

Flatirons Facets

Flatirons Mineral Club of Boulder County, Colorado
Volume 62, Number 14
July-August, 2019

The Flatirons Mineral Club

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 17** 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 **by July 15**. A nomination form is found on page 22.



Flatirons Mineral Club Awards

Jr. Geologists: At the picnic, we will make a special project using fire agate and peridot.

Plan to join us for a fun Saturday.

Annual Rock Bagging Party

Thursday, July 25 at 7:00 pm will be our yearly rock-bagging party, where we get together to put rock specimens and tags into little plastic bags 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, please bring them to the meeting. 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

Dear FMC Members,

Welcome to the field trip season! I hope you are able to take advantage of our full and varied schedule.

The time has come for someone else to lead this wonderful club of ours. Because I plan to spend much more time in Tucson AZ than here in Boulder in the future, it doesn't make sense for me to stay on as president. As of the October meeting I will no longer be club president.

I sincerely hope that you or another member will be happy to take over from me. Honestly, with Gerry Naugle's help and the help from the rest of the Board, the job is not a difficult one. It mostly entails keeping the club on course with an eye on the calendar. Encouraging new ideas and seeing them come to fruition is truly a nice reward of this job. Watching our Juniors' excitement for rocks, fossils, and minerals is also a wonderful thing.

Please step forward and volunteer to take over this vital position as President of the Flatirons Mineral Club. I highly recommend it. It's been a very nice ride.

I won't be completely gone from the club. I will remain the webmaster and be part of the field trips committee. I'll help out however I can from afar.

Thanks for being part of the FMC!
Gabi

Field Trips for the Summer and Fall

Here is the field trip schedule for the rest of the season. You can get more information about these trips and sign up for them online after logging into the club website at <https://flatironsmineralclub.org/>. Just a reminder that you must be paid-up members to join the field trips; you will not be able to log in without being paid up.

Date	Trip Site	What to Collect	Leader
July 13	Purple Dragon Claim	Amethyst and clear quartz crystals	Gabi Accatino
July 20 (Rain date July 27)	Montezuma District	Galena and pyrite	Tally O'Donnell
July 27-28	Como Bluff Dinosaur Fossil Quarry, Wyoming	Uncover dinosaur bones for the Tate Museum and collect invertebrate fossils	Anita Colin
August 3	Flat Tops	Geothite pseudomorphs after pyrite and invertebrate fossils	Gabi Accatino
August 31	Missouri Hill	Limonite pseudomorphs, quartz crystals	Gary Rowe
October 5	Baculite Mesa	Baculites and other invertebrate fossils	Charlotte Bourg Dennis Gertenbach

There are still openings for all of these field trips, except the Purple Dragon trip. So, be sure to go to the club website and sign up to join the fun.

Volunteer at the Club Booth at the Boulder Creek Hometown Festival

Our club will have a booth at this year's Boulder Creek Hometown Festival, August 31 through September 2. Volunteers are needed for 2- or 3-hour shifts from 10 am to 5 pm. At our tent-covered booth, we have educational displays and information about our club. We give away polished rocks, sell grab bags, and chat with people interested in our club and what we do. Our visitors are mostly families and expect to hear this exclamation frequently, "I didn't know Boulder had a rock club!?"

The Boulder Creek Hometown Festival is located on the Boulder Creek, and is held on the Boulder Municipal Building lawn and the Central Park lawn along the Boulder Creek corridor between 13th Street and 10th Streets in downtown Boulder. This is a fun and easy event where you can check out other attractions of the festival. Mornings are best if you want to drive and park, but if your shift is in the afternoon, it is advisable that you take the bus...parking is next to impossible then.

To volunteer to help at our booth, please contact Anita Collin at anitacolin@hotmail.com or Gerry Naugle at gnaugle@earthlink.net.

The club needs your support!



The Yamaguchis and Poes at last year's Boulder Creek Festival. Photos by Anita Colin

Volunteer to Help at the Denver Show - Friday-Sunday, September 13-15

The Denver Show is run entirely by club volunteers! During the three days of the show, scores of volunteers are needed to sell tickets, collect tickets, sell grab bags, serve food to the other volunteers, patrol the show as "security eyes", and work at the individual club tables. This year you can even sign up for a volunteer "sampler" to work at several different jobs to find your favorite.

Also, at the show our club has a table where we run games for kids and talk to visitors about our club's activities. We feature a display case with specimens we have collected at our field trips.

To sign up to help at the show, please contact Anita Colin at anitacolin@hotmail.com.

To help at the club table at the show, please contact Dennis Gertenbach at gertenbach1@gmail.com. **We also need specimens from field trips for the display case at our club table.** Contact Dennis if you have specimens for the display.

Free Club Name Tags for All Members

Are you coming to meetings and field trips anonymously? We want to put a name with a face!

As members of the Flatirons Mineral Club, everyone in your family can receive a FREE club nametag. Just log onto the FMC website at <https://flatironsmineralclub.org/> to order your name tag. Once you log in, click Member Area and a short menu appears. Then click Request Nametag and fill out the information.



Example of a club name tag

Please take advantage of this free offer. We will be ordering another batch of name tags soon, so sign up for yours this month.

All FMC members who ordered a name tag and have not received it, plan to attend the club picnic to pick up your new badge from Gerry Naugle.

June Field Trips

This past month, we had three weekends of great field trips. Please enjoy these photographs of the trips. And we thank the field trip leaders for their leadership!

Tyler Kentucky Mine on June 8 to collect fluorite with trip leader Brian Walko



Brian Walko demonstrates how to find and extract fluorite. Credit: Brian Walko



Susanne Peach with a mine hoist in the background. Credit: Char Bourg



Some of Kimberly Derouin's finds. Credit: Char Bourg



Melissa Dancy and David Winlaw searching for specimens. Credit: Brian Walko



Teddy with a nice specimen. Credit: Char Bourg

McCoy on June 22 and 23 to collect marine fossils with trip leader Dennis Gertenbach. Photos from Dennis Gertenbach



A beautiful brachiopod found by Kimberly Derouin

Collecting Pennsylvanian-age fossils at McCoy



Fossil collecting at the Crinoid City site



Rock covered with crinoid stems



A shark tooth found at McCoy

Calumet Iron Mine on June 29 to collect epidote, magnetite, garnet, and actinolite with trip leaders Char Bourg and Ralph Eyler. Photos from Char Bourg.



