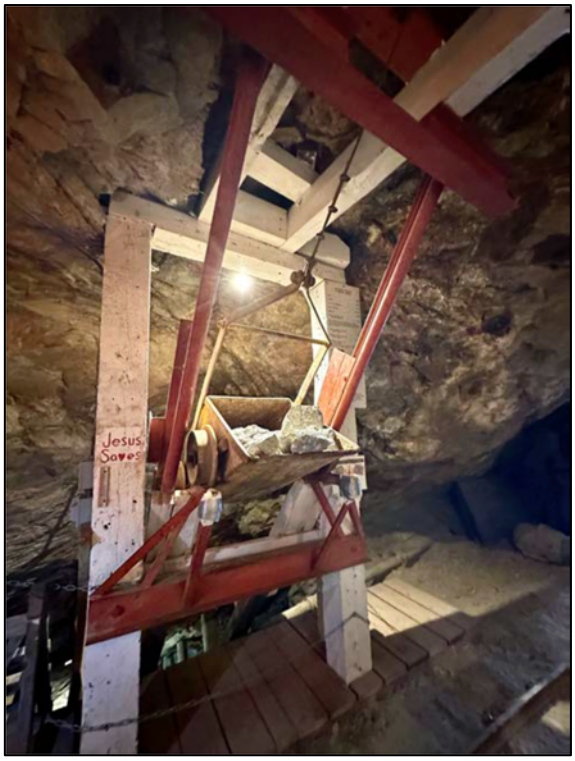
It was surprising to find out why the Argo Mill was called, "Thunder in the Valley" and hard to imagine that level of noise.

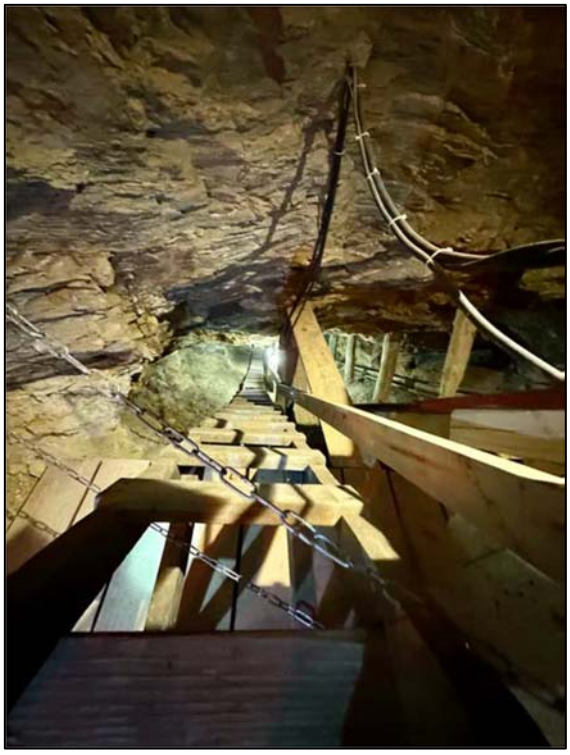
Left: Learning about the Phoenix Mine.

Right: Conveyor for moving ore at the Phoenix Mine.

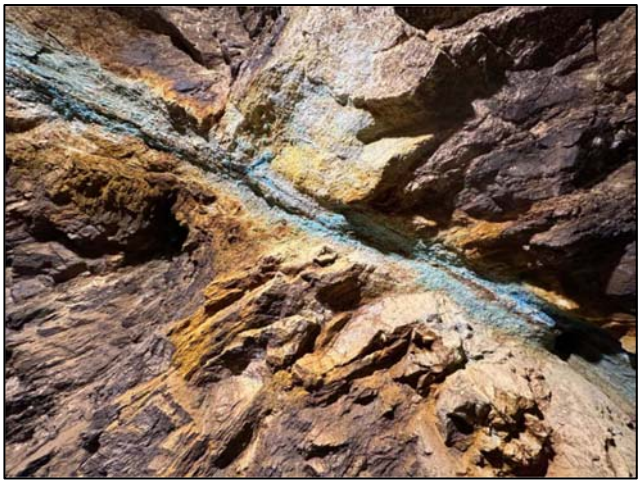


Inside the Phoenix Mine

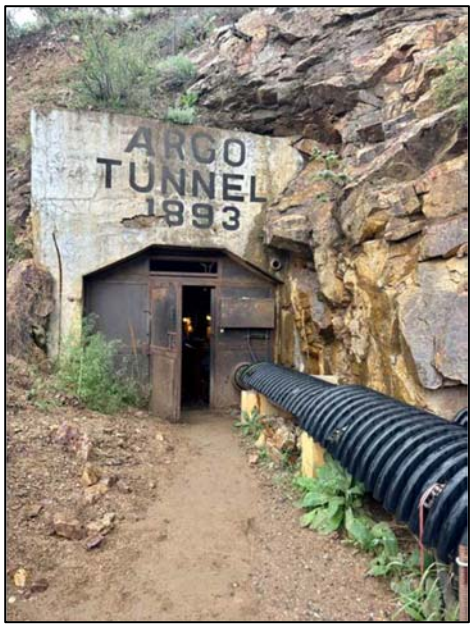




Phoenix Mine. Above: bucket elevator for moving ore. Right: Looking down a shaft.



