Flatirons Facets

Flatirons Mineral Club of Boulder County, Colorado

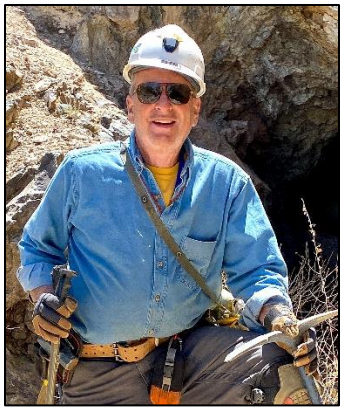
Volume 64, Number 4 July-August, 2021

Summertime is Field Trip Time!

A giant ammonite mold at the Kremmling Cretaceous Ammonite Locality visited in June. (Credit: Julie Radu)

See page 4 for information about upcoming field trips and page 8 for recaps of our June field trips.

In this newsletter



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.

President's Message

We are back in action! The Club has secured a new in-person meeting place, the Mountain View Methodist Church. It is located just across the street from our former Frasier Meadows meeting place. There is plenty of parking and a 50-person meeting room. Many thanks to Gerry Naugle for making the arrangements. Highlighting our October 12th grand in-person meeting will be Dana Hauschulz's presentation "The Wreck of the Edmund Fitzgerald & Banded Iron Formation". We have been anxiously waiting to get back together since COVID shut down the live meetings back in March 2020.

I'll be hosting the July 17th field trip to the Tyler Kentucky Lode Claim in Jamestown. This is a private claim where you can find fluorite, silver and lead ores, and quartz. Read below to find out about our annual club picnic on August 21st, the September Denver Gem and Mineral Show, and our own December Rock and Rails show.

Regards,
Brian Walko

Annual Club Picnic - Saturday, August 21

Once again, this year's annual picnic is at Harlow Platts Park, the same place as previous picnics. The Park is located just south of the South Boulder Recreation Center at 1360 Gillespie Drive, Boulder, 80305. The picnic starts at 11:00 am.

Flatirons Mineral Club Awards

Folks with last names beginning with A-M are asked to bring a covered dish and folks with last names beginning with N-Z should bring a dessert. BBQ sandwiches and beverages will be provided by the club.

At the picnic, we will honor our Rockhounds of the Year. This year's recipients will include both an adult and a junior Rockhound of the Year. Winners of this year's regional and national newsletter contest will receive their awards at the picnic.

Jr. Geologists: We will work on the Maps Badge and the picnic.

Plan to join us for a fun Saturday.

Save the Dates

With COVID-19 rates dropping, several of our club activities will be back this fall. Be sure to add these dates to your calendar.

Denver Gem and Mineral Show, **September 16-19**, at the Colorado Convention Center, held as part of the Hardrock Summit mineral and gemstone show.

In-person club meetings starting **October 12**, where **Dana Hauschulz** will present "The Wreck of the Edmund Fitzgerald & Banded Iron Formation".

Rocks & Rails, our annual club show on **December 10-12** will be back bigger and better this year.

Club Members Receive Regional and National Newsletter Awards

Each year, the Rocky Mountain Federation of Mineralogical Societies (RMFMS) presents awards to outstanding newsletters and articles. Several Flatirons Mineral Club members received awards at the 2021 RMFMS Bulletin Contest, including:

- Dennis Gertenbach, first place in the adult article category for "History and Geology In Your Neighborhood – Fenceposts Made of Stone"
- Brian Walko, second place in the adult article category for "Fluorescence, A Lifelong Hobby"
- Jean Orr, honorable mention in the adult article category for "Bone Wars, A.K.A. The Great Dinosaur Rush"
- Brian Walko, second place in the photo collage category for "Highlights from The Rocks & Rails Show"
- Dennis Gertenbach, first place in the large bulletin category for the Flatirons Facets

Winners of the RMFMS Bulletin Contest are then entered in the American Federation of Mineralogical Societies' content. These club members received these national awards:

- Dennis Gertenbach, second place in the adult article category for "History and Geology in Your Neighborhood – Fenceposts Made of Stone"
- Brian Walko, seventh place in the adult article category for "Fluorescence, A Lifelong Hobby"
- Jean Orr, honorable mention in the adult article category for "Bone Wars, A.K.A. The Great Dinosaur Rush"
- Brian Walko, second place in the photo collage category for "Highlights from The Rocks & Rails Show"
- Dennis Gertenbach, fifth place in the large bulletin category for the Flatirons Facets

In addition, Dennis Gertenbach was honored in the AFMS Bulletin Editor's Hall of Fame for the Flatirons Facets.

