PICK&PACK
THE BULLETIN OF THE COLORADO SPRINGS MINERALOGICAL SOCIETY Published Since 1960

**Colorado Springs Mineralogical Society**
Founded 1936
~ Lazard Cahn ~
Honorary President
"Pick & Pack"
Volume 63 No. 4
May 2023

# CSMS General Assembly

Thursday, May 18, 2023 7:00 PM
Mt. Carmel Veterans Center

## ~ Brian Busse ~

"Rockhounding in Colorado"

**A-L BRING SNACKS**

Club members are encouraged to bring specimens to general assembly to share and/ or for help with identification

In case of inclement weather please call Mt. Carmel Veteran's Service Center 719-309-4714

**In This Issue …**



# Brian Busse - Rockhounding in Colorado

Photo of Brian Busse's claim taken during a CSMS field trip in 2022. *Credit: Shane Riddle.*

Our guest speaker for May, is Brian Busse. Brian moved to Colorado in 1982 and started prospecting in 1994. Since then, Brian has traveled the country collecting minerals, making jewelry and building life-long friendships. Brian owns the *Thank You Lord* Aquamarine claim on Mount Antero, where our club is scheduled for a field trip to in September. Brian's live discussion with us via Zoom, will be discussing rockhounding in Colorado and places we could go. Join us May 18, 2023 at 7 PM, Mt Carmel Vet Center in Colorado Springs.

# CSMS Group Calendar

| May '23 | June '23 | | | | | | |
|---|---|---|---|---|---|---|---|
| 10 May | 10 May | Fossil Group | 2nd Wed | 6:00 PM | East Library Annex | Kristine Harris<br>Richard Villareal | 719-593-1524<br>831-760-6985 |
| 4 May | 4 May | Board Meeting | 1st Thur | 6:00 PM | Zoom | John Massie | 719-338-4276 |
| 2 May | 2 May | Pebble Pups | 1st Tue | 4:15 PM | East Library | David St. John | 719-424-9852 |
| 18 May | 18 May | General Assy | 3rd Thur | 7:00 PM | Mt. Carmel Center | John Massie | 719-338-4276 |
| 25 May | 25 May | Crystal Group | 4th Thur | 7:00 PM | Mt. Carmel Center | Kevin Witte | 719-638-7919 |
| By appt | By appt | Faceting Group | By appt | By appt | | John Massie | 719-338-4276 |
| By appt | By appt | Lapidary Group | By appt | By appt | Sharon's House | Sharon Holte | 719-217-5683 |

# Community Events (Pete Modreski)

**May 11:** 2:00-3:00 PM, Denver Museum of Nature & Science, Earth Science Colloquium, "Does size matter? What brachiopods tell us about evolutionary rules," by Judi Sclafini (UC Santa Cruz). In the VIP Room, in-person only, all are invited, museum admission not required; check in at the Security Post. Enter through the staff/volunteer entrance. https://sites.google.com/view/dmnsdes2020colloquiumschedule/home

**May 11:** 7:30 PM, Friends of Mineralogy May meeting, in person in Berthoud Hall 109 + by Zoom, topic TBA. See https://friendsofmineralogycolorado.org/ for an update.

**May 18:** 7:00 PM (social time, 6:30), Colorado Scientific Society May meeting, North American Stress and Strain, by Jens Lund Snee, US Geological Survey; and, Pacific Northwest Neotectonics, by Katherine Alexander, US Geological Survey. In-person + Zoom meeting.

**May 19:** 2:00-3:00 PM, Denver Museum of Nature & Science, Earth Science Colloquium, "Geology of Grand Mesa, Colorado," by Rex Cole (Colorado Mesa U). In the VIP Room, in-person only, all are invited, museum admission not required; check in at the Security Post. Enter through the staff/volunteer entrance.

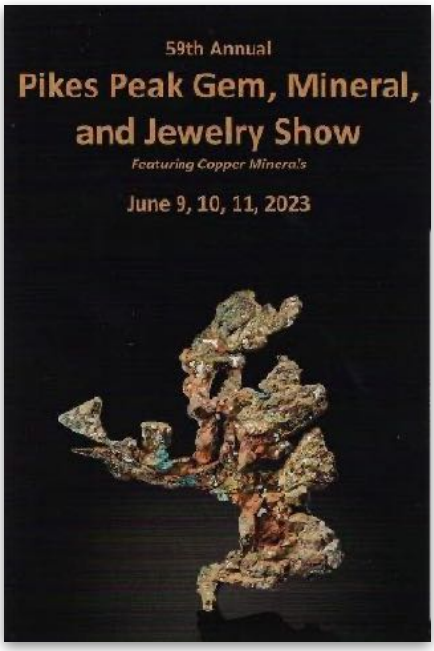
**May 20:** 12 noon – 4 PM, Friends of Mineralogy Silent Auction, Wheat Ridge United Methodist Church, 7530 W. 38th Ave. All are welcome to attend, bid, and/or bring specimens to sell (minimum 20% donation to FM). See https://friendsofmineralogycolorado.org/

**June 5:** 2:00-3:00 PM, Denver Museum of Nature & Science, Earth Science Colloquium, "The Dead Sea: Past, present and future," by Ittai Gavrieli, Israeli Geological Survey. In the VIP Room; in-person only, all are invited, museum admission not required; check in at the Security Post.

**June 9-11:** Pikes Peak Gem, Mineral and Jewelry Show, Norris Penrose Event Center, 1045 Lower Gold Camp Road, Colorado Springs. Fri. Noon-7:00 PM, Sat. 10-5, Sun. 10-4. Set up on the 8th. Admission $5 per day, $8 for multiple days, 12 and under free. Sponsored by the Colorado Springs Mineralogical Society. World's best gem show.

**Jun 19:** 2:00-3:00 PM, Denver Museum of Nature & Science, Earth Science Colloquium, "Linked Ecologies: Connecting invisible pasts and actionable futures," by Anshuman Swain (Harvard). In the VIP Room. Enter through the staff/volunteer entrance.

**Jul 13:** 2:00-3:00 PM, Denver Museum of Nature & Science, Earth Science Colloquium, "Usurpers and insinuators: Competition and environmental change in the Great American Biotic Interchange in mammals," by Marie Hoerner (CU - Colorado Springs). In the VIP Room. Enter through the staff/volunteer entrance.



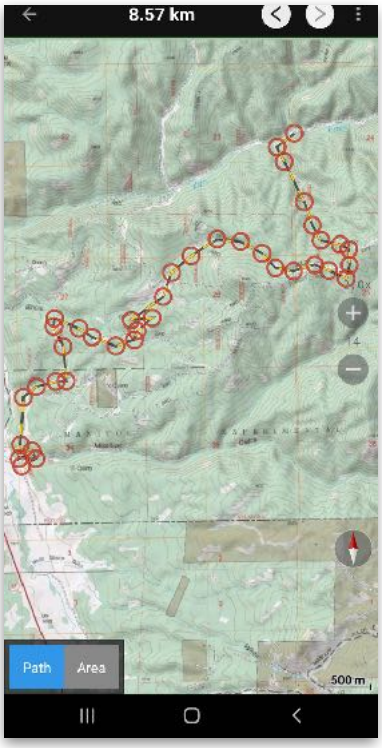

**Above:** Silver on native copper. White Pine Mine, Ontonagon County, Michigan. *Phil Persson, Persson Rare Minerals. Photo: Mark Cross.*

# Community Events (Con't)

**Aug 24:** 2:00-3:00 PM, Denver Museum of Nature & Science, Earth Science Colloquium, "Mass extinctions and high resolution astrochronology in the Upper Devonian: Tales from New York and Colorado," by Jeff Over (SUNY Geneseo). In the VIP Room. Enter through the staff/volunteer entrance.