Clockwise from upper left: Learning about the Phoenix Mine history and equipment, vein at the Argo, the Argo Mill, panning for gold with a friend, me at the Argo, the Argo Tunnel entrance.



Field Trip Report: A Weekend in South Park

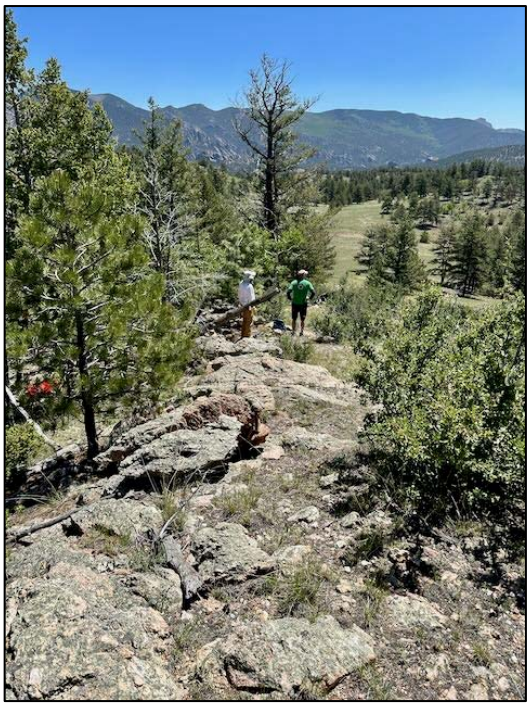
Anita Colin and Dennis Gertenbach

The weekend of June 24 and 25 was perfect for two days of mineral collecting, with beautiful weather and lots of nice specimens to be found.

Saturday, June 24 – Magnetite Ridge for Magnetite

Magnetite Ridge is just a couple miles west of Tarryall. Pegmatite outcrops along the ridge contain common minerals, including white quartz, pink feldspar, and biotite and muscovite mica. But the pegmatites also contain magnetite crystals, some over an inch in diameter. Twenty members found lots of specimens to add to their collections. Here are photos of the day.

Magnetite Ridge is a beautiful place to collect.
Credit: Anita Colin



One of the pegmatite outcrops along Magnetite Ridge. Credit: Rebecca Stetson

Sharon Dooley digging for magnetite.
Credit: Dennis Gertenbach

Mihai exposing magnetite crystals inside a rock.
Credit: Dennis Gertenbach

Magnetite collected on the trip, including several octagonal crystals. Credit: Anita Colin

Sunday, June 25 – Hartsel for Blue Barite

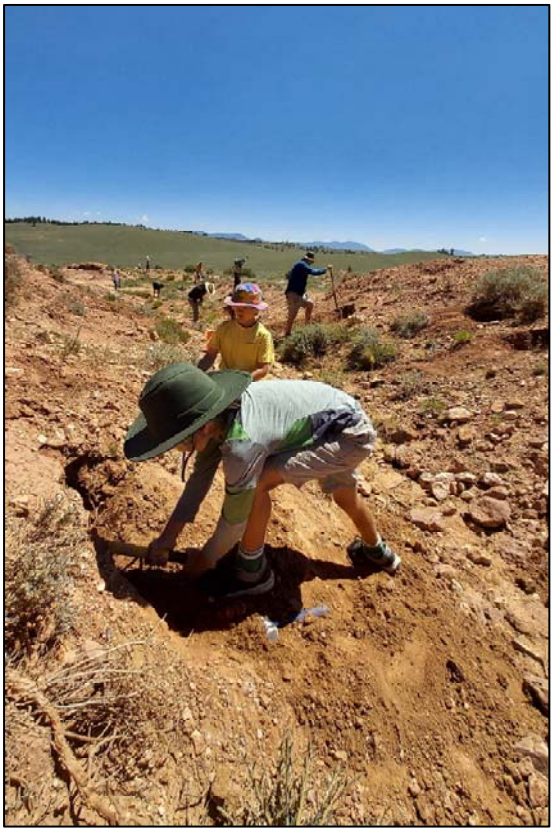
Club members met in the tiny town of Harsel and loaded up on gourmet coffee and home-made ice cream at the Bayou Salado Trading Post. (Ice cream before noon is a great way to start the day!) We then traveled to the nearby barite claim run by the owners of the trading post. The abundant barite crystals here are found in the weathering Maroon Formation which consists of limestone and red sandstone. Barium is known for its high density and, in this area, for its variable shades of blue color.

