



Flatirons Facets

Flatirons Mineral Club of Boulder County, Colorado
Volume 62, Number 3
May-June, 2019

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.

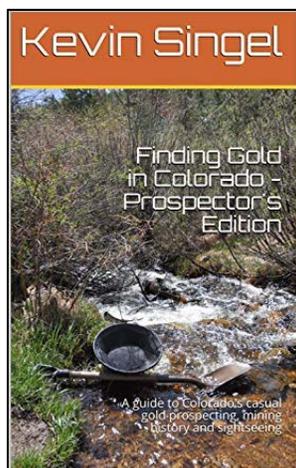
The Flatirons Mineral Club is affiliated with the Rocky Mountain Federation of Mineralogical Societies, the American Federation of Mineralogical Societies, and the Greater Denver Area Council of Gem and Mineral Societies.



Learn about Finding Gold in Colorado at Our May Meeting

Our speaker at the club meeting on May 9 is Kevin Singel, who will talk about **Finding Gold in Colorado: Then and Now**.

From Colorado's origin in the Pikes Peak Gold Rush of 1859 to modern times, the gold in Colorado has driven the history of our state. The same is true of Boulder! Learn about the history and about where you can dig for gold today as a casual prospector. With over 150 years of history and over 180 free, public access dig sites, there is much to see and do across the state.



Kevin is a long time Coloradan and prospector. In 2018, he published the guide book *Finding Gold in Colorado* which was a "bestselling new release" in its category on Amazon in June, 2018.

Join us for an interesting program and perhaps you will find the next big gold discovery in our state. And, try your hand at gold prospecting at the May 11 field trip to the Arkansas River (see page 3).



Field Trips Schedule Presented at the May Meeting

In addition to Kevin's presentation, Char Bourg and Gabi Accatino will present our field trip schedule at the May 9 meeting. Come and learn about all of the field trips planned for the summer and fall. You will be able to sign up for field trips the next day on the club's website.

Club meetings begin at 7:00 pm at the Frasier Meadows North Community Room, 350 Ponca Place, Boulder, CO 80303. When you enter the building, ask the receptionist for directions to the meeting room.



President's Message

Hello Everyone!

Has it stopped snowing yet? I'm afraid to return to Boulder from my snowbirding home in Arizona because I'll be in such shock!

I hope everyone attends the May general meeting on Thursday, the 9th. We'll have a nice talk about Gold in Colorado thanks to our intrepid Program Chair, Jean Orr. She's the one who has been keeping our programs interesting each month.

We will also announce the summer field trip schedule at the meeting. Trip signups can only be made online on our website starting at dawn on Friday, May 10.

It's going to be a fun summer!

Let's go rockhounding!
Gabi

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 this past year and have not received it, plan to attend the May meeting to pick up your new badge from Gerry Naugle at the sign-in table.

Nominate a Club Member as Our Rockhound of the Year

Each year, the club honors an active member or husband-and-wife team who have contributed to the success of the Flatirons Mineral Club. Our first Rockhound of the Year was honored in 2002, and each year since a club member has been selected as our Rockhound of the Year by the club membership.

Recipients for this honor are first nominated by club members. Please consider nominating someone this year - perhaps someone who leads field trips, helps organize the club show, assists with club meetings, or helps with the Jr. Geologists. A nomination form can be found at the end of this newsletter.

Field Trip Season is Here!

We have already had one field trip this year (see page 5) and two more are planned for May. Be sure to come to the May 9 club meeting to learn about field trips planned so far for the rest of the year. Beginning May 10, you can log into the club website at <https://flatironsmineralclub.org/> for more information about these field trips and to sign up.

When you are on field trips, do not forget to pick up extra small specimens for grab bags. We need 5,000 specimens a year to fill grab bags for the Denver Show and our own club show. You can bring grab bag specimens to any meeting.

May Field Trips

Here are trips planned for this month.

Gold Panning on the Arkansas River, May 11. The Gold Prospectors of Colorado and Ron Yamiolkoski – a member of the GPOC - are offering 20 members of our club the opportunity to experience one of the facets of Colorado's mining history – panning for gold on their claim. Their claim is on the Arkansas River outside of Wellsville, Colorado. "Yam" and the members of the GPOC will be there to show us the proper way to pan. They will also be running all sorts of gold extraction equipment...dredges, sluices, high bankers and gold cubes. Even if you're not interested in physically participating, it's a chance to watch how people in the past, and today, search for gold.



The Gold Prospectors of Colorado at their Claim



A large piece of petrified wood collected at Yellow Cat

Yellow Cat Flats in Eastern Utah on Memorial Day Weekend, May 25-27.

Anita Colin has announced this field trip for the end of the month. The Yellow Cat area was once mined for uranium and is nicknamed "The Poison Strip". Doesn't sound very charming, but it is one of my favorite areas to camp for free and go rockhounding. There is an abundance of fossil wood here, plus jasper-after-barite, barite balls, desert roses, and all kinds of strange-looking rocks. Yellow Cat is also a good jumping-off point for other destinations in Utah if you are looking for a longer adventure. If interested, sign up on our web site or email me at anitacoln@hotmail.com for more information.

