

# *Flatirons Facets*

Flatirons Mineral Club of Boulder County, Colorado  
Volume 66, Number 5

September-October 2023



Actinolite from the  
Calumet Mine.

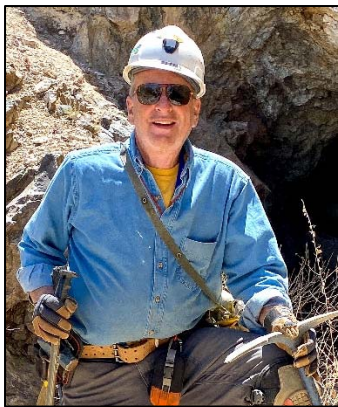
The field trip to  
the Calumet Mine  
was one of several  
club field trips  
during the past  
two months. Field  
trip reports begin  
on page 15.

Photo credit:  
Doran Adams

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## *President's Message*

### **The Loss of a Mentor**

I'm treasurer of a mining group that owns several claims in the Jamestown and Ward Mining Districts. A mining claim's yearly maintenance fee to the Bureau of Land Management is due by August 31st. Before paying the fee, I decided to check in with the mining group's lead, Vic Norris, and learned that he had passed this spring.

Vic was a gold and silver miner in the Jamestown District since the 1970's. He was a member of a group of prospectors that researched old mining claims and economic geology reports looking for

possible prospects. At one time Vic and his group owned 50 lode and placer claims in the Jamestown area. Back then, Boulder County and the U.S. Forest Service were not interested in bothering miners.

I met Vic at an FMC meeting years ago. We started a 15-year friendship based on mining interests. Vic was my hard rock mentor. He learned his prospecting skills from the old timers. Vic had lots of stories to tell about the good old days, such as finding a 50-pound chunk of silver ore after a hole was blasted for a power pole. He had located veins of gold-silver telluride minerals such as sylvanite and petzite. He found a tin can containing about a hundred dollars' worth of silver coins at an old mining camp site, and gold coins on the Jamestown sports field which used to be the railroad turnaround.

I traded resurveying his Last Chance Lode claim for an ownership percentage. I learned how to read the rocks looking for the elusive horn or blue quartz that indicated a mineral vein was close. One of Vic's classic sayings was "I never saw a piece of quartz I didn't like."



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© Earth Extractions, LLC

Other endeavors he worked on included the development of his patented passive sluice pad for gold and mining for diamondiferous kimberlite. Vic was also a mineral dealer at our Rocks & Rails show selling handmade jewelry and minerals.

Written in his obituary "His family would like to think that he has finally found that perfect creek and the gold he was always searching for."

Photos by Brian Walko

**No Club Meeting in September. Come to the Denver Gem and Mineral Show, September 15-18**

**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.



## October 10 Club Meeting

Club member **Andrew MacGregor** is our speaker in October, talking about the **Serendipitous Discovery of Large Impact Craters**. It's the story of how serendipitous events led to the discovery of an impact crater larger than the Washington Beltway, and why the paper was initially sent back for amendment.

Club meetings begin at 7:00 pm in Barker Hall at Mountain View United Methodist Church, 355 Ponca Place in Boulder. Park in the west parking lot, come through the main entrance of the church, and follow the signs down the stairs to Barker Hall.

## Club Members Receive Special Recognition

### Rockhound of the Year: Tony Bubb

At our club picnic last month, Tony Bubb was honored as our club Rockhound of the Year. Tony is a graduate of Purdue University in Mechanical Engineering and specializes in magnetics. He worked for a major disk-drive manufacturer in Longmont for more than 26 years. He and his daughter Emilyn have major interests in field trips around Colorado, and elsewhere. Tony is also very involved with the club's Jr. Geologists program. We thank Tony for his service to the club.



### Lifetime Achievement

#### Award: Andrew MacGregor

Andrew earned his Ph.D. in physics and until his retirement worked mainly with lasers and diodes at large tech companies in the UK, Canada, and the US. He was unanimously voted for the club's Lifetime Achievement Award by the club's Board for his work as club show administration. He led the efforts for the club obtaining the equipment and implementing the software to accept credit cards at the annual club shows and silent auctions. Many thanks to Andrew for doing this.

### Trilobite Video and Website: Charlotte Small

Charlotte has been studying trilobites for more than a year and has created this video that talks about the **Top 10 Trilobite Facts You've Probably Never Heard Of** at <https://youtu.be/3Cc6QIDA6IE>. She also has put together this trilobite website with lots of information about trilobites: <https://sites.google.com/view/trilobite/trilobites?authuser=0>. Her video and website were featured in the first edition of the American Federation of Mineralogical Societies junior newsletter, *Crack the News*.

## 2023 Newsletter Awards

Each year, the Rocky Mountain Federation of Mineralogical Societies selects the best articles, photos, and other features in club newsletters. The top 3 in each category then go on to the national contest, sponsored by the American Federation of Mineralogical Societies. Eleven club members received awards from the Rocky Mountain Federation. Six of these went on to the national contest and received awards for some of the best articles, photos, and features in the country.

Here are the club members who received awards at the club picnic last month.

### Rocky Mountain Federation

- Photo Collage, first place: Brian Walko for “Tucson Gem & Mineral Showcase: Why You Should Make a Pilgrimage”
- Photo Collage, second place: Terry O'Donnell for “Field Trip to Granite Pass, New Mexico:
- Written Features, first place: Mark Goldgeier for “North Table Mountain, Golden, Colorado”
- Written Features, second place: Sharon Dooley for “Long Canyon near Moab, Utah”
- Written Features, third place: Brian Walko for “Midnight Express Mine Field Trip Report”
- Written Features, honorable mention (fourth place): Charlotte Small for “Big Thompson Canyon Field Trip”
- Advanced Adult Article, first place: Dennis Gertenbach for “Giant Horsetail Trees in Colorado”
- Adult Article, third place: Char and Mel Bourg for “Rocking in the Pawnee Grasslands”
- Adult Article, honorable mention (fourth place): William Rehm for “Six Mile Fold Field Trip”
- Adult Article, honorable mention: Trick Runions (fifth place) for “Fabulous Crocodile Fossil Find”
- Adult Article, certificate: Jean Orr for “Trammel Fossil Park of Sharonville, Ohio”

### American Federation

- Written Features, third place: Mark Goldgeier for “North Table Mountain, Golden, Colorado”
- Written Features, honorable mention: Sharon Dooley for “Long Canyon near Moab, Utah”
- Written Features, honorable mention: Brian Walko for “Midnight Express Mine Field Trip Report”
- Advanced Adult Articles, fourth place: Dennis Gertenbach for “Giant Horsetails Trees in Colorado”
- Adult Articles, seventh place: Char and Mel Bourg for “Rocking in the Pawnee Grasslands”
- Large Bulletins, seventh place: Dennis Gertenbach

## Denver Gem & Mineral Show – September 15-18

The 2023 Denver Gem & Mineral Show (DGMS) in conjunction with the Hardrock Summit will be held at the Colorado Convention Center from September 15-18, 2023. The Hardrock Summit has 4 shows at the Convention Center this year, including the Evolution Show, Sparkle & Joy Jewelry and Gemstone Show, DGMS, and AGTA Gem Fair. Visit <https://hardrocksummit.com/#summit> and <https://denvermineralshow.com/> for more information.

The DGMS will occupy the same space as last year on the upper, entry level of the Convention Center. The DGMS 2023 show will include about 30 dealers, fluorescent room, club tables, speakers (see list below), display exhibits, education and public sector tables, gold panning, Mr. Bones, and grab bags. The theme of the 2023 DGMS is **Gem Minerals: Nature's Bling**.