FMC members digging for barite at the claim outside of Hartsel. Credit: Anna Elek

Orientation at the Bayou Salado Trading Post. Credit: Rebecca Stetson

Kevin Notheis and Brennan Johnson digging for barite crystals, while their dogs relax.
Credit: Anita Colin

Nice barite crystals found during the trip. Credit: Anita Colin



Maxwell and Axel on the hunt for that elusive large barite crystal cluster.
Credit: Anna Elek

These barite crystal clusters should look beautiful when cleaned.
Credit: Dennis Gertenbach

Why Does Hartsel Barite Turn Blue in the Sun?

Dennis Gertenbach

Those who have collected barite from Hartsel, Colorado note that when barite crystals are first dug out of the ground, they are white, pale brown, or pale gray. But when they are exposed to sunlight, they change to various shades of blue in an hour or two. Figure 1 shows an example of this color change in a cluster of Hartsel barite crystals.

Figure 1. Hartsel barite changes from white to blue when exposed to sunlight.

This color-changing phenomenon is called **tenebrescence**, and minerals with this property are called tenebrescent. When removed from sunlight, a tenebrascent mineral slowly reverts back to its original color. This effect can be repeated indefinitely, but heating will destroy this property.

This property is also known as photochromism; a good example of photochromism is self-adjusting sunglasses that darken in the sun and lighten indoors. Well-known tenebrescent minerals include hackmanite (a variety of sodalite), scapolite, and tugtupite.

Light and Color

At this point, we need to digress and talk about why a mineral or other solid is a specific color. From looking at a rainbow or light passing through a prism, we know that visible light is composed of different colors. When light falls on an object, some of the visible light colors are absorbed by the solid. The remaining visible light colors are reflected. The object's color that we see is the reflected light color or colors. Figure 2 shows an example. When visible light strikes a red object, the red light is reflected while the remaining light colors are absorbed. And we see the object as red.

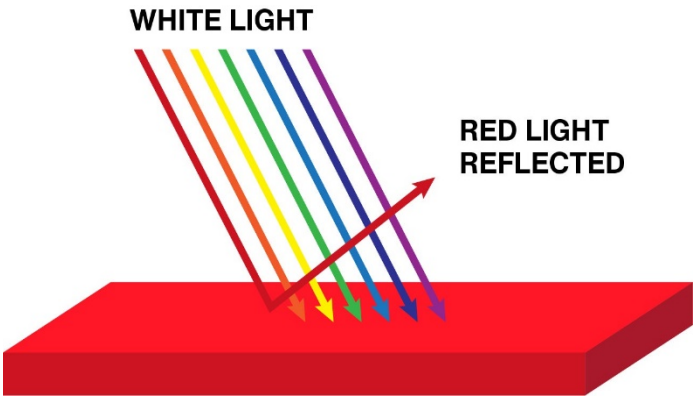


Figure 2. A red object looks red because red light is reflected, while the other light colors are absorbed in the object. Credit: Pantone.com, permission granted on their website

If an object absorbs all the visible light colors and reflects none, it appears black. Likewise, if an object reflects all the visible light colors and reflects none, it appears white.

What Causes Hartsel Barite to Turn Blue?

The composition of barite is barium sulfate, which consists of an atom of barium joined together with a sulfate. Sulfate consists of one sulfur atom and four atoms of oxygen. In a barite crystal, the barium and sulfate are arranged side-by-side in a 3-dimensional pattern, as shown in Figure 3.

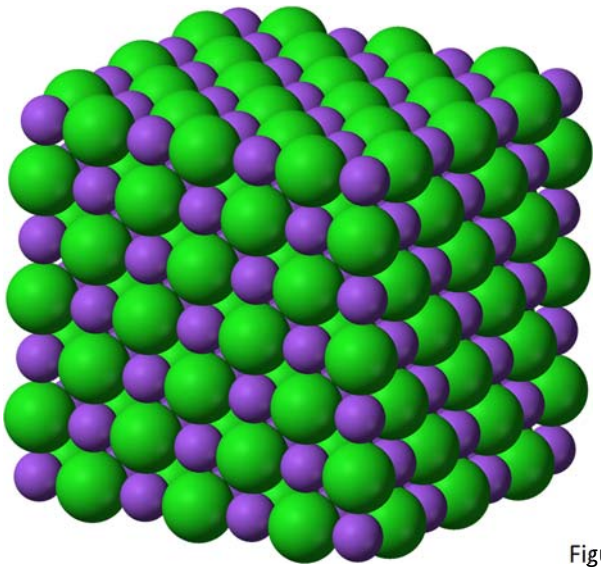


Figure 3. The 3-dimensional pattern of a barite crystal. The purple spheres are barium, and the green spheres are sulfate. Credit: Benjah-bmm27, public domain

Most mineralogists agree that tenebrescence is caused by defects in this crystal pattern called F-centers. In the case of Hartsel barite, the crystals have defects to the arrangement of the barium and sulfate. Occasionally, a sulfate is missing and is replaced by two electrons. Each replacement of one sulfate in a crystal with two electrons is called an F-center. (The term F-center comes from the German word Farbe, meaning color.) These F-center electrons within the barite crystal absorb all light colors except blue, and the resulting reflected blue light gives the barite crystal its blue color.

