



Flatirons Facets

Flatirons Mineral Club of Boulder County, Colorado
Volume 61, Number 4
July-August, 2018

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 FMC Picnic

This year's annual picnic is on **Saturday, August 18** at Harlow Platts Park, located just south of the South Boulder Recreation Center at 1360 Gillespie Drive, Boulder, 80305.

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. BBQ sandwiches and beverages will be provided by the club.

As in past years, we will start our get together by filling grab bags and then eat lunch. Afterwards, we will present several awards. One of the awards presented each year is the Rockhound of the Year. Please nominate someone in the club who you feel deserves this honor. A nomination form is found on page 19.



Flatirons Mineral Club Awards

Plan to join us for a fun Saturday.

Annual Rock Bagging Party

Thursday, July 12 at 7:00 pm will be our yearly "rock-bagging meeting" where we sit around putting rock specimens and tags into little zip-locks for our grab bags.

The meeting will be held at the home of members Fred Hall and Kelly Manley at 4561 47th St. (north of Jay Rd.) If you came last year, you will remember it as a house with a geology museum inside! There will be drinks, snacks, and prizes for everyone.

If you have rock specimens or fabric to donate to the club, this is a good time to do it. If you want to make cloth bags for the club, Anita will have pre-cut cloth and yarn for you to take home to assemble.



President's Message

Happy Summer, Everyone!

It's field trip season! I hope you get out there and enjoy the trips that Charlotte Bourg and the volunteer trip leaders have put together for the club. Sign-ups are only available on-line. Please contact me if you have issues with the website.

Speaking of field trips, if you're feeling like a road trip, the Rocky Mountain Federation (of which we are members) is having its annual convention in July. It will be hosted by the Western Dakota Gem and Mineral Society on July 20 –22 in Rapid City, South Dakota. There will be scheduled field trips during the Wednesday and Thursday before the show weekend and on Monday and Tuesday after the show. This is a great way to get on field trips outside of our usual reaches. A schedule of the convention field trips is included in this newsletter on page 14 and information about the convention on page 16.

While you're out there in the field please remember to bring back specimens (50, 100, lots) for our grab bag program. We can't fill the grab bags without your help and their sales go to our scholarship and juniors' programs.

Please contact me with your ideas for field trips, speakers, or anything of club interest at accatino@colorado.edu. Our general meeting speakers have been really great lately and I know that Jean Orr has been feverishly working on the fall line-up of programs.

I hope to see you at the July bagging party! It's always fun!

Have fun, Gabi

Summer Field Trips

Field trip season is in full swing, with the following trips planned for June and July. To learn more about these trips and to sign up, go to the club website at <https://flatironsmineralclub.org/events/?type=field-trips>. Once you log in, you can sign up for any of these trips. Trips suitable for children are indicated with an *.

- **July 7** – *Kremmling, Colorado to collect fossils
- **July 20-22** – Rocky Mountain Federation Show, Rapid City, SD (see page 14 and 16 for more information)
- **July 21** – *Two Creeks, Colorado to collect blue barite and calcite
- **July 28-29** – Como Bluff, Wyoming to help excavate dinosaur bones



Two Creeks barite



Ammonite from Kremmling

- **July 28-29** – *Delaney Rim and Kemmerer, Wyoming to collect turrítella agate, stromatolites, and fossil fish
- **August 10-12** – *Contín-Tail Outdoor Gem and Mineral Show, Buena Vista (see page 23 for more information)
- **August 25-26** – Central Wyoming for banded iron, fossils, agate, pyrope garnets
- **September 1-3** – Yellowcat Flats, UT, for petrified wood, agate, pseudomorphs after barite



Banded iron from Central Wyoming



Kemmerer Fossil fish

Boulder Creek Festival on Memorial Day Weekend

Many thanks to Anita Colin and to Don Mock for organizing the club’s Boulder Creek Festival booth this year and to the volunteers who worked at the club booth. Our members talked to about 900 people during the three-day weekend.

During the festival, we sold 120 grab bags, with the proceeds going to the club’s annual scholarship fund.



The Yamaguches and Poes at the Boulder Creek Festival
Photos by Anita Colin

Boulder County Parks and Open Space Geology Activities

Here are geology-related activities that Boulder County Parks & Open Space has going on in July. More information and registrations about these and other activities can be found at <https://www.bouldercounty.org/open-space/activities/calendar/>.

- **Museum Morning: Live Like a Miner**, Friday July 6, 10:30-11:15 am at the Nederland Mining Museum, 200 N. Bridge Street, Nederland. Enjoy a morning of stories and fun focusing on life long ago in a mining town. For children ages 3-7 with an accompanying adult.
- **Hard Rock Mining Tour**, Saturdays July 7 and August 9, 9:30 am-12:30 pm. Begins at Nederland Mining Museum. Tap into the towns, tools and characters of local hard rock mining heritage by visiting mining sites of years gone by. Tours are open to ages 10 years and older. Some walking required. Space is limited. Registration required.
- **Evening at the Museum: How the 1859 Gold Rush Put Colorado on the Map**, Friday July 13, 7-8 pm, Nederland Mining Museum, 200 N. Bridge St., Nederland. Share coffee and dessert while exploring local history and mountain lore.
- **Panning for Gold**, Saturdays July 14 and August 11, noon–2 pm. Begins at Nederland Mining Museum. Try your hand at gold panning! Placer mining led to the settlement of Boulder County as people sought their fortunes. Do you have what it takes to travel back in time and search for gold in a stream? Open to ages 5 and older with an accompanying adult. Space is limited. Registration required.
- Visit the Assay Museum, Saturdays July 21 and August 18, 11 am-3 pm, 6352 Fourmile Canyon Drive, Boulder. The James F. Bailey Assay Office Museum, located in the historic town of Wallstreet just west of Boulder, helps tell the story of hard rock mining in this area. The assay office was the place where prospectors would take their ore samples to find out whether or not they had potentially “struck it rich.” The determination of the assayer could, and often did, make or break a prospector. Admission is free and all ages are welcome.
- **The Geology of Caribou Ranch**, Saturday, August 11, 9 am-1 pm. Join volunteer naturalist Roger Myers and others on a 4.5-mile moderate hike to learn about Glacial Lake Devlin and examine the evidence of the lake first hand. We will also learn about some of the oldest rocks in the area, as well as the valuable minerals that formed and were mined nearby.

You might also enjoy visiting the Nederland Mining Museum. It is open Friday, Saturday, and Sunday from June through October, 11 a.-5 pm. The museum is located at 200 N. Bridge Street, Nederland. Phone: 303-258-7332

Jr. Geologists Activities

We ended the school year with volcano night, learning about the different types of volcanos and how they form. The juniors made volcanos that demonstrated both explosive eruptions and eruptions with flowing lava. The highlight was a demonstration of a volcano that shows how scoria is formed. (Scoria is made from molten rock full of gas bubbles that erupts from a volcano.) That eruption (Diet Coke and Mentos) shot 6 feet in the air.

We are planning several Jr. Geologists activities this summer. Once plans are finalized, information will be emailed to families.

For information about the Jr. Geologists program, please contact Dennis Gertenbach at gertenbach1@gmail.com or 303-709-8218.