Field Trip Code of Ethics

A large measure of the enjoyment of our hobby is collecting in the field. For this reason, the American Federation of Mineralogical Societies of which our club is a member is proud to endorse the following Code of Ethics. This Code of Ethics helps guide our members as they participate on both club field trips and their own personal collecting activities. By following these guidelines, both private and public lands can remain open to collecting.



- I will respect both private and public property and will do no collecting on privately owned land without permission from the owner.

- I will keep informed on all laws, regulations or rules governing collecting on public lands and will observe them.
- I will, to the best of my ability, ascertain the boundary lines of property on which I plan to collect.
- I will use no firearms or blasting material in collecting areas.
- I will cause no willful damage to property of any kind such as fences, signs, buildings, etc.
- I will leave all gates as found.
- I will build fires only in designated or safe places and will be certain they are completely extinguished before leaving the area.
- I will discard no burning material - matches, cigarettes, etc.
- I will fill all excavation holes which may be dangerous to livestock.
- I will not contaminate wells, creeks, or other water supplies.
- I will cause no willful damage to collecting material and will take home only what I can reasonably use.
- I will practice conservation and undertake to utilize fully and well the materials I have collected and will recycle my surplus for the pleasure and benefit of others.
- I will support the rockhound project H.E.L.P. (Help Eliminate Litter Please) and will leave all collecting areas devoid of litter, regardless of how found.
- I will cooperate with field-trip leaders and those in designated authority in all collecting areas.
- I will report to my club or federation officers, Bureau of Land Management or other authorities, any deposit of petrified wood or other materials on public lands which should be protected for the enjoyment of future generations for public educational and scientific purposes.
- I will appreciate and protect our heritage of natural resources.
- I will observe the "Golden Rule", will use Good Outdoor Manners and will at all times conduct myself in a manner which will add to the stature and Public Image of Rockhounds everywhere.

Field Trip Safety

As field trip season gets underway, we need to be mindful of safety in the field. Most of us really enjoy collecting in the field, but we all want to come back safely to enjoy our finds.

Bill Klose, Safety Chairman of the Eastern Federation of Mineralogical Societies, published these safety tips in the June 2001 *EFMLS News*.

- Never go on a Field Trip alone. Have someone along who can help, or summon help if necessary. Make sure someone knows where you went and when to expect you back. Carry a cell phone to expedite communications.
- Should there be children, have the child within seeing and talking distance. A child not only could get lost, but could encounter a snake, scorpion, etc., or have an accident of some sort.
- Do not collect directly above or underneath people where there might be danger of falling rock.
- Park so that all cars can get out. Do not block the roadway.
- Should you leave the field trip early, notify the person in charge.
- Make sure all fires are out and wet down with water or smothered with dirt completely.
- Break all matches in fingers before discarding, and be careful where they are thrown.
- Break any cigarette before discarding and then crush it on the bare ground.



Be safe in the field - Follow all safety signs

- Do not throw rocks, and do not allow children to do so.
- Avoid old mine tunnels. Never go into a mine alone. Carry a flashlight and a candle. Carbon dioxide or other gases may be present. There may even be a lack of oxygen. Mines are also havens for snakes, scorpions, spiders, rodents and their feces, etc. Mines also may have uncovered deep shafts and pits.
- Respect property rights and signs. Obtain permission to enter property if owned by private persons or company owned. Attend Company safety briefings and sign releases if required. Pay attention to and practice Company safety policies.
- Inquire if there are vicious animals in the fields.
- Never walk or drive RVs like 4 wheelers on newly planted or cultivated fields without special permission.
- Be extremely cautious when hunting near abandoned buildings. You may stumble into a deep well or cesspool not properly covered.
- Refill any deep hole you dig, so people or animals might not fall in. Do not dump dirt and other debris into streams.
- Respect another's diggings. If a person has left for lunch or for any reason with the intention of returning, and has left a pick, coat, or definite marker, find another place.
- Leave any place in good condition. Don't leave papers, cans, etc. lying around to mar the beauty of the place, and to tell others you have been there.
- Close all gates you may have opened.
- Never eat wild berries or anything else unless you are absolutely sure they are safe. Carry bottled water and do not drink from streams or wells that have not been recently tested.
- Be able to recognize poison ivy, poison oak, etc. Should there be any doubt, don't touch!
- Always be alert for snakes, scorpions, ticks, spiders, rodent infestations, etc. Be very cautious where you put your feet and hands.
- Do not over exert or stay in the direct sunlight or heat too long. Take a rest in the shade from time to time and drink plenty of fluids.
- Properly wear appropriate safety equipment, sunscreen, and clothing.
- Bring and use the appropriate well maintained and inspected tools. Don't expect others to provide tools for you.
- Have your vehicle in proper working order with appropriate emergency supplies and equipment.
- Use proper lifting and carrying techniques to bring home your finds. Do not overload your vehicle.