When these electrons absorb the other light colors, they have more energy. Once the crystal is put in the dark, these electrons slowly lose this excess energy, reverting back to their original state. The

F-center electrons no longer reflect blue light, causing the crystal to return to its original color.

References and Additional Reading

- For an overview of tenebrescent minerals, see "This Gemstone Switches Colours in an Instant," Geology In website, https://www.geologyin.com/2018/01/this-gemstone-switches-colours-in.html.

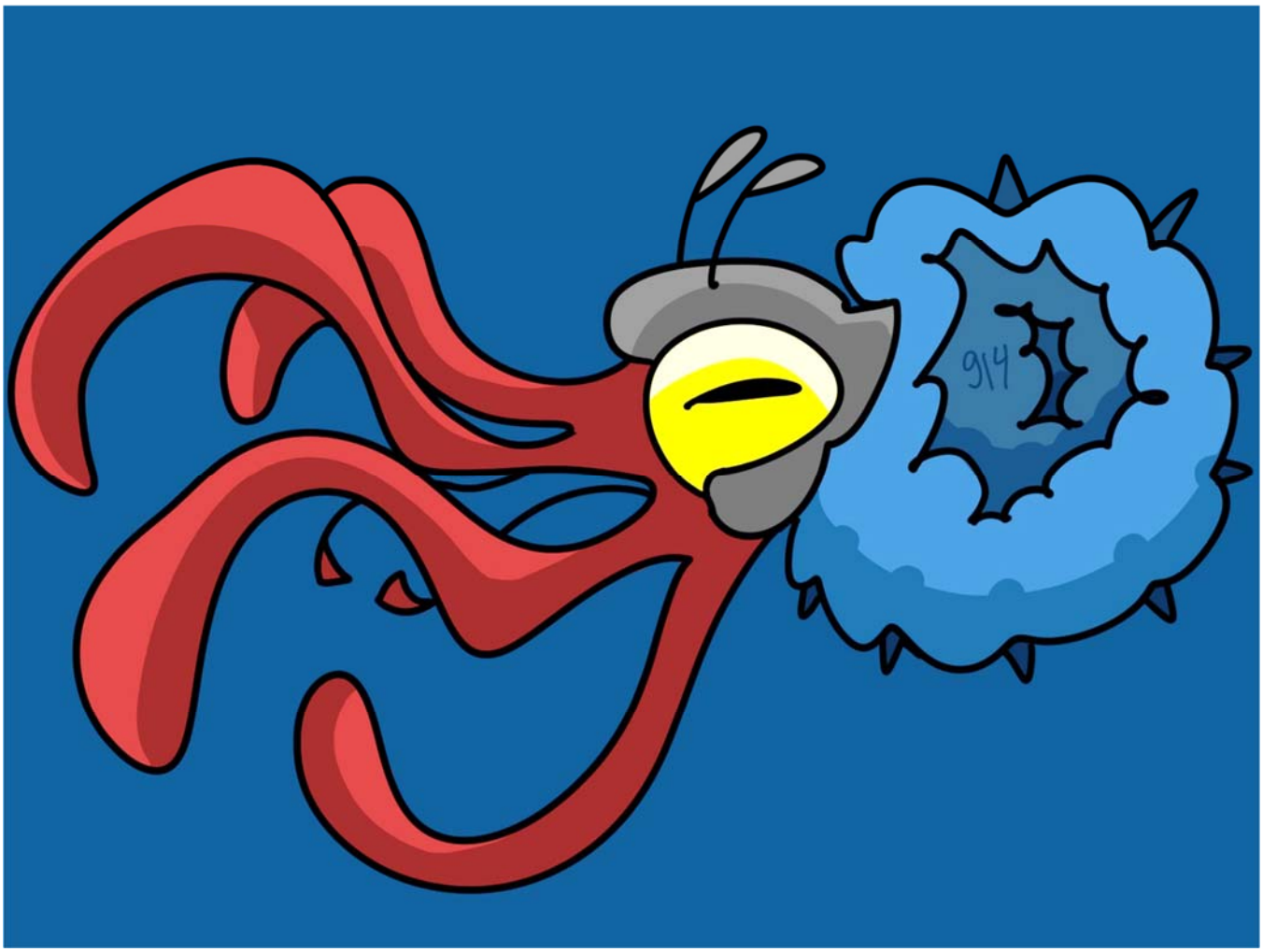
- This reference gives a nice review of light and colors, Sudha, Sai (2022), "How Do We See Colors?" Smore Science website, https://www.smorescience.com/how-do-we-see-colors/.