The Calumet Mine



Melissa Dancy, Eliza Rayner, and Aden in the "hole". This spot produced some very nice epidote crystals.



A happy mineral hunter at the Calumet Mine



Karen Simmons in front of the dynamite storage building. The Calumet was an iron ore producer for the steel furnaces in Pueblo.

Sedalia Copper Mine on June 30 to collect almandine garnets and other minerals with trip leaders Char Bourg and Don Bray. Photos by Char Bourg



The Sedalia Copper Mine



Don Bray giving instructions to our group about the mine, its origin, what to look for, and where to look for the almandine garnets.



Collecting specimens at the mine



Shavano Peak from the Sedalia Copper Mine

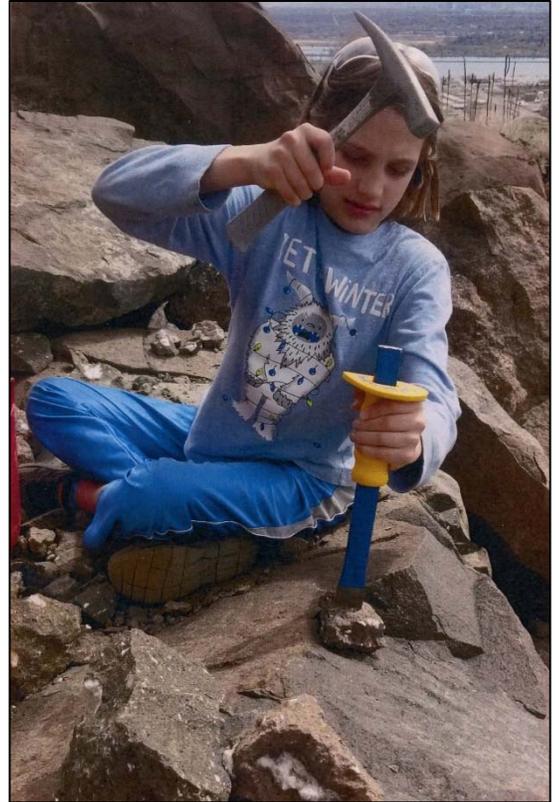


Jr. Geologists Field Trip Reports

As part of the requirements for the Jr. Geologists to earn their Field Trip Badge, they need to prepare a short report on a field trip they took. Here are a few of their reports, including pictures they sent with their trip reports.

Braden (age 11) - North Table Mountain

On April 20, 2019, me, Mama, and Ross went on a field trip in the truck. We met up with Dennis and the club. We all went to North Table Mountain to look for zeolites. It was a nice day out. It was a long walk to the zeolite deposit site. We found lots of great specimens. Ross found two rattlesnakes. I used my rock pick to split zeolites. We all had a great time at North Table Mountain. The trip was a lot of fun. I would certainly like to go again.



Kemper (age 7) - North Table Mountain, Golden

We walked up the mountain. It took us 1 hour. I felt tired. We found zeolites. I brought chabazite to my house. I took giant chunks of rock and broke tiny chunks of it. I was exhausted. I had a good time.



Connel (age 12) - North Table Mountain, Golden

The trip was to North Table Mountain. We drove up to the trailhead and hike from there. Some people were way ahead and some were really behind. We were right around the middle. Once we got there, in the first minute we only saw railroad track holders carved from stone and a rattlesnake. The, from there we found a lot of zeolites. They weren't perfect and they were too big. We had to use a 3-pound hammer and some various sizes of chisels.

We picked up like ten or so zeolites, but then we realized that we had a 10-pound limit, so we became slightly less selective and picked up a whole lot more. The whole time, I was insanely scared of rattlesnakes, so when the first one was found, I was terrified. By lunchtime, we had a report of one more that was found. Right after lunch, there was a loose rock shard slope thing, in which if you start climbing you still slide down. I found an unidentified mineral and then I found a whole lot more of it, which makes no sense that it was unidentified. After that, we marched out and made our way back to the car.

Noah (age 8) - North Table Mountain, Golden

I went to North Table Mountain to collect zeolites. I got to the mountain by car. Then hiked the rest of the way to where the group was. It was really fun finding the rocks. Attached is a picture of what I found. Most are zeolites.

Seiji (age 8) - Denver Museum of Nature and Science

Meteorites: The bumps on the meteorite were formed when it entered the earth's atmosphere forming friction that burned off the meteorite.

How to tell real or fake bones: If it has more metal on it (supporting the bones) it is a real one. If it has less metal then it's fake.





Club Lapidary Equipment Available

Now that you have collected petrified wood, agate, and other materials over the summer, you are probably anxious to cut and polish some of this material. The club has 2 locations where the club's lapidary equipment can be used by our members.

One of our big saws and a Genie are at Tim Ruske's house in Superior. To use this equipment, please call Tim at 303-807-4234 and leave a message to arrange a time.

Another saw is at Terry O'Donnell's house. His email address is whee0297@msn.com.

Jr. Geologists Learn about Space Geology

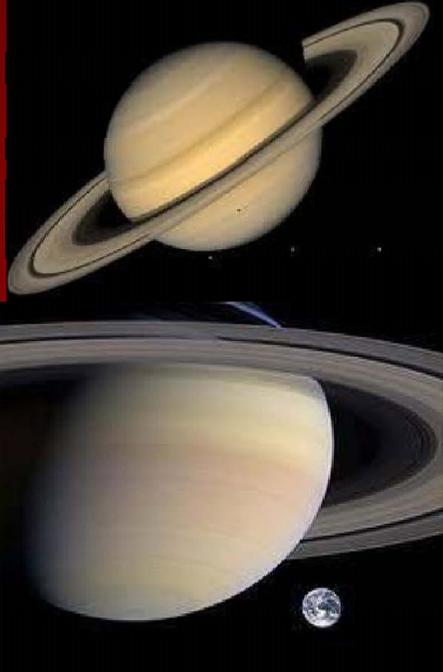


This spring, the Jr. Geologists learned about the geology of planets, moons, and other bodies in our solar system, as they earned their Earth in Space badge. Here is some of their research to earn this badge.

