

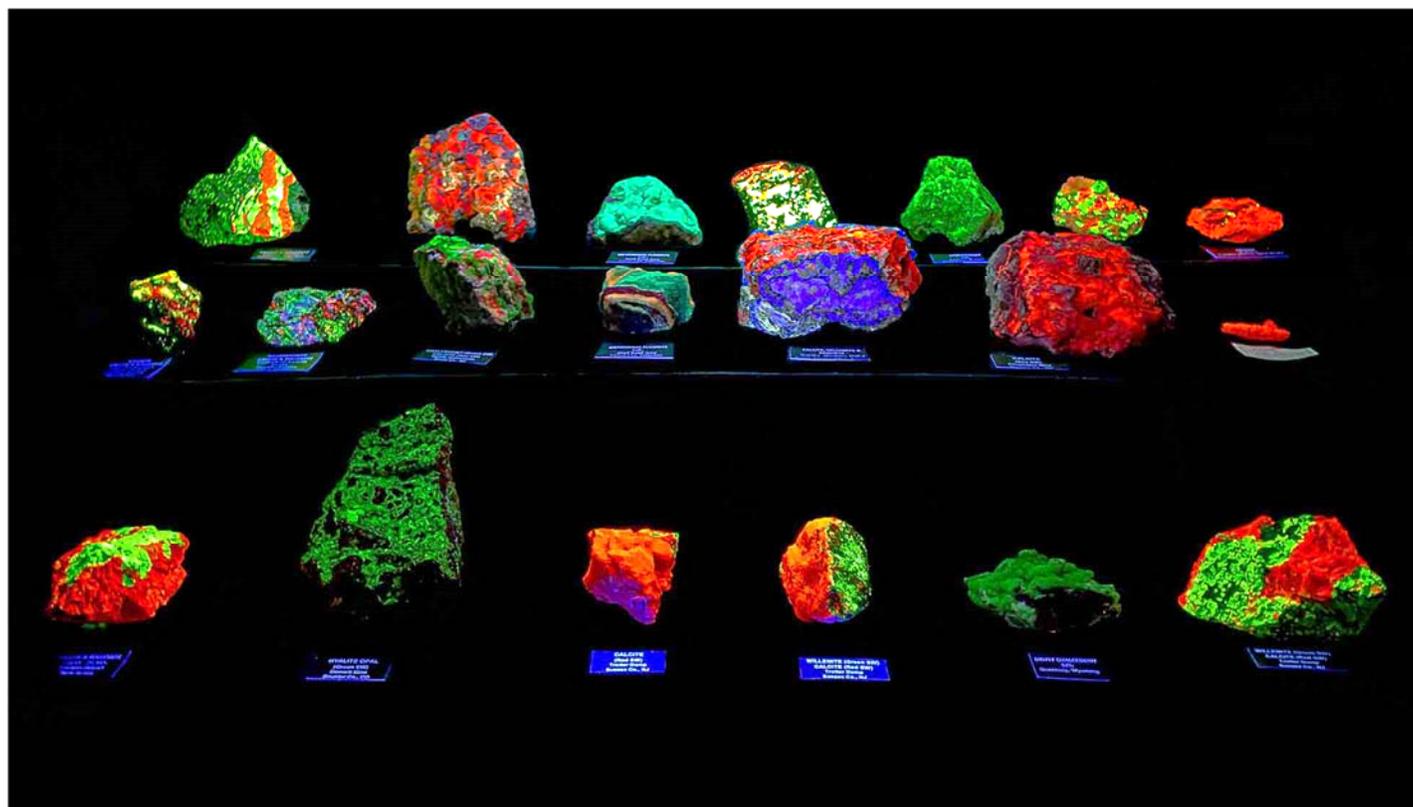


# Flatirons Facets

Flatirons Mineral Club of Boulder County, Colorado

Volume 65, Number 6

November-December, 2022



Fluorescent mineral case at the Denver Gem & Mineral Show assembled by club members Brian Walko and Gerry Naugle, shown under short-wave UV. For additional highlights from the Show, including more fluorescent minerals, see page 10.

## In this newsletter

- Towel Show, page 2
- 2023 dues are due, page 3
- Rocks & Rails Show, page 3
- Holiday party and gift exchange, page 6
- Where in Colorado? pages 6, 17
- Rocking the Pawnee Grasslands, page 7
- Write an article for the newsletter, page 8
- Jr. Geologists activities, page 9
- Club member interviews, page 9
- Highlights from the Denver Gem & Mineral Show, page 10
- Club meetings, page 13
- Fabulous Crocodile Fossil Find, page 14
- North Table Mountain field trip, page 15
- In Memoriam: Carl Bird, page 18
- Fossils in the News, page 19
- AFMS Scholarship Foundation, page 20
- Other rockhounding events and activities, page 21
- Rocks & Rails flyer, page 24



## President's Message

### President's Message

A busy fall. We wrapped up our field trip season with a trip to North Table Mountain. The FMC had two excellent presentations. Dr. Lon Abbott of CU's Geological Sciences Department presented "A Brief Geologic History of Colorado". Ed Raines, Curator, Colorado School of Mines Museum of Earth Science, presented the "How, When, Why, and Where of Hydraulic Fracturing".

Next is our annual Towel Show on November 8<sup>th</sup>. It is fun to see all your mineral, rocks and fossil finds from the collecting season.

The highlight of my year is our Rocks & Rails Show, December 9-11th. The show is run entirely by club volunteers. Please read below to find out more details about these events.

Best regards,  
Brian Walko  
FMC President

## Come to the Towel Show – Tuesday, November 8th

If you're new to the club, you're probably asking, "What is a Towel Show?" Each year, members bring specimens they have collected, as well as lapidary and jewelry they have completed, to show to other club members. The specimens are displayed on a towel, hence "The Towel Show".

Prizes are awarded to both adults and juniors in the following categories: personal field trip, club field trip, lapidary/jewelry, best mineral, best fossil, best ugly rock, and even best towel. Participants vote for their favorites, and gift cards are presented to the first and second place winners in each category. So, pick out some of your best

specimens in as many categories as you like, make labels for them, and bring them to display on your towel.



The Towel Show will start at 7:00 pm in the Mountain View United Methodist Church (355 Ponca Place in Boulder). **If you are bringing items to show, plan to arrive 10 minutes early to set up your display.** Also, you can bring snacks to share with everyone.

Come and join in the fun of displaying your special finds and creations and enjoying those of other members.

Fred Hall with his polished petrified wood at last year's Towel Show.

**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.



## 2023 Dues are Due

Dues are still only \$18 per household for 2023. You can pay in two ways:

- Pay Gerry Naugle, Treasurer and Membership Chair, at any FMC monthly meeting.
- Send a check made to "Flatirons Mineral Club" to P.O. Box 3331, Boulder, CO, 80307. Please do not send cash in the mail.