**Oct 10:** 2:00-3:00 PM, Denver Museum of Nature & Science, Earth Science Colloquium, "To Xiphactinus and beyond: The savage seas of ancient Kansas," by Anthony Maltese (Rocky Mountain Dinosaur Resource Center). In the VIP Room. Enter through the staff/volunteer entrance.

**Nov 6:** 2:00-3:00 PM, Denver Museum of Nature & Science, Earth Science Colloquium, "Our Earth was completely frozen? Twice?," by Carol Dehler (Utah State U.). In the VIP Room. Enter through the staff/volunteer entrance.



Drove Mt. Carmel -> Rainbow Falls

## REPORT

Rock Stalk 5 May 23
with CSMS Secretary John McGrath

Hardy rockhounds Alex, Chris and Steve joined CSMS Secretary John McGrath on his first ever "rock stalk" to the Fern Creek area 5 May 23. They found feldspar, quartz and fluorite crystals, as well as rocks of purple fluorite.

Club members can join John McGrath at the next rock stalk and learn the benefits of "stalking" vs digging. He also shares his knowledge of the terrain and rock-hounding tips, peppered with a sense of fun and adventure.

john.mcgrath115@gmail.com

Trekked 1.5 Km to quartz outcrop

"Stalking" loop around the dig

# President's Corner

John Massie
CSMS President

## 2023 Satellite Group Chairs

**Kevin Witte/ Bob Germano,** Crystals
**John Massie/ Bertha Medina,** Faceting
**K. Harris/ R. Villareal,** Fossils
**Vacant,** Jewelry
**Sharon Holte,** Lapidary
**Vacant,** Micro-mount
**Vacant,** Photography
**David St. John** Pebble Pups

## 2023 Liaisons

**Florissant Fossil Beds National Monument:**
S.W. Veatch

# Presidential Matters

**A message from CSMS President John Massie:**

May starts our summer activities! The first activity is our first field trip on May 6.

We continue to prepare for the Pikes Peak Gem, Mineral, and Jewelry Show on June 9, 10, and 11th. We set up on June 8th. We still need volunteers for ticket sales, and hospitality table.

We need ticket sales for the following shifts:

- Friday 9th from 3:15 PM to 8:00 PM
- Saturday June 10th from 9:45 AM to 1:30 PM and 1:15 PM to 5 PM
- Sunday 9:45 AM to12:30 PM and 12:15 PM to 4 PM.

Remember if you volunteer you do not have to pay to get into the show.

If you want to enter a non competitive case in the show contact Bob Landgraf: rmlwp74@aol.com.

Looking forward to a successful show with the help of volunteers from the club.


Original artwork submitted by Steven Wade Veatch. "Stegosaurus" - Colorado State fossil

# Secretary's Spot

John McGrath

## 2023 CSMS Officers

**John Massie,** President
**Shane Riddle,** Vice-President
**John McGrath,** Secretary
**Ann Proctor,** Treasurer
**Adelaide Bahr,** Membership Secretary
**John Emery,** Editor
**Chris Burris,** Member-at-Large
**William Meyers,** Member-at-Large
**Sharon Holte,** Past President

## 2023 CSMS Chairpersons

**Rick Jackson,** Program Coordinator
**John Massie,** Show Vol Coordinator
**Kyle Atkinson,** Field Trip Coordinator
**Vacant,** Science Fair Chair
**Frank and Ellie Rosenberg,** Librarians
**Mark Schultz,** Social Committee Chair
**Ann Proctor,** Store Keeper
**Lisa Cooper,** Show Chairman
**Lisa Cooper,** Webmaster
**Lisa Cooper,** Facebook Keeper
**Mike Nelson,** Federation Rep
**Vacant,** Federation Rep

# CSMS General Assembly Minutes

## 7 PM, Thursday 20 Apr 23, Mt Carmel Vet Center, Co Springs

**Address:** 530 Communications Circle, Colorado Springs CO 80905
**Board Attendance:** President: John Massie, Past President: Sharon Holte, Secretary: John McGrath, Membership Secretary: Adelaide Bahr, Member-at-large: Chris Burris, Member-at-Large: Bill Meyers, Editor: John Emery.
**Agenda:**

I. Meeting was called to order by our President John Massie at 7:07 PM
II. The Pledge of Allegiance was led by our President John Massie
III. Introduction of Guests: None
IV. Introduction of New Members: Lynn Vansicker, Claudia Miller, Jason Turner
V. Program Speaker - Calvin Johnson of Colorado Springs spoke about Gold Prospecting
   A. He invited everyone to come to one of the Gold Prospectors of Colorado meetings.
   B. Dues are $25/yr individual and $35/yr for Families.
   C. Mothers Day Weekend non members are allowed to dreg or pan at the club's claim.
VI. Meeting - There were 47 members/guests in attendance and 5 minerals were given out.
VII. Officer Reports
   A. President - John Massie, covered throughout
   B. Vice - President - Shane Riddle, VP, absent
   C. Treasurer Ann Proctor- absent, She is recovering from an injury.
   D. Secretary John McGrath - Present. He is still looking for CSMS items held by members to update the Club's Inventory. He also brought in recently found specimens of orthoclase, fluorite and quartz from the Fern Creek/Long Hollow area. He presented his new Field Trip spin off group - the Rock Stalkers and had sign ups during the break.
   E. Membership Secretary - Adelaide Bahr, Present, No Report
   F. Editor - John Emery. Present, No Report
   G. Members at Large
      1. Bill Myers - Present
      2. Chris Burris - Present. He has volunteered to run wire wrapping courses prior to meetings.
   H. Past President - Sharon Holte, Present
   I. Website and Show Coordinator - Lisa Cooper, Present
      1. Lisa asked that we take Mineral Show cards for distribution.
      2. Facebook ads and mail out cards are also in the works.
      3. The Show is the 9,10, and 11 June 23 at the Penrose Center
      4. The Vendor slots are full.
VIII. Satellite Groups
   A. Crystal Group - Kevin Witte present. Next meeting next week at 7pm at the Mt Carmel location. Discussing "Twinning" and "Giant Crystals."
   B. Faceting Group - John Massie, contact him to bring the machine to your house.
   C. Pebble Group -David St John, present, working out of the East Library. Working on Periodic Table presentation.
   D. Fossil Group -Kristine Harris and Richard Villareal stated that meetings are held the 2nd Wednesday of the month from 6-7:30 at the East Library Annex.
   E. Jewelry Group - still in need of a Chairperson
   F. Lapidary Group - Sharon Holte, starting up sessions, but they are weather dependent as the machines are housed in an out building. Call after 6:30 pm on Sunday to chat.
IX. Liaisons
   A. Claims -.Frank Rosenberg. Absent. No Report.
   B. Field Trip Coordinator - Kyle Atkinson, Present. Field Trips are upcoming as listed in the Pick and Pack.
   C. Social Coordinator - Tina Cox, new lead, but will be out of pocket in May.
   D. Store Keeper - Ann Proctor. Absent.
X. Unfinished Business - None discussed.
XI. New Business - none.
XII. Meeting adjourned by President John Massie at 8:30 pm

**Respectfully Submitted**
John M McGrath MD COL (RET) USA

**AFMS ENDOWMENT FUND**
by Richard Jaeger

I am the Rocky Mountain Federation Regional Chairman for the AFMS Endowment Fund. Cheryl Neary, a member of the Eastern Federation, is the AFMS Endowment Fund Chair and the AFMS Central Office Administrator.