Hours for the Show are Friday through Sunday 10:00am to 6:00 pm and Monday 10:00am to 3:00pm. Admission for Hardrock Summit this year is **FREE**; however, everyone is required to register to obtain a visitor ticket, which allows you to enter all the shows all 4 days. If you plan to attend the show, you can pre-register before the show to skip the registration lines by going to the following link <https://tickets.hardrocksummit.com/en/shop/tickets>, entering your



# HARDROCK SUMMIT

DENVER  
SEPT  
15 – 18  
2023

Hours: Fri to Sun: 10am – 6pm  
Mon: 10am – 3pm

Colorado

Convention Center

700 14th St, Denver, CO 80202

**Free Admission for All Shows**

Skip the lines and register for free tickets at:  
<https://tickets.hardrocksummit.com/en/shop/tickets>

JOIN US for the 55th Annual  
**Denver Gem & Mineral Show**  
Theme: "Gem Minerals: Nature's Bling!"

Gem, Mineral, and Jewelry Dealers  
Fabulous Special Exhibits  
Fluorescent Room  
Gold Panning  
Door Prizes

information, and a ticket will be emailed to you that you can print out and bring with you. You can enter up to 5 tickets under one registration. Lanyards will be available at the show if you want to wear your ticket as a badge.

## Volunteers Needed

The non-profit Denver Gem & Mineral Show is put on by seven Denver-area gem, mineral, and fossil clubs. Your participation as a volunteer is the life blood of a successful show and we need about 200 volunteers. Volunteers should work a minimum of 4 hours and will be reimbursed for parking/public transit reimbursement (up to \$12 per day) on the day(s) you actually volunteer (cash in hand at the end of your shift!). The Convention Center parking garage is \$12 per day. We encourage you to take public transportation, and there is a light rail station across the street from the Convention Center.



Here is the link to sign up: <https://www.signupgenius.com/go/4090D45A5AD2EA2F94-2023> It's easy-peasy. You will get a reminder before the show and a "badge" to print out and bring with you. We need people to help at our club table and at the check-in booth. If you are volunteering to help at our club table, put "Flatirons Mineral Club" in the comments. If anyone has questions, email Anita at [anitacolin@hotmail.com](mailto:anitacolin@hotmail.com).

## Speakers List

On the next page is the list of speakers and their talks as part of the Hardrock Summit and DGMS. All talks will be in Room 401 near the entrance to the Hardrock Show. Note that club President Brian Walko and Conrad North of the Fluorescent Mineral Society are presenting Sunday at 1:00 pm about their 2021 fluorescent minerals field trip to central New Mexico mining areas.

## Member Name Tags

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

If you would like a name tag, please log onto our website and choose the "Request a Name Tag" link in the Members Area. Add your name to the list as you want it to appear on your name tag, and it will be ordered for you. Your first name tag is free.



Example of a club name tag

## Speakers at the Denver Gem & Mineral Show

Friday, Sept 15

11:00 am	Jeff Scovil, Photographer	The Dreher's, A Legacy of Beauty
12:00 pm	Stephen Nash, Senior Curator of Archaeology at Denver Museum of Nature & Science	The Enchanted Gem Carvings of Vasily Konovalenko
1:00 pm	Kim Vagner, Executive Director of Rice Northwest Museum of Rocks and Minerals	Gem Minerals of the Rice Northwest Museum of Rocks and Minerals
2:00 pm	Jenna White, Colorado School of Mines; Kimberly Collins, Kimberly Collins Colored Gemstones; and John W. Ford, AGTA	AGTA and Colorado School of Mines Update on the Transparent and Traceable Gemstone Supply Chain Initiative
3:00 pm	John Rhoads, D&J Rare Gems	Colorado Faceted Gemstones
4:00pm	Rebecca Boyajian, Gemological Institute of America (GIA)	Knowledge Session: GIA Updates

Saturday, Sept 16

11:00 am	Ed Raines, Curator of Mines Museum of Earth Science	The Quest for Great Wealth from Free Stuff
12:00 pm	Laura McCall, Manager of Lizzadro Museum Shop	Lizzadro Museum of Lapidary Art-Sharing the beauty of hard stone carvings for over 60 years
1:00 pm	Bill Larson, President, Pala International, Inc.	San Diego County Tourmalines, and recent finds at the Tourmaline King
2:00 pm	Kimberly Collins, Kimberly Collins Gems; Niklai Israileff, ASBA, USA, Inc.; Robyn Duffy, DuffyWeis Opals, Inc.; and John Bradshaw, John J Bradshaw, Moderator: John W. Ford, AGTA	AGTA Shares It's Love of Colored Stones and Cultured Pearls
3:00 pm	Renata Lafler, Executive Director of Mines Museum of Earth Science	Crowns and Cleavage – Gems from the Mines Museum of Earth Science

Sunday, Sept 17

11:00 am	Mark Ivan Jacobson	Spodumene – An Exotic Gemstone
12:00 pm	Albert O. Ray, Mine Claim Owner	Unearthing the Beauty of Chihuahua, Mexico
1:00 pm	Brian Walko, Earth Extractions, LLC and Conrad North, Past President of the Fluorescent Mineral Society	Silver Foxes of Fluorescence
2:00 pm	John Pollard, Senior Director of Education at International Gemological Institute (IGI) and Neil Beaty, ICGA Appraiser	Assessing, Appraising & Advising Consumers on Colored Stones
4:00 pm	John Pollard, Senior Director of Education at IGI	What's Happening Here and Now? New Color, Fun Features and Sharing



## September and October Field Trips

By Will Rehm, FMC Field Trip Chair

Congratulations to **Tony Bubb**, recipient of the FMC 2024 Rockhound of the Year Award, for leading the Big Thompson Field trip back in July! Nice work Tony, and kudos to your able assistant and co-leader, Emily.

Tony's award was given out during the recent FMC Annual Picnic, where we gave a **shout out to all 2023 FMC Field trip Leaders**. Thanks to your hard work, we've had a great season this year, with more to come!

### September 30-October 1, Crawford, Nebraska

Led by **Brian Walko**, this joint trip with the Colorado Mineral Society (CMS) will focus on collecting agate, opal, and chalcedony. Join us on September 30 and October 1, for an adventure on to the high plains of Northwest Nebraska.



Saturday morning, we will briefly explore the Brule Formation around Toadstool Park. World famous for Oligocene fossils. Please note, fossil collecting is strictly prohibited by Federal Law. However, photographs are allowed. Then we will drive east of Toadstool Park and explore the lower Chadron Formation and chalcedony beds.



Later we will drive to the agate beds and start hunting for Fairburn, Prairie, Picture, Blue Agates, and petrified wood. On Saturday evening, we will collect fluorescent agates and chalcedony using ultraviolet lamps. Sunday morning will feature more agate hunting. After lunch, you can continue agate collecting, return to Crawford and visit historic Fort Robinson and the Trailside Museum, or return home.

### October 7, Dinosaur Ridge Walking Tour, Morrison, CO



**Gerry Naugle** will lead this educational field trip with a focus on the bone wars, the topic of his spring 2023 FMC lecture. The Dinosaur Ridge Walking Tour consists of a 1.4-mile walk with a staff guide on the paved Dinosaur Ridge Trail from the West Side of Dinosaur Ridge (farthest from the Visitor Center) back to the Visitor Center with a guide (2.8 miles round trip). This program focuses on the lives and deaths of dinosaurs, changing environments, geology, fossils, and the history of the area. The club will pick up half the cost of the tour, so your charge will be \$4 per person.

FMC members with long-walk difficulty / special needs may stay with the trip leader at the Visitor Center and do nearby limited walking and viewing from the center. There is no charge for this.

**October 21, North Table Mountain, Golden, CO**



This classic FMC field trip, led by **Dennis Gertenbach**, run in partnership with the Colorado Mineral Society (CMS), takes us to a world-famous zeolite collecting spot in Golden to collect thomsonite, analcine, and chabazite and other minerals. Participants are guaranteed to find zeolites aplenty. The hike to the quarry is just over a mile and climbs 500 feet in elevation.