- A simplified explanation of how F-centers cause tenebrescence can be found at "Hackmanite," Gemology Online website, https://www.gemologyonline.com/hackmanite.html.

- For a much more in-depth explanation of tenebrescence, fluorescence, and other light properties of minerals, see Nassau, Kurt (1978), "The Origins of Color in Minerals," *American Mineralogist*, vol 63, p. 219-229, http://www.minsocam.org/msa/collectors_corner/arc/color.htm/.

Paleoart: AmmonoIDEA

Charlotte Small, age 15



Charlotte loves to draw ancient animals and **AmmonoIDEA** is her latest creation. We asked her several questions about her drawing.

Editor: Why did you decide to create an ammonite?

Charlotte: I decided to draw an ammonite because I went to the Badlands visitor center and bought a toy ammonite. That inspired me to draw one.

Editor: Many paleoartists try to create realistic drawings, while your ammonite is more whimsical and creative. Why did you decide to draw this ammonite in this style?

Charlotte: Because I find it easier to draw like that. My art style is cartoony; it would be very hard for me to switch to realism.

Editor: How did you come up with the name **AmmonoIDEA** for your drawing?

Charlotte: "Ammonoidea" is the group that ammonites belong to, and "IDEA" because I got inspiration from the ammonite I bought from the gift shop.

Editor: Do you plan to pursue paleoart as an adult?

Charlotte: Yes, I am debating doing it as a source of income. However, I am not sure yet.

Jr. Geologists Activities

We ended the spring meetings with Volcano Night, where we learned about volcanoes, earthquakes, and plate tectonics, earning the Earth Processes Badge. The meeting highlight was making volcanoes and then shooting them off (outside, of course) to demonstrate both explosive and effusive volcanic eruptions. Thanks to the GeoExplorers for helping with shooting off the volcanoes, especially with the grand finale eruption. The rocks we were polishing this spring were finished, and everyone got to take some home.

There are no monthly Jr. Geologists meeting during the summer, but several activities are in the planning stages. Jr. Geologist families will receive an email, once plans are finalized.

If your family would like to join the Jr. Geologists and you are not on our email list, please contact Dennis Gertenbach at gertenbach1@gmail.com to have your name added.

Left: Dennis Gertenbach demonstrates plate tectonics with Oreos (which we then ate). Right: Modeling how an earthquake happens. Credit: Rebecca Stetson

Making volcanos. Credit: Anna Elek

Getting ready to fire off a volcano.
Credit: Anna Elek

The grand finale eruption.
Credit: Karen Simmons

Picking out polished rocks we made this spring. Credit: Rebecca Stetson

Safety: Stay Hydrated

It's easy to become dehydrated in Colorado's warm, dry climate. When you are out collecting in the field, drink lots of water. If you are sitting in the sun, feeling hot and sweaty, drink water. If you start to feel lightheaded and a bit dizzy outside, drink water. The bottom line – bring lots of water with you when you are in the field and drink water regularly.

Here are guidelines for staying hydrated from the Virginia Department of Health. (Permission granted to use.)

May and June Club Meetings

Gerry Naugle was our speaker in May, talking about the Bone Wars in the late 1800s, when Othniel Charles Marsh and Edward Drinker Cope competed to see who could find the biggest, most impressive dinosaur bones and name the most new species. By 1900, over 1,100 dinosaur species had been named from the rivalry between these two paleontologists.

For more information about the Bone Wars, Gerry recommends these online resources:

On BBC

- The bitter dinosaur feud at the heart of palaeontology, https://www.bbc.com/future/article/20230119-the-dinosaur-feud-at-the-heart-of-palaeontology
- BBC Radio 4 - Science Stories, The Bone Wars, https://www.bbc.co.uk/programmes/b05xh31n

On YouTube

- Into the Dinosaur Valley - Prehistoric Wild America, https://www.youtube.com/watch?v=rCHKjtXijyA
- The Bone Wars: Edward Drinker Cope & Othniel Marsh, https://www.youtube.com/watch?v=-NC36EkxtEQ
- Dinosaur Mania: The Bone Wars, https://www.youtube.com/watch?v=yvMiP6G377k
- Bones that bond, a video featuring club member Anita Colin at Como Bluff, Wyoming., https://www.pbs.org/video/bones-bond/

In June 13, we had an evening "field trip" in Mountain View United Methodist Church. The evening began studying a table of prize rocks, discussing what they were while eating snacks. Then, we then bagged specimens for grab bags. At the end of the "field trip," everyone got to pick out a prize.