Basically, this is a raffle drawing with tickets being sold at $5 each or five tickets for $20. The drawing will be held at the NFMS/AFMS Convention in Billings, Montana in August. People from around the American Federation donate prizes for the raffle, which may be jewelry, crystals, minerals, fossils, books, or other items, each valued from $75 to $200. The drawing is handled so there is at least one winner from each of the seven regional federations; last year we had five winners from the Rocky Mountain Federation. We usually have about three or four winners from the RMFMS.

As items are donated, pictures of them will appear in the AFMS Newsletter and on the American Federation Website, <amfed.org>. There are usually around 30 items.

This is a major way to financially support the American Federation's efforts on behalf of our hobby. Currently the funds go towards the Junior Rockhound Program, Judges Training, and preparing Programs for distribution to Regional Federations (programs that can be used by individual clubs). Over $5,000 was raised last year.

Purchasing the tickets: Cheryl requests that your checks for tickets be sent to the regional chairs (for RMFMS, send to Richard Jaeger, 3515 E. 88th St., Tulsa, OK 74137) so we can issue tickets and have a record of who has entered. Checks should be made payable to the "AFMS Endowment Fund."

We then forward those checks to Pat LaRue, the AFMS Treasurer. I will fill out the proper number of tickets for each contribution, send the stubs to the donating individual, and get the tickets to the NFMS/AFMS Show in Billings in August to be put into the RMFMS bag. There will be at least one general prize ticket, maybe two or three, drawn from each of the bags for the seven regional federations. After that, all tickets will be dumped into one bag, and further drawings will take place until all the prizes have been awarded.

I hope that many of you will participate and hopefully be winners in Billings. You need not be present to win. I would also be happy to accept any donated prizes for the raffle or they can be sent directly to Cheryl Neary; the more prizes, the more winners, and hopefully, more money raised. Cheryl's address is: 42 Jefferson Ave., Patchogue, NY 11772. My wife and I are each donating a piece of jewelry for Endowment Fund prizes. My contact information is provided below. Please share this information with your club members and thanks for your consideration.

Please purchase some tickets – and hopefully get your ticket drawn in Billings in August.

Richard D. Jaeger
3515 E. 88th St.
Tulsa, OK 74137-2602
918-481-0249 RjgrSci@aol.com

**About the AFMS** - A non-profit educational federation of seven similar regional organizations of gem, mineral and lapidary societies. The purpose of AFMS is to promote popular interest and education in the various Earth Sciences, and in particular the subjects of Geology, Mineralogy, Paleontology, Lapidary and other related subjects, and to sponsor and provide means of coordinating the work and efforts of all persons and groups interested therein; to sponsor and encourage the formation and international development of Societies and Regional Federations and by and through such means to strive toward greater international good will and fellowship. Founded in 1947.

**About the RMFMS** - A non-profit educational organization. The purpose of the Rocky Mountain Federation is to have a close association of all clubs in the Society to promote the study of earth sciences, including the lapidary arts, the study of fossils and paleontology, and related crafts. The RMFMS was organized in 1941, and held its first annual convention at the Argonaut Hotel in Denver, Colorado. There were 16 organizations in attendance. The RMFMS became one of the original four founders of the American Federation of Mineralogical Societies when it was organized in 1947.

## The Complexities of a Common Mineral: Muscovite

Mike Nelson
csrockguy@yahoo.com

As I compose this manuscript for the May edition of the Pick & Pack I am finishing a two month stay in St. George, Utah, about as far south and west as one can travel in this state. We originally came down to escape snow shoveling and cold weather in Colorado Springs. That is now a laughing matter as the city is experiencing one of the coldest/coolest and wettest springs on record. The tips of the fronds on the palm trees were bitten by the cold and local small streams often wandered out of their channels. However, all was not lost as a normally calm and low, water reservoir in the nearby desert decided it could not hold additional water pouring in from the normally dry/mostly dry Santa Clara River. So, water picked a spot at the end of the dam and took off roaring over the red rocks. A really nice sight.

**Above:** The spillover at Gunlock Reservoir. *Photo Credit: Gunlock State Park and WCSO.*

"A large black coffee, dark roast, please" are usually some of my earliest words every morning. At St. George, rain or shine I trucked down the road for 5 minutes to arrive at Perks Coffee, a nifty, funky, small, shop where the baristas called me by name and were ultra friendly. One small sip and I revved up for the day. The good thing about the short road trip was the view of the nearby Pine Valley Mountains, palm trees and blooming (in March) magnolia trees along the road and snow-covered peaks in the near distance.

**Above:** Dixie Drive heading to coffee. *Photo: Mike Nelson*

The Spring Equinox on March 20th marked the changing of seasons. In our neck of the woods winter officially ended and spring arrived, cool and dreary, but at least it arrived. The Spring Equinox marks the point on the Earth's annual orbit where everywhere on Earth has almost exactly 12 hours of day and night. This balance between day and night occurs because of the distance and angles between the sun and the Earth at a 23.5° tilt.

Past civilizations around the world built structures to mark the Spring and Fall Equinoxes, and the Summer Solstice (longest day of the year in the Northern Hemisphere)

and the Winter Solstice (shortest day of the year). However, we (modern populations) often fail to understand that some members of past civilizations were "very intelligent" and were able to interpret and predict celestial events with great accuracy. These events were marked in a variety of ways including rock windows, stone markers, pictograms/ petroglyphs on rock faces, etc. At Stonehenge the builders marked these celestial events by importing really large rocks, some as large as 25 tons, and arranged them in a methodical order to maximize astronomical observations and mysticisms.

**Above:** The circle at Stonehenge. *Photo: Mike Nelson*

**Above:** The heel stone at Stonehenge is external of the "circle." *Photo: Mike Nelson*

A few years ago, I had the opportunity to visit England where my son had a work assignment. One day we decided to take a white-knuckle drive (many roundabouts and driving on the "wrong" side of the road) from Maidenhead (home base) over to Stonehenge. It was a place of reverence and amazement. At any rate, on the Summer Solstice the sun rises directly over the Heel Stone.

As my time in St. George was rapidly drawing to a close, a daydream suddenly made me realize that Editor John would need this manuscript shortly after my arrival back in Colorado Springs. But how could I relate black coffee and the Spring Equinox to a mineral(s)? Well I could not do so and therefore decided to compose a short masterpiece on a well known mineral, muscovite. I should be able to cover all the bases in a few quick paragraphs, right? Turns out that was a wrong assumption since muscovite is a very complex mineral!

Muscovite [$KAl_2(AlSi_3O_{10})(OH)_2$] is one of those minerals that was easy to identify in my beginning geology course. It was the soft (~2.5 Mohs), "light colored" (pale yellow to pale light brown to pale green to silver white) mineral that could be split into very thin, transparent, elastic sheets; it had perfect basal cleavage. A similar dark colored (iron rich) mineral was always labeled biotite. These two minerals, commonly referred to as mica, were essentially freebies on the lab tests. However, at times the class examined very fine-grained river sand, or perhaps a piece of sandstone or gneiss and it became tougher to identify the shiny, shimmering flakes as muscovite.