These club members will receive their awards at the club picnic on August 21st.

One of the best features in each club newsletter are articles and other contributions by club members. Club members have a wide range of interests in earth science and rockhounding, and are willing to share their interests with other members through articles, photos, poetry, and artwork.

Consider submitting an article, photo, poetry, or artwork for the newsletter. We are looking for items from all age groups, including adults and Jr. Geologists. You can send your newsletter contribution to Dennis at gertenbach1@gmail.com. If you need help with your contribution, please contact Dennis.

Field Trips

Two more club field trips are scheduled at this time, with more in the planning stages. To register for these trips, go to our website at https://flatironsmineralclub.org/. Then login to the Member Area. Once in, go to Field Trips to sign up. As more trips are scheduled, they will be posted on the club's website. So, be sure to check there from time to time to see what other trips are available.

Tyler Kentucky Load Claim near Jamestown, CO

Saturday, July 17

Private claim where you can find fluorite, silver ore, lead ore, and quartz.

The Tyler Kentucky Lode Claim starts near the road and extends 1,500 feet up the side of the mountain. It is a moderate to steep hike. However, you can stay lower on the claim where it is relatively flat and dig in the old tailings piles. Mineral veins, wash-out gully, prospect pits, and tailings can be found on the claim. You can prospect the entire claim. The lower section is safe for children with adult supervision.

Club members at the Tyler Kentucky Claim

Silver ore (left) and fluorite (right) from Jamestown

Crawford, Nebraska

October 2-3

Agates, petrified wood, and fluorescent agate and chalcedony

Hunting for Fairburn, prairie, picture, and blue agates, and petrified wood are the highlights of this trip. On Saturday evening, we will collect fluorescent agates and chalcedony using ultraviolet lamps.

Agate hunting near Crawford, Nebraska

Fluorescent agate and chalcedony from Crawford

Emeralds

Henry Poe, age 11

Did you know that emeralds are found in Brazil, Columbia, and Zambia? Out of those three places, I would want to go to Brazil.

Emeralds are formed in either pegmatite deposits or hydrothermal veins in metamorphic environments.

An emerald's hardness is 7.5-8.

Some famous emeralds are Medusa's Emerald, the Chalk Emerald, the Guinness Emerald which is 1,759 carats, the Rockefeller Emerald, and others.

These are emerald's properties: it is in the beryl mineral class. Colors are green, yellow, and bluish. Its refractive index is 1.565-1.602.

Emeralds are made from beryl. just like the gemstone aquamarine. Another cool fact about the emerald is that it is May's birthstone

Cut emeralds. Credit: Mauro Cateb, licensed under the Creative Commons Attribution-Share Alike 3.0 Unported

References

- "27 Interesting Facts About Emeralds" by Lauren Thomann, https://www.thesprucecrafts.com/
- "Emerald" by Hobart M. King, https://geology.com/gemstones/emerald/
- "Emerald" from Wikipedia, https://en.wikipedia.org/wiki/Emerald

Editors Note: Henry has been a Jr. Geologists for four years. This fall, he will be entering middle school as a sixth grader.