Adler (age 9): Mercury

I chose Mercury to research because I knew little about it. Mercury is the closest planet to the sun. It is approximately 30,481,470 miles away (49,054,900 km away). The surface is terrestrial. The length of its year is 88 days. It is made out of rocks and has a huge iron core.

Aubriana (age 11): Saturn



Questions

36,184 mi

The density and temperature changes the deeper into the planet you go. 

Saturn is a ball made up almost entirely of hydrogen and helium.

890.8 million mi

Saturn has 62 moons

The first astronomers thought the rings were moons

Saturn has only been visited 4 times by spacecraft

The Jr. Geologists program is open to all Flatirons Mineral Club families. Meetings begin at 6:30 at the Meadows Branch Library at 4800 Baseline Rd, Boulder, CO 80303 (behind the Kaiser Permanente medical offices). For information about the Jr. Geologists program, please contact Dennis at gertenbach1@gmail.com or 303-709-8218.

Triceratops Dinosaur Discovered at Highlands Ranch Construction Site

In May 2019, curators at the Denver Museum of Nature & Science were contacted about a potential fossil find at a construction site in Highlands Ranch. Dr. Tyler Lyson, curator of vertebrate paleontology, and Natalie Toth, senior fossil preparator, responded. A limb bone and several ribs from a horned dinosaur were the first fossils uncovered. Natalie Toth and the Highlands Ranch dig team have confirmed the fossils are from a single *Triceratops*.

The fossils were discovered near Wind Crest, a continuing care retirement community developed and managed by Erickson Living in Highlands Ranch. Since the discovery occurred at an



A crew of scientists and volunteers from the Denver Museum of Nature & Science unearth the fossil of a horned dinosaur, discovered at a construction site in Highlands Ranch, Colorado.



An exposed limb bone from the newly unearthed *Triceratops* fossil at a Highlands Ranch construction site.

active construction site, Lyson and his team are working closely with Wind Crest and Brinkmann to safely explore the site, and to document and recover the fossils. As the bones are found, they are encased in plaster jackets and moved to the Museum for further study. Construction continues while the Museum team completes their work.

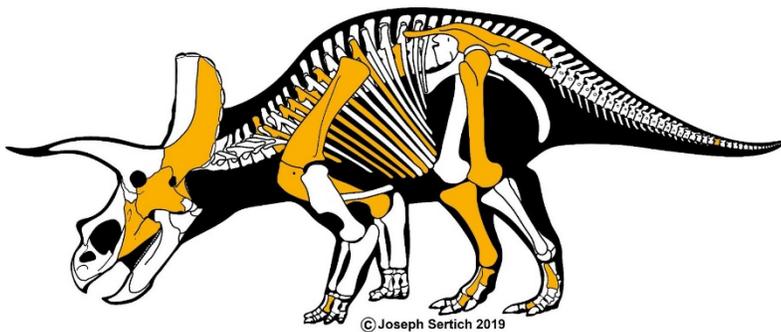
Lyson studies the evolution of dinosaurs and turtles and is particularly interested in what was occurring in the Rocky Mountain region 66 to 68 million years ago, which is the age of the rock layer where the fossils are embedded. "It's always exciting to get a call about possible fossils, and I can't wait to share more details as we continue to dig," said Dr. Tyler Lyson, curator of vertebrate paleontology at the Denver Museum of Nature & Science. "Finds like this, while relatively rare, are a great reminder of how dynamic our planet is and how much more there is out there to discover."

Brinkmann Constructors has provided assistance by moving the last of the large mounds of dirt with a big excavator to confirm there are no more fossils. Once the heavy equipment operators finish, the dig team will do one final sweep for any remaining fossils. "This is a remarkable discovery that our team takes great pride in

unearthing. We are grateful for the scientific expertise brought to this discovery by the Denver Museum of Nature & Science and Wind Crest's great generosity in sharing it," said David Rahm, project director with Brinkmann Constructors.



Plaster jackets containing fossils of the horned dinosaur are headed to the Denver Museum of Nature & Science, where the bones will be added to the paleontology collection.



Bones recovered so far from the site are highlighted in gold.

"We are so grateful to Wind Crest and Brinkmann Constructors for allowing us the opportunity to evaluate this potentially important scientific find," said George Sparks, president and CEO of the Denver Museum of Nature & Science.

"On behalf of the residents and employees of Wind Crest, we are thrilled to be part of such an incredible scientific discovery," said Craig Erickson, executive director of Wind Crest. "We appreciate the invaluable expertise of the Denver

Museum of Nature & Science and our partners at Erickson Living and Brinkmann Constructors as we work together on this exciting opportunity for all of us to learn more about our earth's rich history."

Some of the Highlands Ranch fossils are on display in the Fossil Prep Lab in Prehistoric Journey at the Museum, where you can see volunteers are working on exposing more of the dinosaur bones recovered from the site.

the Highlands Ranch dinosaur site is in the middle of an active construction zone and is not open to the public.

For photos and videos from the dig, visit dmns.org/highlandsranchdinosaur.

Information and photos from press releases: <https://www.dmns.org/press-room/press-kits/highlands-ranch-dinosaur/> and <https://www.dmns.org/press-room/press-releases/denver-museum-of-nature-science-confirms-dinosaur-fossils-uneearthed-at-highlands-ranch-construction-site/>

How Are Diamonds Made and Formed

Paul Gian

Editor's Note: This article is from Paul Gian's website, <https://beyond4cs.com/how-are-diamonds-made-and-formed/>, and used with permission from the author. This [website](https://beyond4cs.com/how-are-diamonds-made-and-formed/) also offers information about cut diamonds and a step-by-step guide to buying diamonds.