## Rocks & Rails, December 9-11

Rocks & Rails, the club's annual Gem and Mineral Show, is on December 9-11 at the Boulder County Fairgrounds in Longmont, 10 am to 5 pm each day. Adult admission is \$8 and children 12 and under are free with a paid adult. Our show is run in conjunction with the Boulder Model Railroad Club, so you can enjoy lots of rocks, minerals, and fossils, plus model trains in the other half of the building. The show features gem and mineral dealers, exhibits, fluorescent minerals, and children's activities including games, grab bags, and the Rock R Magic Show.



Last year's Rocks & Rails Show. Credit: Brian Walko

Club members can participate in many ways. The show is planned and run by club volunteers; see below to find out how you can help. There will be eight display cases to showcase your special specimens or lapidary work. Details on how to sign up for a display case are on page 5. Club members can also sell their own creations or rock collections at the Artisan Sale. Information about selling at the Club Artisan's Table is on page 4. Also, specimens are needed for the Kids Corner; we have a home for those specimens you collected years ago but no longer want. More information on donating specimens can be found on page 5.

### Volunteer for Our Annual Club Mineral Show



Every year, our club puts on the best gem and mineral show in Colorado. But to do this, we need volunteers. We need people who unselfishly donate their valuable time to help with the show. There are several areas of the show where we need those volunteers. I'm here to ask if you could volunteer some of your time for the show in one of the following areas.

The first area is **Set-up**. Set-up takes place on Wednesday, December 7<sup>th</sup> starting at 9:30 am and continuing until finished. Set-up means putting tables in their predesignated places and helping where needed. This can last for several hours. Lunch is provided.

During the show, volunteers are needed in 2 areas. The first area is **Security**. Volunteers don an orange vest and patrol the show floor keeping an eye out for shoplifters. We also have 2

plain-clothed security guards that also patrol the show floor. It would be appreciated if security volunteers spend at least 1½ hours on patrol.



Yam Yamiolkoski at last year's kid's area. Credit: Brian Walko

The other area volunteers are needed is the **Kid's Area**. That's my area. In the kid's area, we have games for the kids to play for a quarter, and everyone wins. There are also colorful grab bags filled with specimens for \$1.00. Volunteers interact with the kids and their parents at each game. All proceeds from the games and grab bags go to a scholarship fund - the club keeps no profit. I ask that volunteers spend at least 1½ hour in the kid's area, but I appreciate any time a volunteer can donate. The kid's area is open Friday, Saturday, and Sunday from show opening at 9am to 5pm to close. I will do my best to work with you to find a time and day that works best with your schedule.

**Take-down** starts at the close of the show on December 11<sup>th</sup> at 5pm. Volunteers do a reversal of set-up - remove the plastic skirting, take tables down and clean up. This can last several hours. Dinner is provided.

We could also use some help in the morning before the show opens for an hour, or two, on Friday, Saturday and Sunday, helping direct people to parking places.

There are perks for volunteering at the show. All volunteers get free admission and food tickets. This also presents a great opportunity to do some Christmas shopping!

If any of these areas are of interest to you, and you would like to volunteer, please contact me, Char Bourg [showvol46@gmail.com](mailto:showvol46@gmail.com)

### Show Club Artisan Sale Table

This year we are continuing the opportunity for club members who are not dealers to sell their own creations or rock collections at our December show in Longmont. This can include bulk rocks, slabs, jewelry and other items that fit the following description from our dealer contract: Dealers will be permitted to display or sell only materials or equipment directly related to the Earth Sciences, Rocks, Minerals, Fossils, Lapidary, Gems, Jewelry, Indian Artifacts, or printed materials, film or video materials associated with any of these fields.

We will provide a set of tables at the show designated for this purpose, and we are calling it the "FMC Club Artisan Table". You are not required to get either a Colorado Multiple Events License and/or a Tax Resale number if you do not anticipate selling over \$1,000 worth of merchandise.



Howard Gordon with items for sale at last year's Artisans Table. Credit: Brian Walko

A few ground rules for participation are:

1. This is being offered on a first come first served basis, so please don't wait too long to register if you are interested.

2. We are limiting each individual's space to 2, 3, 4, 5 or 6-foot increments. When you contact me, please let me know the number of linear feet you are requesting, so I can make sure we have the room available. Individuals may combine for more space or to help with staffing.
3. You must sign up and pay for your space by November 18th. The price for table space is \$6 per foot.
4. You may set up your space either on Thursday, December 8th, between 7:30 am and 9 pm, or on Friday morning between 7:30 am and 10:00 am.
5. All items must be clearly marked as to price, either individually or in groups, (which you can then negotiate as you wish).
6. The "FMC Club Artisan Table" area must be staffed at all times to properly register sales and for security purposes. To this end, it is the obligation of all participants in this offering to register for one or more time slots to oversee this area. Once I have a list of the people who will be participating, I will then coordinate the staffing.

If you would like to join this endeavor, please contact Andrew MacGregor at [andrew.d.macgregor@gmail.com](mailto:andrew.d.macgregor@gmail.com) to register. Once you register, he will send you a confirmation.

### Display Your Best

Once again, we will have display cases for our members to showcase their rocks, minerals, fossils, and lapidary work. The display cases are from the Denver Show and feature a glass front, overhead lighting, and are secured. The display cases will be set up for you. All you need to do is bring your specimens, labels, and liners on Thursday, December 9, and fill your case. Plan to take down your case on Sunday at 5 pm.

The display cases are always a great hit with the public and help to interest people in joining our club. To reserve a display case, please contact Dennis Gertenbach at [gertenbach1@gmail.com](mailto:gertenbach1@gmail.com). Preference for cases will be given to the juniors.



Charlotte with her first-place display from last year.  
Credit: Dennis Gertenbach

### Specimens needed for the Rocks & Rails Show

It is time for you to go through your rock collections and donate to the KIDS CORNER for our Rock and Mineral show. We need donations for the WHEEL OF ROCKS, ELECTRIC MATCHING, and a new game, PIC-A-DINO. These all need SMALLER SPECIMENS, about the size of a quarter, for prizes. Some examples are small pieces of calcite, Apache tears, quartz crystals, fossils, wood, etc. We like to be able to fill a container with the same type of specimen for the kids to choose from.

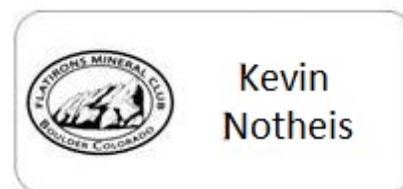
Of course, if you have rocks and minerals that you aren't sure of, bring them anyway. Some we can cut down and use while others may end up in a pothole. To DONATE your specimens, contact Charlotte at [rckhnd4252@gmail.com](mailto:rckhnd4252@gmail.com).

## Member Name Tags

Would you like a Flatirons Mineral Club name tag to wear at club events and field trips? The club places orders for name tags several times a year for members.