A trapiche emerald from Colombia. Credit: Luciana Barbosa, licensed under the Creative Commons Attribution-Share Alike 3.0 Unported

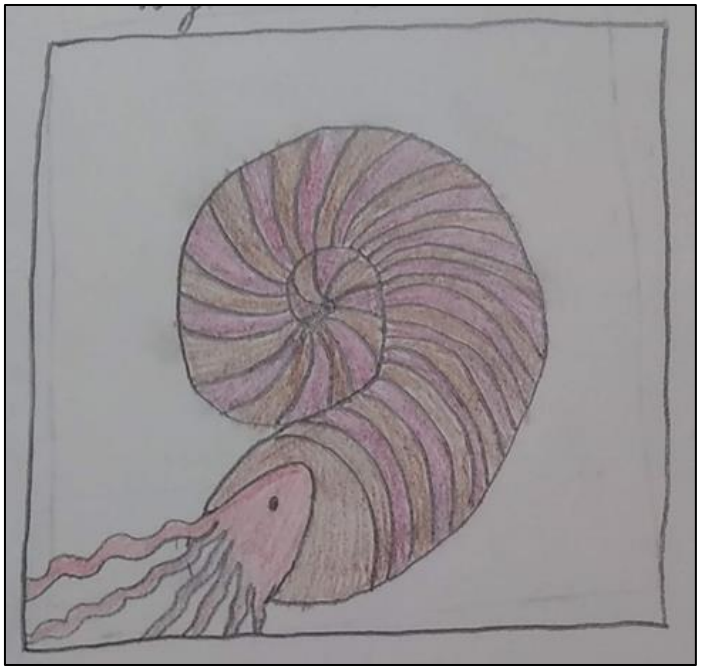
Ammonites

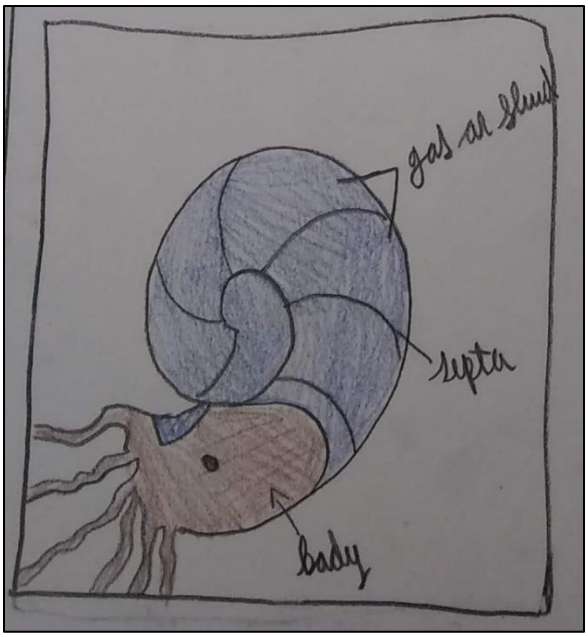
Charlotte Small, age 13

Ammonites are extinct shelled animals called mollusks. They are related to the nautilus. They lived in the Jurassic and Cretaceous Periods. They ate other animals.

Ammonites range from less than a centimeter to two meters in length. Usually, you find them less than 9 inches.

They became extinct 66 million years ago. At that time, ¾ of the planet's inhabitants became extinct.





Editor's Note: *Charlotte is 13 years old and will be in 8th grade at Horizons K-8. She joined the Jr. Geologists in 2014.*

Jr. Geologists Activities

Geodes! Who doesn't love geodes?

The Jr. Geologists are no exception. At their June meeting, Howard Gordon explained the different types of geodes and how they form. Plus, everyone took home a geode to add to her or his collections.

Howard Gordon explaining how geodes are formed to the Jr. Geologists

Maps Badge: Come to the club picnic on Saturday, August 21, where we will work on the requirements for the Maps Badge. Plus, we will have awards to present and rocks to take home.

As more Jr. Geologists activities are planned, families will be notified by email.

The Jr. Geologists program is open to all Flatirons Mineral Club families. We meet monthly during the school year and have special field trips and other activities in the summer. For information about the Jr. Geologists program, please contact Dennis at gertenbach1@gmail.com or 303-709-8218.