Ever since diamonds were first discovered in South Africa, they have found their way into our culture as symbols of love, status and wealth. While this can be credited to De Beers' ingenious marketing campaigns and famous slogan "A Diamond is Forever," have you ever wondered where do diamonds come from?

Despite the significance they have in our culture, most people actually do not know much about the precious stones that adorn the jewelry we wear. In this writeup, we look at the different ways that diamonds are formed in nature and how diamonds are made using modern technology.

To help you visualize the various formation processes, we have created an infographics for an easier understanding of the concepts. Check it out at <https://beyond4cs.com/how-are-diamonds-made-and-formed/#infographic>.

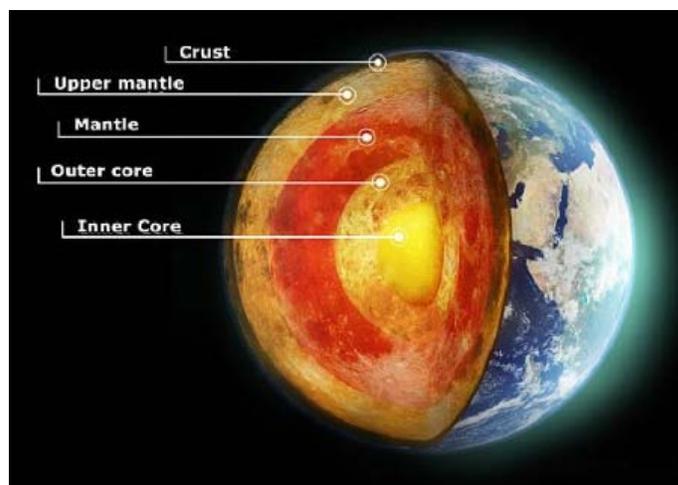
How Are Diamonds Formed Naturally on Earth?

Did you know that diamonds are made of carbon, which is fundamentally the same material as pencil lead (graphite)? Yet, they are the hardest substance ever known to mankind and have completely different properties as graphite.

What gives diamonds their unique properties is the covalent bonding between its atoms. You see, when diamonds are formed under extreme temperature and pressure, atoms in their crystalline structure become tetrahedrally bonded (each carbon atom links to 3 other carbon atoms) to create a strong and stable lattice.

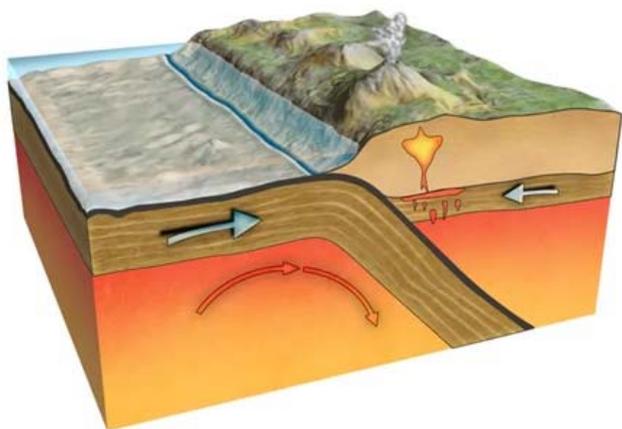
Diamonds Are Formed in the Earth's Mantle

After years of research, geologists and scientists have a better understanding of how diamonds form in nature. It is believed that the right conditions for diamonds to be



created are at elevated temperatures of 1,600 to 2,400°F (900 to 1,300°C) in combination with an extremely high pressure of 650,000 to 850,000 psi.

In nature, there are only certain places that provide conditions like these and that's deep within the Earth. In fact, most diamonds form inside the Earth's mantle under parts of the continental crust called cratons. These provide stable environments that allow diamond crystals to grow over millions of years. And, it is no coincidence that cratons are found in continents like Africa and Australia which also happen to be the biggest producers of diamonds in the world.



Diamond Formation in Subduction Zones

When tectonic plates collide, one massive land mass is forced underneath the other into an area known as a subduction zone. If one of these plates carries rocks and materials rich in carbon content, they melt under high temperature and pressure to create diamonds.

Interestingly, diamonds formed by this process are generally small in size and not viable for commercial use. Some of them make it back to the surface due to plate movements while others may lie in place for millions of years before being brought to the surface via volcanic eruptions.

Diamonds Made by Asteroid Impacts

When an asteroid strikes the Earth's surface, the epic collision creates a massive explosion of heat and pressure on the ground. Carbon-based deposits in the impact crater can get turned into tiny diamonds in an instant.

The Popigai crater in Russia is a spot which was struck by a large asteroid millions of years ago. And the immense pressure and temperature generated by the impact turned the surrounding metamorphic rocks and graphite into diamonds.



Diamonds Deposited by Meteorite Fall

Besides creating a spectacular sight in the night sky, meteorites also deposit their contents onto the ground when they hit the Earth's surface. Researchers from NASA have detected large volumes of nanodiamonds in meteorites that originated from deep space. In April 2018, the National Geographic even reported that some of these diamond-bearing meteorites could be leftover space rocks from remnants of early planets that never formed.