If you would like a name tag, please log onto our website and choose the "Request a Name

Example of a club name tag



Tag" link in the Members Area. Add your name to the list as you want it to appear on your name tag, and it will be ordered for you. Your first name tag is free!

## Holiday Party and Gift Exchange – December 20



To finish the year, come and join the fun at the annual Holiday Party on Tuesday, December 20. It is a time to exchange gifts and share snacks and stories with one another. So, bring a gift and some snacks to share with others.

One of the highlights of the evening is the annual gift exchange. Bring a wrapped \$5 to \$10 mineral-related gift. The gift exchange is great fun, with gifts exchanging hands throughout the evening. Members young and old will have a great time, and you never know what gift will go home with you.

The party starts at 7:00 pm at Mountain View United Methodist Church (355 Ponca Place in Boulder). We hope you can join us!

Patti showing off her gift from last year's gift exchange

## Where in Colorado?

Each month, we test your knowledge of geological features in Colorado. These three petrified stumps, plus others in this area, are all that remain of a tall redwood forest that grew in Colorado 34 million years ago. Where in Colorado is this? See page 17 for the answer.



## Rocking in the Pawnee Grasslands

Text and Photo by Char & Mel Bourg



I'd like to tell you about one of our favorite places in Colorado - the Pawnee Grasslands located north and east of Ault, CO. To most people, the grasslands are rather boring. No towering mountains, crashing waves on a seashore, or architectural marvels. Just gently rolling hills covered with unassuming vegetation. Trees are even a scarcity. It takes a closer investigation to see their real beauty.

We have been going over to the Grasslands for years and our main area

of interest has been the south-central part of the east section of the grasslands. The Pawnee Grasslands are a part of the Arapaho and Roosevelt National Forest, and they're divided into two sections. They are located in Weld County in the locale earlier mentioned. Intermixed in the Grasslands acres are public land, private land, state land, and the Central Plains Experimental Range. Ranching, farming, wind farming, and oil/gas production constitute the area's economy.

The Grasslands occupy 193,000 acres in the northern part of the Colorado Piedmont. The Colorado Piedmont is lower than the foothills to the west and just slightly lower than the plains to the east. The Piedmont formed about 28 million years ago when the North American continent began to "upwardly bow" adding 5000 feet to the elevation between Kansas and Utah. This "upwardly bow" intensified stream erosion in the Rocky Mountains causing great amounts of alluvium to flow in the rivers exiting the mountains.

In our wanderings, we've come across areas of ground that are covered with stream tumbled rocks, where in other areas, the ground is mostly bare. An aerial view of the area where we've found the most tumbled rocks shows that we're standing on a paleo riverbank.

At the end of the LGM (Last Glacier Maximum) approximately 18,000 YBP (years before present), global temperatures began to rise, which caused the Ice Age glaciers to melt in Wyoming and in our Rocky Mountains. These floods, sometimes a mile wide, carried great amounts of alluvium. When the flow intensity subsided, the rocks in the flow settled onto the land. Subsequent floods cut down through the land creating the stream river banks on which we found the rocks.

It's on these ancient riverbanks that we've found a great variety of collectible rocks. I'm very sure the rocks we've found came from both the increased stream flow from the Rocky Mountains after the uplift and glacial outflow from the melted glaciers.

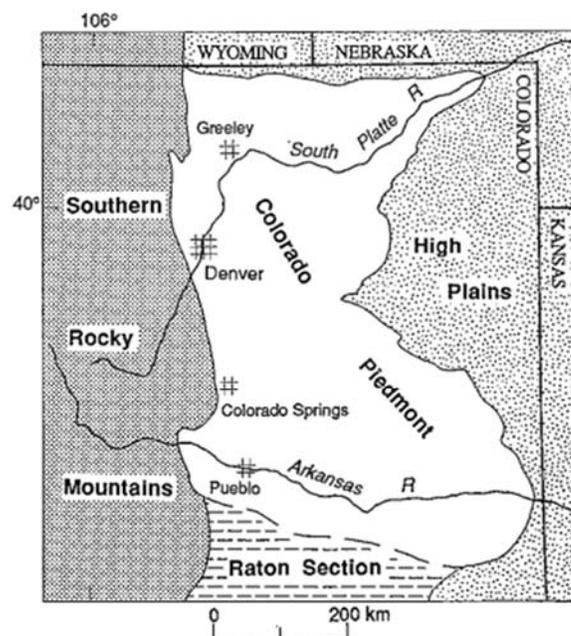


Figure 12. Map showing the Colorado Piedmont and surrounding physiographic subdivisions. Piedmont boundary is dashed where arbitrary. Ogallala Formation (Miocene) caps most of the High Plains, but has been eroded from the Colorado Piedmont.

Richard F. Madole, USGS, *Colorado Piedmont*, January, 1991

Pictured below, are samples of our finds, which include small pieces of bluish agate with a white coating and varying sizes of petrified wood. Some pieces of petrified wood are black as night. Red and ochre jasper sometimes blend together in the same rock. Then there are other rocks that I like to call Pawnee Nodules. These rocks are roundish shaped and are incredibly plain on the outside, but when broken in half, or cut in half, show a rainbow of colors and patterns on the inside. Kind of like a box of chocolates, as the saying goes.

We're sure that when we can explore more of the Grasslands, we'll will find more places where the ground is covered with tumbled rocks and we're sure there will be incredibly interesting rocks to collect there.



**Red & Ochre Jasper Nodule**



**Ochre Jasper**



**Petrified Wood**



**Jasper Nodule**



**Red Jasper**



**Blue Agate**

**Please take note.** If you decide to venture over to the Pawnee Grasslands, a small part of it is used by shooters to practice their skill. The area west of road 57, both north and south of road 96, east and west of road 69, and south of road 104 should be avoided no matter the day of the week or the time of day.

Since the Grasslands is a mix of private and public land, it is also recommended that you purchase a map of the Pawnee Grasslands from the National Forest Service. Travel on any road that displays a road number is permissible, but not on a road that does not have a number. Various roads are designated for the local ranchers use only and the fine for disobeying this is a hefty fine.

One more thing, **there are rattlesnakes in the area.**

## **Write an Article for the Club Newsletter**

One of the best features in each club newsletter are articles and other contributions by club members. Club members have a wide range of interest in earth science and rockhounding and are willing to share their interest with other members through articles, photos, poetry, and artwork. Throughout this newsletter, you will find articles, photos, and artwork by club members - both adults and juniors.

We are looking for items for future newsletters from all age groups, including adults and Jr. Geologists. Please consider sending a contribution to the newsletter to Dennis at [gertenbach1@gmail.com](mailto:gertenbach1@gmail.com). If you need help with your contribution, please contact Dennis. We have special specimens for all contributors.

## Jr. Geologists Activities

Last month, the GeoExplorers (middle and high schoolers) led a mini-towel show in preparation for the club's Towel Show in November. Afterwards, the younger Jr. Geologists began learning about fossils, while the GeoExplorers interviewed older club members about why they like rockhounding and the Flatirons Mineral Club. These interviews are below.