Rachel examines the geode she received at the June Jr. Geologists meeting

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

How to Clean Quartz

Credit: JJ Harrison, licensed under the Creative Commons Attribution-Share Alike 2.5 Generic

How many of us have found nicely formed smoky quartz, amethyst, or white quartz crystals stained with iron or covered with scale? Have you puzzled about how best to clean your crystals to allow their brilliance and beautiful color to shine?

The Georgia Mineral Society has a great website that explains step by step how to clean your crystals at https://www.gamineral.org/writings/cleanquartz-carter.html. Safety is emphasized throughout article.

Good luck cleaning your specimens.

Book Cliffs and Yellow Cat, Yay!

Gabi Accatino

A small adventurous group chose to travel out to Western Colorado to meet up with me for a Book Cliff / Yellow Cat field trip during the first week of June. We met at Book Cliffs Saturday morning to search for calcite and barite. We then met up in the evening out on The Poison Strip of Yellow Cat, Utah, to start hounding for fossil wood and other fun rocks. By Sunday I think everyone understood my love for the beautiful site!

At Yellow Cat, we had big finds and little ones. The big fossil wood stump was fun to find. Anderson Watts' 6-inch-thick quarter slice of a tree trunk was a great discovery. It definitely went home with him!

Gabi Accatino, Marianne Himmelsbach, and Paul Bulow at Book Cliffs

And Paul Bulow's tiny find was an unusual one. While the rock in the foreground is an expected find at Yellow Cat (jasper pseudomorph after barite), the rock in the background is not what we expect to find out there! It looks like a fortification agate like the Fairburn Agates from Nebraska and South Dakota.

Jasper and agate from Yellow Cat

Paul Bulow and Andersen Watts Showing off a fossil wood stump

Marianne up on the slope (red circle) above The Poison Strip

Anderson's beautiful find

Kremmling - An Ammonite Mating Site

Dennis Gertenbach

During the late Cretaceous when much of Colorado was covered by the Western Interior Seaway, the Pierre Shale outcrops found northwest of Kremmling were deposited. About 73 million years ago, large *Placenticeras* ammonites congregated near the shore of this ancient sea. After mating with the males, the females laid their eggs on the sandy ocean bottom. A massive storm blew up, covering the females (an a few lingering males) with sand, which are preserved at the Kremmling Cretaceous Ammonite Locality.

Gathering at the giant ammonite site near Kremmling.
Credit: Howard Gordon

On our June 12th field trip, club members visited the protected area to see the many remains of these 3-foot-diameter ammonites and other marine fossils. During the afternoon, we explored an area outside of the protected area, where we collected fossils. We found several ammonite species, including scaphites and *Placenticeras*, *Inoceramus* clams (some larger than your hand), gastropods (snails), and other typical Pierre Shale invertebrates. Everyone enjoyed the day learning more about life in this ancient sea and collecting fossils to take home.

One of the many large ammonite molds at the protected site north of Kremmling.
Credit: Howard Gordon

Working on removing fossils from large concretions. Credit: Julie Radu (left) and Dennis Gertenbach (right)

Safety on Field Trips - Sun Safety

Do you ever hunt rocks on a warm to hot day? Garden? Hike? Or something else active? Then, in much of the United States, you'd best learn to recognize the symptoms of things going wrong when we get too hot.

HEAT CRAMPS are the less serious, but still dangerous, result of too much heat. These are spasms of the muscles brought on by exertion in hot weather. Many times, the calves are the first muscles affected.

What causes cramps? Intense sweating followed by drinking of salt-free water. They are more likely to occur if you're out of shape, in poor health, tired, or have been drinking alcohol. BUT, they can occur to anyone! To avoid cramps, take it easy in hot weather, eat salty foods or take salt tablets, or drink athletic drinks that have salt in them. If cramps occur, stop, get in a cool place and rest, stretch and message the cramped muscle. Drink something salty.

HEAT EXHAUSTION occurs when you run out of body salt and/or water. Symptoms are fatigue, lightheadedness, thirst, maybe cramps, spasms, nausea and/or vomiting. Mental ability will be normal. Low grade fever (99 to 102°F), a rapid pulse, and dehydration are often present.