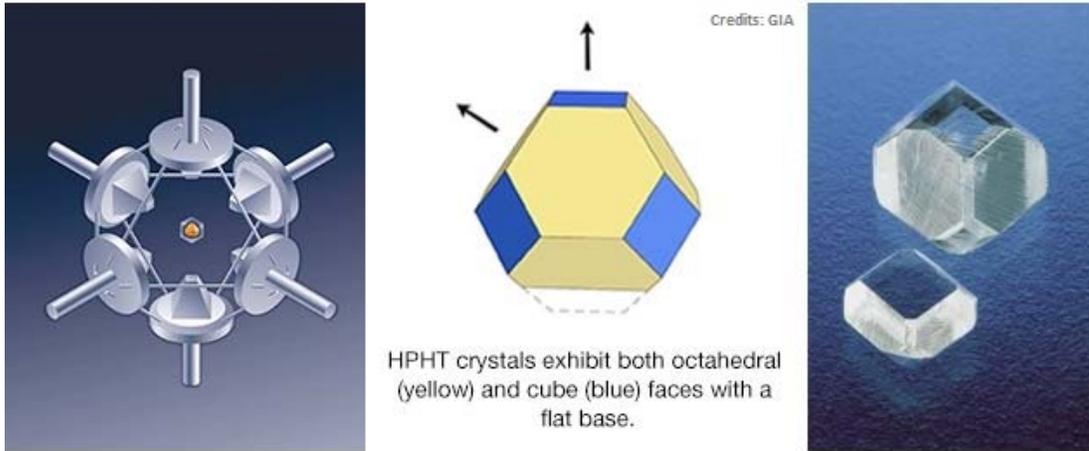


How Are Diamonds Made in a Lab by Man?

The first scientific breakthrough in man-made diamonds came in 1954 when General Electric developed a process that successfully replicated the conditions for natural diamond formation. This process is called High Pressure High Temperature (HPHT) and involves the use of seed crystals which are grown in superheated anvils.

High Pressure High Temperature (HPHT)

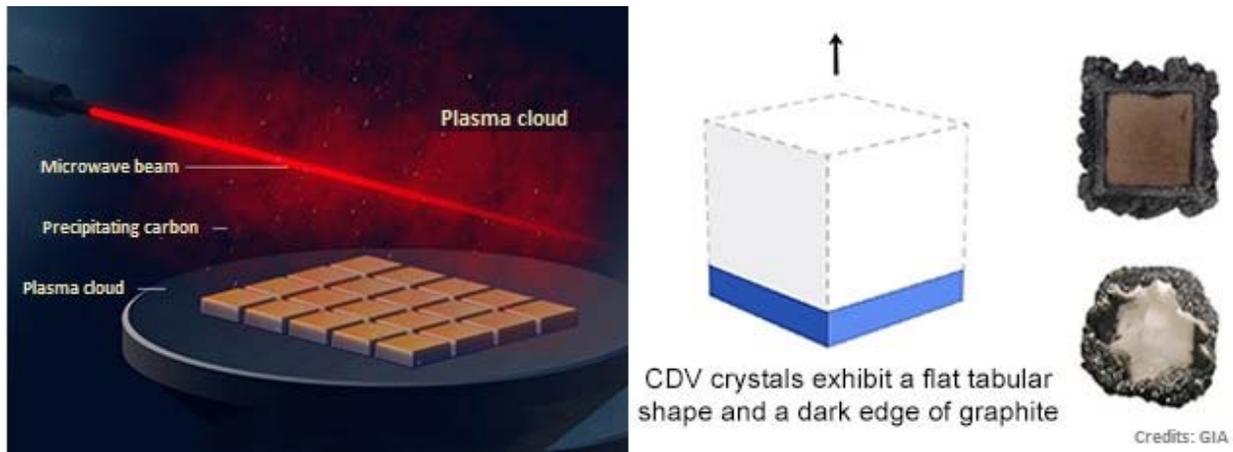
HPHT is a process that is energy intensive and has a relatively low production rate (seed crystal typically grows at a few microns per hour). During the process, the parameters need to be tightly controlled or the diamond's growth may fail or become heavily included with impurities.



In HPHT synthesis, a press (left) applies extremely high pressures and temperatures to a central growth chamber that contains the necessary ingredient. This results in synthetic diamond crystals with combinations of cubic and octahedral faces (center and right).

Chemical Vapor Deposition (CVD)

Chemical vapor deposition (CVD) is another method of making synthetic diamonds on a commercial scale. In this process, diamonds are grown in a hydrocarbon gas mixture in a controlled environment.



The hydrocarbon gas (usually methane, CH₄) is heated to elevated temperatures and broken down into its atomic state. Next, the carbon atoms are then precipitated onto seed crystals and the rough diamond is grown layer by layer.

Compared to HPHT, the CVD method is relatively easy to setup and it is possible to grow synthetic diamonds over large surface areas at the same time. Besides lower temperatures, the CVD method doesn't require high pressures and achieves higher growth rates than HPHT.

Conclusion

So, there you have it. We have learned how diamonds are made naturally and how they are created in the laboratory. But this is just the beginning of our understanding of this fascinating gemstone.

As scientists gain a better understanding of the physical world, I am very sure they will discover more ways in which diamonds are made in nature. Also, as engineers push the boundaries of manufacturing research and development, I foresee a future in which synthetic diamonds can be made at lower costs and with better efficiency.

We truly live in exciting times. And I look forward to the years ahead where diamonds will be used as a super material to propel current technology to greater heights and drive high performance applications.

Fossils in the News

Dennis Gertenbach



Pterodactyls in flight. Credit: Elenarts/Adobe Stock

Baby pterodactyls could fly from birth

A breakthrough discovery has found that pterodactyls, extinct flying reptiles, could fly from birth. No other living vertebrates today, or in the history of life as we know it, have been able to replicate this. Previously, pterodactyls were thought to only be able to take to the air once they had grown to almost full size, just like birds or bats. This assumption was based on fossilized embryos found in China that had poorly developed wings.

However, Dr David Unwin, a University of Leicester paleobiologist who specializes in the study of pterodactyls and Dr Charles Deeming, a University of

Lincoln zoologist who researches avian and reptilian reproduction, were able to disprove this hypothesis. They compared these embryo fossils with bird and crocodile embryos, finding that these pterodactyl embryos were still at an early stage of development and a long way from hatching. The discovery of more advanced embryos in China and Argentina that died just before they hatched provided the evidence that pterodactyls had the ability to fly from birth. Dr Deeming stated, "Our technique shows that pterosaurs were different from birds and bats and so comparative anatomy can reveal novel developmental modes in extinct species."