Continued …

In areas of igneous and metamorphic outcrops these weathered and eroded flakes in river sands shimmer with a slow current and clear water and are a major cause of “gold fever.” Tourists and other visitors to Colorado see these shimmering flakes when the kids bound out of the car and head to the stream and believe they have hit the jackpot. Alas, no shiny gold but just tiny flakes of muscovite.

**Above:** A specimen almost completely composed of muscovite books, quarter for scale (lower). Collected a few miles west of Custer, SD, at an abandoned quarry. *Photo: Mike Nelson*

Muscovite is easily identified “in the field” by its formation of massive crystalline books found in many types of igneous and metamorphic rocks but especially prevalent in granite and granitic pegmatites. The larger the mineral grains, as in pegmatites, the larger the muscovite books. Roberts and Rapp (1965) described many large muscovite crystals from the Black Hills of South Dakota, “one of the most productive [mica] districts in the United States”: 1) books of muscovite as much as three feet across from the Crown Mica Mine; 2) a book of muscovite three feet wide, four feet long and eight inches in thickness from the White Spar Mica Mine; and 3) a crystal of mica weighing 36 pounds from the Lake Mica Prospect. MinDat listed 37 different varieties of muscovite; most were due to different cations appearing in the crystal structure. Some of these cations impart “colors” to muscovite such as in fuchsite, a greenish chromium-bearing variety.


**Above:** Rose or pink or lithium muscovite collected from the Harding Mine, Taos County, New Mexico. As Rob Lavinsky noted on Mindat, "on close inspection, you can see these muscovite crystals are translucent to transparent. They are actually masses of sheety crystals stacked densely together." The color is probably not due to lithium but to manganese and iron. Width of crystal mass ~1.9 cm. *Photo: Mike Nelson*

Muscovite is also a member of the Mica Group, a “term for the sheet silicates that can be parted into flexible or brittle sheets”---as defined by MinDat. The data base also listed 70 members of the Group although not all are “officially” valid minerals. For example, zinnwaldite, a somewhat common “mineral” found in rocks associated with the Pikes Peak Batholith is now discredited and placed as a dark mica containing lithium found in the siderophyllite-polylithionite series. Lepidolite, a pink to light purple Mica Group member has been discredited and is now assigned to the polylithionite-trilithionite series (see MinDat). Rock/mineral shops, and purveyors of rock/mineral trinkets, found across the U.S. have lepidolite “for sale.” In fact,

"lepidolite" collected from the Black Hills was the first mineral specimen I purchased as a kid.


**Above:** Lavender "lepidolite" collected from Bob Ingersol Mine, Black Hills. Color probably due to manganese. Width about 5 cm. *Photo: Mike Nelson*

OK, back to my search for "simple" muscovite. Most "books" of muscovite that are commonly found by rockhounds have a hexagonal shape in a cross-sectional view. That, along with its tabular form, elasticity, and transparent cleavage sheets, is usually enough to identify the mineral. However, one of the more collectable micas in the Black Hills comes from the Diamond Mica Mine in the Keystone Mining District. Here the single crystals are, you guessed it, diamond shaped.

Galleries.com noted that muscovite tabular crystals have a prominent pinacoid termination, that is the crystal has a pair of opposite parallel faces. The diamond shaped books have four dominant crystal faces with two pairs of opposite parallel faces. If another pair of parallel crystal faces form, then the books have a hexagonal shape. However, the diamond shaped muscovite from the Diamond Mica Mine varies in shape and pinacoid terminations.


**Above:** Muscovite crystal collected from the Diamond Mica Mine. *(Photo credit to, and courtesy of, DakotaMatrix.com).* Note sharp crystal face boundaries.

Notice in the Dakota Matrix figure above, the sharp corners of the diamond.

Compare that with my specimens (below) from the mine where an additional two parallel faces occur on the diamond. Although the specimens are coarsely diamond shaped, the crystal has six faces. As I understand the situation (a stretch), muscovite is Monoclinic; however, the symmetry is not easily observed. The diamonds simulate Orthorhombic symmetry with prism faces meeting at ~ 60 degrees, The six-sided forms have prism angles of ~120 degrees and appear to have Hexagonal symmetry. I have never pretended to be a crystallographer and my low pay grade does not allow me to speculate on the mechanics of those designs! Crystal Systems and Crystal Classes are one of the reasons I became a paleontologist!

So, just when I think that muscovite is "easy" to identify I notice that the Handbook of Min-

**Above:** Muscovite crystals collected from the Diamond Mica Mine, Width of each crystal ~3.2 cm. *Photos Mike Nelson.*

-eralogy throws the proverbially wrench into the equation: muscovite is also described as "stellate aggregates, plumose, globular, scaly, granular, compact and massive." One needs to consult MinDat to locate photos of these different habits.

**Above:** Muscovite with twinned crystals forming yellow five-pointed (or less) stars. Most star specimens come from pegmatites in the Jenipapo District, Minas Gerais, Brazil. FOV width ~4.0 cm. *Photo Mike Nelson.*

Of these forms, the stellate aggregates, or star muscovite, are perhaps the most collectable, appealing, and attractive of the many habits of muscovite. Star muscovite involves twinning of the crystals in a manner that remains confusing to me. I spent several hours reading the literature and my noggin still does not comprehend: *Twins in micas are difficultly identified due to mica's hexagonal pseudosymmetry. In this paper, we present an electron backscattered diffraction analysis to identify twins in the muscovite… A trilling twin with twin law <310>/{110} is common in the muscovite. A six-couplet twin consisting of two trilling twins related by twin laws <110>/{130} and <001>/{001}(or <100>/{100}) has been discovered* (Zhao and others, 2019).

Remember I am a softrocker! Regardless of my snarky comments, I learned much from this little exercise, not the least of which is that a tremendous amount of literature is

available for such a common, rather nondescript, mostly easy-to-identify mineral. I certainly did not realize that muscovite is such a complex mineral. As such, I fell into my time-consuming habit of pursuing the literature over a ten-day period and therefore did not reach my goal of just getting a manuscript completed before reaching the Springs. Oh well, life is interesting.

As I daydream through my life and think of many astronomical events and wait for the next eclipse, I remain fascinated by members of the ancient Mesoamerican civilizations of Central America. They built their pyramids, ball courts, palaces, temples, and other structures in accordance with astronomical events and positions of the sun, moon, planets, and stars over the course of a year. Of course, as a person of Scandinavian descent I am partial to the views of the Norsemen who believed that a large wolf, Fenrir, was constantly chasing the sun and at times got lucky and caught the orb and the lights went out — an eclipse.

Bound of Fenrir.
*Dorothy Hearthy (1909).*
*Public Domain photo.*

**References Cited**

Roberts, W.L. and G. Rapp Jr., 1965, Mineralogy of the Black Hills: South Dakota School of Mines and Technology, Bull. No. 18.

Zhao, Shan-Rong, Chang XU and Chuan Li, 2019, Identification of twins in muscovite" an electron backscattered diffraction study: Zeitschrift fur Kristallographie—Crystalline Materials 234(5). DOI: 10.1515/ZKRI-2018-2139

**About the Author**

Mike is a former University professor and administrator who enjoys outdoor activities, and writing articles for the *Pick & Pack,* other rock and mineral clubs, and the Newsletter of the Rocky Mountain Federation of Mineralogical Societies (www.rmfms.org). He also writes, and occasionally speaks, about members of the Colorado Cavalry/Infantry who participated in the march to Glorieta Pass (1862), helped settle central Kansas (1865), and later fought at Beecher Island (1868). In CSMS he heads up the Undergraduate Research Committee as introducing students to geology research is a long-time passion. But mostly he just tries to enjoy life with frosty IPAs, travel, and collecting mundane facts and pretty rocks/ minerals.