In **HEAT STROKE**, the most serious effect, the individual will have a high fever (104 to 106°F). There will be mental confusion, unusual behavior, convulsions, or coma. The blood pressure may be dangerously low from shock.

IMMEDIATE CARE for heat exhaustion or heat stroke includes moving the individual to air-conditioning, lying on their back, with a fan if available. Remove or loosen tight clothing, place cool compresses on forehead, neck, and under arms. You may sprinkle water on them, but do not put them into a tub or swimming pool. If they vomit, give them nothing by mouth. Otherwise, cold, salt-containing liquids will help. Use 4 teaspoon salt in 1 quart water and give them 4 oz. every 15 minutes. If symptoms persist, or if they are unconscious, transport immediately to a hospital.

Remember, some people tolerate heat better than others. Even though you feel fine, if any of the above symptoms starts, act immediately. Continuing on and insisting "I'm O.K." or "I'll be O.K. in a minute" is NOT the way to go. It can only make things worse.

Reprinted from http://www.amfed.org/a_safetyAFMS1.htm#SunStroke

Credit: Center for Disease Control and Prevention, public domain

Solving a Long-Standing Mystery about the Desert's Rock Art Canvas

Nathan Collins, SLAC National Accelerator Laboratory

Petroglyphs are carved in a material called rock varnish, the origins of which have been debated for years. Now, scientists argue it's the result of bacteria and an adaptation that protects them from the desert sun's harsh rays.

Petroglyphs in desert or rock varnish, Nine Mile Canyon near Price Utah. Credit: Dennis Gertenbach

Wander around a desert most anywhere in the world, and eventually you'll notice dark-stained rocks, especially where the sun shines most brightly and water trickles down or dew gathers. In some spots, if you're lucky, you might stumble upon ancient art – petroglyphs – carved into the stain. For years, however, researchers have understood more about the petroglyphs than the mysterious dark stain, called rock varnish, in which they were drawn. In particular, science has yet to come to a conclusion about where rock varnish, which is unusually rich in manganese, comes from.

Now, scientists at the California Institute of Technology, the Department of Energy's SLAC National Accelerator Laboratory and elsewhere think they have an answer. According to a recent paper in *Proceedings of the National Academy of Sciences*, rock varnish is left behind by microbial communities that use manganese to defend against the punishing desert sun.

The mystery of rock varnish is old, said Usha Lingappa, a graduate student at Caltech and the study's lead author. "Charles Darwin wrote about it, Alexander von Humboldt wrote about it," she said, and there is a long-standing debate about whether it has a biological or inorganic origin.

But, Lingappa said, she and her colleagues didn't actually set out to understand where rock varnish comes from. Instead, they were interested in how microbial ecosystems in the desert interact with rock varnish. To do so, they deployed as many techniques as they could come up with: DNA sequencing, mineralogical analyses, electron microscopy, and – aided by Stanford Synchrotron Radiation Lightsource (SSRL) scientist Samuel Webb – advanced X-ray spectroscopy methods that could map different kinds of manganese and other elements within samples of rock varnish.

"By combining these different perspectives, maybe we could draw a picture of this ecosystem and understand it in new ways," Lingappa said. "That's where we started, and then we just stumbled into this hypothesis" for rock varnish formation.

Among the team's key observations was that, while manganese in desert dust is usually in particle form, it was deposited in more continuous layers in varnish, a fact revealed by X-ray spectroscopy methods at SSRL that can tell not only what chemical compounds make up a sample but also how they are distributed, on a microscopic scale, throughout the sample.

That same analysis showed that the kinds of manganese compounds in varnish were the result of ongoing chemical cycles, rather than being left out in the sun for millennia. That information, combined with the prevalence of bacteria called *Chroococcidiopsis* that use manganese to combat the oxidative effects of the harsh desert sun, led Lingappa and her team to conclude that rock varnish was left behind by those bacteria.