At our November meeting, we will practice the Rocks R Magic show for the club show in December, plus learn about how to create a display case. We hope to have several display cases from Jr. Geologists again this year at the club show.

The Jr. Geologists program is for families of the club. If your family would like to join the program, please contact Dennis at [gertenbach1@gmail.com](mailto:gertenbach1@gmail.com) to have your name added to our email list.

## Club Member Interviews

Connel Casson, Charlotte Small, Maxwell and Karina Minson

*Editor's Note: These four older Jr. Geologists interviewed three club members to find out what they liked most about rockhounding and our club. Here are the results of their interviews. If you would like to be interviewed by the Jr. Geologists, please contact Dennis at [gertenbach1@gmail.com](mailto:gertenbach1@gmail.com).*

### Andrew MacGregor

**What do you enjoy most about rocks, minerals, and fossils?**

Interesting rocks, including shape, rarity, and color

**Where are some of your favorite places to collect?** Places that I've never been before

**Do you have a special specimen? Why is it special?** Piece of slag I found along a railroad when I was 18. This was my first specimen.

**How long have you been in the Flatirons Mineral Club?** 5 years

**Do you have a special job in the club?** Dealer chair for the club show

**What do you enjoy about being a member of the club?** Meeting others with similar interests, using learned skills, volunteering

**What suggestions do you have for juniors who are interested in learning more about rocks, minerals, fossils, and lapidary?** Join a club and come to meetings.



Jr. Geologists interviewing Andrew.  
Credit: Brian Walko

## Brian Walko

**What do you enjoy most about rocks, minerals, and fossils?** Finding the rocks and fossils in the field, and the geological research involved with finding them

**Where are some of your favorite places to collect?** Jamestown and Ward, Colorado

**Do you have a special specimen? Why is it special?** Titanotheres jaw bone found near Crawford, Nebraska

**How long have you been in the Flatirons Mineral Club?** 10 years

**Do you have a special job in the club?** President of the Flatiron Mineral Club, in charge of the Rocks & Rails Show

**What do you enjoy about being a member of the club?** Leading field trips

**What suggestions do you have for juniors who are interested in learning more about rocks, minerals, fossils, and lapidary?** Start your own personal collection and label your specimens

## Gerry Naugle

**What do you enjoy most about rocks, minerals, and fossils?** Unique specimens

**Where are some of your favorite places to collect?** Leadville, Colorado

**Do you have a special specimen? Why is it special?** Terlingua calcite from Great Bend, Texas

**How long have you been in the Flatirons Mineral Club?** 22 years

**Do you have a special job in the club?** Club treasurer

**What do you enjoy about being a member of the club?** Club shows

**What suggestions do you have for juniors who are interested in learning more about rocks, minerals, fossils, and lapidary?** Get a four-year degree at a university, then get a law degree in mineral or water rights.



Maxwell and Connel interview Gerry  
Credit: Charlotte Small



## Volunteer to Help at the Club Show in December

If you, and your family, would like to volunteer to help at our club's annual Gem and Mineral Show in December, please reach out to me and I will explain where we can use your help.

The dates of the show are December 9<sup>th</sup>, 10<sup>th</sup> and 11<sup>th</sup>. The show hours are from 10am to 5pm each day.

Char Bourg [showvol46@gmail.com](mailto:showvol46@gmail.com)

## Highlights from the Denver Gem & Mineral Show

This year's Denver Gem & Mineral Show was a great time, seeing some fabulous minerals and fossils and catching up with old friends. Here are photos of some of the highlights from the show.

### Helping at the club table



Dennis Gertenbach and Karen Simmons help a youngster identify minerals, with Charlotte looking on. Credit: Susan Small