Prized rocks at our June meeting.
Credit: Anna Elek

Bagging specimens for grab bags.
Credit: Anita Colin

A Fish Tale, Part 2 – Chonky Fish!

Nancy Kimber

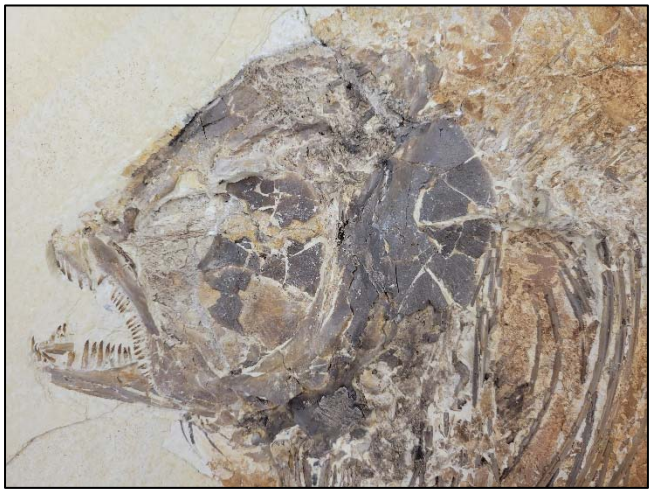
[Editor's note: Part 1 of this story was in the May-June Flatirons Facets. Here is the second half of this fish tale.]

The story of my Kemmerer, Wyoming lucky fish find continues!

I knew in early 2022 that I would be returning to Kemmerer as part of a WIPS field trip. Several months in advance of this July adventure, I contacted the preparator, Robert Bowen, at Wyoming Fossils in Kemmerer. I gently reminded him that I would be in the area that summer, and that I would be most happy if I could pick up the completed fish at that time. No need to worry about shipping that way! Well, months went by without too much communication. In mid-July, I emailed Robert one last time, to let him know the dates and times I would be in town and able to visit his shop. When I departed for Kemmerer, I really didn't know the status of the fish. Actually, I didn't expect it to be done.

The finished *Phareodus encaustus* was beautiful

As usual on WIPS field trips, the trip leaders kept us pretty busy. However, I was able to squeeze in a stop at Robert's shop between visits to Fossil Butte National Monument and Warfield Fossil Quarry. I was directed upstairs. I may have screamed "holy moly, is that my fish?" at the top of my lungs. It was DONE! And, for lack of a better word, it was chonky! See, I spent the previous year looking at a "before" photo as my computer wallpaper. As found, the fish was only partially exposed, and appeared to be much skinnier. So, that was what I had in my mind. If there were more hours in the day, I could have done more research and had a better idea of what the finished specimen would look like, but oh well. Seeing it fully exposed was a very happy surprise! The small *Mioplosus* sp. by the tail was added, as part of the prep work, to cover an incomplete spot.



A closeup of the head showing the head and eye socket.

It turned out that the fish still needed a few finishing touches. But it would be done by that evening! Woo hoo! I was so happy that I was barely able to concentrate that afternoon (and didn't find much at Warfield as a result). I returned to Robert's shop that evening. It's a good thing that I had some friends with me, because I still had to wrap the fish for transport (*again*, haha!). We transformed an OSB backer board, bubble wrap, and a chunk of carpet padding into a nice, padded package (and happily a much smaller one than the "before" package).

My chonky 21" *Phareodus encaustus* made it home safe and sound. I've already shown it at the Denver Gem & Mineral Show, the WIPS annual Show-and-Tell program, the FMC annual Towel Show (Show-and-Tell), and the LGMC annual Best Field Collected Specimen competition. This is one well-traveled fish!

Now I just have to figure out how to hang this beast on a wall!

Come to Casper for the Rocky Mountain Federation Convention
July 14 through 16, 2023

The Rocky Mountain Federation of Mineralogical Societies (of which our club is a member) rotates their annual convention to different states in the Rocky Mountain region. This year's convention is in Casper, Wyoming, held in conjunction with the Natrona County Rockhounds Show and Convention. The show features rough rocks, gems, minerals, lapidary and rock hounding equipment and supplies, and hand-crafted jewelry by vendors from numerous states. There will also be displays, games, silent auctions, door prizes, and events for adults and children. Several field trips are planned, including trips to collect Sweetwater agates, petrified wood and botryoidal agates from the Shirley Basin, prairie agate, and banded iron.

The convention packet containing the schedule, registration form, and hotel information can be downloaded at https://www.rmfms.org/_files/ugd/da64e5_1c3e9cc71c3c4a84a45862511f52ad01.pdf. This is a wonderful opportunity to increase your knowledge about the federation and their role in supporting rock hounding, geology, and lapidary arts. Plus, it will be great fun!

