



Colorado Springs Mineralogical Society

Founded 1936

~ Lazard Cahn ~
Honorary President

"Pick & Pack"
Volume 62 No. 3
April 2022

CSMS General Assembly

Thursday, April 21, 2022 7:00 PM
Mt. Carmel Veterans Center

Program Speaker:

Danielle Olinger

"A Mild-mannered Geologist who Rocks"

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

In This Issue ...

Business/ Upcoming Events	2 - 5
Article - S. Veatch, <i>The Castle Rock Quarries: A Building Stone Bonanza</i>	6 - 11
Pebble Pups/ Earth Science	12
Poems by Pups and Scholars	13
Article - M. Nelson, <i>2022 Tucson Gem and Mineral Show</i>	14 - 18
March General Assy Pics/ Report	19
Pikes Peak Gem, Mineral and Jewelry Show application and drawings/ specs	20 - 21
Field Trip and other Announcements	22 - 23

"Rare Earth Elements in Carbonatite-derived Fluids" - Danielle Olinger



Danielle Olinger



Carbonatites are complex, poorly understood alkaline igneous rocks which contain > 50 modal percent carbonate minerals. Carbonatite-related ore deposits are the primary world supplier of rare earth elements (REEs) and niobium. That said, processes controlling mineralization and ore enrichment are poorly constrained. The Bear Lodge alkaline complex (BLAC) in northeast Wyoming contains a carbonatite-hosted REE deposit in which the primary ore target, REE mineralization, is the product of enrichment processes. Current research aims to understand the fate and transport of rare earth elements in carbonatite-derived fluids by characterizing the ligands (Cl, F, PO₄, SO₄, CO₃/HCO₃) responsible for REE transport and reconstructing temperatures of formation.

COLORADO SPRINGS MINERALOGICAL SOCIETY PO BOX 2 COLORADO SPRINGS, COLORADO 809801-0002

CSMS Group Calendar

Apr '22	May '22						
6 Apr	3 May	Fossil Group		6:00 PM	Ruth Holly Library	Jerry Suchan	303-648-3410
7 Apr	5 May	Board Meeting	1st Thur	6:00 PM	Zoom	John Massie	719-338-4276
21 Apr	19 May	Pebble Pups	3rd Thur	5:30 PM	Mt. Carmel Center	David St. John	719-424-9852
21 Apr	19 May	General Assy	3rd Thur	7:00 PM	Mt. Carmel Center	John Massie	719-338-4276
28 Apr	26 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

CSMS Club Events

June 10-12, 2022: Pikes Peak Gem, Mineral and Jewelry Show, Norris Penrose Event Center, Colorado Springs. Friday, June 10, Noon - 7:00 PM, Saturday, June 11, 10:00 - 5:00, Sunday, 10:00 - 4:00. Adults \$5.00/ Multi-day \$8.00/ 12 and under free. The theme of this year's show is **barite**.

Community Events (P. Modreski)

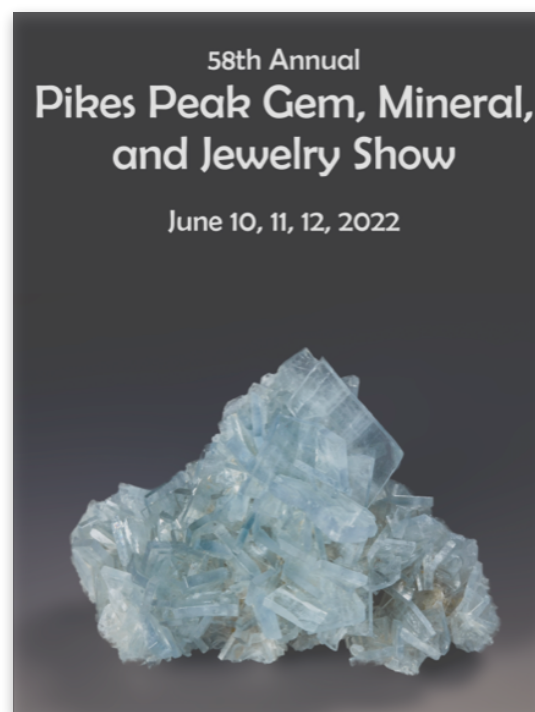
Apr 8-10: Colorado Mineral and Fossil Spring Show, Crowne Plaza Hotel & Convention Center, 15500 E. 40th Ave., Denver CO. Many mineral, gem, and fossil dealers; no admission charge. Sponsored by RMGM Promotions.