Volcano Night at the May Jr. Geologists meeting
Photos by Jacque Mahan and Dennis Gertenbach

Creede District Mining History Video

As part of the **EDTalks - Minerals Worth Sharing** series at the Colorado School of Mines, Ed Rains, Museum Collections Manager and recognized expert on Colorado minerals and mining history, presented a talk in June titled "Creede District Mining History." If you missed the presentation, you can view it at the following link.

https://www.facebook.com/CSMGeologyMuseum/videos/10155850619119737/?hc_ref=ARRK3bijR7nenKVVzsY8Fjzqv_a6tNW8WlmsXP3

See page 22 for additional EdTalks presentations in August.

Field Trip Photos

Although we are only one month into summer, there have already been several great fields trips. Here are photos of some of these trips.

North Table Mountain outside of Golden to collect zeolite minerals, led by Dennis Gertenbach

Photos by Dennis Gertenbach

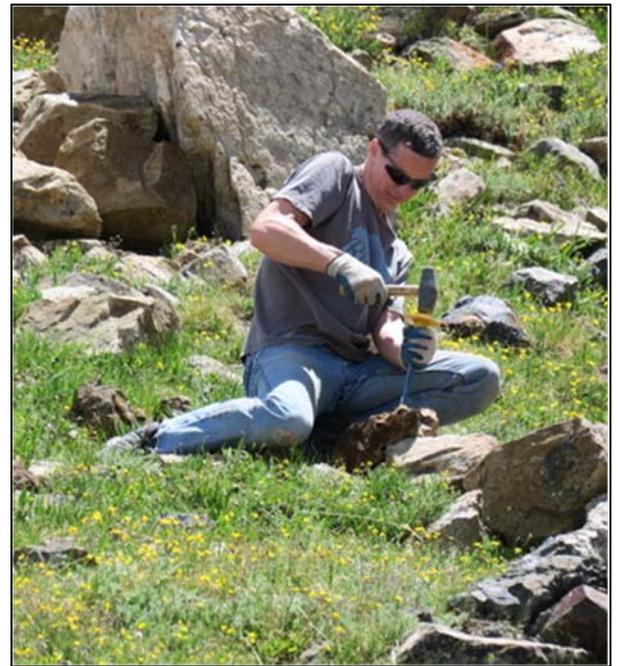


A giant analcime crystal

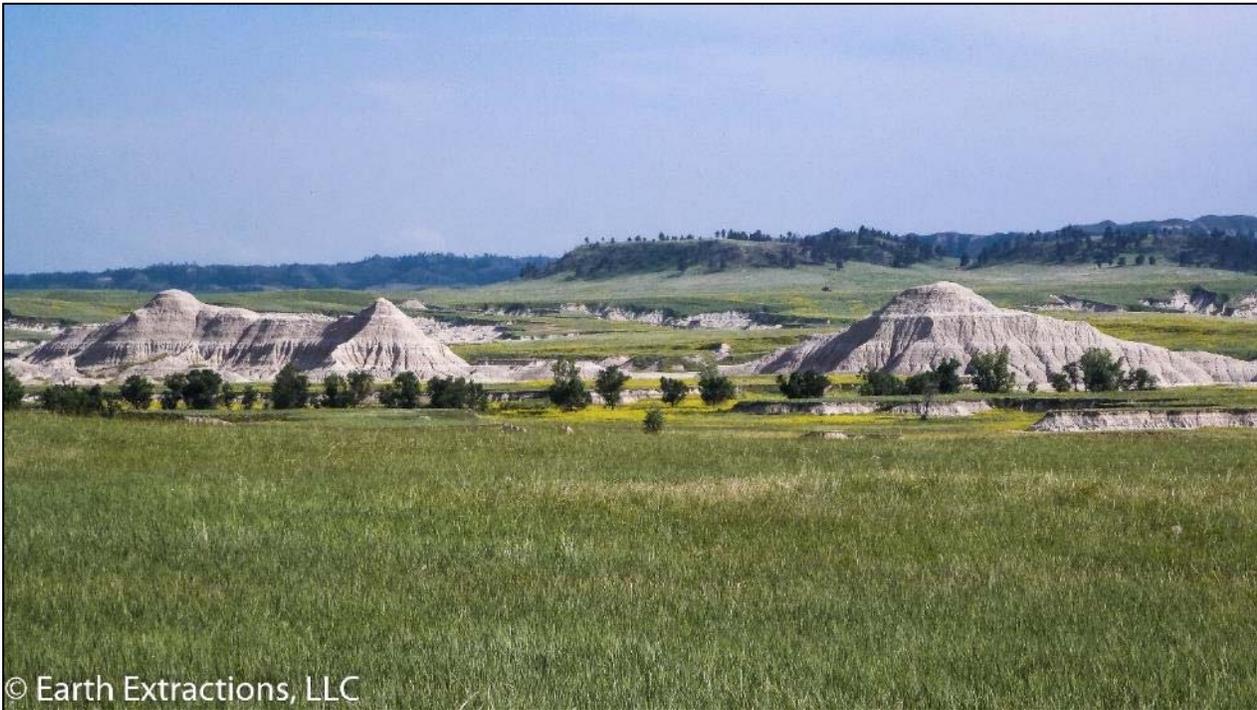


Nice cluster of analcime crystals, surrounded by thompsonite crystals

Montezuma to collect galena and pyrite, led by Tally O'Donnell
Photos by Herman Oehl



Crawford, Nebraska, to collect Oligocene fossils, led by Brian Walko
Photos by Brian Walko and Gabi Accatino



© Earth Extractions, LLC



Tim Ruske digging out the titanothere jaw bone below



© Earth Extractions, LLC



Hunting for agates



Flatirons Mineral Club Donates a Piece of History

Dennis Gertenbach

Recently, our club received a donation of rocks, minerals, and other rockhounding items. Included in the donation was this coin, about the size of an old-fashioned silver dollar. Stamped on the coin was "C. C. & C. CO." on one side and "ONE STICK POWDER" on the other side. The card that accompanied this coin stated that it was from the Colorado Coal and Coke Company (C. C. & C. CO.) mine at Cokedale, Colorado. The club's Board decided to donate this coin to the Colorado School of Mines Geology Museum, because of their commitment to educating the public about Colorado's mining history. Ed Raines, collections manager for the Museum, said that he is currently working on a new exhibit for the Museum and may use this gift in the display.



A bit of research showed that this coin was an explosive control token. Unlike company scrip, which were tokens that miners were paid that could be used for purchases at the mine's company store, these tokens played an important and practical role in the mining operation. The system was very simple. When a miner needed explosives, he (there were no women in mines at that time) was given tokens with an appropriate "good for" value. As an example, this donated coin

was good for one stick of powder. (Miners referred to dynamite as “powder.”) The miner took these tokens to the place where explosives were stored and the tokens were redeemed. If he needed detonating devices, such as fuses and blasting caps, he had to go to another location. For safety reasons, explosives and detonation devices were never stored at the same place.

Coal mining and coking (baking coal to produce coke used in steel production) formed a major part of Colorado’s economy at the turn of the last century. In 1893 Colorado was the sixth-largest coal-producing state in the country. Cokedale, located in the Raton Basin coalfield, was a hotspot for coal production. Several competing companies had mines in the area.