Come to Billings for the American Federation Convention
August 3-6, 2023

An even larger show will take place in August at the American Federation of Mineralogical Society (AFMS) Convention. Each of the regional federations (including our own Rocky Mountain Federation) will convene in Billings, Montana this summer in conjunction with the Billings Gem and Mineral Show – Montana Treasures.

This special regional and national show will feature vendors and exhibits of gems, crystals, minerals, fossils, artifacts, agates, jewelry, and more. There will be raffles, silent auctions, and lots of fun events for kids! After the show, there will be field trips to collect Bear Canyon agate, Cretaceous fossils from the Bearpaw Shale, and Montana agate from the Yellowstone River Valley.

You can download a registration form at http://northwestfederation.org/documents/Show/Archives/2023/2023AdvanceRegistrationForm.pdf. More information about the show will be posted on these website this summer: https://billingsgemclub.com/rock-shows/2023-show and http://northwestfederation.org/FederationShow.asp.

Clark, Gruber and Company: Colorado's History on Display at the Mines Museum

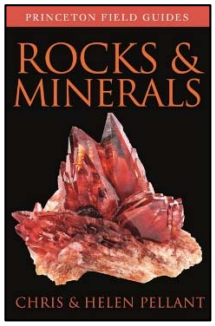
The Mines Museum of Earth Science has a wonderful display of Colorado Territorial Gold Coins minted by Clark, Gruber and Company. These beautiful gold coins from the Frederick R. Mayer Collection are probably the most important surviving artifacts having a direct link to the Colorado Gold Rush of the late 1850's and early 1860's. The story of these coins and their importance to Colorado's mining history is told by Ken Kucera at https://www.mines.edu/museumofearthscience/wp-content/uploads/sites/57/2023/05/Clark-Gruber-and-Company-Territorial-Gold-Coins_KUCERA_May-2023.pdf.

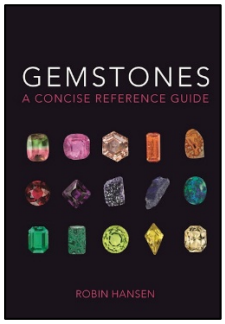
Come to the Mines Museum in Golden to see this historic collection, along with two floors of minerals, fossils, and geological displays. The Museum is located at 1310 Maple Street in Golden. See https://www.mines.edu/museumofearthscience/ for more information about the Museum.

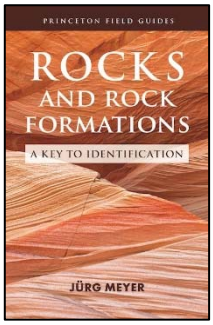
1860 $5 gold coins minted by Clark, Gruber and Company of Denver, public domain

Gemstones, Rocks, and Minerals: New Books from Princeton University Press

From glittering rubies, sapphires, and topaz, to breccia, brimstone, and volcanic bombs, Princeton University Press offers an exciting new array of books exploring the rocks and minerals of the world. For a 30% discount, enter this promo code at checkout: GEM30 (available now through 8/31/2023).







You can browse these titles and many more at press.princeton.edu

Other Rockhounding Events and Activities in the Area

If you plan to attend any of these that have not been canceled, please check their websites for the latest updates before you go.

- **July 14-16 (Friday through Sunday)** The **Rocky Mountain Federation of Mineralogical Societies** (of which our club is a member) has its **annual convention** this July in Casper, Wyoming, held in conjunction with the Natrona County Rockhounds Show and Convention. The show features rough rocks, gems, minerals, lapidary and rock hounding equipment and supplies, and hand-crafted jewelry by vendors from numerous states. There will also be displays, games, silent auctions, door prizes, and events for adults and children. Several field trips are planned, including trips to collect Sweetwater agates, petrified wood and botryoidal agates from the Shirley Basin, prairie agate, and banded iron. The convention packet containing the schedule, registration form, and hotel information can be downloaded at https://www.rmfms.org/_files/ugd/da64e5_1c3e9cc71c3c4a84a45862511f52ad01.pdf.

- **July 15 (Saturday)** is **Summer Family Day** at the **Western Museum of Mining and Industry**, featuring outdoor machine demonstrations, blacksmith demo, gold panning and more! Located in Colorado Spring, the cost is $5 per car. (Regular Admission applies for indoor activities.) For more information, see https://fareharbor.com/embeds/book/wmmi/items/118727/calendar/2023/07/?flow=41147&full-items=yes

- **August 3-6 (Thursday-Sunday)** This year's **American Federation of Mineralogical Societies Convention** is in Billings Montana. This special regional and national show will feature vendors and exhibits of gems, crystals, minerals, fossils, artifacts, agates, jewelry, and more. There will be raffles, silent auctions, and lots of fun events for kids! After the show, there are three field trips to collect Bear Canyon agates on Monday, fossils from the Bearpaw Shale on Tuesday, and Montana agate from the Yellowstone River Valley. For more information about the show, see https://billingsgemclub.com/rock-shows/2023-show.