You can find more details and sign up for these trips at the club website at <https://flatironsmineralclub.org/>. Click “Member Login” and sign in, then go to “Field Trips”. From there, you can select any field trip for more information or to sign up for the trip.

### **Member Profile: Karen Simmons**

Anita Colin

If the Flatirons Mineral Club has an event, Karen Simmons is sure to be there. Meetings, towel shows, silent auctions, bagging parties, picnics – yep. Helping at the Denver Gem and Mineral Show and our own club’s December show – you bet! Out collecting on club field trips – absolutely!! And, for the past several years, she has even been helping at the Junior Geologists’ meetings. Her biggest “claim-to fame”, however, is her 50-year-long career working at the Laboratory for Atmospheric and Space Physics (LASP) in Boulder. (See accompanying article below.)

Although Karen grew up in big midwestern cities, her parents took a vacation out west and were smitten. They moved to Aurora, Colorado, where Karen graduated from high school. It was the space age, and she had been bitten by the space bug, so her original major at the University of Colorado was Aerospace Engineering. After classes in differential equations, though, she decided to dabble in other majors until she took a geology class from an awesome professor. She ended her undergraduate career with a Bachelor’s in Geology.



What next? Karen started a master’s program in geology, but her advisor mentioned an interesting job opportunity in LASP. Her potential employers were impressed with her array of undergraduate classes (especially differential equations!) and said she just needed a class in Fortran Programming before she could start. So, Karen’s “space bug” was going to be satisfied after all!





Karen Simmons explains how ultraviolet light is used in the exploration of space to several Jr. Geologists.  
Photo by Dennis Gertenbach

About this time, she met her future husband who was finishing his Ph.D. in physics. To save money, they lived in a cabin in Sunshine Canyon (elevation 8200 feet). With no electricity! Year 'round!! (Karen still spends time there, although she mentioned that solar panels have been installed.) A big plus for her was the cabin's location next to the Snowbound Mine, a steam-driven gold mine.

Karen decided to join the Flatirons Mineral Club over 20 years ago after her husband died. It turned out to be a great way to socialize with like-minded people, continue her geology interests, and contribute to science education. "It's the rocks and kids I love about FMC, as well as the knowledge and comradery of the groups."

## Discover the Laboratory for Atmospheric and Space Physics (LASP, rhymes with gasp!)

Anita Colin

The program that would become LASP got its start in 1948, when the United States Air Force wanted to use V-2 rockets (captured during World War II) to study the sun from above the atmosphere. They partnered with physicists at the University of Colorado in Boulder and, after five years, were able to measure the Sun's ultraviolet radiation from space.

Since then, LASP has produced a wide array of instruments to study the atmosphere and surface of all the planets and their moons. It collaborates with numerous federal agencies, such as NASA, NOAA, NSF, and NIST to send its instruments out into the solar system.

If you are going to analyze various types of radiation (x-rays, ultraviolet, visible light, infrared) far from Earth in a very expensive spacecraft, you want your equipment to be not only super sensitive, but super reliable as well. There's no coming back for minor adjustments and



Laboratory for Atmospheric and Space Physics at the University of Colorado at Boulder.

Credit: Craig Talbert, licensed under the [Creative Commons Attribution 2.0 Generic](#)

repairs! Designing and building these instruments has been one of LASP's main missions.

Once the instruments are out in space, LASP receives, analyzes, publishes, and archives the data obtained. FMC member Karen Simmons worked on computer programming and data formatting to accomplish this aspect of the missions. She worked her way up from programmer to end her career in spacecraft missions as the Experiment Manager of the EUV/UVS instruments on the Galileo Mission.

At the heart of many of these missions was the question, "Do any of the bodies in our solar system have water? A possibility of some kind of life?" The Voyager missions of the 1970's collected basic information on all the planets and their moons to help tailor future missions to their particular destinations.

With her background in geology, Karen was thrilled with the detailed information obtained from these early missions. The first topographic map of Mars! The intriguing geomorphology of Europa! She also worked on the Galileo spacecraft's mission to Jupiter. When that mission ended in 2001 (Galileo was forced to crash into Jupiter to avoid it accidentally "contaminating" one of that planet's moons.), Karen thought it was a good time to retire. But not for long. There was still lots of mission data that needed archiving, so Karen went back to work, eventually bringing her time with LASP to almost 50 years! To find out more about what LASP is up to today, check out <https://lasp.colorado.edu/>.

### **A Good Time Was Had at the Club Picnic**

About 30 club members attended this year's club picnic last month. At the picnic we filled 805 grab bags, which will be sold at the Denver Gem & Mineral Show to fund scholarships for college students majoring in the earth sciences.

During the picnic, all field trip leaders were presented with a gift card as a thank you for leading one of our many trips this year. Eleven club members received awards from the Rocky Mountain Federation of Mineralogical Societies and the American Federation of Mineralogical Societies for their articles, photos, and other contributions to our club newsletter (see page 4). Tony Bubb received our Rockhound of the Year Award, and Andrew MacGregor was honored with our Lifetime Achievement Award (see page 3).

Here are photos from the picnic.



Filling grab bags at the picnic (left) and packing the finished grab bags.

Credit: Brian Walko









Terry explains how to create a cabochon to two Jr. Geologists.  
Credit: Dennis Gertenbach



Jr. Geologists creating cabochons under Yam's guidance. Credit: Dennis Gertenbach



Eian working on his cabochon. Credit: Dennis Gertenbach

## White River Formation

Daniel Bonvillian, age 13

Everyone has a passion for a subject whether it's comic books, video games, or collectibles. Something I've always been fascinated about is fossils. In this article I will be talking about what the Brule formation is and how I prepared a fossil from it.



If you think of a time period (shown to the right), most people think about the Jurassic Period. However, most people don't know about the lesser-known periods like the one I'll be focusing on called the Oligocene. The formation in the Oligocene is called the White River Formation, also known as the Brule Formation. The Brule Formation existed in Montana, North Dakota, South Dakota, Wyoming, Nebraska, and finally at the tip top of Colorado. The Oligocene is in between the Eocene and the Miocene and holds some of our first and most complex mammals like the rhino and first true dog and cat. The first rhinos actually existed in Florida, but eventually traveled to the rest of the United States. These rhinos didn't have horns and looked like a horse mixed with a dog with thick gray skin. Another amazing creature from the White River Formation is the Saber Tooth Cat and False Saber Tooth Cat. The False Saber Tooth Cat, although looking just like a Sabertooth Cat, technically isn't a cat. Some other creatures from the Brule formation are Oreodonts, Equids, Camels, Hyracodonts, Brontotheres, Hyaenodonts, Canids, Nimravids, Entelodonts, Hypertragulids, and Tortoises.

Era	Period	Epoch	Age (Ma)*
Cenozoic	Quaternary	Pleistocene	2.6 - 0.01
	Tertiary	Pliocene	5.3-2.6
		Miocene	23 - 5.3
		Oligocene	34 - 23
		Eocene	56- 34
	Paleocene	66-56	
Mesozoic	Cretaceous		146-66
	Jurassic		202-146
	Triassic		251-202
Paleozoic			542-251

Time Period Chart, public domain

One of my recent projects has been preparing fossils. I prepared an Oreodont skull that I bought from FossilEra online. Oreodonts are closely related to modern pigs and camels but have no living relatives. They grazed on grasses and leaves. Oreodonts had long canines and short faces and were about the size of sheep.

This is what the skull originally looked like.



On the first day I chipped away at the stone around the skull with a mini hammer and nail. I then took PaleoPutty, which is a putty that you mix and it becomes solid, to fill the big cracks. After that dried, I took a glue that seeps through the cracks that you can't even see and stabilizes the bone.

On day two I used my Dremel to sand down the sandstone on the bottom and the side. I also kept chipping at the rock and got a lot of it off.

On day three I cleaned out the orbit around the eye socket and later I used a slightly bigger mini hammer to chip away at the side that was covered and BOOM it snapped in half. I didn't see any bone inside, but I liked how it made a natural stand for the fossil, so I glued it back together.