North Table Mountain Field Trip

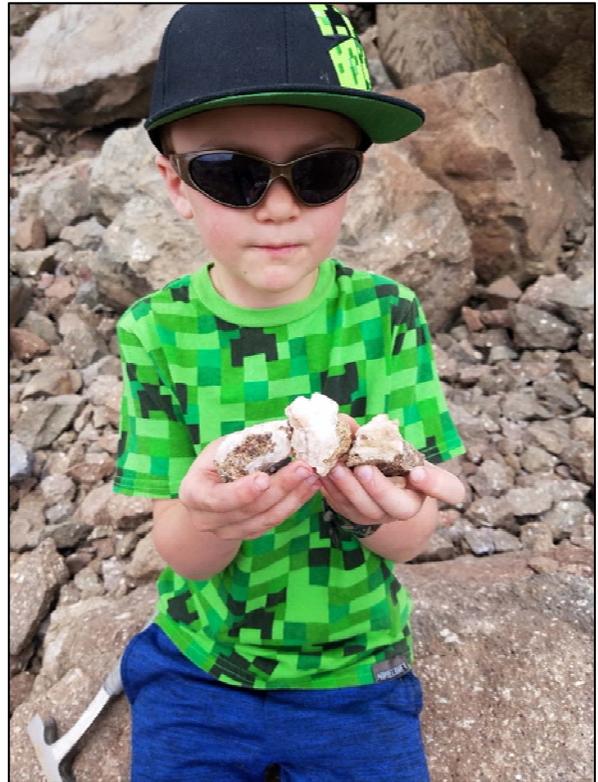
Our annual first field trip to collect zeolite minerals on North Table Mountain outside of Golden was on Saturday, April 20. The weather was perfect for the hike up the mountain to the quarry, and 25 club members enjoyed their day collecting specimens of thomsonite, analcime, chabazite, fluorapophyllite, and calcite that occur in the basalt rock near the top of North Table Mountain. We even encountered two rattlesnakes on the trip. Here are photos from this year's trip.



Collecting minerals at the South Quarry on North Table Mountain. Credit: Eileen Fitzgerald



Christian and Kemper identifying their zeolite specimens with trip leader Dennis Gertenbach.
Credit: Eileen Fitzgerald



Teddy with some of the specimens he collected.
Credit: Dennis Gertenbach



A levyne specimen found that day. Note the bladed crystals of this less common zeolite. Credit: Dennis Gertenbach

Some of the zeolite minerals are even fluorescent. Credit: Susanne Peach



Silent Auction a Great Success!

This year's silent auction on April 11 was a great success. Everyone had a good time bidding on lots of nice additions to their collections and rockhounding equipment. We want to thank the family of Hallie Cook, a long-time club member, who donated many of the items that were at this year's silent auction.



This year set a record for \$1,216 in sales, which added \$1,076 to the club treasury. Many thanks to all of our crew who helped prepare items for the auction, set up, and cleaned up.



Some of the action at this year's silent auction. Credit: Brian Walko

Jr. Geologists Activities

Learning about Our Solar System

During the past two months, the Jr. Geologists have been learning about our solar system and the geology of the planets, dwarf planets, moons, comets, and asteroids within it. Activities have included learning about the planets, studying impact craters on earth, performing crater



experiments, and searching for micrometeorites. The older GeoExplorers made measurements of craters formed by objects of different weights and velocities, and learned why the Galilean moons of Jupiter are so different. These activities completed the requirements of the Earth in Space badge for the Jr. Geologists.



Seiji reporting on what he learned about one of the planets.
Credit: Dennis Gertenbach



Searching for micrometeorites in the rain gutters from your home. Credit: Dennis Gertenbach



Karen Simmons talking with the GeoExplorers about the moons of Jupiter. Credit: Dennis Gertenbach

Over the winter, the Jr. Geologists have been polishing rocks in a rock tumbler. Last month, they were finished, with beautiful pieces of agate, jasper, petrified wood, and Turritella agate. Each Jr. Geologist selected five of the polished rocks to take home.



Picking out polished rocks we made this winter. Credit: Dennis Gertenbach



Craig Hazelton shows different meteorites and tektites. Credit: Dennis Gertenbach

Impact Craters

As part of our study of the solar system, several of the Jr. Geologists researched an impact crater on earth caused from a collision of a body from outer space. Here is what they learned, including a picture they selected of their crater.

Meteor Crater, Arizona

Karina Minson, age 7



Meteor Crater in Arizona. Credit: tripadvisor.com

Meteor Crater is located 37 miles east of Flagstaff and 18 miles west of Winslow in northern Arizona. They named it Meteor Crater because the nearby post office is named Meteor. The site is owned by the Barringer family. They declare the site as “the best preserved meteorite crater on earth.” The crater size remains the same because of the dry Arizona climate.

The crater was created approximately 50,000 years ago. At that time northern Arizona was a grassland and woodland. The crater was caused by a nickel-iron meteorite 60 feet in diameter. The meteorite was mostly burned after impact. Now the site is a tourist place.

Beaverhead Impact Crater, Idaho and Montana

Dylan Wilkerson, age 7

One of the closest craters to us is Beaverhead crater, in Idaho and Montana. It is one of the biggest craters in the world. Also, it is one of the oldest craters.