Information from <https://www.sciencedaily.com/releases/2019/06/190612092945.htm>

3-foot-tall relative of *Tyrannosaurus rex* discovered

A new relative of the *Tyrannosaurus rex* - much smaller than the huge, ferocious dinosaur made famous in countless books and films, including Jurassic Park - has been discovered and named by a Virginia Tech paleontologist and an international team of scientists. The newly named tyrannosauroid dinosaur, *Suskityrannus hazelae*, stood roughly 3 feet tall at the hip and was about 9 feet in length. The entire animal was only slightly longer than the just the skull of a fully-grown *Tyrannosaurus rex*. *Suskityrannus hazelae* is believed to have weighed between 45 and 90 pounds; the typical weight for a full-grown *Tyrannosaurus rex* is roughly 9 tons.



Nesbitt and fossil remains of *Suskityrannus hazelae*. Credit: Virginia Tech

Sterling Nesbitt, an assistant professor with Department of Geosciences in the Virginia Tech College of Science, found the fossil at age 16 as a high school student participating in a dig

expedition in New Mexico in 1998. The fossil dates back 92 million years to the Cretaceous Period, a time when some of the largest dinosaurs ever found lived. The dinosaur was at least 3 years old at death based on an analysis of its growth from its bones. The animal's diet likely was the same as its larger meat-eating counterpart, with *Suskityrannus hazelae* likely hunting small animals.

Information from https://vtnews.vt.edu/articles/2019/05/science-mini_tyranosaurus_rex_Suskityrannus_Nesbitt.html



Archaeopteryx illustration. Credit: Elenarts /Adobe Stock

Another Jurassic bird fossil found

Move over *Archaeopteryx*; you now have company as the first flying bird from the late Jurassic Period. Researchers at LMU Munich have described a second bird capable of flight from this era. A team led by Professor Oliver Rauhut has identified the unknown bird as *Alcmonavis poeschli*, found in Solnhofen, Germany, also home of *Archaeopteryx*.

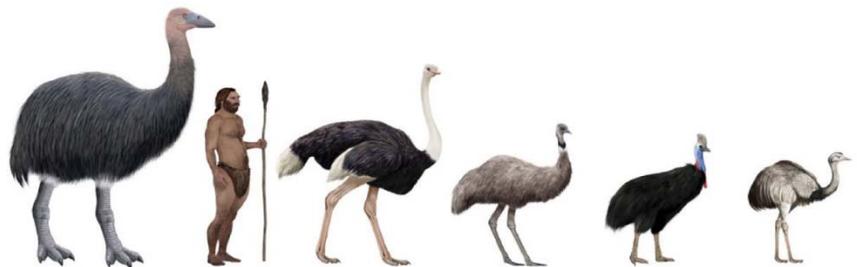
Only a wing of *Alcmonavis poeschli* was discovered. At first, the researchers assumed that this was another specimen of *Archaeopteryx*. There are similarities, but after detailed comparisons, the wing structure was quite

different. "This suggests that the diversity of birds in the late Jurassic era was greater than previously thought," says Rauhut

Information from https://www.en.uni-muenchen.de/news/newsarchiv/2019/rauhut_alcmonavispoeschli.html

Bird three times larger than ostrich lived in Europe

A surprise discovery in a Crimean cave suggests that early Europeans lived alongside some of the largest ever known birds, according to new research published in the *Journal of Vertebrate Paleontology*. The newly-discovered specimen, discovered in the Taurida Cave on the northern coast of the Black Sea, suggests a bird as giant as the Madagascan elephant bird or New Zealand moa. Named *Pachystruthio dmanisensis*, its weight is estimated at 1,000 pounds (450 kilograms). This is three times more than an ostrich, today's largest bird.



Pachystruthio dmanisensis (left), compared to a man, ostrich, and other large modern birds. Credit: <https://www.ancient-origins.net>

Other fossils discovered alongside the specimen, such as bison, help date it to 1.5 to 2 million years ago. The flightless bird may have been a source of meat, bones, feathers and eggshell for early humans.

Information from <https://www.sciencedaily.com/releases/2019/06/190626200313.htm>

Rocky Mountain Federation of Mineralogical Societies Convention

The Prescott Gem & Mineral Club Invites you to the 16th Annual Prescott Gem and Mineral Show And the 2019 RMFMS Convention. The show will feature 63 retail gem, mineral, fossil, meteorite, beads, and jewelry dealers. Activities include exhibition cases, geode cracking and fluorescent tent, kid's activities, demonstrations, raffle, specimen identification table, gold panning, and competitive and non-competitive exhibits.

The show is at the Findlay Toyota Center, 3201 N. Main Street, Prescott Valley, AZ 86323 on August 2-4, Friday 9am-5pm, Saturday 9am-5pm, Sunday 9am-4pm. Admission is \$5 Adults; \$4 Seniors, Vets, and Students; Children under 12 free with paid adult

Arizona is a state that is considered "Rock Hounding Heaven" by many and the members of the Prescott Gem & Mineral Club hope that you take home many fond memories! And of course, some amazing finds. Some may be concerned this it will be hot in Arizona in August, but Prescott is at 5,367 feet and the temperature stays in the 80s. This should meet everyone's comfort zones.

A packet about the show is available at

<http://rmfms.org/wp-content/uploads/2019%20RMFMS%20Convention%20Packet-final%20v3.pdf>

The packet includes information about the host hotel, but you are not required to stay at the hotel. There are several RMFMS events, some which included meals. If you want to come to any of the events, you do not have to eat the meal they offer.

The packet also includes information about a field trip for Perkinsville Agate that the host club will be offering for anyone that comes. This locale offers great surface collecting of various sizes from tumble material to double fist size rough fine for slabbing and cabbing! When finished, you can return to the Prescott for sightseeing or venture out to Jerome, AZ. It's an old mining town that is a fabulous place to visit with some great restaurants for lunch! There also is the old Gold King Mine & Ghost Town which is a great place to take in some of the old mining history of this great town.



If you are going to the convention, please contact Gabi Accatino at accatino@colorado.edu for information about representing our club.