For the next few days, I kept using the mini hammer. By day ten I had the bottom almost down to where the teeth are, and the side broke again. I decided to leave it off because it was going to break more, and it didn't have any bone. Enough bone around the nose is also gone, so you can see the bottom of the sinus.

Here is what it looks like at this point.



On day twelve I found the palate and opened the area where the jaw muscle would have been. On day thirteen, the final day, I cleared out the orbit and took out a ton of sandstone. I also made a piece to show what the complete eye socket would have looked like out of the PaleoPutty.

This is the original compared to the finished fossil.



This is a very fun project for you to do with your family or by yourself. Although time consuming and stressful, it is very rewarding and super fun to learn about. I recommend doing something like this. I learned a lot about these creatures from Wikipedia, FossilEra, and TheFossilForum.

*Editor's Note: Daniel has been a Jr. Geologist in our club for the past 4 years. He is in 8<sup>th</sup> grade and goes to Nevin Platt Middle School. He has been collecting and hunting fossils since he was six, and the first fossils he found were New York trilobites.*



## Combat Rock Field Trip

Emilyn Bubb, age 10



Emilyn on the trip. Photo credit:  
Kimberly Dill

This year we did a lot of fun things with the Flatirons Mineral Club. One of the things we decided to do was lead a trip for kids to Big Thompson Canyon and search for minerals near Bobcat Gulch at a place called Combat Rock. This area is a really cool place that we have visited before. We chose to lead this year's trip there because we could be sure that everyone who came along would probably find something that would be interesting and that they liked.

There are so many types of rocks that you can collect and find there. There was muscovite mica, biotite mica, pink feldspar, quartz, smoky quartz, and schorl, which is black tourmaline. Sometimes you can find garnet, blue beryl, aquamarine, or some other things.

All sorts of things could happen on these hikes. On this hike it was a steep, rough, and rocky trail. There were also a lot of cacti to watch out for. It was hot, so it was quite an adventure.

For me it was fun seeing people finding all sorts of rocks and their smiling faces. It was also fun because there were these chunks of rocks that were like Easter eggs. You can pick a chunk based on what you see on the outside and when you crack them open sometimes there will be schorl or other crystals inside.

Our group of 21 rockhounds ended up finding lots of schorl, quartz, rose quartz, smoky quartz, garnet, muscovite, biotite, some pink feldspar, and various schists. We didn't find any blue beryl or aquamarines this time, but the trip was a great experience that was loads of fun and it "rocked!!!"



Some of the minerals we found on an earlier trip to Combat Rock, including schorl, blue beryl, and an aquamarine.



A few of the "Easter" eggs we cracked and found schorl crystals inside.

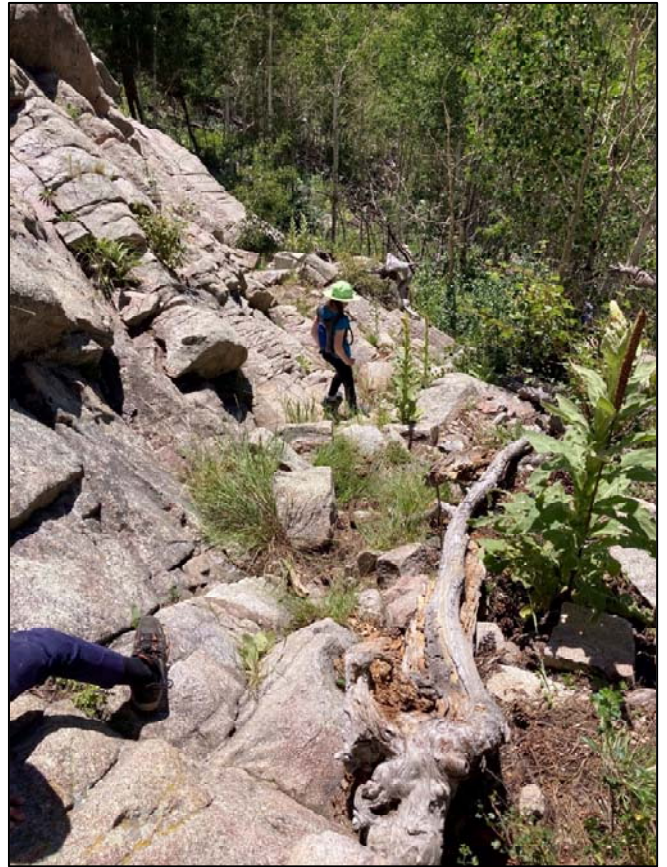




A few examples of schists we collected on the trip.



We found a lot of feldspars that had nice flat faces.



Emilyn on the steep trail on the way out.  
Photo credit: Kimberly Dill

*Editor's Note: Emilyn co-led this trip with her father, Tony. She has been a Jr. Geologist for 2 years and recently received her Rockhound Badge for earning six badges. More articles about this trip begin on page 20.*

## NCAR Labs Geology Field Trip Summary

Will Rehm





Delightful weather greeted the Flatirons Mineral Club on July 15th as we explored the mesa, hogbacks, and escarpments near NCAR's Mesa Labs in Boulder. This trip was designed to share information, get information from others, and prepare a new FMC field NCAR Geology Guide for the public.

### **A Participatory Experience**

Of particular note were contributions made by others during the event. For instance, some folks recounted how this area was going to be covered in houses, before it was protected by Boulderites. Others pointed out features they've noticed in the past, or shared stories about nearby geological wonders.



The group assembles at NCAR under bright clear skies.

### **Going Back Through Time**

The geology near NCAR Mesa Labs offers a unique place to understand geology and the processes that formed the Rocky Mountains we see today. Here, in a span of just a kilometer, 300 million years of time become compressed into a landscape that can be read like a book - if one knows how to read it. This trip was all about deciphering the landscape and geology here.

As we walked westward across the landscape, we went back in time, across inland seas, sand dunes, and the Ancestral Rockies. Everyone had great questions, observations, and stories to share, and we all came away with a deeper appreciation of this magical place.

### **FMC NCAR Field Guide for the Public**

The trip also served as a proving ground for a new FMC publication designed for the public. The publication is attached to the end of this newsletter - please check it out and feel free to share it with others. The guide, which will be made public in the future, is a great way for us in the FMC to share our interests with others, inspire wonderment, and perhaps bring in new members.



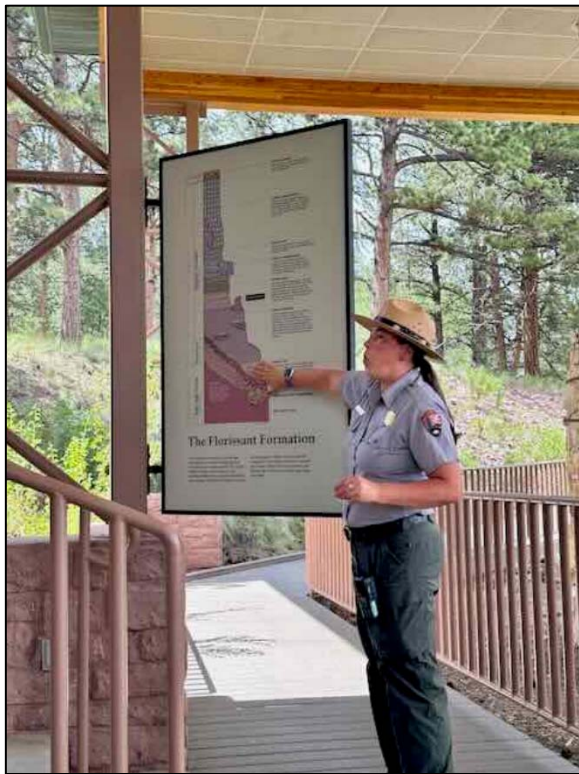
## Photos from the Florissant Field Trip