Apr 21: 7:00 PM, Colorado Scientific Society monthly meeting, Jim Granath (Consulting Geologist), "Petroleum exploration in newly discovered basins of Namibia"; and Bob Reynolds (DMNS), "Seeking ancient man in the Turkana Basin." Planned as a combined Zoom plus live presentation in Berthoud Hall Room 241, CSM campus. Please see the CSS website, <https://coloscisoc.org> for updates and details.

Apr 23: 6-10 PM, "Rock Out for the Ridge," annual fund-raising dinner and event for Dinosaur Ridge, at the Fossil Trace Golf Club, Golden. All are invited to attend! Dinner, music & dancing, silent auction. For details please see <https://dinoridge.org/programs-and-events/special-events-and-workshops/>. Tickets to attend, \$125; per table, \$1000. "Proceeds help fund the mission at Dino Ridge: to educate the public about and ensure preservation of the natural treasures at this unique and super hot Colorado geo-heritage site."

Apr 28: 5:00 PM, "Controlled Fusion Research," by Joy Dunn, Chief Operating Officer, Commonwealth Fusion Systems (CFS), and past chief of manufacturing for SpaceX. A special lecture presentation cosponsored by the Colorado Scientific Society and the CSM chapter of the American Institute of Aeronautics and Astronautics. Tentatively scheduled for the Grand Ballroom, CSM Student Center, 5:00-8:00 PM. All will be welcome. Please see the CSS website, <https://coloscisoc.org/> for updates and details.

June 10-12: Pikes Peak Gem, Mineral and Jewelry Show, Norris Penrose Event Center, Colorado Springs. Friday, June 10, Noon - 7:00 PM, Saturday, June 11, 10:00 - 5:00, Sunday, 10:00 - 4:00. Adults \$5.00/ Multi-day \$8.00/ 12 and under free. The theme of this year's show is **barite**.



Muddy Creek blue **barite** from Rio Grande County CO. Collector: Marge Regel. Photo by Mark Jacobson. Modified by Bob Germano. **Barite** is the theme of the show.

Secretary's Spot

John McGrath

2022 CSMS Officers

John Massie, President
Rick Jackson, 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

2022 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

CSMS General Assembly Minutes

Mt. Carmel Vet Center, Thur Mar 17, 2022 7:00 PM

Address: 530 Communications Circle, Colorado Springs CO 80905

Board Attendance: President, John Massie, Vice President: Richard Jackson, Secretary: John McGrath, Treasurer: Ann Proctor, Editor: John Emery, Member-at-Large: Chris Burris

Agenda:

- I. Meeting called to order by our President John Massie at 7:05 PM
- II. Pledge of Allegiance led by President John Massie
- III. Introduction of Guests: None
- IV. Introduction of new members by Adelaide Bahr, Membership Secretary:
Adelaide Absent and no new members present
- V. Program Speaker introduced by VP Rick Jackson - Steven Veatch, Member of the Club since Elementary School.
 - A. Speaking on Things Left Behind: An Intimate Time with Spencer and Julie Penrose.
 - B. Steve's grandfather was a personal employee of Spencer Penrose at the Broadmoor.
 - C. Steve spoke of Spencer Penrose's move from the East Coast after Harvard Graduation in 1886, his time in Cripple Creek in Gold Mining with his boyhood friend, Charles Tutt and his development of the Broadmoor Enterprise and its effect on the growth/enrichment of the Colorado Springs area.
- VI. Meeting - 26 members in attendance and 6 minerals were given out.
- VII. Officer Reports
 - A. President - John Massie - Fossil Group Starting again. Richard Villereal has volunteered to be the group leader. First Meeting will be at the Ruth Holley Library Branch, 685 N. Murray Blvd on Wednesday, 24 Mar 21. Subsequent meetings will be on the 1st Tuesday of the month.
 - B. Vice - President - Rick Jackson - no Report
 - C. Treasurer Ann Proctor- no report
 - D. Secretary John McGrath - no report
 - E. Membership Secretary - Adelaide Bahr - Absent
 - F. Editor - John Emery - no report

G. Members at Large

1. Bill Myers - Absent
2. Chris Burris, no report, but displayed multiple specimens to include Baculite from the nearby area, amazonite from Club claim and from another Lake George claim, as well as Quartz crystals and granite with riebeckite from the Mt Buckhorn area.