Location of the Beaverhead Impact Crater in Idaho and Montana. Credit: https://impactcraters.us/beaverhead_montana



Chicxulub Crater, Yucatan, Mexico

Makenna O’Day, age 9



The Chicxulub crater is buried under the Yucatan Peninsula in Mexico. The crater is 93 miles wide and 12 miles deep. This is the meteor strike that caused the dinosaurs to go extinct. We learned about fish fossils that died hours after this strike.

Location of the Chicxulub Crater off the shore of Yucatan, Mexico. Credit: Google Earth

Veredfort Crater, South Africa

Jackson O'Day, age 11



The oldest impact crater is the largest. It is Veredfort Crater in South Africa. It is 185 miles across. It was 2.2 billion years ago. It is a multiple ring site which is rare. The crater is a World Heritage Site.

Image of Meteor Crater in Arizona showing what the Veredfort Crater may have looked like after the impact. Credit:

<http://www.orangesmile.com/extreme/ru/largest-craters/index.htm>

DMNS Field Trip

On April 25, the Jr. Geologists had a behind-the-scenes tour of the Denver Museum of Nature and Science to see some of the specimens not shown to the public. During the tour, scientists from the Museum showed different types of meteorites, explaining where they originated based on their chemical composition. We saw meteorites that came from asteroids, the moon, Mars, and the Earth's core. We also toured the fossil prep lab and learned how dinosaur and other bones are extracted from rock. We thank James Hagadorn and Natalie Toth for taking us on the tour.



James Hagadorn showing different types of meteorites during the DMNS tour. Credit: Dennis Gertenbach



The Jr. Geologists examining a large iron-nickel meteorite slab. Credit: Karen Simmons

Jr.



Natalie Toth showing the Jr. Geologists how paleontologists extract dinosaur bones from rock. Credit: Dennis Gertenbach

Jr. Geologists Dino Beauty Contest

As the Jr. Geologists were learning about fossils this winter, they put together their own 3-dimensional stegosaurus models. We challenged them to decorate their dinosaurs for a Dino Beauty Contest. Here are the entries.



Koji and Seiji



Braden



Kemper



Aubrianna

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.

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.

Moving the Club Shed

This past month, the contents of the club shed were moved to a new location. The shed contains club equipment, supplies for our annual club show, grab bags and specimens, and archival materials belonging to the club. The old shed was located on property that is now on the market and we needed to vacate the shed. The move allowed us to better organize the contents of the shed and mark the contents.

Thanks to Tally O'Donnell, Mel Bourg and Gerry Naugle for moving the club property to its new location.

Mineral Collection Worth \$3.2M Donated to CSM Geology Museum

A show-stopping collection of minerals valued at \$3.2 million has been donated to the Colorado School of Mines Geology Museum.

The 27 specimens — remarkable for their pristine condition, color and crystal form — come from the personal collection of Eric Long, an oil and gas industry veteran based in Austin.

"A donation of this caliber truly elevates the quality of our exhibits and also heightens the experience for our visitors. Mr. Long is a mineral connoisseur and the quality of these specimens clearly reflects that," said Renata Lafler, executive director of the Mines Geology Museum. "We are absolutely thrilled to share this generous contribution with the public and encourage everyone to come see these natural works of art."

Long, president and CEO of USA Compression Partners, has been a serious mineral collector for more than a decade. A graduate of Texas A&M, he was first introduced to the Mines Geology Museum a number of years ago by Mines alumnus Hugh Harvey '74 MS '80,



who happens to be one of the neighbors in the mountain neighborhood where Long and his wife, Tracy Walsh, a Colorado native, have a home.

"The Mines Geology Museum is a real gem and Tracy and I are so excited to be able to make the donation," Long said. "Both the museum and Colorado School of Mines have so many opportunities from an educational perspective to help open people's minds about the extractive industries, and we hope that these beautiful minerals can help serve as a gateway. With this collection, I hope we can stimulate a love affair for the natural beauty we see in the world and get kids and their parents hooked. What better way to encourage kids' interest in STEM topics than by stimulating their intellectual curiosity through minerals."

The gift marks Long's fifth to the museum over the past five years. Among the eye-catching specimens included in the latest donation are:

- Blue topaz from Brazil: Most topaz is colorless or brown and synthetically treated and irradiated to turn a deep blue. This rare specimen is that same blue color by nature.
- Wire silver from China: These delicate wires are typically found in the uppermost regions of silver mines — layers that were exposed and mined centuries ago across much of the world. In China, where mining activity is newer, they're uncovering impressive silver wires like this one today, with the help of modern technology.
- Green prehnite from Mali: Prehnite is actually found in very small quantities on Golden's Table Mountain — although nothing like this specimen. The electric-green prehnite clusters on an epidote base once appeared on the cover of *The Mineralogical Record*.



"From a geologic perspective, they're all very unusual and they're all very special and they all have a wow factor — you look at them and go, wow, that's really pretty or that's bizarre," Long said. "I got into collecting rocks as a child because I thought they were pretty. But the more you learn about them - how hard they are to find, how rare good specimens are — it makes you think about the complex science behind their formation tens or hundreds of millions of years ago."

The Long donation will be on special display in the Llewellyn Special Exhibits Room through Fall 2019. The specimens will then be incorporated into the museum's permanent displays based on their country of origin.