Rebecca Stetson

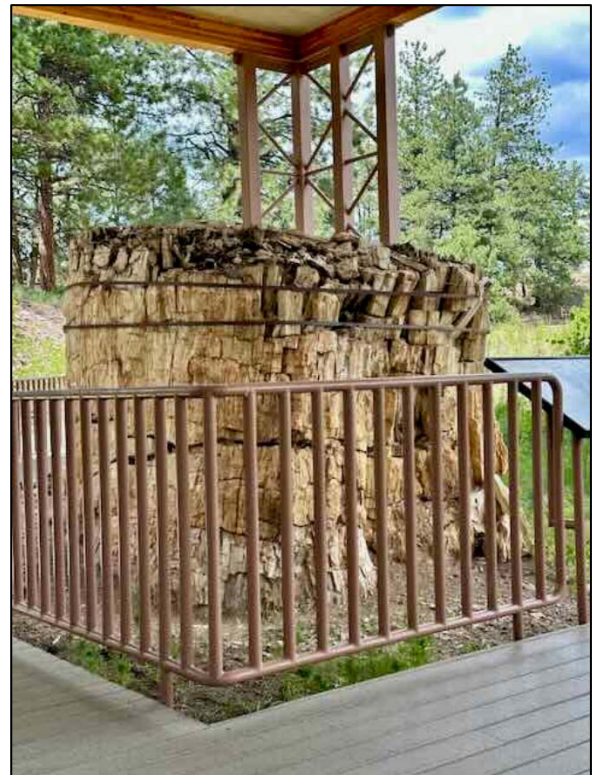
What an incredible experience we had in Florissant on July 29th! It was my first time leading a field trip, and I couldn't be happier with how it all turned out. Thank you to everyone who participated—your timely arrival and readiness really made the day flow smoothly.

I also want to express my appreciation for Nancy at the quarry. Her expertise and warm engagement elevated our time there into a truly enriching experience. Park Ranger Amanda was equally wonderful, offering us an informative and captivating tour of the Florissant Fossil Beds National Monument.

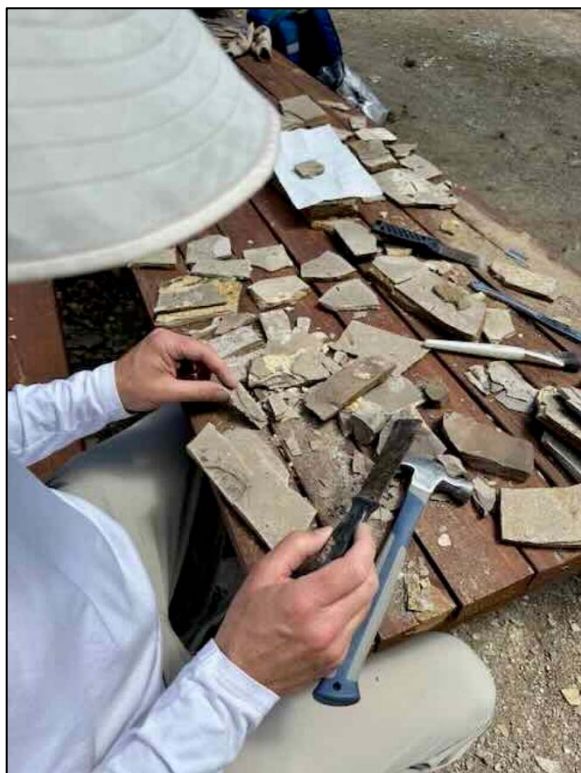
To top it all off, the weather was on our side, making the day even more delightful.



Scenes from the Florissant Fossil Bed National Monument. Clockwise from the upper left: Ranger Amanda explains the geology of the area and how the fossils were preserved. The largest petrified stump in the Monument. Another large, petrified stump along the trail.







At the Florissant Fossil Bed Quarry. Clockwise from the upper left: Fossil-bearing outcrop at the quarry. Working the pile of shale, looking for fossils. Nancy, a staffer at the Quarry, shows how to split the shale to find fossil bugs and leaves. A collection of nice fossils found that day.



Some of the fossil insects found at the Florissant Fossil Quarry during the trip.

## Big Thompson Canyon Field Trip to Bobcat Gulch/Combat Rock

The trip to Big Thompson Canyon on July 23 was enjoyed by everyone on the trip. Enjoy the descriptions and photos from several trip participants, plus the writeup by Emilyn Bubb on page 15. Thanks to the father-and-daughter team of Tony and Emilyn Bubb for leading this trip.

### **Neva and Robert Phillips**

A relatively quick drive from Niwot put us at the parking area in about an hour. The middle part of the Big Thompson Canyon west of Loveland is stunning with fast-moving water and towering cliff walls. Our group was made up of both junior and more seasoned prospectors.

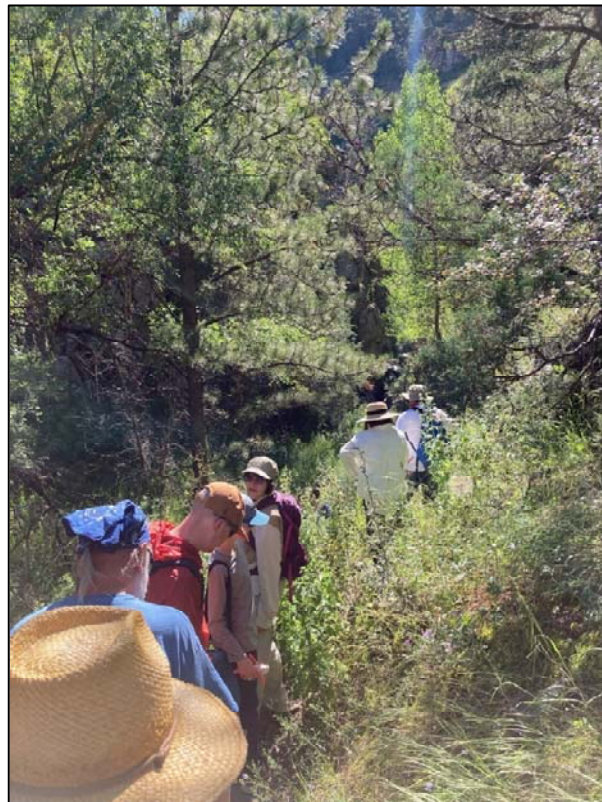


The hike from the parking area started with a quick descent to the bottom of the gulch, then we headed steadily uphill on a sparse trail with loose direction provided by a collection of cairns. A few places required a bit of clambering over large boulders. Our primary objective was the base of the large granite dome known as Combat Rock, also a popular rock-climbing area.

Along the path we found many plants including prickly pear cactus, wax currents, thimble berry, serviceberry, skunk brush, mint, hound's tongue, wild roses, and some occasional poison ivy.

Appropriate to the gulch's name, Tony also pointed out some bobcat tracks captured in the stream mud.

At the base of Combat Rock, we found many large chunks of quartz and smoky quartz, with large veins running through the granite dome. The entire area is filled with large and small feldspar rocks containing plentiful deposits of black tourmaline (schorl) and mica. We were able to extract a number of larger tourmaline crystals and it was easy to note their hexagonal structure. Gray and yellow schist was in abundance, providing lots of sparkling reflection in the sun. One thing we did learn is that sometimes you need a bigger hammer than a pick.



On the trail to the site.



Nearing Combat Rock

After

suggesting that a zip line would be a great way to return to the parking area, Tony pointed out a slack line system that was strung 200 feet in the air crossing the canyon. You can actually see it on Google Earth. We did not opt for that route.

In the end, we all came away hot, tired, and thirsty, with many interesting samples, and without any poison ivy or tick encounters.

#### **Jeff Christy**

We gathered in Niwot on Sunday morning and got a briefing on the site location, as well as some precautions and some of the things that we might find, from our leaders Emilyn and Tony. We then caravanned to the site, which is above Drake, off Storm Mountain Road. We were a large group for the available

parking (thank you to our leaders for encouraging carpooling!), but we got everyone in, and left room for another car of climbers that arrived after us.