The Denver Gem and Mineral Show is looking for club member volunteers for a day of fun at two of the largest Denver Metro area parades!



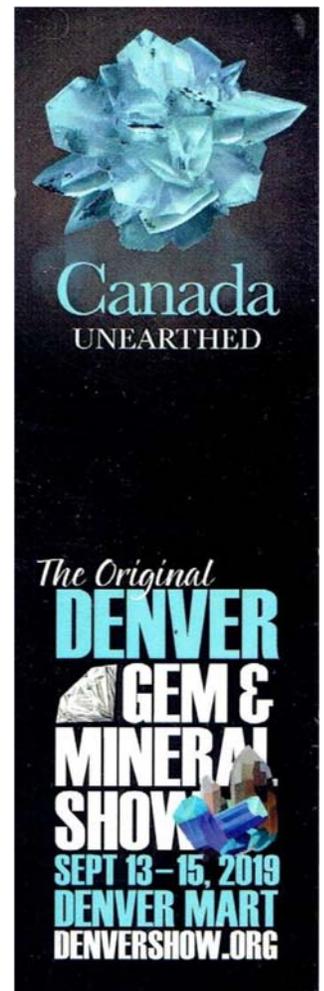
The Denver Gem and Mineral Show is set to participate in two of the largest Denver Metro area parades this year to help promote the show to a wider audience. The first of these is the **Wheat Ridge Carnation Festival Parade on August 10**, and the second one is the **Arvada Harvest Festival Parade on September 7**. It takes lots of willing hands and feet to make the parades a success and popularize the show even more in the Denver area. Come join us for a day of fun and help spread the word for the Denver Show! Volunteer positions for both parades range from truck and float driver, second driver/navigator, to walkers and float wavers. The parade will be about two to three hours long and would require walking or standing on the float and waving. Please fill in the form below marking which position you'd like to volunteer for and what size t-shirt you would like. For questions, you can contact the parade coordinator Iva at 720-469-2926 or iva.veselinova@gmail.com.

[Volunteer Sign-Up for Wheat Ridge Carnation Festival Parade August 10, 2019](#)

[Volunteer Sign-Up for Arvada Harvest Festival Parade September 7, 2019](#)

Denver Gem & Mineral Show Mini Report July 2019 THE SHOW NEEDS YOUR HELP!!

Yes, the show needs the help of members from every one of the eight clubs that are responsible for putting on the show. All of the persons who work on the show are volunteers. The Show Committee is comprised of many dedicated people from all of the clubs but there are a few gaps that need to be filled. There is a critical need for an Assistant Treasurer for the 2019 show. The Assistant Treasurer would help the Treasurer, Eva Siemonsma (CMS member), for 2019 and be trained by Eva to assume the job for the 2020 show. Eva was an organized and competent show treasurer for 10 years so you would be trained by the best. If you are interested in this position, please contact Eva direct at 303-239-6798. The Historian position is also vacant this year. The Historian's responsibility is to photograph all of the exhibits, the awards presentation on Saturday evening, candid photos around the show, and develop a historical account of the show. The Historian should have an Assistant to photograph all of the exhibits because it takes a bit of time on Saturday and Sunday mornings. This is a fun job for an avid photography buff. For this position, contact Show Chair George Daggett at 303-453-9651 or geoddaggett@hotmail.com. Dealer Chair Regina Aumente (Littleton member) needs an assistant to work with the dealers at the show. This is an opportunity for you to become more acquainted with the show and the dealers. If interested, please contact Regina at 505-604-9585 or raumente@aol.com. Dan Wray (CMS member) needs an assistant for Tear Down. This job entails taking down all of the show exhibit cases, case liners, and other show supplies at the end of the show on Sunday evening. Of course, there is a whole group of people who help with this work so you are not doing it alone. An assistant would help with the organizing and hold a position on the Show Committee. Contact Dan at 303-922-0905 or Daniel_Wray@comcast.net if interested.



The Show Committee works very hard every year to bring the best show to you all - club members, mineral and fossil hobbyists, exhibitors, dealers, and the general public. But we cannot do this alone. We need the support and participation of the members of all the Council clubs.

Another program which Volunteers Chair Anita Colin (Flatirons member) will try this year is the "Volunteer Sampler". This is for persons who have limited experience volunteering for the show. All you need to do is show up at 10 a.m. on Friday, Saturday, or Sunday at the Volunteer Check-In desk. Anita will then take you around to observe the different volunteer opportunities to see which one you might be interested in. This is an excellent way to find a volunteer job that fits your talents.

Remember the Denver Gem & Mineral Show takes place September 13 - 15, 2019 at the Denver Mart, 451 E. 58th Avenue, Denver 80216 (I-25 and 58th Avenue, exit 215 on I-25). The show theme is "Canada Unearthed". The Show Chair is George Daggett, 303-453-9651 or geoddaggett@hotmail.com. It's only a short two months away so get ready, volunteer often, and enjoy!

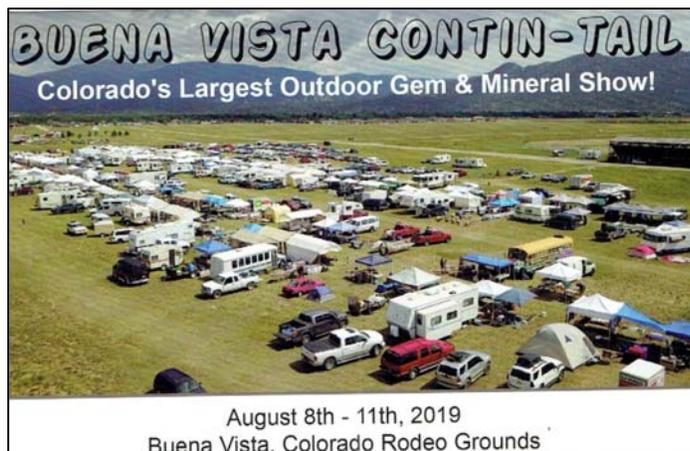
Respectfully submitted, Judy Knoshaug, Show Secretary

Other Rockhounding Events and Activities in the Area

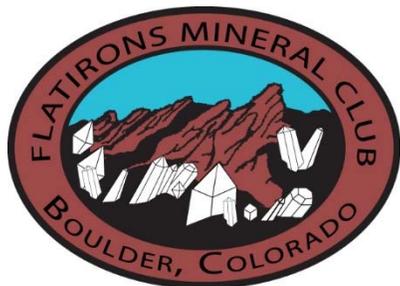
Here is a list of rockhounding-related activities in the area for both adults and juniors that you might be interested in. Thanks to Pete Modreski of the USGS for providing many of these notices.