One of these was the American Smelting and Refining Company (AS&R). AS&R recognized that coal from this area would be ideal fuel for its smelters in El Paso and Mexico, because the coal had low ash, sulfur, and phosphorus content and high coking qualities. At that time workers lived in tent colonies, and AS&R recognized that adequate housing was necessary to attract and keep workers. Starting in 1906, construction of the town of Cokedale began, completing homes to house 1,500 residents in 1907. The company maintained the houses and buildings, which encouraged pride among the inhabitants. Each house had electricity provided by the company and rent was kept at \$2.00 per month, per room for forty years. AS&R provided schooling for children as well as recreational activities for families. Because of the benefits provided by AS&R, few Cokedale residents participated in the southern Colorado coal strikes in 1913-14.

The mines at Cokedale closed in 1947 because of decreased demand, and AS&R sold off the camp’s assets. Existing residents bought many of the houses and commercial structures, while most mining structures were dismantled. Today, Cokedale’s population has dropped to around 200. The Cokedale Historical District, composed of 117 buildings and sites, was added to the National Register of Historic Places in 1984.

The coke ovens outside of the town are still visible and make an interesting stop when visiting Trinidad and Trinidad Lake State Park.

References

- David Schenkman, Explosive Control Tokens, <https://www.wizardcoinsupply.com/explosive-control-tokens.html>.
- Nicoli Bowley, Cokedale Historic District, <https://coloradoencyclopedia.org/article/cokedale-historic-district>.



Row of coke ovens at Cokedale. Photo by author

Field Trip to Herkimer, New York

Masaki Tsukada

Last month I had the opportunity to visit Herkimer, New York, for sea scorpions and Herkimer diamonds.

Day 1:

I was very fortunate to have an opportunity to visit the eurypterid (sea scorpion) quarry owned by Mr. Allan Lang (<https://www.langsfossils.com/>). I visited his home in the morning and looked at his collection. Later, a lady school teacher came, and Allan took us to the quarry in his ATV from his home. This was also fun for me to ride on the rough road.



Lang Quarry and eurypterids (sea scorpions) found at the quarry
Photo by author

At the quarry, there are many rocks left on surface along the road. He uses construction equipment to dig the rocks out from the hill and leaves them for years on the ground until they develop natural fractures. What we had to do was to find the natural fractures and split the rocks using a hammer and chisel. He calls it "dish" because most of separated rocks look like a dish. When splitting, there was nothing half of the time, but we found partial sea scorpions and a few almost complete sea scorpions.



Day 2:

I visited ACE Herkimer Diamond Mine (<https://herkimerdiamonds.com/>). This is a fee site (\$10.00/day) and everyone can take home all of what they collect. There are rental tools for a small fee. (Examples: small hammer for \$1.00, large hammer for \$4.00)

It requires hard work to find pockets of crystals in the rock, because the rock is very hard. The site also prepares rock piles, so I worked one of them. I would find rocks that had small holes or crystals on the surface. For the larger pieces, I broke them open with a hammer to look for crystals. For the smaller pieces, I just kept them, because I like crystals on matrix. Breaking rock should be done very gently, because crystals were lost very easily by vibration. Unfortunately, I did not notice this for the first half of the day. Another strategy is to use a screen to find loose crystals, but I did not try it. By the end of the day, I had some nice crystals in matrix and loose crystals.



ACE Herkimer Diamond Mine and Herkimer diamonds (doubly terminated quartz crystals) found at the mine. Photo by author



Field Trip to Franklin, New Jersey

Jean Orr

Last fall, Craig Hazleton presented fluorescent minerals to the Junior Geologists. He capped it off with a nighttime hunt outside with UV flashlights for some of his rocks. At least one child was inspired to do her Science Fair project on fluorescent minerals after this meeting.

I was inspired to detour by Franklin, NJ's Franklin Mineral Museum and its sister mine 2 1/2 miles away, Sterling Hill Mining Museum in Ogdensburg.

This area in northern NJ is rich in zinc and was mined until extraction became unprofitable, whereupon they began to mine tourists. The early miners had noticed that when sparks flew, some of the rocks would glow different colors. These fluorescent minerals became well-known, and indeed, the Denver Museum of Nature and Science just featured some Franklin rocks in a phosphorescent exhibit.



Mine dump at Sterling Hill. Photo by author

The Franklin Mineral Museum has a large collection of minerals and fossils, in addition to a dark room for the fluorescent display. They have a small mine replica. Out back is a mine dump of fluorescent minerals and a dark shed with UV light to see if your specimen is worth collecting at \$1.50 per pound.

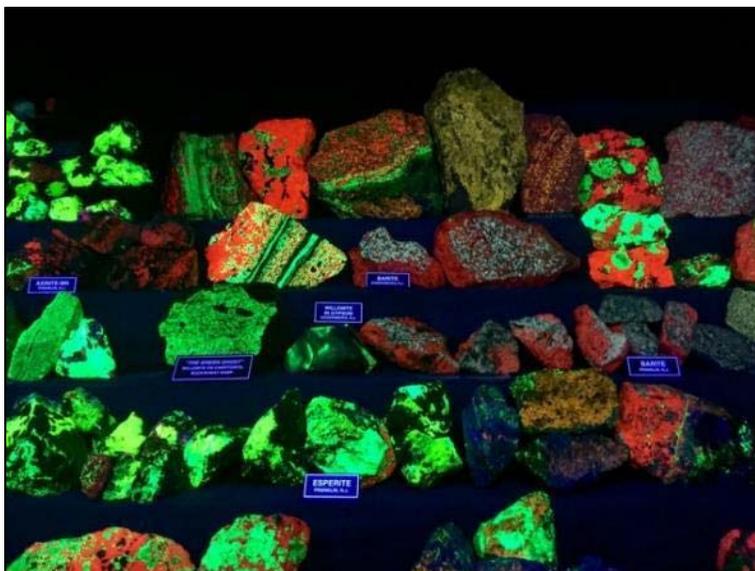
Sterling Hill has a tour of an actual mine, which starts in the miners' old locker room, now turned into a museum of minerals and mining equipment. On the tour, the guide turns out the lights in the "Rainbow Tunnel" and turns on the UV. They have two mine dumps, one for fluorescent minerals and the other for "international". In the international dump, I found tiger eye and "New Jersey amethyst". Here, too, your finds cost \$1.50 per pound.

Both museums have many other activities, including for children. Their websites are:

<http://sterlinghillminingmuseum.org>

<https://franklinmineralmuseum.com>

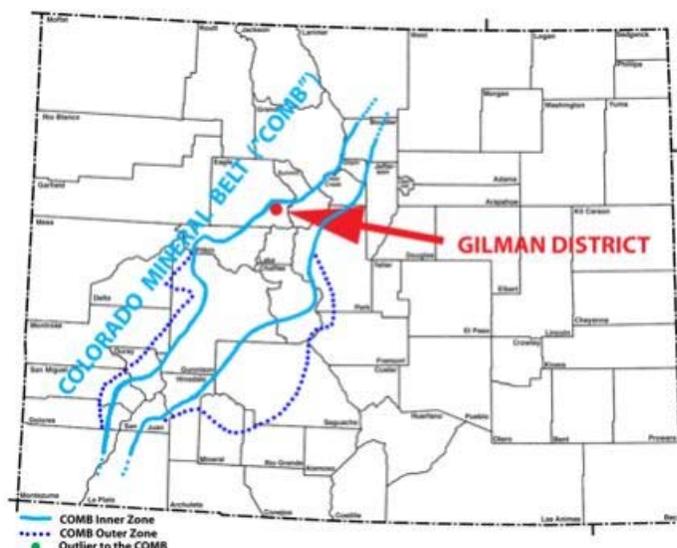
Fluorescent minerals in the Franklin Museum.
Photo by author



Minerals from the Gilman Mining District of Colorado

The Colorado School of Mines Geology Museum has one of the worlds' best collections of minerals from Colorado's Gilman District, home of the state's greatest zinc mine. The Colorado School of Mines Arthur Lakes Library is now showcasing Geology Museum mineral specimens from Gilman in a new digital collection. Viewers can read about the area's history, mineral deposits, and view some of the best minerals from Gilman in the Museum's collections.