We took a primitive trail down from the parking area, across a small stream, and then back up the other side of the drainage to the site. We saw a likely bobcat track in the mud of the stream bed - that was really neat. The trail was not easy and required putting hands on the rock a couple of times, but was navigable by everyone in the group. We found various interesting rocks on the trail, and my wife found a rock with some small garnets in it along the way.



The site itself is at the bottom of a rock face that is popular with climbers - Combat Rock. There were enough trees to provide some nice shade, which was great as it was already hot there. When we arrived, our leaders helped us understand how a pegmatite is formed and what they can look like. There were a lot of various kinds of quartz, mica, and pink feldspar. We found a large rock that had some tourmaline exposed, and Tony used that to show us how to use our tools to break the rock and (hopefully!) expose the minerals within. There were a lot of small tourmaline crystals in that rock, and between finding our own specimens or getting a chunk of that rock our guides had split, everyone got a chance to get some tourmaline, and I think everyone did!

After spending some time at that site, we moved along the rock wall to another site, where Tony found a larger tourmaline specimen.

People then began to leave at their own pace around lunch time, and most everyone we talked to on the way back had a good time and found some nice samples.

Photos provided by Kimberly Dill



Such a beautiful site to collect.

## Calumet Mine Field Trip

Doran Adams

We had a beautiful day of collecting at the Calumet Mine near Salida on Sunday August 13th. Twenty-three members and guests met in Salida at 9 am and then drove 11 miles to the mine location. Next was the most challenging part, hiking up the "trail" (400' gain) to the mine location and tailings. As we ascended the slope, we began to see hints of what was to come; epidote, calcite and magnetite started to appear along the trail. We even passed an old dynamite shack, just part of the long mining history in the area. Once at the mine area, we were rewarded with a magnificent view of the middle section of the Sawatch Range.



Partial group at the top.

Photo credit: Doran Adams/Wade Waldrup





Members collecting.  
Photo credit: Doran Adams

Near the top, the group was able to fan out, as the collecting area was large, with various minerals being concentrated in certain areas. Epidote and calcite were typically found together; both massive and small epidote crystals were found. In another area, actinolite was easily found, and actinolite with magnetite was common. Some actinolite was very green, possibly verifying what several sources referenced, that diopside had replaced the actinolite. There were also reports of club members finding small magnetite crystals, quartz points, azurite, chrysocolla and even uraninite!

Special thanks to Will Rehm for helping with planning and logistics for the trip. Also, thanks to Johny Reyes

for research on regional geology and information for the trip handout, and Wade Waldrup for helping assist others regarding where and what to look for.



Dynamite shack and Sawatch Range.  
Photo credit: Doran Adams



Epidote. Photo credit: Doran Adams



Beautiful epidote crystal. Photo credit: Jasper Seldin





Greenish actinolite with magnetite, Photo credit: Doran Adams



Actinolite. Photo credit: Doran Adams



Fluorescent calcite on epidote matrix, Photo credit: Doran Adams



## Radioactive Minerals for Sale

Max Marko from the Ft. Collins Rockhounds Club has the following specimens for sale: uranophane, autunite, tobernite and natrozippeite. Anyone interested can reach him through his email, [max.s.marko@gmail.com](mailto:max.s.marko@gmail.com), or message him at (605) 376-3483.

Nancy Howerter  
Secretary and *Lodestone* Editor  
Fort Collins Rockhounds Club

## Safety When Mineral Collecting Near Old Mines

In Colorado, old mines provide a wonderful place to search and collect a wide variety of minerals. But these old mines can also be a dangerous place to be, if you are not careful.

As reported by the Mine Safety and Health Administration (MSHA) on <https://www.msha.gov/sosa>, there are approximately 14,000 active mines and 500,000 abandoned mines throughout the nation. Active and abandoned mine sites pose serious risks to people untrained and unfamiliar with the site. Each year, explorers, hikers, and off-roaders are injured or killed while exploring, swimming, or playing on a mine property.

Stay Out, Stay Alive is a nationwide public awareness campaign by MSHA to educate children and adults about the hazards of exploring and playing at active and abandoned mine sites. Furthermore, the safety initiative's primary mission is to remind people of the one and only key safety practice when encountering an active or abandoned mine site. That is: STAY OUT - STAY ALIVE.

The MSHA website has these examples of hazards at active and abandoned mines:

### Explosives and Chemicals

Active and abandoned mines may be housing explosives. These materials can become unstable overtime and explode spontaneously. Explosive housing containers can also leak toxic chemicals.



### Underground Tunnels

Many mines contain miles of underground tunnel. Without proper lighting, people can easily become lost and disoriented while inside. Publicly available maps are oftentimes outdated.



### Gases and Lack of Oxygen

Thousands of gas wells penetrate coal seams at active and abandoned mines. An inadvertent intersection with one of these wells could inundate the mining section with methane, carbon dioxide, and other deadly gases. These gases can displace oxygen with no visible sign, causing suffocation.



### Decayed Support and Unstable Rock

In a mine tunnel, roof and rib frameworks can decay over time, creating fractures. This weakens the support from unstable rocks and can cause the tunnel to collapse.

### Open Shafts

Many vertical shafts can be hundreds of feet deep and completely unprotected or hidden by vegetation, mine debris, dirt, rock, and water.



## Other Rockhounding Events and Activities in the Area

Listed are area rockhounding activities that may be of interest. Thanks to Pete Modreski for supplying information about many of these activities.

- **Sept. 8-16** is the **Colorado Mineral and Fossil Show**, at the Crowne Plaza DIA, 15500 E 40<sup>th</sup> Ave., Denver (free admission). See <https://www.coloradomineralandfossilshows.com/> for more information about the show.
- **Sept. 8-17** is the **Denver Mineral, Fossil, Gem & Jewelry Show**, at National Western Complex and Denver Coliseum (free admission). Details about the show are at <https://denver.show/>.
- **Sept. 15-18 (Friday-Monday)** is the **Denver Gem and Mineral Show**, part of the Hardrock Summit at the Colorado Convention Center. The 2023 theme is **Gem Minerals: Nature's Bling**. Sponsored by the Greater Denver Area Gem & Mineral Council, it will include displays and demonstrations by area gem and mineral clubs plus special museum displays from around the country. More information about the show starts on page 4 of this newsletter.



- **Sept. 23-24** (Saturday and Sunday), you can learn all about the **Morrison-Golden Fossil Areas National Natural Landmark**, with the guidance of Morrison Natural History Museum Director **Matt Mossbrucker** and Dinosaur Ridge Education Programs Director **Erin LaCount**. The 2-day exploration will cover the 150 million-year-old Late Jurassic layers of Colorado's original Jurassic Park and the 100 million-year-old Late Cretaceous dinosaurs along the Dinosaur Freeway. For details and to sign up click [here](#)!
- **Oct. 10 (Tuesday)** from 2:00 to 3:00 will be a free program at the **Denver Museum of Nature & Science** by **Anthony Maltese**, Rocky Mountain Dinosaur Resource Center titled **To Xiphactinus and beyond: The savage seas of ancient Kansas**. In the VIP Room, all are invited, Museum admission not required; check in at the Security Post.
- **Oct. 21 (Saturday)** is the **Littleton Gem and Mineral Club's Annual Auction**. For more information, see the flyer to the right.
- **Oct. 27-30 (Friday-Monday)**, explore the geology at gorgeous **Ghost Ranch, New Mexico** on the **Tour of the Tomb of the Coelophysis** with Dinosaur Ridge. Vertebrate paleontologist and geologist **Dr. Lou Taylor** will be joining this trip to help guide the explorations. Local experts will also connect with the group during tours of onsite paleontology and anthropology museums, the historical fossil quarry, and nearby geological and/or petroglyph sites. For details on this 3-night tour and to sign up click [here](#)!
- **Nov. 6 (Monday)** from 2:00 to 3:00 will be a free program at the **Denver Museum of Nature & Science** by **Carol Dehler**, Utah State University. Her talk will be on **Our Earth was completely frozen? Twice?** In the VIP Room, all are invited, Museum admission not required; check in at the Security Post.