For his part, Webb said that he always enjoys a manganese project – "I've been a mangaphile for a while now" – and that this project arrived at the perfect time, given advances in X-ray spectroscopy at SSRL. Improvements in X-ray beam size allowed the researchers to get a finer-grained picture of rock varnish, he said, and other improvements ensured that they could get a good look at their samples without the risk of damaging them. "We're always tinkering and fine-tuning things, and I think it was the right time for a project that maybe 5 or 10 years ago wouldn't really have been feasible."

Press release from the Department of Energy's SLAC National Accelerator Laboratory https://www6.slac.stanford.edu/news/2021-06-30-solving-long-standing-mystery-about-desert%E2%80%99s-rock-art-canvas.aspx.

Fossils in the News

Dennis Gertenbach

A Prehistoric Pollinator's Last Meal

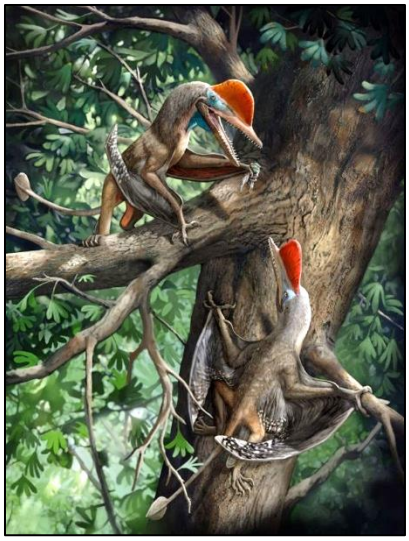
A Cretaceous flower beetle, found in amber from Myanmar dating back 99 million years ago, has provided scientists with evidence that not only did this insect visit angiosperms - flowering plants - but also fed exclusively on pollen. Fecal material found with the beetle, named *Pelretes vivificus*, was composed solely of pollen. Professor Chenyang Cai, a paleontologist from the Nanjing Institute of Geology and Palaeontology of the Chinese Academy of Sciences stated that, "Some aspects of the beetle's anatomy, such as its hairy abdomen, are also adaptations associated with pollination." This provides a further indication that this beetle was pollinating early flowering plants.

Pelretes vivificus, a Cretaceous beetle from Myanmar amber, scale bar: 200 µm. Credit: Chenyang Cai, Yanzhe Fu and Yitong Su, ©University of Bristol, used with permission

Information from https://www.bristol.ac.uk/news/2021/april/last-meal-of-prehistoric-pollinator-.html.

Jurassic Flying Reptile First with Opposed Thumbs

Our ability to manipulate objects with our hands results from having opposable thumbs. However, mammals were not the first animals with this adaptation. A new 160-million-year-old pterosaur or flying reptile discovered in the Jurassic Tiaojishan Formation of Liaoning, China is the oldest animal having opposable thumbs.



Life reconstruction of Kunpengopterus antipollicatus, a Jurassic pterosaur. (Image credit: Chuang Zhao ©University of Birmingham, press release

This new Jurassic pterosaur, nicknamed 'Monkeydactyl', has been given the scientific name of *Kunpengopterus antipollicatus*. It lived in forests and had a wingspan of about 33 inches (85 centimeters). The species name 'antipollicatus' means 'opposite thumbed' in ancient Greek. Truly opposable thumbs are mostly present in mammals (such as primates) and some tree frogs, but are extremely rare among modern reptiles except for chameleons.

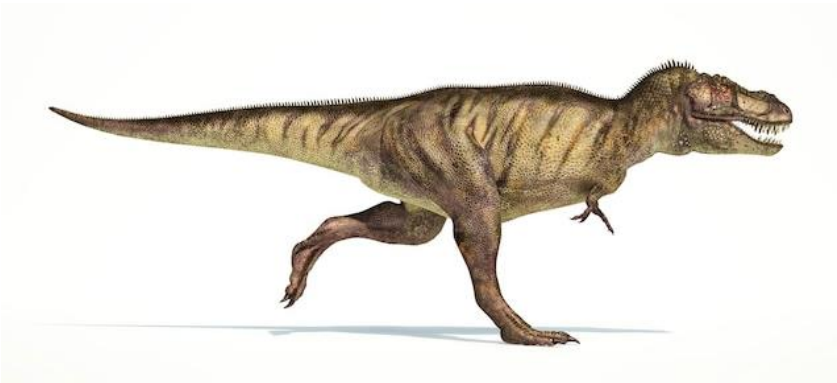
Information from https://www.birmingham.ac.uk/news/latest/2021/04/new-jurassic-flying-reptile.aspx

What Were *T. rex*'s Tiny Arms Used For?