## The Red Elephant Mine: Crystal Peak Area, Colorado

Steven Wade Veatch

For as long as I can recall, I wanted to experience what it would be like to find the legendary crystals and gemstones that Pikes Peak is famous for. In some places Pikes Peak Granite contains an incredible suite of minerals that formed magnificent crystals in cavities at least a billion years ago. Large crystals of white microcline or feldspar are common. Amazonite, a variety of microcline, is present in well-formed crystal groups in varying shades of blue, ranging from a faint pale-blue to a brilliant blue-green color. The distinctive color is thought to be derived from varying levels of lead present in the amazonite when it formed, although this is still debated by mineralogists.

**Above:** Microcline feldspar variety Amazonite with smoky quartz from the Halpern Mineral Collection, Colorado, USA. *This file is licensed under the Creative Commons Attribution-Share Alike 2.5 Generic license. Photo Date 2006 by Eric Hunt.*

The amazonite from the Lake George area is distinctive because of its large, well-formed crystals, and its large size, and its intense blue color. Amazonite, named after the Amazon River where unusual rounded pebbles of this gemstone were found, was part of the Pharaoh Tutankhamen's ring and was described as the third stone in Moses' breastplate.

Smoky quartz crystals are associated with the amazonite crystal groups, and most of the smoky quartz crystals are flawless—ranging from pale brown to midnight black, all with a stunning gem clarity. The smoky color is caused by radioactive elements in the granite. Slowly, over the millennia, the quartz darkens in response to the radiation. Purple, greenish, and light blue fluorite crystals also occur in this suite of minerals. These magnificent gemstones eluded me for over four decades.

One summer day, I asked my rock hounding friend, Dave Jackson, to go with me to the Crystal Creek area, which is noted for deposits of these gems, and to look around. The area is reached by following a two-track Pike National Forest road that begins at Lake George, Colorado then branches off at a towering raw granite formation known as Sheep's Head, fords Crystal Creek, and then follows a steep grade to a ridge.

On our first trip there, I noticed the hillsides were perforated by numerous holes dug by previous prospectors. I thought that was a good sign that others searched here before us. After parking Dave's truck, we man-hauled our gear in five-gallon buckets the rest of the way. We each carried two buckets: one in each hand; one bucket was empty; the other bucket had our tools. The empty bucket was for the gems we might find.

We began our hike up the steep hill. It was a beautiful climb: granite boulders were spotted with various species of lichen; moun-

tain mahogany dotted the landscape; and kinnikinnick grew near the top of the ridge, where a cool mountain breeze passed through the pines. Dave and I decided to go to where the pine trees edged a small opening in the ground and to dig under the dumps of several small abandoned prospects.

**Above:** A view of Crystal Peak near Florissant, Colorado. The area is known for its gem mining sites, most are under claim. *Photo date 2006 by S. W. Veatch.*

My old friend Rich, a first-rate prospector, ran into us on that sunny summer day and showed us an old gem mine next to where we were: he knew this site would be a good one for us to work. Rich said, "I worked the area next to this spot with good results. I'm telling you this is a good place to dig." Rich is one of the rare people in life whom you run into who are doing exactly what they were meant to do. Rich is an exemplar in the mineral world, and spends most days outdoors working at his mines. His face and hands are weather-beaten—almost like leather—from a lifetime of mining, both as a profession and a hobby.

Discussions with Rich that day brought back to me a number of pick and shovel moments of chipping crystals out of a cave together six years before in the mining town of Ouray, Colorado and being run out by the property owner. Rich and I did not know it was private property. Four years earlier we had collected blood-red agates on a hill of volcanic ash near Cañon City, Colorado. Exposure to the weather turned the ash into bentonite clay, and recent rains made it swell up with a surface slippery as ice. While trying to pluck red agates out of the bentonite with Rich, I tripped and slid down the hill on my back, getting covered with wet bentonite clay. It took forever to get the clay out of my clothes and inside of the car. Rich laughed for hours.

I was glad we ran into Rich that day and got his help finding a good place to dig for gems. Dave and I followed his advice and began the arduous work of digging with picks, shovels, pry bars, old screw drivers, and rock hammers. When the pick struck the granite, it would vibrate in our hands, sometimes sparks would fly, and always the thud of the pick against the granite filled the forest. The granite would break up from the relentless pounding with the pick—leaving piles of crumbled granite. We shoveled the granite gravel into a bucket and then hauled it to the surface and dumped the gravel on the ground, forming a "tailings pile."

In the Crystal Peak area, the gemstones and crystals occur inside of what is called a "pocket" or ancient bubble in the Pikes Peak Granite. This granite was formed just over a billion years ago as a melting, monstrous blossom of red magma pulled off the Earth's mantle in a stately phenomenon forming a magma plume in that hostile and hellacious inferno. This molten plume made an unrelenting climb through the beleaguered crust, mixing the mantle and crustal material together and forming the Pikes Peak Granite.

**Above:** Amazonite and Smoky quartz diorama, located in the First-Level Rocks & Minerals Exhibit at the Denver Museum of Nature and Science. Representing an unspecified 'Crystal Peak' location in Colorado. *This file is licensed under the Creative Commons Attribution-Share Alike 4.0 International license.*

Parts of the Pikes Peak Granite became pegmatite, a coarse granite that sometimes yields precious gems. The granite pegmatite is derived from magma in the Pikes Peak Granite that formed during the last stages of its cooling. At this point volatile components trying to escape the magma, were trapped in the granite as bubbles. As the granite cooled and contracted, the bubbles or open cavities provided a space for crystals to grow to unusually large sizes and line the interiors of the voids. Our prospect hole was in just such a granite pegmatite.

Rich's directions paid off; after digging a few hours, Dave and I made a-six-foot-deep excavation that we could both fit in. We took turns with the pick and shovel work. The pick would break up the granite. When the disintegrated granite became deep, one of us would shovel it into a plastic bucket and haul it to the surface to dump. It was cool and damp in our excavation pit, and the scent of fresh dirt and moist gravel was strong.

There is an abrupt change in the pegmatite as one approaches a gem cavity. The feldspar and, quartz that form the pegmatite change in appearance near a pocket. The component minerals become elongated or contorted, revealing what look like small swimming tadpoles or cuneiform writing—a mysterious script with an important, yet coded message declaring gemstones are near for those who are clever enough to follow the clues and find them. This is known as graphic granite.

Suddenly Dave yelled, "Look at the granite, it is changing—it is graphic granite for sure! See that old pine tree-root? It has worked its way through granite cracks and disappears straight into the rock. There must be a pocket behind the root."

"Let me take a look," and I yanked out the root, and then took my glove off and carefully put my finger into the hole. I said to Dave, "Holy God, I can feel the crystal faces!" My throat tightened, my heart almost beat out of my chest, and Dave's eyes were open wider than an owl's at night.

The root sought out moisture in a small cavity, leading us to that discovery. We immediately switched to wooden tools: tree branches, wooden skewering sticks, and wooden mallets, to open up the cavity slowly, carefully, and methodically. Metal tools can nick or fracture the valuable crystals and gems. Once we enlarged the hole to the cavity, our flashlight revealed shining smoky quartz crystals; a gemmy, sky-blue amazonite- crystal group; and sparkling deep purple and light blue cubic fluorite crystals. One group of fluorite crystals clustered around the base of a gleaming smoky quartz crystal.