Karen Simmons talks about our club. Credit: Dennis Gertenbach

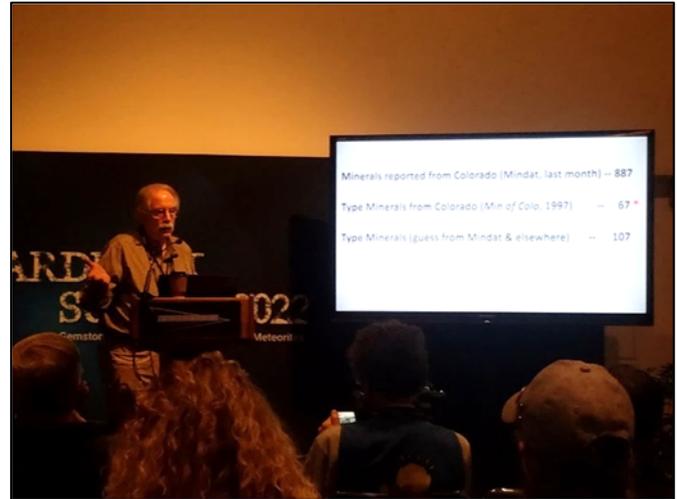
### Enjoying the show



Fabulous gold exhibit. Credit: Dennis Gertenbach

Brian's granddaughter being "eaten" by a T-Rex at the show. Credit: Brian Walko

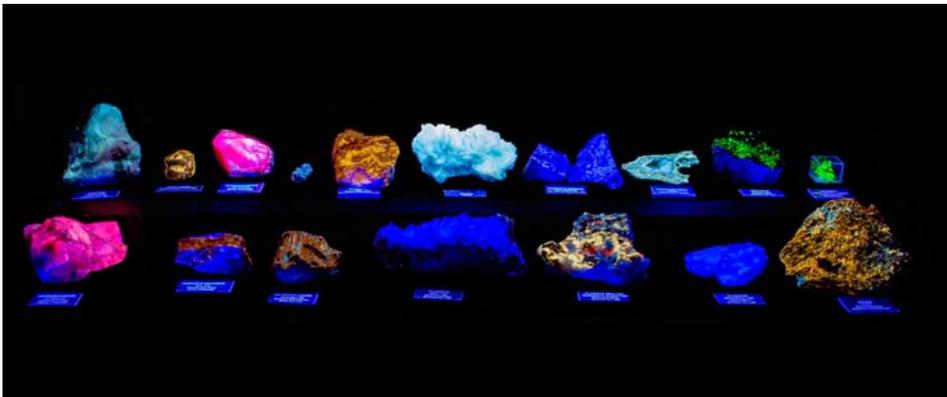
Two speakers from our club



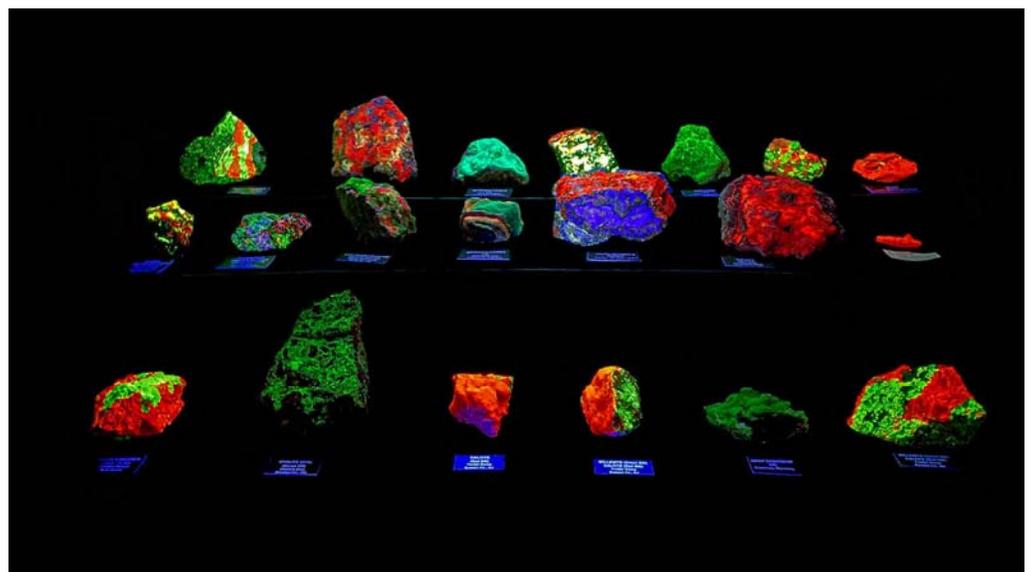
Brian Walko (left) and Ed Raines (right)

To hear their talks, plus the other speakers at the show, see <https://denvergem.org/september-show/#Speakers>

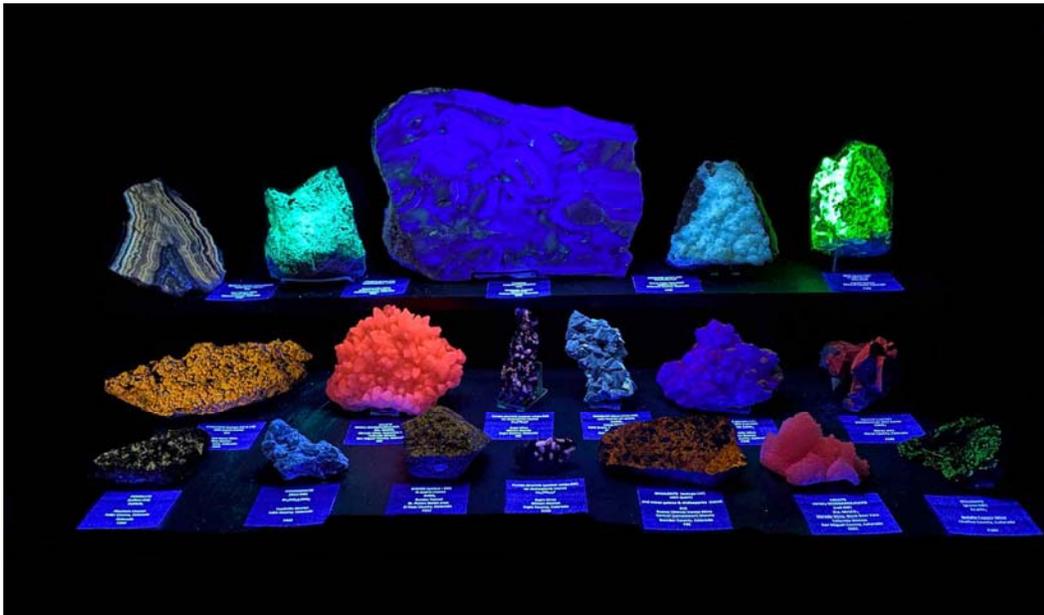
The fantastic UV displays by club members



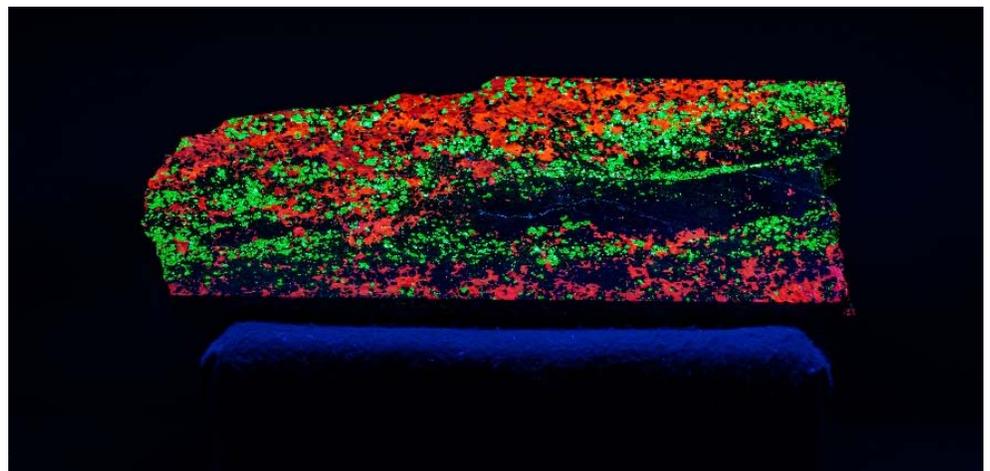
Case by Brian Walko and Gerry Naugle, LW.  
Credit: Brian Walko



Case by Brian Walko and Gerry Naugle, SW.  
Credit: Brian Walko



Case by Ed Raines,  
SW & LW.  
Credit: Brian Walko



Brian Walko specimen, SW.  
Credit: Brian Walko

## Club Meetings

Presentations at our monthly club meetings have been great this fall. Ed Raines (left) presented a program about “How, When, Why, and Where of Hydraulic Fracturing” and Brian Walko talked about “Collecting Colorado Fluorescent Minerals.” We thank both of our speakers for their talks.



Ed Raines (left) and  
Brian Walko (right)  
speaking at our club  
meetings this fall.



## Fabulous Crocodile Fossil Find

Trick Runions

For two years, I made numerous trips into Wyoming on my way to Idaho. On one of these trips, I stopped at one of the many, many hills out there on BLM land, and happened to see an amazing thing sticking out of the rock. The rock is composed of hardened sandstone and appears to be in the Eocene Bridger Formation, which was described and named in 1869 by H.V. Hayden while conducting a geological survey in the region on behalf of the United States Geological and Geographical Survey of the Territories. The Bridger Formation also became a battleground in the Bone Wars between Edward Drinker Cope and Othniel Charles Marsh.

I recognized the shape immediately - a crocodilian skull! The whole front of the top of the skull was sticking out of the hillside. I cleaned the loose material away to get a better look to make sure I was correct. And, I was. It is a foot long, but missing the lower jaw, so it is not articulated with a skeleton behind it.