## LITTLETON GEM & MINERAL CLUB SILENT & VERBAL AUCTION

**Saturday, October 21, 2023**

**LOCATION:**

Heritage United Methodist Church  
7077 S. Simms St.  
Littleton, CO 80127



**Seller set up starts at 11 a.m.**  
**Silent auction starts at 12:00 p.m.**  
**Verbal Auction starts at 1:00 p.m.**  
**Checkout starts approx. 3:00 p.m.**

Bring your minerals, gems, jewelry, fossils, books, and equipment to sell.

Club retains 20% commission.

Non-member Seller limited to 2 sellable flats.

Payment by cash or check only.

Email Lynette Warren at [flywithle123@comcast.net](mailto:flywithle123@comcast.net) to get more information on the Auction Procedures and to pre-obtain a seller/buyer number or you can get one on the day of the auction at the door.

# Officers, Directors, and Other Volunteers

---

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## Mineral Specimens for Grab Bags

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### Show Kid's Corner Chair

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## Denver Show Club Table

open

## A friendly reminder to pay your 2023 annual dues

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

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

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



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





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

## First Class Mail

### *Upcoming Events*

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Date	Event	Location
September 15-18, Friday-Monday)	Denver Gem & Mineral Show (page 4)	Denver Convention Center
September 30-October 1, Saturday and Sunday	Nebraska field trip to collect agate, opal, and chalcedony (page 7)	Crawford, Nebraska
October 7, Saturday	Dinosaur Ridge walking tour (page 7)	Dinosaur Ridge, Morrison
October 10, Tuesday	Monthly club meeting. Speaker is <b>Andrew MacGregor</b> with his talk <b>Serendipitous Discovery of Large Impact Craters</b> (page 3)	Mountain View United Methodist Church, Boulder
October 21, North Table Mountain	North Table Mountain field trip to collect zeolite minerals (page 8)	North Table Mountain, Golden

**No Club Meeting in September. Come to the Denver Gem & Mineral Show, September 15-18**

# NCAR Labs Geology, Boulder, CO

A Self-Guided One Hour, One Kilometer (0.62 Mi) Tour  
Elevation Gain 50M (161 feet)

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Courtesy of the Flatirons Mineral Club, Boulder CO

R0823



Welcome to Table Mesa, home to the National Center for Atmospheric Research (NCAR) Mesa Lab. The geological history of Table Mesa and the surrounding area spans millions of years and is characterized by a diverse range of geological processes. The Flatirons Mineral Club of Boulder is glad to guide you through it. *Please refer to the trail maps that are included.*

**From the parking lot, walk west towards the front of the NCAR building.**

The NCAR Labs building is very famous. Opened in 1966, the building was designed by the legendary architect IM Pei, who camped here for a week to think up ideas for the building. His modern design used textured concrete that was colored to resemble the mountains.

The Visitor Center inside the building has public restrooms. There are also displays about the atmosphere and the important work that NCAR does.

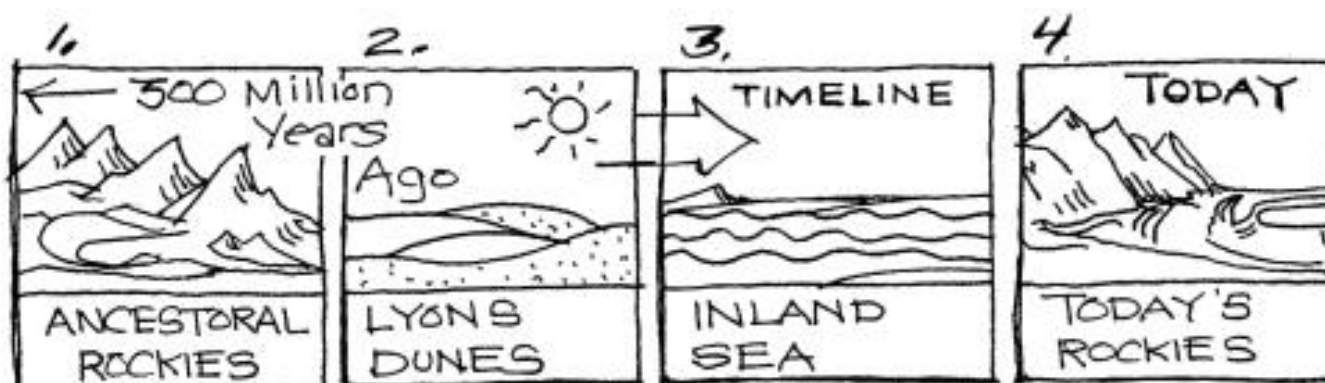
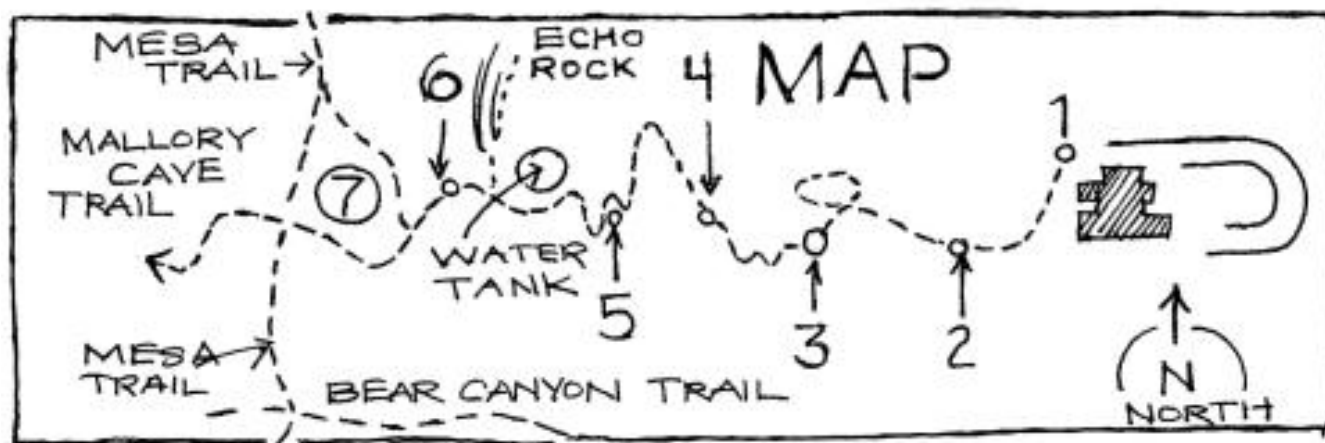
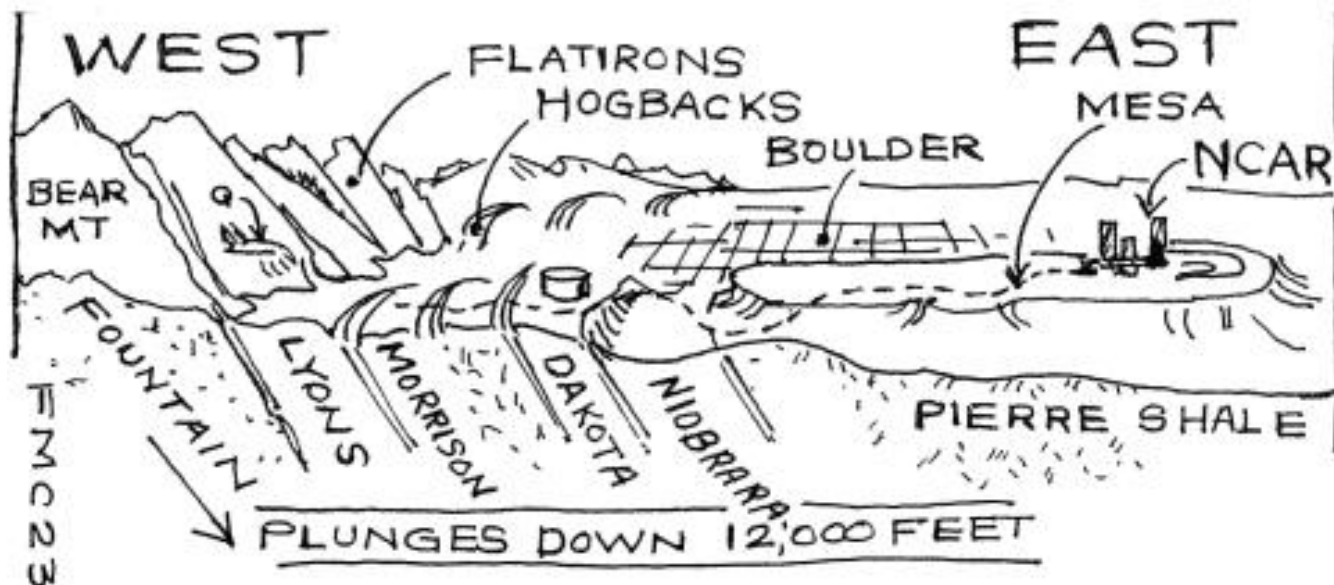
**1. Get on the NCAR Trail, located on the north side of the building.**