Located in the Gore Range, the Gilman Mining District was mined for gold, silver, lead and zinc, beginning in the second half of the nineteenth century and includes the famous Eagle Mine and the town of Gilman, Colorado. It is located in Eagle County, in the Inner Zone of the Colorado Mineral Belt (COMB).



The content for this new digital collection has been developed by Ed Raines, Museum Collections Manager and noted expert on Colorado minerals and mining history, and Lisa Dunn, Special Research Collections Manager at the CSM Library.

To see the full collection, visit "Gilman Minerals, Colorado", in the Mines Geology Museum's digital Mineral Specimens community at the following link: <http://libguides.mines.edu/Geology.../digitalcollectionsGilman>

Field Trip Guidebook of the Gold and Silver Deposits in Colorado Available Online

Last July, the Colorado School of Mines held a symposium about the "Gold and Silver Deposits in Colorado." The symposium also included a field trip to visit many of these deposits. The Field Trip Guidebook is now available online at <https://dspace.library.colostate.edu/bitstream/handle/11124/172170/GoldandSilverDepositsColoSymposiumGuidebook2017.pdf?sequence=1&isAllowed=y>. The field trip guidebook has eight trips to many famous mining localities in the Colorado Mineral Belt – a great resource for field trips this summer.

Lapidary Lab Space Needed

Our club has several saws, a Genie, and other lapidary equipment. Some of this equipment is scattered in club members homes, while other equipment is in storage. Many of you have indicated an interest in learning lapidary skills and using the equipment. Ideally, a club "Lapidary Lab" would be a great place to have this equipment available to club members and to teach lapidary skills. Years ago, equipment was set up at Charlotte Morrison's house, and members could use the equipment one night a week.

To reestablish this, we need a space to set up the equipment for our members' use. if anyone has space in a garage or other building that you would be willing to let the club use for our new lapidary lab, please contact Tally O'Donnell at phantom@indra.com. The club would be willing to cover utility costs.

38th Annual Gem and Mineral Show

Rushmore Plaza Civic Center/Barnett Arena in Rapid City, SD

The Rocky Mountain Federation of Mineralogical Societies' annual convention and show is July 20-22 in Rapid City, SD. It is an opportunity to see a great show and meet people from all over the Rocky Mountain region. Plan to arrive before the show and stay after the show for some great field trips.

A flyer with information about the show is on page 16. Below is a list of the planned field trips.

Field Trips for the 2018 Show - Here are four planned trips. There could be more forthcoming as we move closer to the show date.

To register for any of these trips, we've listed how to do that at the end of each trip description.

Wednesday July 18, 2018 – Lori Green will lead a field trip to Custer Area Mines

Get your rock clothes on and pack a big lunch. This trip is not for the faint of heart. You'll find plenty "Treasures of South Dakota" on this trip. We'll be visiting 3 or 4 Custer County locations with something different at each stop, so make sure you've got carrying containers and room in your vehicle. You'll want to bring a hammer, chisel, hand rake, and a shovel when you come today. Sturdy shoes are a standard as you could be walking on level ground or climbing around in the rocks.

We'll meet at 8:00 AM in Custer at the 1881 Courthouse Museum which is located on Hwy 16 in downtown Custer and easy to find. There are public restrooms and a convenience store right there for any last-minute needs.

We'll stop for tourmaline clusters in matrix, Tee Pee Canyon agate, the Tin Mountain Mine for spodumene and apatite, and the last stop will be for rose quartz. This will be a big day so make sure you're well rested and ready to roll. I'm looking forward to giving you a day long adventure.

Call me if you need more information, if you get lost on your way to meet the group, or if you want to meet up with us later in the day (Cell service may not always be available). See you all there!

To register for this trip, call me directly prior to the date so I know how many waivers to have and I'll know when everyone is there. Cell service may not be available once we leave town. See you all there!

Lori Green 719-207-1035

Thursday July 19, 2018 – Black Hills National Forest / Hill City area

Lead by Dr. Martin Kocanda. This field trip is centered around the Hill City region. It consists of two parts where each part explores distinct geological activity all within several mile radius. The region is in close proximity to Mount Rushmore National Park; the trip locations, however, are located with the Black Hills National Forest.

The first stop will be Blackberry Trail. This is a contact metamorphic region where most of the Cambrian rock has been up thrust and metamorphosed through heat and pressure. One should expect to find pyrite, feldspar, mica schist, mica and biotite as well as some other metamorphic materials along a stream bed. The trails are somewhat rugged. Hiking boots and jeans suggested.

The second stop will be sand caves. Aply, no formal name for the spot, but a favorite where trilobites of Cambrian origin can be found. This was a site intended to mine fracking sand, however, the sand particles did not meet the specifications and tunneling was discontinued. Several short, interconnected caves are present and some rough terrain hiking can be had. Hiking boots and jeans suggested; bring a high intensity flashlight for photography. This portion of the trip is mainly geologic. You will see the trilobite bed impressions in the ceiling of the cave. Some sections of the ceiling have fallen for closer inspection of the impressions.

The rally point will be the Civic Center parking lot 0800. Expect to depart by 0830. Maps will be handed out prior to departing.

To register for this trip, Call Martin Kocanda at 605-646-5264, or email him at westdakota.rocks@gmail.com.

Monday July 23, 2018– Railroad Butte/Farmingdale

Led by Tabitha Wood. Farmingdale is about 25 minutes east of Rapid City and is part of the National Grasslands recreation areas. You will be able to find agates (prairie agates and possibly one of those illusive Fairburn agates), coral, petrified wood, chalcedony and other treasures. The area is accessible by car, but if the weather has been on the wet side, you will want to make sure that you keep your vehicle on the trails or in the gravel parking areas. Since this area is prairie and our summers can be quite warm, remember to bring water for drinking and a spray bottle with sufficient water to bring out the 'color' in your finds. Sturdy shoes and jeans are also recommended because there can be knee high grass and the slithery creatures that reside in the grasslands. We will meet at the Civic Center at 8am and depart at 8:30am. Maps will be provided at the Civic Center on the day of the field trip.

If you have a smart phone and would like to download a map of the National Grasslands area, download the "Avenza" app and download the Buffalo Gap NG – Fall River Ranger District MVUM map.

To register for this trip, Call Tabitha Wood at 402-706-0168 after 6:00 PM, or email her at westdakota.rocks@gmail.com.

Monday July 23, 2018 – Antelope Ridge

Ellen Tilley will lead this trip This is an easy walking area and is very accessible from the road. You will find fan coral on this field trip. Departure time to be determined.

To register for this trip, call Ellen Tilley at her home number 605-787-4659

Monday July 23, 2018 – Ancient Rock of the Black Hills Core AM – Keystone South Region PM.

Led by Dr. Alvis Lesenbee, professor emeritus from School of Mines. This will show some of the interesting features of the Black Hills metamorphic geology. He will also make a presentation on Friday (20th) discussing the region's geology. Bring a lunch.