Founded in 1874, the Mines Geology Museum is the second most visited university geology museum in the nation, with more than 22,000 catalogued minerals, as well as significant specimens of meteorites, fossils, gemstones and mining artifacts. The state repository for Colorado's mineral heritage, the museum is also home to one of the state's two Goodwill moon

rocks collected during the Apollo 17 mission, a walk-through mine and the Miss Colorado crown.

Free to the public, the museum, 1310 Maple St., Golden, is open 9 a.m. to 4 p.m. Monday-Saturday and 1 to 4 p.m. Sunday. For more information, go to mines.edu/geology-museum.

Press Release Dated February 11, 2019

Fossils in the News

Dennis Gertenbach

The World's Biggest *Tyrannosaurus rex* Found

University of Alberta paleontologists recently extracted the world's biggest *Tyrannosaurus rex*. The *T. rex*, nicknamed 'Scotty,' was 43 feet (13 meters) long and lived in prehistoric Saskatchewan 66 million years ago. Scotty, nicknamed for a celebratory bottle of scotch the night it was discovered, has leg bones suggesting a living weight of more than 19,000 pounds (8,800 kilograms), making it the largest carnivorous dinosaur that ever lived.

Lead author of the recently published paper describing the dinosaur stated, "This is the rex of rexes." Not only is it the largest *T. rex* ever found, but also the oldest. Scotty was estimated to have been in its early 30s when it died, old for a *T. rex* as they grew fast and died young. And Scotty had a hard life, with its bones showing broken ribs, an infected jaw, and what may be a bite from another *T. rex* on its tail.

A new exhibit featuring the skeleton of Scotty is set to open at the Royal Saskatchewan Museum in May 2019.

Information from <https://www.ualberta.ca/science/science-news/2019/march/scotty-worlds-biggest-t-rex>



'Scotty' is the world's largest *Tyrannosaurus rex*. Credit: Amanda Kelley



Tentacled 'Cthulhu' fossil reconstruction of a monstrous relative of modern sea cucumbers. Credit: University of Oxford

'Cthulhu' Fossil of Monstrous Sea Cucumber Relative Reconstructed

Using an exceptionally well-preserved fossil of an ancient sea cucumber relative, paleontologists created a 3-dimensional computer reconstruction of the animal that lived 430 million years ago in the oceans that covered Herefordshire in the United Kingdom. They named this new species *Sollasina cthulhu* due to its resemblance to monsters from the Cthulhu universe created by author H.P. Lovecraft.

S. cthulhu was studied using a method that involved grinding it away, layer-by-layer, with a photograph taken at each stage. This produced hundreds of slice images, which were digitally reconstructed as a virtual fossil. The method not only constructed the exterior of the animal, but also provided insight into the animal's internal structure. The reconstruction indicated that its many long tentacles or tube feet were used to capture food and crawl on the sea floor.

Information from <http://www.ox.ac.uk/news/2019-04-10-tentacled-%E2%80%98ctahulhu%E2%80%99-fossil-reconstruction-reveals-monstrous-relative-modern-sea>

New Evidence Suggests Volcanoes Caused Biggest Mass Extinction Ever

The Permian Period ended 252 million years ago with the largest mass extinction in Earth's history. It was so dramatic and widespread that scientists call it 'the Great Dying,' killing off more than 95% of life on Earth.



Massive volcanic eruptions may be responsible for the largest mass extinction on Earth.

Credit: Margaret Weiner, UC Creative Services

Geologists have long debated the cause of this mass extinction. Researchers recently reported that mercury buried in ancient rock provides the strongest evidence yet that volcanoes caused the biggest mass extinction in the history of the Earth. The smoking gun is a spike in the mercury content of rocks from the time of the extinction event at nearly a dozen sites around the world. The source of this mercury was massive volcanic eruptions called the Siberian Traps in what is now central Russia that took place over thousands of years. These eruptions ignited vast deposits of coal, which released mercury vapor high into the atmosphere. Eventually, the mercury rained down into the marine sediments around the Earth.

The Siberian Traps eruptions spewed so much ash and other material in the air, particularly greenhouse gases, that it warmed the planet by an average of about 18 degrees Fahrenheit (10 degrees Celsius). The warming climate likely caused the mass extinction.

Information from <https://www.uc.edu/news/articles/2019/04/n2081561.html>

New Fossils Capture the Minutes after the Dinosaur-Killing Asteroid Impact

About 66 million years ago, a giant asteroid slammed into Earth off the coast of what is now Mexico. At least 75% of all species perished after the impact, including non-avian dinosaurs, marine reptiles and ammonites to name a few. The effects of this impact have been preserved in sediments in southwestern North Dakota, showing the effects of an immense earthquake — equivalent to a magnitude 10 or even 11.5. Although the impact was 1,800 miles (3,000 kilometers) away, a North Dakota riverbed sloshed violently back and forth, swiftly burying fish, plants, and other organisms in the sediment.