Our next step was to empty the pocket, about the size of a grapefruit, of its

gem hoard. Each crystal and gem had to be carefully wrapped in newspaper for carrying it down to Dave's old truck. This pocket was the sign we needed to continue working the gem mine. If there is one crystal pocket, there will be others.

Our digging and removing crystals from the pocket burned up most of that first day. The shadows were shifting in the forest, and the sky was filled with pastel colors. I took one last look to the west and watched the setting sun redden the clouds over the boundless, tree-covered ridges; it was time to leave. Soon the dark blue of evening would spread, and it would be hard to travel along the old road in the dark. The moon was beginning its rise over Crystal Creek, and it was time to leave.

* * *

We came back the following weekend working the claim for a few hours and then having lunch near some fallen pine trees blown down by a violent summer storm. But on this day, the logs were our seats for lunch under a thick canopy of towering aspen trees. We each had a can of Red Elephant, an imported beer that has a great flavor and comes in giant cans and has a punch—it even made my lips numb. We decided to name our mining claim after the beer.

While relaxing and finishing my Red Elephant beer, I noticed a nearby decaying stump was full of life and realized that one day the forest would consume it. The stump was actually a dwarfed ecosystem. Many types of insects lived in the stump. A beetle stuck its head out from a hole it had bored in the bark. It left a pile of frass just below on a blanket of pine needles. I spotted a pill bug and a centipede, and noticed the different colors of moss and lichen that covered the stump. During the stump's decomposition, new niches for life opened and old ones closed as the stump evolved from fresh-cut wood leaking resin to rotting wood dripping nutrients into the soil. The stump will eventually become crumbled fragments and mold, invaded by roots of plants and covered by dead twigs and leaf litter fallen from the canopy of the trees above. It was time to stop thinking about a stump and return to the hard pick and shovel work of the afternoon.

After several hours of moving rock and gravel, we had a hole that was ten feet deep—straight down. I found out just how hard this work is: breaking through granite by dint of force and muscle with a pick is not easy at this depth, the gravel and rocks have to be hauled to the surface in a bucket on the end of a rope. The deeper the excavation, the harder the work is—gravity is constantly working against us. In our deep hole, we opened up a pocket larger than a watermelon.

A treasure trove of mineral specimens lined the pocket. Some crystals had detached from the pocket ceiling due to local vibrations from earthquakes and freezing and thawing cycles over many winters and fell flat on the pocket floor. The pocket floor was filled with flawlessly formed amazonite crystal groups—most over nine inches across—on sections of pegmatite granite. There were clusters of 12-inch-long smoky quartz crystals radiating out in various directions. Most of the crystals were as black as midnight.

I took my jacket off and covered the crystals on the floor of the pocket so they would be protected as we removed the

ceiling crystals and as we broke away more of the granite rocks above. Removing the crystals and gems requires care. Any rush to extract them could make an ugly chip or fracture. All of the crystals were carefully removed by hand and then wrapped in newspaper to protect them. I carefully cleaned the pocket out with a wooden chop stick and whisk broom, and then sprayed the interior with water for a good view. At this point, the world's problems melted away and we are focused on protecting these gems. We were the first ones on the planet to see these primordial, unique, and quite valuable crystals.

On the way out, the buckets full of wrapped gems in one hand and the buckets of tools in the other hand balanced us as we walked down the hill. Crystal Creek was flowing with a murmuring joy within its banks. Willows lined the creek until the road crossing where we drove through it. Some little birds were dipping at some of the pools of Crystal Creek. Deer were keeping an eye on our activities. Dave and I glanced at each other, and I said, "We sure hit it big, Dave; we made a big strike today." Our excitement filled the gem fields.

* * *

On our last trip to the Red Elephant that summer, Dave's truck was being repaired, and I was willing to risk my brand new Jeep on the forest roads and all of its hazards to get to our mine. I drove my new Jeep Cherokee up the road and got stuck. Dave and I pushed, pulled, swore, and sweated, but remained stuck on the old 2-track road in the middle of Pike National Forest. My biggest concern was what my wife would do to me if I banged up our new Jeep. Cell phones did not exist yet, so I could not call out for help.

Soon we heard the sound of another car, and it was headed in our direction. I could not believe we would run into anyone on this road on a weekday. It was Ray Berry, a member of the local rock club (Colorado Springs Mineralogical Society) I belonged to. Ray is another mineral exemplar. On his way to work his claim, he pulled us out in seconds with his winch.

Dave and I began to work the Red Elephant, and soon we were down to 14 feet when our pick shattered the typical granite and revealed graphic granite—a sure sign we were close to a pocket of gemstones. We discovered several more pockets ranging in size from a softball to a basketball. Some of the pockets we found were located by following quartz veins to the crystal-lined pockets. The color of the granite also provides a clue that a pocket is nearby—reddish granite tends to bear more pockets. Other pockets that day were located by pure luck.

* * *

The entire Crystal Creek area has been yielding amazing gemstones for centuries, providing material for an expanding gem market and yielding specimens that provide clues to help scientists understand the nature of the Pikes Peak Granite. Today there is still gemstone mining activity over the entire Crystal Creek landscape.

This land also has meaning beyond the valuable gems and as a gateway to scientific understanding. I noticed an old cabin and a few outbuildings in the forest. The cabin is deeply weathered. Parts of the

buildings are gone or caved in. The chicken coop, always an important homestead structure, is still in good shape, built as strong as Fort Knox. Eggs and skillet fried chicken were important to a family that eked out a living in this remote forest a century ago.

Before homesteaders, this quiet land once belonged to the Ute people. Chief Ouray and his wife, Chipeta, camped in tepees during the summer, and Ute braves hunted in the area. When they were not hunting, the men climbed hilltops with good views and made arrow and spear heads from stone. The women made clothing from deer and bison hides and attended to other duties. Children played games in the aspen trees.

* * *

Currently, the area is an active gem mining site, and the place where I finally experienced the excitement of making a rich strike. On weekends, countless hobbyists work their claims. Some people work their claims all summer long.

It was the last day of our mining season. Leaning back on a ponderosa pine on the surface near the Red Elephant, I reflected on the season. After hunting the elusive Pikes Peak amazonite for decades, I finally found it. I learned from this experience to never give up on something you want to accomplish. If you give up, you will never know what could have been. This is an important lesson for many aspects of life.

Then there is the hard work—the digging; digging deep into the ground that yielded the elusive gems. The digging that put me into direct contact with the nature of the granite gave me a deeper insight to the geology of the site and the architecture of Pikes Peak Granite over wider areas. I realized that I could physically keep up with the hard digging. I learned about people: that Dave was fair and split the specimens we found evenly, and that Rich was a good friend to direct us to a site that he knew contained valuable gemstones. Rich did not have to provide that information. I also experienced nature on a deeper level. When I took a break from digging, I saw the cycle of life at the decaying stump. It was truly a season with nature, one without the technology that has invaded every dimension of our lives. I knew there was more to learn out there in the forest, and that means to continue digging, always deeper.

* * *

It was getting late on our last day of the mining season. We packed up our gear and headed down the trail, crisscrossed by deer tracks, to my jeep. With darkness fast approaching, we drove down the old forest-service road. As the Jeep forded Crystal Creek, a small herd of deer—waiting to get a drink—watched us from the trees. A hawk silently flew overhead, towards the setting sun.