To register for this trip and to obtain meeting time and location, contact Martin Kocanda at 605-646-5264, or email him at westdakota.rocks@gmail.com.

Tuesday July 24, 2018 – Conata Basin

Led by Kelli Wold. Some of the things you will be able to find on the field trip to Conata Basin are prairie agates, petrified wood, Fairburn agates, coral and a lot of other beautiful rocks. Meeting time has not been determined. More information forthcoming.

This trip is mostly surface picking but you might want to bring a small shovel in case you need to dig something out. It's pretty level ground for walking.

To register for this trip, contact Kelli Wold at westdakota.rocks@gmail.com.

Be safe and Be kind to the land

Bring water to drink, food to eat, chairs to rest, sunscreen to not burn, tools, buckets and anything else you might need.



Hotel and Show Information
RMFMS Convention & Show Hosted by
Western Dakota Gem and Mineral Society
July 20 – 22, Rapid City, South Dakota



The host venue will be the Rushmore Civic Center; all events will be located indoors at the Rushmore Arena. There will **NOT** be a host hotel as all meetings will be on-site at the Rushmore Arena.

Several meeting rooms will be available in addition to partitioned areas for presentations, special events and children's activities.

In addition to the three-day show and convention, several days have been allocated for guided tours of local geological sites and national landmarks. The exact tours and sites of interest will be finalized closer to the event date, however, we have allocated Wednesday and Thursday before the show and Monday and Tuesday after the show for off-site events.

To view the Arena and downtown Rapid City events, go here: <https://www.gotmine.com/plan-your-visit/directions-parking>.

Printable Badlands, Black Hills and Devil's Tower maps, go here: <http://blackhillsbadlands.com/maps>

Additional info available at the Visitor's Information Center: <http://blackhillsbadlands.com/business/black-hills-visitor-information-center>

The Civic Center and the Arena are ADA compliant inclusive of handicap parking.

Hotels and lodging info can be found at the above websites. There are ample tent and trailer campsites available within a fifty-mile radius of Rapid City.

Contact our planning committee if you have questions: westdakota.rocks@gmail.com

Fossils in the News

Dennis Gertenbach

Archaeopteryx Was a Flyer, Not a Glider

Since the discovery of their fossils in 1860, paleontologists have argued whether *Archaeopteryx* was a flyer or was just capable of gliding. New fossil analysis suggests *Archaeopteryx*, one of the earliest birds, was capable of bursts of flight, like today's pheasants. A new study finds that the shape of the ancient bird's wing bones suggests it was capable of short bursts of active, flapping flight, similar to how modern birds like pheasants and quails fly to escape predators.

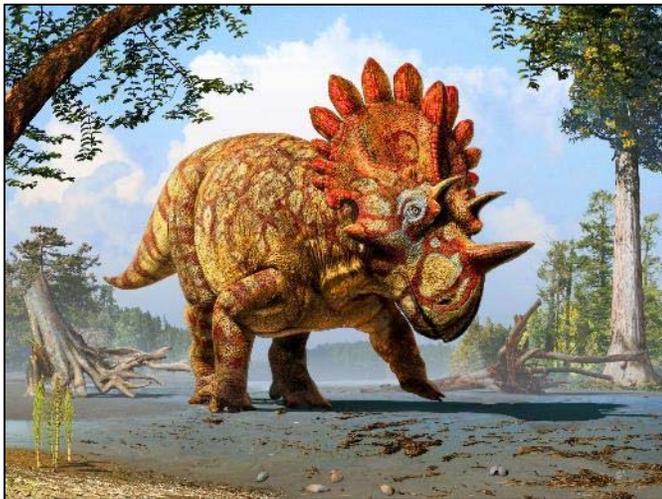
Archaeopteryx lived about 150 million years ago during the Jurassic Period, and has been key to explain how modern birds evolved from feathered dinosaurs.

Paleontologist Dennis Voeten and colleagues used x-ray microtomography on bones from *Archaeopteryx*, several dinosaurs, flying pterosaurs, and modern birds. As reported in *Nature Communications*, *Archaeopteryx* had wing bone structures most similar to pheasants and quails, indicating that they could not maintain active flight, but were capable of small bursts of flapping flight.



Fossil of complete *Archaeopteryx*. Credit: Wikipedia

Information from https://www.sciencenews.org/article/archaeopteryx-had-wings-made-flapping-not-just-gliding?utm_source=editorspicks031818&utm_medium=email&utm_campaign=Editors_Picks.



Artistic life reconstruction of *Regaliceratops peterhewsi*.
Credit: Julius T. Csotonyi, Royal Tyrrell Museum

Dinosaur Horns Were for Making Love, Not War

Most of us have seen reconstructions of *Triceratops* and related dinosaurs with their elaborate horns and frills attacking *Tyrannosaurus* in a battle to the death. A new study casts doubts on this scenario, providing evidence that the frills and horns of *Triceratops* and other ceratopsians, or horned dinosaurs, were all about looking good, as well as defensive. While common sense and even fossil evidence suggests that *Triceratops*' sharp horns were for protection, it does not explain the elaborate ornamentation of recently discovered species like *Regaliceratops peterhewsi*, the "Hellboy Dinosaur" or *Machairoceratops cronusi* the "Bent Sword Face" dinosaur. By comparing 350 traits of 46 ceratopsian species that evolved over a 15-million-year time span, researchers found that these ornaments generally evolved much faster than other traits. Growing and carrying around these ornate frills and horns is quite energy intensive,

and the elaborate head gear is not needed for defense. So why evolve these elaborate horns and frills? Sexual selection demonstrating genetic fitness, similar to a peacock's feathers, is the best answer.

Information from https://www.smithsonianmag.com/smart-news/triceratops-horns-were-mostly-loving-not-fighting-180968568/?utm_source=smithsoniandaily&utm_medium=email&utm_campaign=20180323-daily-responsive&spMailingID=33599998&spUserID=NzEwMTQ4NzQ2NTg1S0&spJobID=1242867240&spReportId=MTI0Mjg2NzQ2NTg1S0



The asteroid impact that eliminated non-avian dinosaurs destroyed global forests and perching birds. Credit: Phillip M. Krzeminski

When the dinosaurs died, so did forests and tree-dwelling birds

Sixty-six million years ago, an asteroid crashed to Earth with a force one million times larger than the largest atomic bomb. And the world burned. Most school children know the asteroid strike caused the extinction of the dinosaurs. But dinosaurs weren't the only ones that got hit hard. In a new study, scientists found that the planet's forests were decimated, leading to the extinction of tree-dwelling birds. By examining the fossil record from New Zealand, Japan, Europe and North America, paleontologists at the Field Museum in Chicago found that the forests were destroyed. Perching birds went extinct because there were no more perches. The birds that did survive were only a handful of ancestral ground-dwelling bird lineages with sturdy legs, like today's kiwis and emus. All of today's living bird diversity can be traced to these ancient survivors, whose fossilized remains show longer, sturdier legs like modern ground birds. The ancestors of modern forest birds did not move into the trees until forests had recovered from the asteroid strike.

Information from

<https://www.sciencedaily.com/releases/2018/05/180524141736.htm>

A four-eyed lizard?