This question has puzzled both paleontologists and dinosaur lovers since their discovery. Over the years, scientists have suggested that they might have been used to grasp struggling prey, to help resting dinosaurs push themselves up from the ground, or to tightly grip mates during sex.

Steven Stanley, a paleontologist at the University of Hawaii in Manoa, has proposed a new theory. He postulates that T. rex used those three-foot arms with four-inch claws to viciously slash its prey, inflicting deep wounds up to three feet in length. He bases his theory on T. rex's strong arm bones and joint sockets that allowed the arms to move in several directions. These features would have been ideal for slashing. As would be expected, this theory has met with considerable resistance from other paleontologists.

Information from https://www.nationalgeographic.com/science/article/tyrannosaurus-rex-arms-weapons-paleontology-science?cmpid=org=ngp::mc=crm-email::src=ngp::cmp=editorial::add=SpecialEdition_Escape_20210505&rid=2E70DE59C33D53F86E9716D50B65D711.



Perhaps T. rex's three-foot-long arms were for slashing prey. Credit: Leonello Calvetti, National Geographic, public domain

What Caused the End-Permian Extinction?
The most severe mass extinction in earth's history took place 251 million years ago at the end of the Permian Period. More than 90% of Earth's marine species and 75% of terrestrial species became extinct. Scientists previously hypothesized that massive volcanic eruptions in today's Siberia were responsible for this mass extinction, but how these eruptions caused the mass extinction was not known.

A new paper by scientists from the United States, China, Canada, and Switzerland presents nickel isotope data from Late Permian rocks from Arctic Canada, which helps explain the mechanism responsible for the death of so many of Earth's species. The nickel isotope ratios showed that the origin of the nickel in the rocks was volcanic. The nickel in the rocks was carried in aerosol particles and deposited in the ocean. Other components of the aerosols drastically changed the chemistry of sea water, severely disrupting the marine ecosystem. This change promoted the explosive growth of methane-producing microorganisms, leading to much higher temperatures on Earth that many plants and animals could not survive.

Trilobites were among the 90% of marine animals that became extinct at the end of the Permian Period. Credit: Moussa Direct Ltd., licensed under the Creative Commons Attribution-Share Alike 3.0 Unported.

Information from https://news.nau.edu/wasylenki-mass-extinction/#.YOtNpOhKiUk

Download the Video - Arthur Lakes: Discovering Dinosaurs

In 1877, a small-town preacher, naturalist, and drawing teacher in Colorado named Arthur Lakes made a discovery that would alter the course of science. In rock layers near Morrison, he found the fossilized remains of creatures that had never been seen before. Unbeknownst to him, Lakes had just become a leading authority in the field of paleontology. This site would come to be known as Dinosaur Ridge. His discovery would propel Lakes on a lifelong journey, taking him from obscurity into the limelight of scientific journals and newspapers around the world. Join Arthur Lakes as he and his friends uncover the mysteries of Dinosaur Ridge in Arthur Lakes: Discovering Dinosaurs! Written and directed by Dr. Beth Simmons. Edited by Marjie Payne.

The Arthur Lakes: Discovering Dinosaurs DVD has been uploaded to YouTube and can be accessed at https://youtu.be/t8L8Qgz0ua4.

ARTHUR LAKES: DISCOVERING DINOSAURS

In 1877, a small town preacher, naturalist, and drawing teacher in Colorado named Arthur Lakes made a discovery that would alter the course of science. In ro...

youtu.be

Other Rockhounding Events and Activities in the Area

Thanks to Pete Modreski for providing information about many of these upcoming events. If you plan to attend any of these events, please check their websites for the latest updates before you go.