Contacting the BLM office is a whole other story of how long it takes to get something collected. It took two years for JP Cavigelli of the Tate Museum to finally get a permit and collect it. I was fortunate to be included as a member of the collecting party. We started with a jackhammer to get as much overburden removed as possible. The second day was four hours of pick work to get all the pieces out of the solid rock.



The crocodilian skull is free at last.



Jackhammering matrix by the skull



Trick with the liberated skull



Close up of the crocodilian tooth in the skull

Currently, they are working on the fossil at the Tate Museum, putting all the pieces together.

On that same trip with JP and Helen Hoff, another member of the party, we dug out turtle bones. I found a titanotheres jawbone with a tooth in it, as well. Very exciting.



Trick Runions pointing to the titanotheres skull.



Titanotheres skull with a tooth



### North Table Mountain Field Trip

Our last outdoor field trip of the year was to North Table Mountain outside of Golden on October 29. It was a beautiful fall day to hike to the quarry and collect zeolite minerals and this world-famous site. Enjoy the photos of the trip.

Hiking to the zeolite quarry. Credit: Dennis Gertenbach



Sharon Dooley showing a specimen she found.  
Credit: Nancy Kimber



Several pockets of zeolite crystals  
Credit: Charlotte Small



Nancy Kimber working on removing a  
zeolite specimen.  
Credit: Dennis Gertenbach



Field trip leader Dennis Gertenbach  
Credit: Susan Howard

Jr. Geologists Charlotte Small made this short YouTube video showing the quarry and a few of the zeolite minerals from the site: <https://www.youtube.com/watch?v=CG9F5oT1F6c>.

## Where in Colorado?

Text and Photos by Dennis Gertenbach



Three redwood stumps preserved at Florissant Fossil Beds National Monument

These three petrified stumps are found at Florissant Fossil Beds National Monument, west of Woodland Park. Volcanic eruptions, streaming flows of mud and stone (lahars), the formation of a lake, and repeated raining of volcanic ash all contributed to the fossils found at the park.

Although the petrified stumps are the most visible fossils at the Monument, most of what we know about this part of Colorado 34 million years ago has been learned from the abundance of fossil plants and insects from the area.

The geologic story of Florissant Fossil Beds National Monument begins 34 million years ago in a mountain valley where Florissant stands today. At that time at the end of the Eocene, Colorado was much warmer and more humid. The valley was surrounded with forests of redwoods, cedars, and hardwoods.

But this peaceful scene changed with volcanic eruptions to the west of Florissant from the Guffey Volcano. During one powerful eruption, the resulting earthquake sent a river of ash, mud, and rock down the slopes of the volcano into the surrounding area. This lahar dammed the stream running through the mountain valley, creating Lake Florissant. A later lahar flowed through the redwood forest at the edge of the lake, killing the redwoods. Above the layer of mud and rock, the trees rotted away. However, within the mud and rock layer, silica groundwaters formed the petrified stumps we see today.

Over time, Lake Florissant was surrounded by lush vegetation, teeming with insects. Periodic eruptions from the Guffey Volcano rained ash on the lake. Each layer of ash trapped leaves and bugs on the lake to form the beautiful fossils found today.

If you plan to visit Florissant Fossil Beds National Monument, be sure to check their website at <https://www.nps.gov/flfo/index.htm>. The park features a nice visitor center with displays of the many fossils found there and the history of the area. (One example: In the 1950s, Walt Disney purchased a stump before it became a park, which is still on display at Disneyland.) From the visitor center, trails lead to petrified stumps, geologic sites, and historical locations within the park.

For more information about the geology of the park, see chapter 12 in the excellent book, *Geology Underfoot along Colorado's Front Range*, by Lon Abbot and Terry Cook.



Fossil butterfly in the visitor center

### Worth Visiting in the Area

Fossil collecting is not allowed at the National Monument. However, just north of the monument is the Florissant Fossil Quarry (<https://www.florissantfossilquarry.com/>). This is a pay quarry, where they have piles of fossil-bearing shale for you to split, as you look for fossil leaves and bugs. They provide tools and instructions to make sure you are successful finding fossils.



Splitting shale looking for fossils leaves and bugs at the Florissant Fossil Quarry. The fossil-bearing layers can be seen in the cliff in the background.

A fossilized bee found at the Florissant Fossil Quarry

### In Memoriam: Carl Bird

We are sad to announce that long-time club member, Carl Morris Bird, died on September 24, 2022 at the age of 89. For many years, Carl and his late wife Naomi were active members of our club. Carl was the club treasurer for many years and both Carl and Naomi helped other new club members on many field trips. Carl was also a dealer at our club mineral show, and his cheerful smile will be missed.

Chairing several committees and serving as Show Chair, Carl helped organize the Denver Gem & Mineral Show for many years. At each show, he could be found helping visitors at the information booth at the show.

He was a long time IBM employee, and one of the first employees at the huge facility north of Boulder.

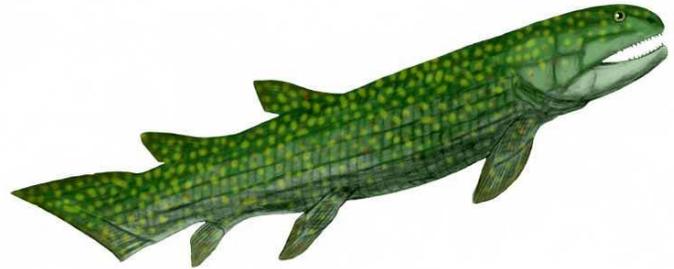


## Fossils in the News

Dennis Gertenbach

### Prehistoric Fish Preserves World's Oldest Heart

Paleontologists have discovered a 380-million-year-old heart preserved inside a fossilized fish, known as a Gogo. Usually, it is the bones that preserve in ancient fish and other vertebrates (animals with backbones, including us). However, at this location in Kimberley, Western Australia, the fish's internal organs, including the liver, stomach, intestine, and heart, were preserved by minerals during fossilization.



*Gogonasus andrewsae* from Upper Devonian of Australia  
Credit: Nobu Tamura, licensed under the [Creative Commons Attribution-Share Alike 3.0 Unported](#)

Lead scientist, Professor Kate Trinajstić from Curtin University in Perth, said, "This is a crucial moment in our own evolution. It shows the body plan that we have evolved very early on, and we see this for the very first time in these fossils." The Gogo belongs to a class of prehistoric fish called placoderms. Placoderms were the first fish to have jaws and teeth and could grow up to nearly 30 feet (9 meters) long.

Information from <https://www.bbc.com/news/science-environment-62912225>.

### "ManBearPigs" Dominated Early Mammals by Living the Fast Life

After the demise of the dinosaurs, mammals rapidly evolved to become the dominate animals on land. One of these bizarre beasts, nicknamed the ManBearPig, grew to the size of a modern sheep. It had five fingers on each hand (like us), a face of a bear, and the build of a pig, hence the nickname ManBearPig.