H. Past President - Sharon Holte - Absent

I. Website and Show Coordinator - Lisa Cooper

1. The Mineral Show cards are in and are being distributed. She is also advertising on Social Media.
2. She continues to work with the Vendors
3. The Venue contract has been signed.

VIII. Satellite Groups

- A. Crystal Group - Frank Rosenberg announced that the March meeting would be next week 27
- B. Faceting Group - John Massie, No Report
- C. Pebble Group - David St John reported that he had purchased an LED microscope that has a projecting function to view fossils and micro minerals
- D. Fossil Group - Details reported by President John Massie earlier
- E. Jewelry Group - still in need of a Chairperson
- F. Lapidary Group - Sharon Holte. Please call Sunday evening after 6:30 PM. She stated the 25" cutting saw had oil but might have a switch problem.

IX. Liaisons

- A. Claims - Frank Rosenberg, present, but no report
- B. Field Trip Coordinator - Kyle - absent
- C. Social Coordinator - Mark Schultz, thanked everyone for the excellent quantity and variety of treats at the meeting.
- D. Store Keeper - Ann Proctor, no report

X. Unfinished Business - John Massie reported that Steve Veatch would continue to serve as the Fossil Beds liaison and that Steve Veatch and David St John would serve as Mining Museum Liaisons.

XI. New Business - Steve Veatch stated that would like the Board to consider funding an Intern at the Fossil Bed. One of the benefits to the Group would be the requirement for the Intern to provide a presentation to the Group..

XII. Meeting adjourned by President John Massie at 8:36 PM

Respectfully Submitted

John M McGrath MD COL (RET) USA

President's Corner

John Massie
CSMS President



2022 Satellite Group Chairs

Kevin Witte/ Bob Germano, Crystals
John Massie/ Bertha Medina, Faceting
Jerry Suchan/ Joy Price, Fossils
Vacant, Jewelry
Sharon Holte, Lapidary
Vacant, Micro-mount
Vacant, Photography
David St. John/ Hair/ Elick, Pebble Pups

2022 Liaisons

Florissant Fossil Beds National Monument:
S.W. Veatch

Western Museum of Mining and History:
S.W. Veatch



Presidential Matters

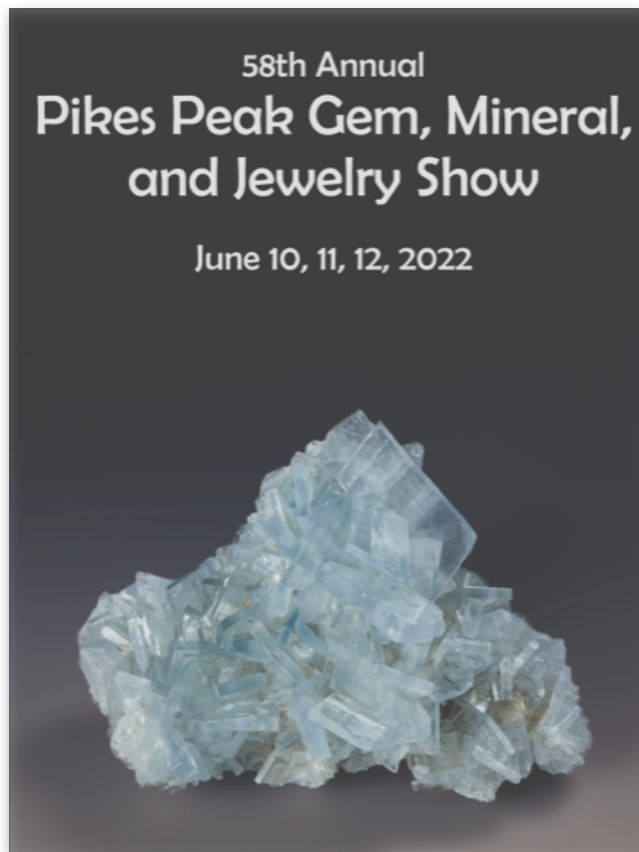


A message from CSMS President John Massie:

The Fossil Group is starting up again. The first meeting will be at the Ruth Holley Library Wednesday April 6th, 2022 at 6 PM. The meeting will go until 7:30 PM. The Ruth Holley Library is located at 685 N Murry Blvd. We are looking forward to seeing people there. After this week we will then move to the East Library.