You're on top of a Mesa, which is a flat landform with steep sides that have been eroded away over time. This area has seen many transformations over the last 300 million years. For instance, the Ancestral Rocky Mountains were once here, then washed away. Sand dunes came next, but lost their place to shallow inland seas, which drained off as uplifting formed the Rocky Mountains we see today.

Over time, during each phase, layers of sediment were laid down, buried, solidified, then uplifted again. Let's take a walk that brings us back in time; in just 1 kilometer (0.62 miles), we'll go back 300 million years.

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NCAR BOULDER  
 © 2023 FLATIRONS MINERAL CLUB  
 BOULDER, COLORADO

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 ←«

2. Head west along the trail and look to the south for views (see map).

Let's take in the view. The tall wind turbines to the southeast are part of the US National Renewable Energy Labs (NREL). Scientists there study energy efficiency, transportation, and renewable energy technology. To the southwest, along the mountain ridgeline, you'll see a distinctive vertical rock that sticks up above the others. It's called "Devils Thumb".

### **3. Continue west to the stone stairs at the south side of the Mesa.**

As we descend the stairs, the color of the path here changes to light gray. You're on top of Pierre Shale, created about 73 million years ago (MYA) from sediments of the Western Interior Seaway that was here during the late Cretaceous Period. Over time, the sea had many phases, each leaving distinctive sediments that became buried, then compressed and hardened to form rock (shale and sandstone). The Pierre Shale here is known for the aquatic fossils it holds, but please don't take any - this is a protected site.

### **4. Pause along this open grassy area with views to the north.**

You're on top of another, older seabed. Over time, weathering processes have gradually worn away the softer sedimentary rocks here, sculpting the area into its present-day form. Table Mesa was more resistant to erosion, thus the escarpment we just crossed.

For instance, you're on top of Benton Shale and the Niobrara Formation. Both are older (85 MYA) and softer than what we've already walked across, and both eroded away faster. That's why there's a sloped grassy plain here. Among the fossils found in this material are marine mollusks, ammonites, and scaphites.

To the northwest, near Weld County, the Niobrara formation supports extensive oil and gas wells. Interestingly, the first Denver Oil Basin well was discovered right here in Boulder near the start of the Diagonal Highway in North Boulder.

### **5. Zig-zag up the slope trail and look at what you are walking on.**

Here the trail traverses the slope of a "hogback", a long, narrow, tilted ridge. The rock here gets older by about 10 million years. This hogback was created as the Rocky Mountains we see today were being uplifted by tectonic forces. Look for thin bands of dark Dakota Shale, made from mud along the sea. Dakota Shale is known for dinosaur fossils and leaf fossils.

At the top of the ridge, pause at the water tank, then follow the trail west as it drops down and curves slightly, as we keep going back in time.

### **6. Slow down along the flat spots of the trail here.**



We're crossing bits of the Morrison Formation, made from swampy lowlands and drainage basins that were here about 150 MYA. Composed of mudstone, siltstone, and sandstone, the Morrison Formation is known for dinosaur tracks and bones. We won't find any here, but there are plenty about 32 kilometers (20 miles) south of here, in Morrison, Colorado.

**7. Find a vantage point here and look around. This is our final stop. You're on top of the Morrison Formation.**

Take in the splendor of the surroundings. We're standing atop the Lykins Formation, made from siltstone and shale that was deposited here about 250 MYA. There is little in the way of fossils found in this material.

To the northwest, look out along the mountainside for a distinctive pink and peach-colored quarry. This is the Wood's quarry, from which Lyons Sandstone was taken to build some of Boulder's most iconic buildings. Like the Lykins Formation, Lyons Sandstone is also about 250 MYA. It's made from fine-grained sand dunes that became buried, then compressed and solidified.

Finally, towering above us to the north, are the Flatirons, five of them in total. Popular with rock climbers, hikers - and just about everyone - the Flatirons are made from conglomerate rock of the Fountain Formation, which is about 300 MYA. The Fountain Formation was formed from sand, pebbles, and cobbles that were eroded from the Ancestral Rockies, then buried deep and compressed and hardened under the sand dunes, seabeds, and mesas we walked across.

Though the rock that makes up the Flatirons is about 300 MYA, the Flatirons we see today were raised more recently, just 50 MYA, by an uplifting event called the Laramide Orogeny. The orogeny lifted and folded the old Fountain Formation rock from great depths and tilted it to the acute angle we see today.

Perhaps it seems odd that there were other mountains here that washed away, then sand dunes, an inland sea, and even an orogeny. It's a reminder to us that our world is always changing. What will be next?

**Always Keep Exploring**

From here you can return to NCAR via the way you came or continue on more adventures. For instance, the Mesa Trail runs north and south, connecting multiple mesas. The north branch of the Mesa Trail goes to the historic Chautauqua Park. To our west, the Mallory Cave Trail beckons. It's a steep but fun trail with some scrambling at the end. Other notable trails that are nearby include The Skunk Canyon Trail to the north, and the Bear Canyon Trail to the south.

Those seeking more geology wonders may wish to visit the Heil Valley Ranch north of here, where stromatolites in the Lykins Formation can be seen. Over eons, cyanobacteria formed

blue-green algae mats that fossilized into stromatolites - which generated the oxygen that supports life on earth.

### **About The Flatirons Mineral Club**

For more than 60 years the Flatirons Mineral Club (FMC) has promoted the understanding of geology and sponsored field trips, lectures, and educational programs for adults, kids, and families. To find out more about FMC, please visit our website at [www.flatironsmineralclub.org](http://www.flatironsmineralclub.org).

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# ROCKS & RAILS

**December 8-10 10am – 5pm**

**Adults \$8 ::: Children 12 & Under Free with paid Adult**

**Seniors Over 60 \$5 ::: Discount Multi-day Passes Available**

**Flatirons Mineral Club  
2023 Annual**

## Rock & Mineral Show

Gem and mineral dealers,  
Exhibit displays, grab bags,  
children's activities including  
games, dig site, spin the wheel,  
fossils, meteorites, lapidary tools,  
jewelry, fluorescent mineral  
display, and more!

Bring your mineral treasures  
In for mineral identification.



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

FREE  
PARKING

DOOR  
PRIZES!

**Boulder Model Railroad Club  
46th Annual**

## Model Railroad Exposition

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



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

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

**BOULDER COUNTY FAIRGROUNDS LONGMONT**

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

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