- **August 17-20 (Thursday-Sunday)** Dinosaur Ridge invites you to become a working paleontologist on the **Triceratops Gulch Project**. Experience what it's like being part of a research team on a real working paleo dig site. You will receive on-the-job training and contribute to the ongoing work of Glenrock, Wyoming's Paleon Museum. For additional information, including fees, see https://dinoridge.org/programs-and-events/travel-and-field-programs/.

Officers, Directors, and Other Volunteers

President
Brian Walko, 303-931-4283
earthextractions@gmail.com

1st Vice president: Program Chair
Gerry Naugle, 303-591-2830
gnaugle@earthlink.net

2nd Vice President: Field Trip Chair
Will Rehm, 212-300-6331
wmrehm8@gmail.com

Secretary
Sharon Dooley
smandodooley@gmail.com

Treasurer
Gerry Naugle, 303-591-2830
gnaugle@earthlink.net

Board of Directors
Term expires in 2024
Tally O'Donnell, 303-494-6061
phantom@indra.com
Anita Colin, 720-556-9889
anitacolin@hotmail.com
Dennis Gertenbach, 303-709-8218
gertenbach1@gmail.com
Term expires in 2023
Brad Willkomm, 303 249-8877
bpwillkomm@yahoo.com
Andrew MacGregor, 720-988-3259
andrew.d.macgregor@gmail.com
Charlotte Bourg, 970-278-0975
Rckhnd4252@gmail.com

Membership
Gerry Naugle, 303-591-2830
gnaugle@earthlink.net

Newsletter Editor
Dennis Gertenbach, 303-709-8218
gertenbach1@gmail.com

Web Master
Brian Walko, 303-931-4283
earthextractions@gmail.com

Scholarship
Gerry Naugle, 303-591-2830
gnaugle@earthlink.net

Junior Geologists
Dennis Gertenbach, 303-709-8218
gertenbach1@gmail.com

Denver Council Representative
Tally O'Donnell, 303-494-6061
phantom@indra.com

Denver Show Committee
Anita Colin, 720-556-9889
anitacolin@hotmail.com

Field Trip Advisory Committee
Trick Runions, 970-213-7305
trickrun@gmail.com

Facebook Chair
Gerry Naugle, 303-591-2830
gnaugle@earthlink.net

Meeting Door Prize Chair
Brad Willkomm, 303 249-8877
bpwillkomm@yahoo.com

Grab Bags
Anita Colin, 720-556-9889
anitacolin@hotmail.com
Charlotte Bourg, 970-278-0975
rckhnd4252@gmail.com

Mineral Specimens for Grab Bags
Don Mock
donmock@hotmail.com

Club Show Committee Members
Show Chair
Brian Walko, 303-931-4283
earthextractions@gmail.com
Show Volunteer Chair
Charlotte Bourg, 970-278-0975
rckhnd4252@gmail.com
Show Dealer Chair
Andrew MacGregor, 720-988-3259
andrew.d.macgregor@gmail.com
Show Advertising and Admissions
Gerry Naugle, 303-591-2830
gnaugle@earthlink.net
Show Kid's Corner Chair
Charlotte Bourg, 970-278-0975
rckhnd4252@gmail.com

Denver Show Club Table
open

A friendly reminder to pay your 2023 annual dues

Dues are still only $18 per individual and their immediate family. You can pay in two ways:

PAY Gerry Naugle, Treasurer and Membership Chair, at any FMC monthly meeting. Gerry is at or near the sign-in table when you enter the room for the monthly meetings.

SEND a check made to "Flatirons Mineral Club" or "FMC" to P.O. Box 3331, Boulder, CO, 80307. Please do not send cash in the mail.

Your 2023 dues must be received by January 20th, 2023 in order to stay current with the member benefits, which include electronic club newsletters containing the information about club activities, club field trips, annual show opportunities, silent auction opportunities, the annual club summer picnic, and access to the club website. Your receipt is your new annual 2023 FMC membership card.

Flatirons Facets
P.O. Box 3331
Boulder, CO 80307-3331

First Class Mail

Upcoming Events

Date	Event	Location
Saturday, July 15, 11 am	Hike along the trails to learn about the geology of the Boulder area, see page 3	NCAR Mesa Laboratory, 1850 Table Mesa Drive in Boulder
Saturday, July 29	Field trip collect Eocene-age fossils at this pay quarry, see page 3	Florissant Fossil Quarry, Florissant
Saturday and Sunday, August 12 & 13	Field trip to collect at the Calumet Iron Mine and attend the Contin-Tail Mineral Show/Sale, see page 4	Salida and Buena Vista
Saturday, August 19	Annual Club Picnic, see page 2	Harlow Platts Park in Boulder