The site, found in the Hell Creek Formation, represents a unique snapshot of what happened on land in the immediate aftermath of the impact, says paleontologist Robert DePalma of the University of Kansas in Lawrence. Groups of fossilized fish skeletons were found that contained tiny glass spheres in their gills. These glass spheres were remnants of



Fossil fish from North Dakota that were swiftly buried in mud shortly after the asteroid impact that wiped out the dinosaurs and 75% of the species living at the end of the Cretaceous. Credit: Robert Depalma, University of Kansas

molten rock that spewed into the atmosphere from the asteroid impact, which the fish breathed in before death. As

the massive earthquake that buried the fish would have struck within an hour of the impact, these fossils provide a snapshot of the beginnings of the massive extinction at the end of the Cretaceous Period.

Information from <https://www.sciencenews.org/article/new-fossils-north-dakota-dinosaur-killing-asteroid-impact>

Leonardo da Vinci at the Colorado School of Mines, Arthur Lakes Library

In addition to the **Leonardo da Vinci: 500 Years of Genius** exhibit now in progress at the Denver Museum of Nature and Science (see <https://secure1.dmns.org/leonardo-da-vinci-500-years-of-genius>), there is another excellent exhibit about his work currently on display at the Lakes Library on the CSM campus. The **Machines of Change: The Da Vinci Machines** exhibit includes over 60 authentic reproductions of machines and devices designed by Leonardo DaVinci created using similar materials, building techniques and tools that Leonardo would have had access to in his time, plus full-size reproductions of Leonardo's most famous paintings. The exhibit, free to all visitors, is spaced around the corridors and reading rooms of the main floor of the library. Library hours are 8 a.m. to 8 p.m. most days, 12 to 6 weekends.



A model of one of Leonardo Da Vinci's inventions at the CSM Library. Credit: Colorado School of Mines

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.



Volunteer for the Denver Gem & Mineral Show



Over 50 years ago, several Denver-area rock clubs combined forces to create the Denver Gem and Mineral Show. Our show has grown over the years to become the second largest show of its kind in the United States.

The eight clubs that currently produce the Denver Show are: Colorado Mineral Society, Mile Hi Rock and Mineral Society (RAMS), Flatirons Mineral Club, Littleton Gem and Mineral Club, Denver Gem and Mineral Guild, North Jeffco Gem and Mineral Club, Friends of Mineralogy, and Western Interior Paleontological Society (WIPS).

The Denver Show is run entirely by club volunteers!

Several members from each club serve on the show committee, which plans all aspects of the show. On the three days of the show, scores of volunteers are needed to sell tickets, take tickets, sell grab bags, serve food to the other volunteers, patrol the show as “security eyes”, and work at the individual club tables.

Sign up to volunteer at this year's show! Choose a day and a job that works you or sign up as a “do anything” volunteer. This year you can even sign up for a volunteer “sampler” to work at several different jobs to find your favorite. For the sampler, just pick a day and arrive at the volunteer check-in desk by 10 AM.

The 2019 Denver Gem and Mineral Show will be September 13-15, at the Expo Hall, Denver Mart, 451 E 58th Ave, Denver. This is the same location as past shows.

Denver Gem & Mineral Show Mini Report

THE DENVER GEM & MINERAL SHOW WILL BE HERE SOON! The dates are September 13-15 and the venue is the usual Denver Mart, located at 451 E. 58th Avenue (I-25 & 58th, Exit 215). The theme is "Canada Unearthed". The Show Chair is George Daggett, 303-453-3651 or geoddaggett@hotmail.com. The show is always fabulous and we hope all the club members are looking forward to fully participate in all it has to offer.

The Greater Denver Area Gem and Mineral Council, composed of the eight local mineral and fossil clubs, is the legal owner and sponsor of the show. The Council is a non-profit organization under IRC Code Section 501(c)(3) and was formed: "for exhibition, exploration, experimentation, and education in the earth sciences; for the discovery, development, and preservation of minerals and mineral deposits; and for the advancement, encouragement, and utilization of the principle of art and craftsmanship as applied to gems and minerals". As a non-profit organization, the Council makes grants to other non-profits in furtherance of its mission. The Denver Gem & Mineral Show is the vehicle providing the funds for the grants. Since 1988, the Council has distributed more than \$500,000 back to the earth science community statewide. Just a few examples: grants were provided to help fund dinosaur track stabilization at Dinosaur Ridge, a paleontology program in preparation for Science Olympiad at Platt River Academy, mineral storage cases for the Bessemer Historical Society Museum in Pueblo, and LED lighting of mineral displays at Hinsdale County Historical Museum. This is quite an accomplishment! But the show is so much more! Through its activities, the show fosters collection, serious study, exhibition, education, preservation, appreciation, specimen availability from dealers, and creating interest in the general public of minerals, gems and fossils. Many mineral and fossil specimens would never be seen if they were not on exhibit at the show. The show provides an event for local hobby enthusiasts to fully immerse themselves in the wonders of minerals, gems and fossils.