**About the author:** Steven is a geologist who joined the CSMS when he was 10, in 1965. The club met at that time at the old IBEW hall near the west side of the city. His complete profile is available at:

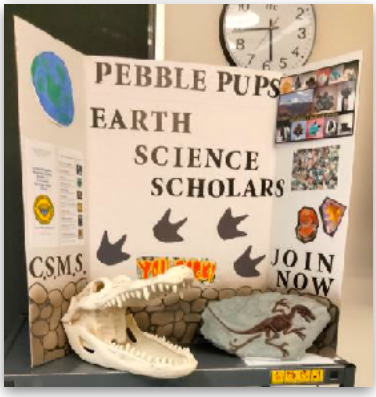
https://www.blogger.com/profile/06566101278318062273

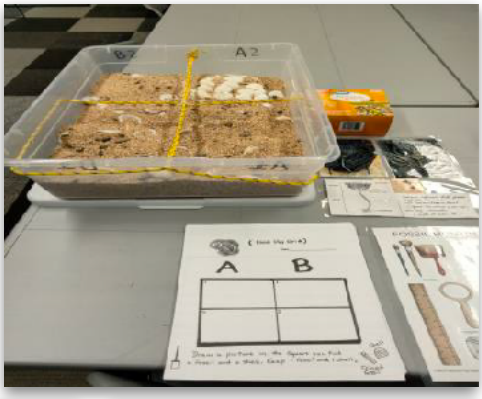
Pebble Pups
David St. John

# CSMS Pebble Pups and Earth Science Scholars

## Pebble Pups and Earth Scholars

We had a great time at the pups meeting in April sharing fossil activities, fossil dig, art, and real examples that the pups could touch and ask questions. We also talked about Geologist Day 4/2/23 and Earth Day 4/22/23 and passed out poem templates to the kids (April is Poetry Month). The next meeting by request is on crystals and minerals **May 2, 4:15-5:15** free samples and treats after. We have secured two more dates at the East library June 6, and July 11.

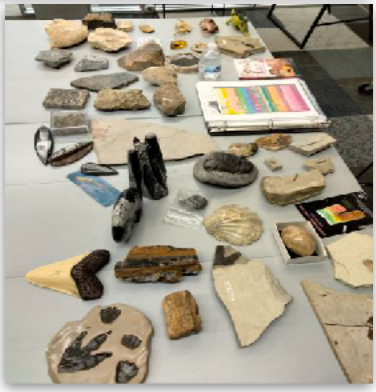



## We need volunteers for the Pebble Pups Booth

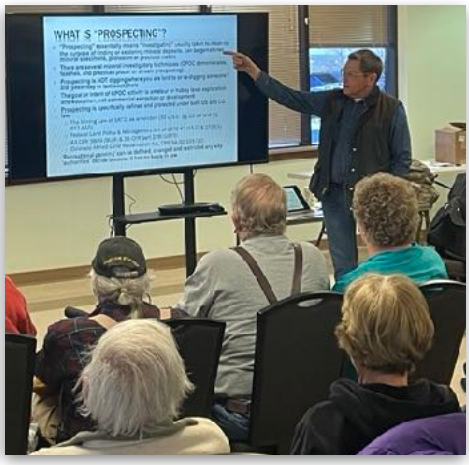
We need volunteers and donations for the CSMS show June 9, 10, 11. Betty will be bringing Lucy this year as we partner with the Lake George mineral club/pups. Please reach out to David St. John or John Massie and get into the show free if you help us out. Thank You. David email:

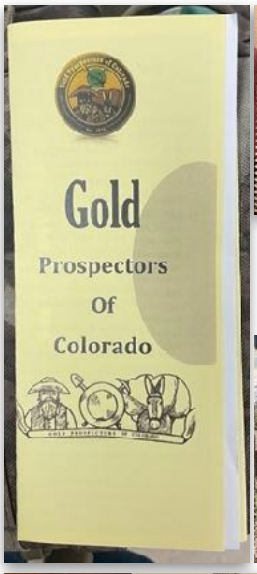
Fossilfun14@gmail.com

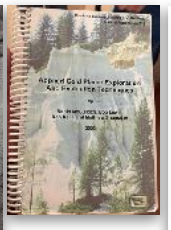


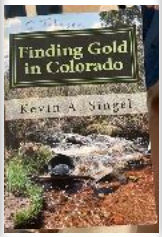
## April is Poetry Month "Earth Day" Poem Inspired by Meeting with the Pups 4/2/23


**E**ver changing
**A**lways giving
**R**ecycling rocks
**T**ime spinning
**H**umans protecting
**D**are to care
**A**ll in
**Y**ou matter




## REPORT

General Assembly 20 Apr 23

Hearty rockhounds gathered on a clear Thursday night at Mt Carmel Veteran Center for general assembly. We heard a great talk from Calvin Johnson from Gold Prospectors of Colorado. Thanks Calvin! The unofficial club mascot stepped out in a tight, sharp Christmas fleece. Several club members brought samples to show and tell. After a break and refreshments, we conducted the usual societal business and gave away 5 free minerals by random drawing.

# Classifieds and Announcements

**John Emery**
Editor

Thanks to our contributors. We encourage everyone to submit articles, photos, illustrations or observations.

Share your experiences, your new finds, or simply your enjoyment of our last field trip.

Handwrite it, type it, or email it. Format does not matter. All submissions are welcome. The DEADLINE for items to be included in the next Pick & Pack is the **last day of the month.**

To submit an item:
For hardcopy photos or articles, mail to the address below or bring them to the General Meeting. All hardcopy photos remain the property of the submitter and will be returned. Electronic photos can be submitted at resolutions above 200 dpi in ANY format.

Feature articles can be in MS Word or Mac Pages, preferably NOT pdf.

e-mail to the editor:
csmseditor@hotmail.com Mail to:
Pick & Pack Editor PO Box 2
Colorado Springs, CO 80901

The PICK & PACK is published ten (10) times per year (no issues in January or August). Unless otherwise marked, materials from this publication may be reprinted. Please give credit to the author and CSMS PICK & PACK.

## CSMS Summer Field Trip Schedule

Might be subject to change

**May** 13th: Gold Prospectors of Colorado
20th: Wyoming Fossil Safari
27th: New Hope Amethyst claim - Cañon City

**July** 1st: RMH with Lake George club, limit 10-15
15th: Wigwam Claims - Lake George club limit of 25
22-23: Crystal Park, Montana

**August** 5th: NH Amethyst Claim

**September** 9th: Cañon City Claim

**October** 7th: Cañon City Claim

Questions: contact CSMS Field Trip Planner
Kyle Atkinson atkinson.kyl@gmail.com 719-453-3653

## Geo-caching with CSMS

CSMS is geo-caching. Visit the CSMS geo-cache website (link below) for everything you need to know about finding CSMS geo-caches. Rockhound go.

*https://www.geocaching.com/geocache/GCA1WXD_colorado-springs-mineralogical-society*

# Classifieds and Announcements

## FRIENDS of MINERALOGY COLORADO

## SPRING 2023 MINERAL AUCTION

*minerals-rocks-gems-jewelry-fossils-books*

**MAY 20, 2023**
**NOON – 4:30 PM**
**Wheat Ridge United Methodist Church**
**7350 W. 38th Ave., Wheat Ridge, CO.**
Wadsworth & 38th Ave.; turn right onto Vance St.; parking is behind the building

Doors open for sellers at 11:00 am for setup.
Verbal Auction will take place starting at 1:00 PM
First table will close at 12:45 PM
(Checkout will begin at 3:30 PM)

Sellers numbers will be issued by calling Bob Hembree at 303-838-7510
Buyers Numbers will be issued at the door.
Minimum raise on bidding (silent auction), $0.50
Payments can be by cash or check; no credit cards, sorry!