About 50 million years ago, a monitor lizard roamed in what is now Wyoming that had four eyes. Fossils of *Saniwa ensidens* show that this lizard had two eyelike photosensory structures at the top of its head, along with two eye sockets. It is the only known jawed vertebrate to have two of these structures researchers reported in *Current Biology*. The structures are called the pineal and parapineal organs. Among animals alive today, only the jawless lamprey fish has both structures. But many modern reptiles have a so-called third eye, the pineal organ. The researchers examined fossils collected 150 years ago by Yale University students. Scans of the fossils using a technique called X-ray computed tomography revealed spaces in the skull for both the third and fourth eye. What the ancient lizard did with these organs is not known, but some modern vertebrates use the amplified photosensitivity they glean from the pineal glands to navigate.



Four-eyed *Saniwa ensidens* closely resembled the modern monitor lizard *Varanus mertensi*, shown here with an overlay of the skull of *S. ensidens*. Credit: A. Lachmann/Senckenberg Gesellschaft Für Naturforschung/Digimorph.Org



Flatirons Mineral Club
P.O. Box 3331
Boulder, CO 80307

2018 Ballot for the FMC/RMFMS/AFMS Rockhound of the Year

The club membership each year honors an active member, or husband and wife team who have substantial accomplishment during the past year in promoting and furthering the FMC goals, or the club's mission statement, as outlined in the Club Bylaws.

Since inception of this program in 2002, the annual FMC recipients have been: Charlotte Morrison (2002), Paul & Martha Ralston (2003), Ray & Dorothy Horton (2004), John & Jeanne Hurst (2005), Ray & Joyce Gilbert (2006), Chuck & Jan Buda (2007), Cory Olin co-tie with Hallie & Dot Cook (2008), Shaula Lee (2009), Anita Colin co-tie with Gabi Accatino (2010), Mel & Charlotte Bourg (2011), Deborah Knox (2012), Ed Raines & Silvia Pettem (2013), Mike Smith (2014), Tally O'Donnell (2015), Dennis Gertenbach in 2016, and Trick Runions in 2017.

Please list your 2018 nominee below. You can also vote by electronic means. All voting information is confidential and is tallied and is then erased or shredded by Gerry Naugle. The FMC annual winners' names are sent to the RMFMS and AFMS offices for publication in their respective publications. Note: The annual FMC winner(s) are also inducted into the **FMC Hall of Fame** and their name(s) are engraved onto the club's Hall of Fame Plaque.

Your 2018 nomination is: _____

The person or persons should be honored because:

Submitted by (please print): _____

Please return this paper ballot to Gerry Naugle (use the letterhead address above) by **July 15th**, vote by leaving a message or text at 303-591-2830, or send an e-mail to gnaugle@earthlink.net.

Voting results will be announced and the HOF Plaque at the 2018 annual club picnic to be held on **Saturday, August 18th** at the **Pavilion at Harlow Platts Park**, 1496 Gillespie Drive, Boulder, CO 80305. The picnic starts at 11:00 am with grab bags, then lunch.

Thanks for participating!

Denver Gem and Mineral Show Jobs

We need help!! The following is a list of jobs that need volunteers. Read them over and sign up for the job(s) that you would like to do. This is an all-volunteer show; no one is paid. Please come by and join us. You can meet new people and receive free admission by volunteering. Signup sheets will be available at your club meetings. The chair person for each committee is listed below. Call or email her or him if you have questions about the job.

WORK ANYWHERE: This is for those who want to volunteer but are not sure what you want to do. The different committee chairpersons will contact you to talk about how you can help.

CLUB BOOTH: Your own club will have a booth and will need to have someone demonstrating or answering questions. You can recruit new members this way. See your club chairman for details of what your club is planning.

SECURITY: Chair Amber Brenzikofer, 720-480-5234 or amberbrenzikofer@gmail.com. The main job is to patrol the show floor and the parking lots. Security t-shirts and walkie-talkies are provided. Security volunteers do not attempt to apprehend suspected shoplifters, but radio back to the security head. Volunteers are asked for 4-hour shifts at a time. Other security at the show is provided by the Mart and contracted by the Show Committee.

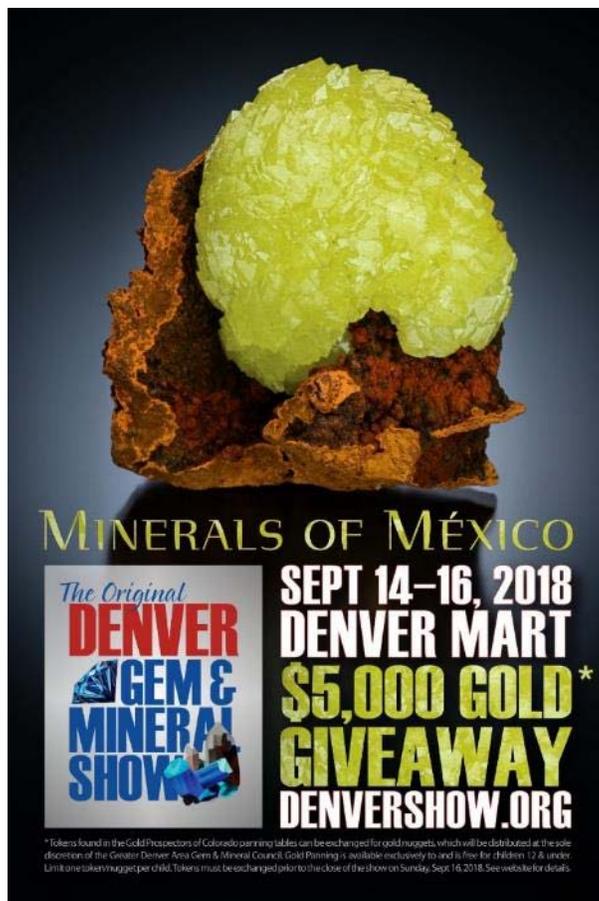
CLERKS TO ASSIST JUDGING: Chair Larry Havens 303-757-6577 or lwrnchavens@comcast.net. Clerks are needed to assist with judging during the show. These individuals must be willing to work with a team of judges throughout Friday and be able to neatly and accurately record judge's comments. This is a good place to learn firsthand the rules and protocol of judging.

HOSPITALITY: Chairs Kevin and KC Larsen, 303-429-6976 or mail@klarsens.net. Need volunteers every day to serve coffee and tea, donuts, and snacks to the volunteers and dealers.

GRAB BAGS, PINS, POSTERS SALES AREA: Chair George Daggett, 303-453-9651 or geoddaggett@hotmail.com. This job is sales of grab bags, posters, and pins and is fun because you work mostly with kids. Many volunteers are needed on Friday morning when the school children are at the show.

ADMISSIONS: Chair Kathy Honda 303-556-4498 or email katherine.honda@ucdenver.edu. These are sitting jobs for hand-stampers, ticket-takers, and ticket-sellers (need cash handling experience making change and working fast when the crowds arrive).

EXHIBITS: Chair Larry Havens 303-757-6577 or lwrnchavens@comcast.net. Volunteers are needed Thursday to assist the exhibitors as they register and set up their cases. Help is needed in cleaning the glass window in the cases each day for fingerprints, etc.



DEALER CHECK IN: Regina Aumente 505-867-0423 or raumente@aol.com. Workers needed Thursday through Sunday. Minimal Typing required.

VOLUNTEER CHECK IN: Chair Anita Colin 720-556-9889 or anitacoln@hotmail.com. Job is Wednesday through Sunday, checking in volunteers and giving out badges. This is a sitting job.