Grab Bags - Grab bags are those little cloth bags filled with 10 separately bagged mineral or fossil specimens sold primarily to kids for \$1. You may think that they are **no big deal** but you would be wrong! Club members spend countless hours collecting, cleaning, labeling, bagging, and assembling the cloth bags. Currently, each club provides 500 bags to the show annually. Now 500 times 10 equals 5,000 specimens that each club stuffs in those bags! I am acquainted with many of those specimens and I can tell you that some are excellent specimens. Just think, a grab bag may be the spark that ignites a lifelong interest in minerals and/or fossils for some child. Since 1968 grab bags have been a part of the show with an initial price of \$0.25. Over the years the price has increased to \$1. Since 1986 the proceeds from the grab bags have funded scholarships for students at the Colorado School of Mines. Since 1980, scholarship funds in excess of \$115,000 have been distributed. I think that is a big deal!

There are some vacant positions on the committee that need to be filled. Since George Daggett is now the Show Chair, a new Grab Bag Chair is needed. This is an easy job. Also needed are Treasurer Assistant, Door Prize Chair, Dealer Assistant, and Security Assistant. So why not join the Show Committee! It's not all work! You will meet new people and have new experiences in this hobby we all love. Contact George Daggett and come to our next meeting on Tuesday, May 7th.

The Denver Gem & Mineral Show is an exceptional event and one that every club member should be proud to volunteer for, support, 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.

Thursday, May 9, 7:30 p.m., Friends of Mineralogy, Colorado Chapter, bimonthly meeting featuring Marty Houhoulis, of Westcliffe, CO, on **"Collecting Garnet in Nevada and Mexico"**. Marty will talk about his longtime experience field collecting garnet crystals, particularly at Garnet Hill, Ely, Nevada, and Cerro El Toro, La Higuera, Sonora, Mexico. Meeting in Berthoud Hall, Room 109, Colorado School of Mines campus, Golden. All are welcome.

Friday, May 10, two talks at the Denver Museum of Nature & Science, Earth Sciences Colloquium
2:00 p.m. **"The dinosaur resurrection: Modern birds, and their rise from Chicxulub's ashes"**; Dan Field, Univ. of Cambridge.
3:00 p.m. **The end-Permian mass extinction from a high southern palaeolatitude perspective**, by Chris Fielding, Univ. of Nebraska.
VIP Room, DMNS; all are welcome, museum admission is not required.

Friday-Saturday, May 10-11, 9 a.m.–4 p.m., **"Rock and Stone Sale"**, "Minerals, faceting rough; we have acquired too many rocks; fluorite, quartz, halite, petrified wood, topaz, obsidian, faceting rough, aquamarine, and lots more". Sale by three Colorado Springs area collectors; 5309 Flintridge Dr., Colorado Springs 80918; questions, contact fs_rosenberg@hotmail.com.

Saturday, May 11, 10 a.m.–4 p.m., **"Dan's Used Rocks" Annual Open House and Clearance Sale**, at Dan Unruh's home, 12296 W. Mississippi Ave., Lakewood. "Eliminating my non-thumbail inventory; hundreds of specimens at 50%-75% off; numerous inexpensive flat lots with quantity discounts". Email dansrocks@comcast.net, H 303-986-3647, C 303-437-9643.



Dan's Used Rocks
Annual Open House & **CLEARANCE** Sale
Saturday, May 11, 2019
10:00 AM to 4:00 PM
12296 W. Mississippi Ave.
Lakewood, CO 80228
H: 303-986-3647 C: 303-437-9643
email: dansrocks@comcast.net

Eliminating My Non-Thumbail Inventory
Hundreds of specimens at 50% - 75% off
Numerous inexpensive flat lots with quantity discounts

Rock & Stone Sale
Minerals, Faceting Rough
Have acquired too many rocks!



Fluorite, Quartz, Halite, Petrified Wood, Topaz
Obsidian, Faceting Rough, Aquamarine
And Lots more, Come see 2 days only!

May 10-11 2019
9:00-4:00pm
5309 Flintridge Drive
Colorado Springs, Co 80918

Monday, May 13, 11:30 a.m.–1:00 p.m., The Belle Monte Iron Furnace, Marshall, Colo., by Beth Simmons and Bill Reich, at the weekly meeting of the Denver Mining Club. All welcome; at the Golden Corral Buffet, 3677 S. Santa Fe Dr., Sheridan (west side of Santa Fe Dr., south of Hampden). Purchase of lunch is required.

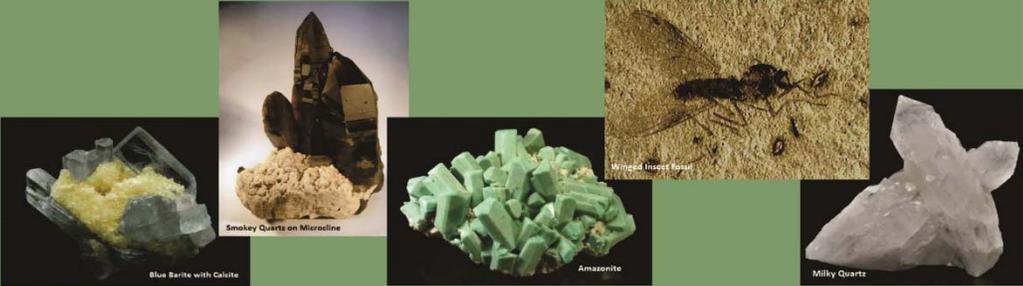
Wednesday, May 15, 3:00 p.m., Denver Museum of Nature & Science, Earth Sciences Colloquium, **“Before there were ankylosaurs there were aetosaurs”**; Andy Heckert, Appalachian State Univ. In Studio 102/103 (not in VIP Room) DMNS; all are welcome, museum admission is not required.