## RMFMS & WSMGS

*HOSTED BY*
NATRONA COUNTY ROCKHOUNDS CLUB
75TH ANNUAL ROCK SHOW

July 14-16, 2023
Fri & Sat 9-5 ○ Sun 9-4

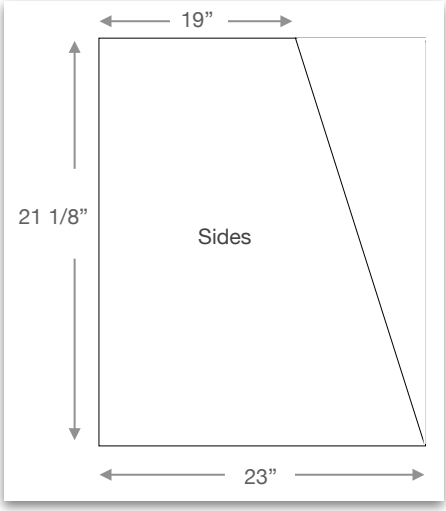

75th Annual

Admission $3
under 12 free

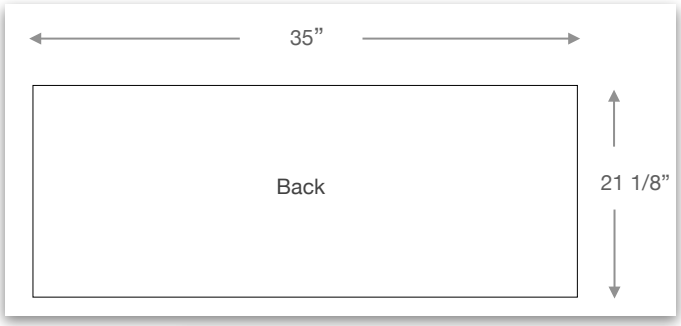
Ramkota Hotel
800 N Poplar
Casper WY

Raffle: Amethyst Cathedral, hunk of Wyoming Jade, and much more
Silent Auctions: WY rocks in the rough
Door Prizes
Demonstrations: Cabbing Demonstration by Lapidary Gary

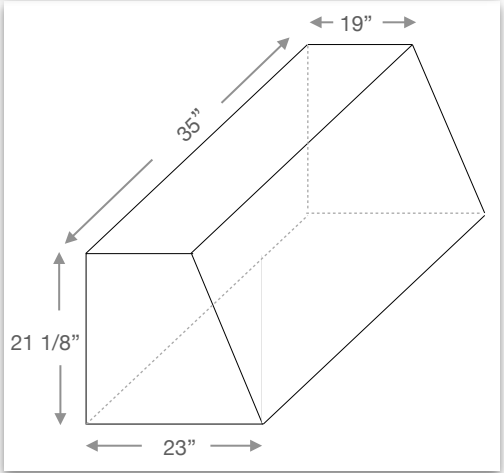
Contact: Mac Goss 307.439.9873 macogre13@yahoo.com




**The CSMS Gem, Mineral and Jewelry Show Case**




All measurements are inside measurements

# Pike's Peak Gem & Mineral Show

Presented by the Colorado Springs Mineralogical Society
June 9 - 11 2023, Norris Penrose Event Center, 1045 Lower Gold Camp Rd, Colorado Springs
Fri 12 PM - 7 PM, Sat 10 AM - 5 PM, Sun 10 AM - 4 PM

## Request for NON-COMPETITIVE Display Space

| Name: | Society: |
|---|---|
| | |

| Address: |
|---|
| |

| Phone: | Email: |
|---|---|
| | |

| City: | State: | Zip: |
|---|---|---|
| | | |

| Describe display or cases: |
|---|
| |

| | | | |
|---|---|---|---|
| | I will bring my own display | Your case length: | # of cases: |
| | I will need a case* | Case size desired: | # of cases: |

* CSMS cases are approximately 36" by 24" outside measurements. A few 4-foot cases are generally available. There is a hasp on the case that accepts an exhibitor-supplied padlock.

Exhibitors are urged to bring their own cases. A limited number of club cases are available upon request. Exhibitors using club cases will need to furnish any risers, linings, padlock or accessories as needed. EACH CASE WILL BE LIMITED TO 150 WATTS.

Setup is from 1 PM to 7 PM on Thursday or 8 AM to 12 PM on Friday before the show opens. Note new show hours for Friday. Tear down is 4 PM to 8 PM on Sunday.

Return by mail or email by June 1st to reserve a case and exhibit space. After June 1st, exhibitors are still welcome based upon availability of cases and space. Return to: Bob Landgraf, 304 Palmer Trail, Manitou Springs, CO 80829 719-658-1364 rmlwp74@aol.com

Presently we are only looking at People's Choice award for best case for judging.

Signature of Non-Competitive Exhibitor: _____

*With the signing of this request, email submission of this document or showing up with an exhibit, it is mutually agreed that the Colorado Springs Mineralogical Society and the Norris Penrose Event Center shall not be liable to any exhibitor for damage, loss or destruction of any exhibit or injury to their person for any cause and all claims for injury are expressly waived by the exhibitor.*

Established 1936
MINERALOGICAL SOCIETY

Pick & Pack
P.O. Box 2
Colorado Springs, CO 80901-0002

**CSMS is an incorporated nonprofit organization with the following goals:**

- To promote and disseminate knowledge of the earth sciences, especially as they relate to mineralogy, lapidary, and fossils.
- To encourage study, collection, and fashioning of minerals.
- To accomplish the same through social meetings, lectures, programs, displays, shows, and field trips.
- The Pick & Pack newsletter is published 10 times each year to assist and promote the above.

**Joining the Colorado Springs Mineralogical Society (CSMS):**

- Meetings are held the third (3rd) Thursday of each month, except January & August.
- 7:00 PM at Mt. Carmel Veterans Service Center; 530 Communication Circle, Colorado Springs, CO 80905
- Visitors are always welcome.
- Individuals—$30, Family—$40, Juniors—$15, Corporate—$100.
- Find the application at the web site: www.csms1936.com**.** If you are interested in joining CSMS or would like more information, we encourage you to attend our next General Meeting or visit our web site.

**Meetings:** CSMS also offers Satellite Group meetings that allow more focused attention in specific areas of our members' interests. Our current Satellite Groups consist of the following: Crystal Study Group, Faceting Group, Fossil Group, Lapidary Group, and Pebble Pups/ Juniors. For details on Satellite Group meetings, check out the calendars on page 2 and the web site.

**Membership Benefits:** Yearly dues include 10 issues of the *PICK & PACK*, all field trips (additional fees may be required on some field trips, and members are responsible for all transportation to and from), participation in all Satellite Groups (some groups may request additional fees to help cover resource costs), free admission to the *Western Museum of Mining & Industry* (carry your card), a year of learning and enjoyment, plus a lifetime of memories.

**Colorado Springs Mineralogical Society is a Member of the following organizations:**

- American Federation of Mineralogical Societies (AFMS) www.amfed.org
- Rocky Mountain Federation of Mineralogical Societies (RMFMS) www.rmfms.org