SHOW SET UP: Linda Burns, 303-263-0391 or burns.henley@gmail.com. Volunteers are needed to set up Wednesday from about 9:00 a.m. until the setup is finished. We will be cutting plastic, skirting tables, assembling exhibit cases, etc.

SHOW TAKE DOWN: Chair Dan Wray 303-922-0905 or Daniel.Wray@comcast.net. Volunteers are needed Sunday after 5 p.m. Strip tables, take down cases, pack away risers, cases, etc.

SCHOOLS: Chair Judy Knoshaug 303-423-2923 or jrknoshaug@comcast.net. Help with the school kids, give them a brief talk about the show, and guide them into the show entrance. Friday morning from about 8:30 a.m. to noon.

Webmaster and Assistant Webmaster Needed for the Rocky Mountain Federation of Mineralogical Societies

The Rocky Mountain Federation of Mineralogical Societies is in search of a new webmaster and assistant webmaster. They do not need to be from the same club. Our current webmaster, Jim MacGarvey, has done a most outstanding job for many years. He has asked me to find a replacement for him. We need someone with extensive knowledge of design, maintaining, and working a website. We need the assistant in case the webmaster needs help or cannot take care of a need.

Our current duties of Webmaster that we have adopted in our Operating Procedures are as follows:

The purpose of the RMFMS official web site (www.rmfmts.org) is to provide information to members and interested parties in an electronic form. This method allows timely presentation of pertinent information by an economical mode. The web site shall be maintained by the RMFMS Webmaster, who is appointed by the President.

Duties of the RMFMS Webmaster include:

1. Communication with RMFMS member clubs and RMFMS Officers to obtain input and feedback on the operation of the website.
2. Develop and maintain the site in a pleasing, easy to navigate presentation.
3. Post and update relevant information as it becomes available.
4. Follow RMFMS Operating Procedures for posting of articles and information, and obtain approval from the RMFMS Executive Board prior to posting any questionable information.
5. Maintain a connection to the AFMS web site through interaction with the AFMS and other Federation of Mineralogical Societies Webmasters.
6. Work (within a committee, when necessary) to develop ways to further utilize the website for maximum benefit of the RMFMS and its membership.
7. Pay or make arrangements for the RMFMS Treasurer to pay any fees and/or expenses necessary for maintaining the Website on the Internet.
8. Submit a budget request to the RMFMS Treasurer for the following fiscal year.
9. Send receipts for expenditures to the RMFMS Treasurer for reimbursement.

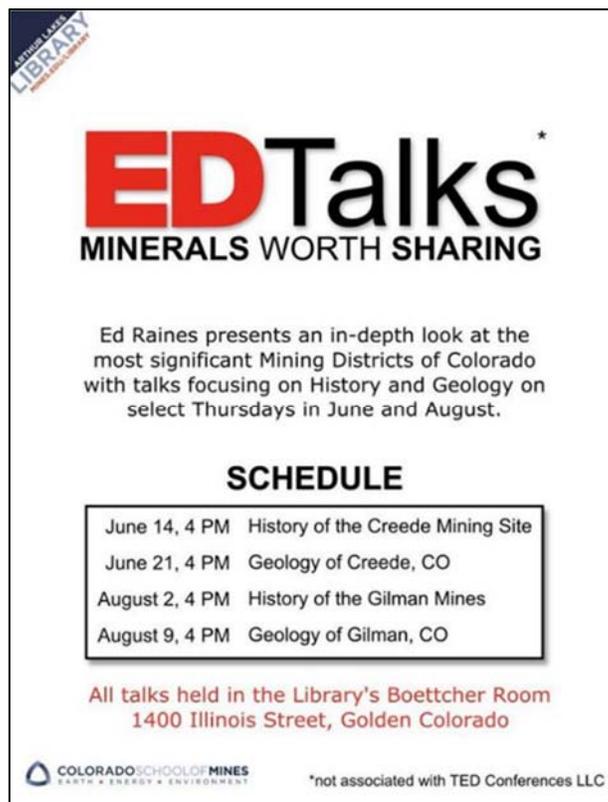
If this is something you might be interested in and can do, please get in touch with me as soon as you can. If you have any questions about this position, please contact me.

Thank you,
Liz Thomas
RMFMS President
bthomas630@cox.net

Other Rockhounding Events and Activities in the Area

Here is a list of rockhounding-related activities in the area for both adults and juniors that you might be interested in. Thanks to Pete Modreski of the USGS for providing many of these notices.

- **July 10** (Tuesday) is the Western Museum of Mining & Industry Speakers' Bureau Lecture, "**Colorado Fuel & Iron**", by Victoria Miller. The lecture will begin at 7:00 pm (doors open at 6:30 pm). \$5 per person, free for museum members. Please RSVP to 719-488-0880 or email rsvp@wmmi.org. At 225 North Gate Blvd., Colorado Springs.
- **July 12-15** (Thursday through Sunday), 9:00 am to 5:00 pm daily, there will be a "**Home Rock Show (Sale)**" by John Haney, 4242 Thompson Court, Denver CO. 80216 (south of I-70, east of York St. & west of Steele St.). "Rough rock, slabs, cabs, fossils, amber, turquoise, minerals, crystals, gemstone bowls & boxes, lapidary equipment & supplies; discounts for lapidary students." Contact, rocksisme@comcast.net, 303-296-8268.
- **August 2 and 9** (Thursdays) at 4:00 pm are the last two **EDTalks** in the Boettcher Room at the CSM Arthur Lakes Library (1400 Illinois Street, Golden, Colorado). **Ed Raines**, Collections Manager at the CSM Geology Museum and recognized expert on Colorado minerals and mining history, will present a series of talks with an in-depth look at important mining districts of Colorado focusing on their history and geology. August 2 will be about the **History of the Gilman Mines** and August 9 will be the **Geology of Gilman, Colorado**. All are welcome.
- **August 3-5** (Friday-Sunday) is the **Creede Rock & Mineral Show**, at the Creede Underground Mining Museum and Community Center, Creede, Mineral County, CO. 10 a.m. – 5 p.m. daily; see <http://creederocks.com/>.
- **August 4-5** (Saturday-Sunday) A symposium on **Minerals from the Metallic Ore Deposits of the American Southwest**, sponsored by the Friends of Mineralogy, Colorado Chapter, and the Friends of the Colorado School of Mines Geology Museum. To be held on the CSM campus. It will include at least 1½ days of presentations, a welcoming party and/or evening



EDTalks
MINERALS WORTH SHARING

Ed Raines presents an in-depth look at the most significant Mining Districts of Colorado with talks focusing on History and Geology on select Thursdays in June and August.

SCHEDULE

June 14, 4 PM	History of the Creede Mining Site
June 21, 4 PM	Geology of Creede, CO
August 2, 4 PM	History of the Gilman Mines
August 9, 4 PM	Geology of Gilman, CO

All talks held in the Library's Boettcher Room
1400 Illinois Street, Golden Colorado

COLORADO SCHOOL OF MINES
SCIENCE • ENERGY • ENVIRONMENT *not associated with TED Conferences LLC

banquet, and possibly one or more field trips. Presentations are invited! To offer to give a presentation, please write to fmccpresident@gmail.com. For more information about the symposium, please see <http://friendsofmineralogycolorado.org/mmodas/>

- **August 9-12** (Thursday-Sunday) is the **Contin-Tail Rock & Mineral Show**, Buena Vista Rodeo Grounds, Buena Vista, CO; see www.facebook.com/ContinTail.