Sunday, May 19, Friends of Mineralogy, Colorado Chapter, Silent (+Vocal) Auction. Noon to 4 p.m. (setup begins at 11 a.m.), Clements Community Center, 1580 Yarrow St., Lakewood CO. All are welcome to attend.

Sunday, May 19, 8:15 a.m.–5:00 p.m., Colorado Scientific Society, Spring Field Trip, **“Denver Basin Geology and Its Rich Cultural, Mining, and Industrial History”**. Stops, all near Golden, will include the Magic Mountain paleo-Indian archeological site; the Chieftain clay mine; the sites of the White Ash and Loveland coal mines; and the Quaternary geology of Clear Creek. Led by Mark Mitchel (Paleocultural Research Group), Jason McGraw (General Shale Brick Co.), Donna Anderson (Colorado School of Mines) and David Lindsey (USGS). Interested non-members are invited to join the CSS for this trip, if they pay a \$10 fee to join the trip. If you wish to come, please contact Cal Ruleman in advance, cruleman@usgs.gov, 303-236-7804; leave your name, email address, and cell phone number. The trip will meet and car pool from the west end of the Woolly Mammoth Rideshare Lot, on the south side of US-40, west of the I-70/US-40/Highway 93 interchange, exit 259 (meet at the Lariat Loop kiosk, at the west parking lot entrance opposite the Exxon gas station). For more info see <http://coloscisoc.org/>.

Friday-Sunday, May 31-June 2, Pikes Peak Gem & Mineral Show, Norris-Penrose Event Center, 1045 Lower Gold Camp Road, Colorado Springs, CO 80905. Sponsored by the Colorado Springs Mineralogical Society. Hours: noon-7 pm Fri., 10-5 Sat, 10-4 Sun. Adult admission \$5.

56th Annual
Pikes Peak Gem, Mineral, & Jewelry Show
Featuring: Specimens of Colorado



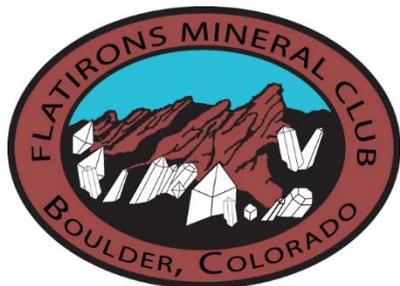
Fri., May 31, 2019, 12 pm-7 pm / Sat., June 1, 10 am-5 pm / Sun., June 2, 10 am-4 pm
Adults \$5.00 / 3-Day Pass \$8.00 / Kids 12 & Under FREE

NORRIS-PENROSE EVENT CENTER, 1045 Lower Gold Camp Road, Colorado Springs, CO

Colorado Springs Mineralogical Society
csms1936.com

PikesPeakGemShow.com
ppgmjshow@gmail.com

Wed., June 5, 3:00 p.m., Denver Museum of Nature & Science, Earth Sciences Colloquium, **“Deciphering dinosaur lives: From microscopes to Madagascar”**; by Kristi Curry Rogers, Macalester College. In Ricketson Auditorium (not in VIP Room) DMNS; all are welcome, museum admission is not required.



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

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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
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Secretary

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Treasurer

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phantom@indra.com

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Anita Colin, 720-556-9889
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Junior Geologists

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

Donald Layden
donald@pmgresources.com

Club Claims

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earthextractions@gmail.com

Club Hospitality Chair

open

Facebook Chair

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anitacolin@hotmail.com

Meeting Door Prize Chair

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bpwillkomm@yahoo.com

Grab Bags

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anitacolin@hotmail.com

Charlotte Bourg, 970-278-0975
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Mineral Specimens Chair

Don Mock
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Club Show Committee Members

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Past Show Chair

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

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Program Chair

open

Dealer Chair

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Show Advertising and Admissions

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Kid's Corner Chair

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Eileen Fitzgerald, 303 666-1399
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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

Thursday, May 9, at 7:00 pm	Club meeting featuring Kevin Singel, who will talk about Finding Gold in Colorado: Then and Now . Also, this summer's field trips will be introduced. (see page 1)	the Frasier Meadows, 350 Ponca Place, Boulder, CO 80303
Saturday, May 11	Gold panning field trip with the Gold Prospectors of Colorado (see page 3)	Arkansas River near Wellsville
Wednesday, May 15 at 6:30 pm	Jr. Geologists meeting on field trip preparation	Meadows Branch Library, 4800 Baseline Road, Boulder, CO 80303
Saturday-Monday, May 25-27	Field trip to collect fossil wood, jasper-after-barite, barite balls, desert roses, and all kinds of strange-looking rocks (see page 3)	Yellow Cat in eastern Utah

Beginning Friday, May 10, summer field trip information and signups will be available on the club website, <https://flatironsmineralclub.org/>.