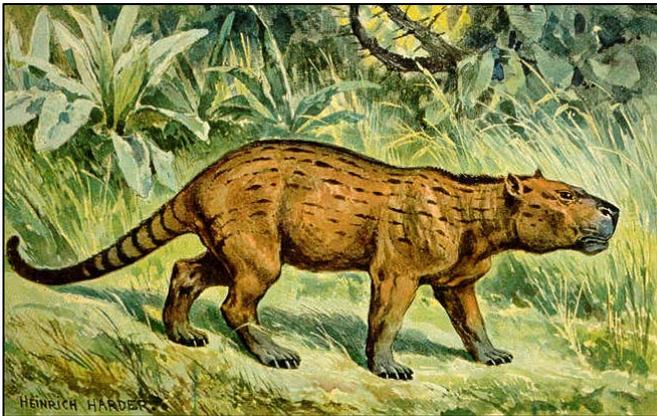


Illustration of *Pantolambda bathmodon* or ManBearPig.  
Credit: Heinrich Harder (1858-1935), public domain

A new analysis of the daily and annual growth lines in the fossilized teeth showed that the animal, named *Pantolambda bathmodon*, had a much longer gestation period and its young grew much faster than modern mammals of similar size. *P. bathmodon* stayed in the womb for about seven months, nursed for just a month or two, and reached adulthood within a year. This combination of long gestation and rapid growth may have led to the ManBearPig producing bigger and bigger babies, explaining how some mammals dominated the land so quickly. However, most died between two and five years, with the oldest dying at age 11. This is

about half the 20-year lifespan of modern mammals the size of ManBearPig.

Information from [https://www.sciencenews.org/article/mammal-placenta-fossil-manbearbig-fast-lifestyle?utm\\_source=email&utm\\_medium=email&utm\\_campaign=latest-newsletter-v2&utm\\_source=Latest\\_Headlines&utm\\_medium=email&utm\\_campaign=Latest\\_Headlines](https://www.sciencenews.org/article/mammal-placenta-fossil-manbearbig-fast-lifestyle?utm_source=email&utm_medium=email&utm_campaign=latest-newsletter-v2&utm_source=Latest_Headlines&utm_medium=email&utm_campaign=Latest_Headlines)

### And, Slow Growth May Have Doomed "Demon Ducks"

Giant mihirung birds, known as Demon Ducks because of their size, once roamed Australia, but vanished about 40,000 years ago. One species of these giant, flightless birds, *Dromornis stirtoni*, was 10 feet (3 meters) tall and weighed up to



*Dromornis stirtoni*, a flightless bird from the Late Miocene of Australia. Credit: Nobu Tamura, licensed under the [Creative Commons Attribution 3.0 Unported](#)

1,100 pounds (500 kilograms). Mihirungs were the largest birds to live on the Australian continent. Their disappearance after living more than 20 million years has long puzzled paleontologists.

A new study has shed light on this puzzle. Anusuya Chinsamy-Turan and colleagues compared samples from 20 fossilized leg bones of *D. stirtoni*, which lived much earlier, with those from the last-known mihirung, *Genyornis newtoni*, a horse-size bird. They found that *G. newtoni* grew much slower than *D. stirtoni*, leading to the conclusion that these later birds may have grown and reproduced too slowly to withstand pressures from the arrival of humans on the continent. Contrast this to emus, who were also present when humans arrived. Emus grow rapidly, which may have helped them survive to the present day.

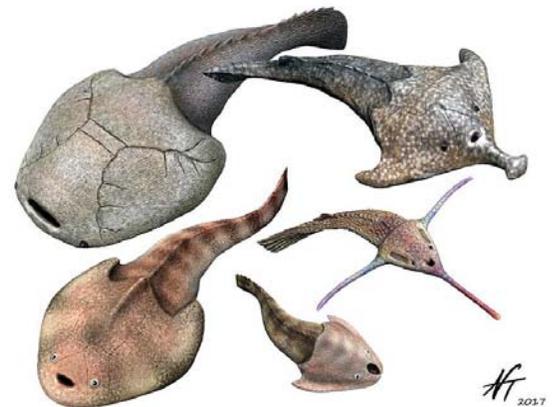
Information from <https://www.sciencenews.org/article/demon-duck-mihirung-australia-bird->

[fossil?utm\\_source=email&utm\\_medium=email&utm\\_campaign=latest-newsletter-v2&utm\\_source=Latest Headlines&utm\\_medium=email&utm\\_campaign=Latest Headlines](https://www.sciencenews.org/article/demon-duck-mihirung-australia-bird-fossil?utm_source=email&utm_medium=email&utm_campaign=latest-newsletter-v2&utm_source=Latest%20Headlines&utm_medium=email&utm_campaign=Latest%20Headlines)

### Silurian Jawless Fish Provide Insight into the Evolution of Fins

The fossils of early fish are studied by paleontologists to learn about the evolutionary beginnings of vertebrate fins and limbs - the evolutionary precursors of arms and legs. Most fossils of ancient fish either have or lack fins, so these fossils provide little evidence about the evolution of fins.

Insight has been reported by researchers who examined fossils from China of *Tujiaaspis vividus*, a species of galeaspid fish that lived 436 million years ago during the Silurian Period. Galeaspids had head shields, which comprise the majority of its discovered fossils. These new fossils from China preserve the entire body of these fish. The paleontologists were surprised that the *T. vividus* fossils included a pair of fins that extended continuously from the back of the head to the tip of the tail. Although these fins had no muscles, they allowed the fish to swim more efficiently by providing lift. This discovery provides a missing step in the evolution of fins in fish. Later fish evolved fin muscles to provide locomotion.



Life restoration of various Galeaspis. Credit: Nobu Tamura, licensed under the [Creative Commons Attribution-Share Alike 4.0 International](#)

Information from <https://www.sci.news/paleontology/tujiaaspis-vividus-11240.html>.

## American Federation Mineralogical Societies Scholarship Foundation

The AFMS Scholarship Foundation provides \$4,000 scholarships to two students in each of six of the Regional Federations. The Rocky Mountain Federation of Mineralogical Societies chooses an Honorary Scholarship Awardee who chooses the two Geology graduate students who receive the scholarships.

This year our Honorary Awardee was Dr. Simon Jowitt, a geology professor at the University of Nevada Las Vegas. The UNLV geology graduate students he chose to receive the scholarships were Dalton McCaffrey and Thomas Boes. Since

our RMFMS Show & Convention was held in Las Vegas, we were fortunate enough to have all three of those individuals attend our Award Banquet and speak to us about their work and studies in geology.

Next year our RMFMS Show will be in July in Casper, Wyoming. We need to have an Honorary Scholarship Awardee appointed, so that the two students to receive the \$4,000 scholarships can be selected. Hopefully, the professor and students chosen will be able to attend our Awards Banquet at the convention in Casper.