**CONTIN-TAIL
Buena Vista**
Colorado's Largest
Outdoor Gem & Mineral Show!

Amazonite
Crystal Peak
Colorado

August 9th-12th, 2018
Buena Vista, CO Rodeo Grounds

**MINERALS FROM
THE METALLIC
ORE DEPOSITS
OF THE AMERICAN
SOUTHWEST**

AUGUST 4 - 5, 2018
BERTHOUD HALL, 1516 ILLINOIS STREET, GOLDEN, CO

- August 16-19 (Thursday-Sunday) is the Woodland Park Rock, Gem, & Jewelry Show, Woodland Park, CO; see <https://www.facebook.com/woodlandparkrockandgemshow/>.

**WOODLAND PARK ROCK,
GEM AND JEWELRY SHOW**
**THURSDAY - SUNDAY
AUG. 16th - 19th, 2018
9AM - 5PM**

FREE!!!
BETWEEN WALMART
AND BURGER KING
19250 E. US 24

GEM AND MINERAL
AUCTION FRI. AND
SAT. NIGHT AT 6pm.
OPEN TO THE PUBLIC

KIM & BODIE PACKHAM
runninboar@hotmail.com
719-360-9665

www.woodlandparkrockandgemshow.com

- Aug. 17-19, Lake George Gem & Mineral Show, sponsored by the Lake George Gem and Mineral Club, Lake George, CO. See <http://www.lggmclub.org/>.

19th Annual Lake George Gem & Mineral SHOW!
AUG. 17-18-19, 2018
9am - 5pm

FREE Admission! FREE Parking!!
Located in beautiful
Lake George, Colorado on Hwy 24
*local Specimens, Rocks, Minerals,
Fossils, Gems, Beads, Jewelry,
Lapidary & More!*

Lake George Gem & Mineral Club

www.LGMclub.org

Scan to view our Website!

Denver Gem & Mineral Show Mini Report July 2018

The Denver Gem & Mineral Show will be here before you know it.

Every member of the local clubs that sponsor the Denver Gem & Mineral Show should be volunteering in some way to support the show. Operation of the show requires about 400 volunteers. There are many jobs available. Some are easy sitting jobs and some require a little more time and effort. Here are the easy sit-down jobs - Admissions (selling and taking tickets, stamping hands, contact Kathy Honda 303-556-4498), Volunteer Check In (checking in volunteers and handing out badges, contact Anita Colin 720-556-9889). Other easy jobs - Grab Bags (selling grab bags, pins and posters, contact George Daggett 303-453-9651), Hospitality Room (serving beverages and snacks, contact Kevin Larsen 303-429-6976 or mail@klarsens.net), Security (walking around the show and parking lots keeping your eyes open for problems, radioing same back to security head, contact Amber Brenzikofer 720-480-5234). More physical jobs - Show Set Up (cutting plastic, skirting tables, assembling exhibit cases all on Wednesday, contact Linda Burns 303-263-0391 or burns.henley@gmail.com), Show Take Down (disassembling exhibit cases, packing away case liners and signs, all on Sunday after 5 p.m., contact Dan Wray 303-922-0905 or Daniel.Wray@comcast.net). Still other jobs - Clerks to Assist Judging (working with the judges on Friday, accurately recording judge's comments, contact Larry Havens 303-757-6577 or lwrnchavens@comcast.net), Exhibits (assisting exhibitors setting up their displays, cleaning daily the glass windows in the cases, contact Larry Havens again), Dealer Check In (checking in the dealers Thursday morning, typing up badges, contact Regina Aumente 505-867-0423 or raumente@aol.com), Schools (on Friday morning greeting the school kids with a brief talk about the show, Judy Knoshaug 303-423-2923 or irknoshaug@comcast.net). As you can see, none of these jobs are terribly difficult but all are necessary for successful operation of the show. So, think about which job fits your abilities and volunteer to help. I cannot emphasize enough the need for volunteers.

Please don't forget the Show Committee is very appreciative of all the volunteers' efforts and extends the following benefits in appreciation: free admission to the show all three days, providing the Hospitality Room for snacks and beverages during the show, pizza for lunch on Wednesday for set up, deli sandwiches on Sunday evening for tear down.

The Denver Gem & Mineral Show takes place this year on September 14 - 16, 2018 at the usual venue the Denver Mart, 451 E. 58th Avenue (I-25 and 58th Avenue, exit 215). The show theme for this 51st show is "Minerals of Mexico". The Show Chair is Lesley Sebol, 720-999-1372 or lesleysebol@gmail.com. Everyone on the Show Committee is dedicated to making the show the **BEST!** If you enjoy the mineral, fossil and gem hobbies, take advantage of the show. It is a unique opportunity right here in Denver to fully participate in your passion for minerals, fossils, and gems. To see the quality of the exquisite minerals that will be at the show, check out the flyers recently sent to all the clubs. One specimen is an Adamite from the Ojuela Mine, Durango, Mexico, and the other is a Mexican agate.

Respectfully submitted,
Judy Knoshaug, Show Secretary



MINERALS OF MÉXICO

The Original
DENVER
GEM &
MINERAL
SHOW

SEPT 14-16, 2018
DENVER MART
\$5,000 GOLD*
GIVEAWAY
DENVERSHOW.ORG

*Tokens found in the Gold Prospectors of Colorado panning tables can be exchanged for gold nuggets, which will be distributed at the sole discretion of the Greater Denver Area Gem & Mineral Council. Gold Panning is available exclusively to and is free for children 12 & under. Limit one token/nugget per child. Tokens must be exchanged prior to the close of the show on Sunday, Sept. 16, 2018. See website for details.

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accatino@colorado.edu

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Jean Orr
jporr@mindspring.com

2nd Vice President: Field Trip Chair

Charlotte Bourg, 970-278-0975
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3rd Vice President: Annual Show Chair

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Club Hospitality Chair

open

Facebook Chair

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anitacolin@hotmail.com

Meeting Door Prize Chair

Brad Willkomm, 303 249-8877
bpwillkomm@yahoo.com

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Volunteer Chair

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Program Chair

open

Dealer Chairs

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Denver Show Club Table

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

Mineral Specimens Chair

Don Mock
donmock@hotmail.com

A friendly reminder to pay your 2018 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 2018 dues must be received by January 20th, 2018 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 2018 FMC membership card.



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

First Class Mail

Upcoming Events

Date	Event	Location
July 7 (Saturday)	Field trip to collect fossils	Kremmling, CO
July 12 (Thursday)	Annual Rock Bagging Party (see page 1)	Boulder, CO
July 21 (Saturday)	Field trip to collect barite and calcite	Two Creeks, CO
July 28-29 (Sat. & Sun.)	Field trip to help excavate dinosaur bones	Como Bluff, WY
July 28-29 (Sat. & Sun.)	Field trip to collect turritella and fossil fish	Delaney Rim and Kemmerer, WY
Aug. 18 (Saturday)	Annual Club Picnic (see page 1)	Boulder, CO
Aug. 25-26 (Sat. & Sun.)	Field trip to collect banded iron, agate, garnet	Central Wyoming
Sept. 1-3 (Sat. – Mon.)	Field trip to collect petrified wood and agate	Yellowcat Flats, UT