- **Sun.-Wed., July 18-21** is a **Home Rock Show Sale**, by John Haney, 9 to 5 daily, 4242 Thompson Ct., Denver 80216. Rough rock, slabs, cabs, fossils, amber, turquoise, minerals, metaphysical crystals, gemstone bowls & boxes, lapidary equipment & supplies. Contact rocksisme@comcast.net, or 303-296-8268.

- **Thurs.-Sun., August 8-11** is the annual **Buena Vista Contin-Tail Outdoor Gem and Mineral Show**. This is the largest outdoor gem and mineral Show in Colorado, with over 100 dealers with gems, mineral specimens, beads, jewelry, cabochons, fossils, petrified wood, slabs, and rough. They will also have tools and equipment. The hours of 9 am to 5 pm daily and admission is free. For more information, contact Greg Tunncliff, 720-491-0689, gregtunncliff@yahoo.com, or the show website at <https://www.buenavistacolorado.org/buena-vista-contin-tail-gem-mineral-show/>.



- **Sat., August 10 and September 7.** The Denver Gem and Mineral Show is looking for club member volunteers for a day of fun at two of the largest Denver Metro area parades! The Denver Gem and Mineral Show is set to participate in two of the largest Denver Metro area parades this year to help promote the show to a wider audience. See page 20 for more information.



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

2019 Ballot for FMC / RMFMS / AFMS Rockhound of the Year

The club membership each year honors an active member, or husband-and-wife team for their substantial accomplishments during the past year in promoting and furthering the FMC goals and the club’s Mission Statement as outlined in the Club By-laws.

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 (2016), Trick Runions (2017), and Jean Orr (2018).

Please list your 2019 nominee below. You can also vote by electronic means. All voting information is confidential and is tallied and 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 HOF Plaque.

Your 2019 nomination is: _____

The person (or) persons should be honored because (brief summary):

Submitted by, please print _____

Please return this paper ballot to Gerry Naugle (use the letterhead address above) by July 15th; or (easier) you can vote by leaving a message or text to: 303-591-2830; or (easiest) you can 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 17th 2019** at the **Pavilion at Harlow Platts Park**, 1496 Gillespie Drive, Boulder, 80305. The picnic starts at 11:00 am with grab bags, then lunch.

Thanks for participating!

Officers, Directors, and Other Volunteers

President

Gabi Accatino, 303-809-4666
accatino@colorado.edu

1st Vice president: Program Chair

Jean Orr
jporr@mindspring.com

2nd Vice President: Field Trip Chair

Charlotte Bourg, 970-278-0975
rckhnd4252@gmail.com

3rd Vice President: Annual Show Chair

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

Secretary

Eileen Fitzgerald, 303 666-1399
elfitz891@hotmail.com

Treasurer

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

Board of Directors

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

Kevin Notheis, 303-325-5666
knotheis@gmail.com

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

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

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

Web Master

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accatino@colorado.edu

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gnaugle@earthlink.net

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gertenbach1@gmail.com

Scholarship

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donald@pmgresources.com

Junior Geologists

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gertenbach1@gmail.com

Denver Show & Council Rep

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carlmbird@comcast.net

Field Trips Committee

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rckhnd4252@gmail.com

Kevin Notheis, 303-325-5666
knotheis@gmail.com

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

Donald Layden
donald@pmgresources.com

Club Claims

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

Club Hospitality Chair

open

Facebook Chair

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

Meeting Door Prize Chair

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

Grab Bags

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

Mineral Specimens Chair

Don Mock
donmock@hotmail.com

Club Show Committee Members

Show Chair

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

Past Show Chair

Ray Gilbert 303-774-8468
Hoss@q.com

Volunteer Chair

Charlotte Bourg, 970-278-0975
rckhnd4252@gmail.com

Program Chair

open

Dealer Chair

Kevin Notheis, 303-325-5666
knotheis@gmail.com

Show Advertising and Admissions

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

Kid's Corner Chair

Charlotte Bourg, 970-278-0975
rckhnd4252@gmail.com

Eileen Fitzgerald, 303 666-1399
elfitz891@hotmail.com

Other Show Committee Members

Gabi Accatino, 303-809-4666
accatino@colorado.edu

Denver Show Club Table

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

A friendly reminder to pay your 2019 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 2019 dues must be received by January 20th, 2019 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 2019 FMC membership card.



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

First Class Mail

Upcoming Events

Saturday, July 13	Field trip to collect amethyst and clear quartz crystals	Purple Dragon Claim
Saturday, July 20	Field trip to collect galena and pyrite	Montezuma District
Thursday, July 25 at 7:00 pm	Annual rock bagging party (see page 1)	Fred Hall and Kelly Manley's home, 4561 47th Street, Boulder
Saturday and Sunday, July 27-28	Field trip to dig dinosaur bones and collect fossils	Como Bluff, Wyoming
Saturday, August 3	Field trip to collect goethite pseudomorphs after pyrite and fossils	Flat Tops
Saturday, August 17 at 11:00 am	Annual club picnic (see page 1)	Harlow Platts Park, 1360 Gillespie Drive, Boulder
Saturday, August 31	Field Trip to collect limonite pseudomorphs and quartz crystals	Missouri Hill
Saturday, August 31 to Monday, September 2	Boulder Creek Hometown Festival - volunteer at the club booth (see page 3)	Boulder Creek in Boulder