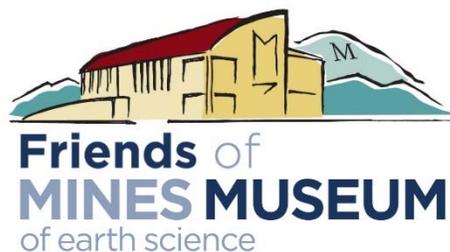
Any Rocky Mountain Federation Club or any individual member may submit a person for nomination for the Honorary Award Recipient. We need a short bio on the person telling us why you are nomination them for the Award. Please submit your nomination to me at the address below. Contact me with any questions you may have.

Richard Jaeger  
RMFMS Scholarship Chairman  
3515 E. 88<sup>th</sup> Street  
Tulsa, OK 74137-2602

## Other Rockhounding Events and Activities in the Area

Thanks to Pete Modreski for providing information about many of these events.

**November 7 (Monday)**, 6:30 p.m., Zoom presentation sponsored by Friends of Colorado School of Mines Museum of Earth Science “**Silver, Born of Cataclysmic Events and Brought to us by Improbable Happenings**”, by Patrick Rowe, Los Alamos National Laboratory and Los Alamos Geological Society. See <https://www.mines.edu/museumofearthscience/friends/> for details.



**November 8 (Tuesday)**, 4 p.m., **Greg Patterson** will talk about **Gold mining and exploration in Nevada today, from the perspective of Colorado Springs-based gold producer Fortitude Gold Corporation.** Western Museum of Mining and Industry outside of Colorado Springs.

<https://fareharbor.com/embeds/book/wmmi/items/77494/calendar/2022/11/?flow=41147&full-items=yes>

**November 11-13 (Friday-Sunday), New Mexico Mineral Symposium**, New Mexico Bureau of Geology & Mineral Resources Museum, Socorro NM. See <https://geoinfo.nmt.edu/museum/minsymp/home.cfml>.

**November 11-13 (Friday-Sunday)** is **Jurassic Quest** at the Ranch Events Complex in Loveland. This is the world's largest, most popular dino event with unique and exciting experiences for the whole family. See our herd of life size animatronic dinosaurs including Apatosaurus, Spinosaurus, T-Rex and an incredible 50 Foot Long Megalodon. For more information and to purchase tickets, see <https://www.jurassicquest.com/about-us>.



**November 17 (Thursday)**, 7 p.m., Colorado Scientific Society November Meeting, **All in the (Human) Family: Neanderthals and Denisovans and Us**, by Bence Viola, University of Toronto. The meeting is in Community Rooms 1 and 2 at the **Calvary Church in Golden, 1320 Arapahoe Street, Golden, CO 80401** All welcome. <https://coloscisoc.org/>

**November 18-20 (Friday-Sunday)**, **Jefferson County Fairgrounds Mineral Dealers Gem & Mineral Show**, Golden. Free admission! For more information about the show, please see the add below.

**December 3 (Saturday)**, 1:30-7:00 p.m., **WIPS Annual Auction**, Lakewood Clements Community Center, 1580 Yarrow St, Lakewood, CO. Silent auction to benefit WIPS grants and scholarships program. Will include numerous items of paleontological – and geological – interest including fossils from the Covington collection, art, vintage dinosaur toys and more. Verbal auction (later in the afternoon) will feature bigger ticket items. Attendance is free. Anyone is welcome to come, enjoy the potluck (everyone is encouraged to bring food to share), and bid. Must be a WIPS member to sell (50% to WIPS, 50% to seller). If you'd like to donate items (100% to WIPS), or have questions, please contact Dan Winester at [deadfishrman@gmail.com](mailto:deadfishrman@gmail.com).

**Annual Gem & Mineral Show**  
November 18-20, 2022  
Exhibit Halls  
Jefferson County Fairgrounds  
15200 W. 6th Ave., Golden, CO  
Hours: Fri. & Sat. 10 AM - 5 PM  
Sun. 10 AM - 4 PM  
Minerals, Fossils, Gems  
Jewelry, Carvings, Books  
Lapidary  
**Free Admission and Parking!**  
Information: 303-437-9643, 303-660-9564  
Email: Dansrocks@comcast.net  
Brian@costigansminerals.com

**Public Welcome!**

South Golden Road  
Colfax Ave.  
Indiana St.  
6th Ave.  
6th Ave. Frontage Rd.  
Jeffco Fairgrounds  
70  
C-470  
N

# Officers, Directors, and Other Volunteers

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[earthextractions@gmail.com](mailto:earthextractions@gmail.com)

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open

2<sup>nd</sup> Vice President: Field Trip Chair  
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Secretary  
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*Show Advertising and Admissions*  
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*Show Kid's Corner Chair*  
Charlotte Bourg, 970-278-0975  
[rckhnd4252@gmail.com](mailto:rckhnd4252@gmail.com)

Denver Show Club Table  
open

## A friendly reminder to pay your 2023 annual dues

Dues are still only \$18 for an individual and 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 31st, 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.

# ROCKS & RAILS

**December 9-11 10am – 5pm**

**Adults \$8 ::: Children 12 & Under Free with paid Adult  
Seniors Over 60 \$5 ::: Discount Multi-day Passes Available**

**Flatirons Mineral Club  
2022 Annual**

## Rock & Mineral Show

Gem and mineral dealers, exhibits, grab bags, rocks, children's activities and games, dig site, fossils, meteorites, tools, jewelry, fluorescent mineral display, and more! Bring your treasures for free mineral identification. Demonstrations include polishing rocks using lapidary equipment.

[flatironsmineralclub.org](http://flatironsmineralclub.org)



**Boulder Model Railroad Club  
45th Annual**

## Model Railroad Exposition

Come one, come all, and enjoy the Boulder Model Railroad Club (BMRC) Exposition where you can see different Model Train Layouts for the young and old alike. The show will also have many displays of Model Train related items to both teach and entertain everyone. This includes many vendor tables where you can purchase railroad-related items just in time for the Holidays.



[bouldermodelrailroadclub.org](http://bouldermodelrailroadclub.org)

**ATM & Food Service Available at the Show**

**BOULDER COUNTY FAIRGROUNDS LONGMONT**

**MAIN EXHIBIT BUILDING** 9595 Nelson Road Longmont, CO 80501

**Bad Weather? Call 303-591-2830 to see if we're open**





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

## First Class Mail

### *Upcoming Events*

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<b>Date</b>	<b>Event</b>	<b>Location</b>
Tuesday, November 8	Towel Show, our annual show-and-tell, page 2	Mountain View United Methodist Church, 355 Ponca Place in Boulder
Wednesday, November 16	Jr. Geologists Meeting, page 9	Mountain View United Methodist Church, 355 Ponca Place in Boulder
Friday through Sunday, December 9-11	Rocks & Rails Show, page 3	Boulder County Fairgrounds, 9595 Nelson Road in Longmont
Tuesday, December 20	Holiday Party and Gift Exchange, page 6	Mountain View United Methodist Church, 355 Ponca Place in Boulder