Now. Estes Park Historical Lifetime Collection Auction, Avant Garde Estate Sales. This two-part sale has so many amazing items, that you will have to see them all for yourself! The owner was a Geologist and his wife an Estes Park potter and their history is truly fascinating. Estes Park historical lifetime collection of Native American and ancient artifacts, geological ore and gold maps, mineral specimens, fossils, antique furniture, Chinese silks and ivory, taxidermy, vintage albums, pottery, sterling silver, kachina dolls and more. Bid now at: https://www.auctionninja.com/avant-garde-estate-sales/

July 15-18 (Thursday-Sunday) Thompson Marketing-John Haney Home Rock Show. Celebrating our 30th anniversary, 4242 Thompson Ct., Denver (south of I-70, east of York St. & west of Steele St.), rough rock, slabs, cabs, fossils, amber, turquoise, minerals, metaphysical crystals, gemstone bowls & boxes. Contact rocksisme@comcast.net or 303-296-8268.

July 22-25 (Thursday-Sunday) Fairplay Gem and Mineral Show, 9 a.m. to 5 p.m. daily, Platte Drive (1/2 mile west of US-285, on the south side of the river); no admission charge.

August 12-15 (Thursday-Sunday) Buena Vista Contin-Tail Gem, Mineral & Fossil Show at the Buena Vista Rodeo Grounds; no admission charge.

August 19-22 (Thursday-Sunday), 9 a.m.– 5 p.m., **Woodland Park Rock, Gem and Jewelry Show**; 19250 E. US 24 (between Walmart and Safeway), Woodland Park; no admission charge.

August 20-22, (Friday-Sunday), 9 a.m.– 5 p.m., **21st Annual Lake George Gem & Mineral Show,** Highway 24, Lake George, CO; no admission charge. Hosted by the Lake George Gem and Mineral Club.

Sept. 16-19 (Thursday-Sunday), Denver Gem & Mineral Show at the Colorado Convention Center, held as part of the Hardrock Summit Mineral and Gemstone Show. See www.denvermineralshow.com . This is the show hosted by the Council of area gem and mineral clubs, and formerly held at the Denver Merchandise Mart. it is "The original" Denver Gem and Mineral Show, with special exhibits by clubs and museums.

Greater Denver Area Gem and Mineral Show

TO BE HELD IN CONJUNCTION WITH

HARD ROCK SUMMIT

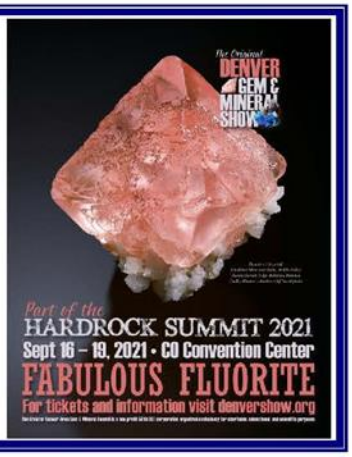
DENVER CONVENTION CENTER

SEPT. 16-19, 2021

Club tables & Demos—Dealers—Speakers—Exhibits

Fabulous Fluorite will be the theme!

Amber Brenzikofer will be the new show chairman



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Members are needed!

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Denver Show Club Table
open

It's Field Trip Time!

Be Safe!

Stay Healthy!

Flatirons Facets
P.O. Box 3331
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First Class Mail

Upcoming Events

Saturday, July 17	Field trip to the Tyler Kentucky Lode Claim. See page 4	Jamestown, Colorado
Saturday, August 21	Annual Club Picnic. See page 2	Harlow Platts Park, 1360 Gillespie Drive in Boulder
Thursday-Sunday, September 16-19	Denver Gem and Mineral Show	Colorado Convention Center in Denver

Please check the club's website at https://flatironsmineralclub.org/ for updates and further information about these activities.