Don't forget the Pikes Peak Gem, Mineral, and Jewelry Show on June 10, 11, & 12th. We will set up on the 9th of June. We need volunteers to help all 4 days. Volunteers get into the show free.

John Massie
CSMS President



Muddy Creek blue **barite** from Rio Grande County CO.
Collector: Marge Regel. Photo by Mark Jacobson.
Modified by Bob Germano. **Barite** is the theme of the show.





Federation News Post

American Federation of Mineralogical Societies
Rocky Mountain Federation of Mineralogical Societies



American Federation Rockhound Information

- [William Holland School of Lapidary Arts \(Young Harris, GA\)](#)
- [Wild Acres Retreat \(Little Switzerland, NC\)](#)
- [Bureau of Land Management](#)
- [Crystallography](#)
- [U.S. Geologic Survey Topographic Maps](#)
- [TopoZone](#) - Topographic maps of the U.S. online



VIVA LAS VEGAS ROCKS
June 17 - 19, 2022 at the Orleans Hotel

Rocks, Gems & Jewelry Show
Presented By
Southern Nevada Gem & Mineral Society

Hosting The Rocky Mountain Federation & Mineralogical Society Conference

Daily
Admission 5.00
Children Under 12 Free
Tickets Entered In Drawing

Exhibition Hours:
Friday 9am to 4pm
Saturday 9am to 4pm
Sunday 9am to 2pm

Orleans Hotel & Casino
Reservations
800 675-3267
ID: ASN2C06

50+ Vendors
Displays
Speakers

Raffles
Kids Activities
Door Prizes

Silver State

Specialty Contacts:
sngmshowchair@gmail.com
www.sngmshow.org

Local Club Shows

- Notify other clubs in our federation about your upcoming show, [email the editor](#)
- For Member Club Show general information go to the [RMFMS Club Lists](#) page and check the club or city you are interested in.
- Want to see the shows in your state? Visit the Rock and Gem Magazine's Show page and select the state you are interested in: [Rock and Gem Magazine's Show Page](#)
- Please use the following link to the RMFMS Editor Google Drive to download the January 2022 edition of the Rocky Mountain Federation News: [RMFMS Editor Google Drive](#)
 - The RMFMS Newsletter is also available at [RMFMS.org](#)

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 Castle Rock Quarries: A Building Stone Bonanza

Part 2 of a 3-part article by Steven Wade Veatch

O'Brien Quarry

The largest rhyolite deposit in Douglas County occurred on the ranch of Pleasant O'Brien, who had purchased the land from General William J. Palmer, the founder of Colorado Springs to the south. O'Brien leased his land to the Colorado Stone Company, which was organized in 1881 (Harvey and Harvey, 1946). By March 1882, the Denver and Rio Grande Railroad spur reached the base of the outcrop (Harvey and Harvey, 1946). August "Gus" Nelson managed the quarry. Later, General Palmer extended the track to the upper part of the quarry (Harvey and Harvey, 1946).

In the corners of the O'Brien quarry, men used small, broad-wheeled cars pulled by mules to move the stone. An incline tramway brought rock down from the top of the mesa to railway cars waiting below. A full tram car, going down the mesa, pulled an empty tram car up to the top of the quarry.

Accidents and injuries also occurred at the O'Brien quarry. In March 1882, a quarryman named Bumgardner was injured when overhanging rock crashed down on him (Harvey and Harvey, 1946). On May 10, falling rock, loosened from a blast, hit two workmen: Thomas Carroll and Calvin Brooks (Harvey and Harvey, 1946). Carroll's back and leg were broken. Brooks suffered a broken leg, wrist, and internal injuries. Both were rushed to Denver for treatment. Brooks died from his injuries. Carroll survived but was paralyzed for life.

In 1887, J. M. Curry of Denver leased both the Madge and O'Brien quarries. Curry then traveled about the state to get contracts for building stone. He was successful, and more than 350 train cars were needed to ship the orders for rhyolite from the Madge and O'Brien quarries that year (Jacobsen, 2014). By 1888, Castle Rock was a boom town. The railroads were transporting significant quantities of rhyolite to Denver, Colorado Springs, Pueblo, Cheyenne, Omaha, and Kansas City.

Santa Fe Quarry

Jonathan Thomas of Kansas City opened the Santa Fe quarry to the west of Castle Rock in 1889. The Atchison, Topeka, and Santa Fe railroad built a one-mile spur to the new Santa Fe quarry, the same year the quarry opened.

Eventually Thomas asked Gus Nelson, who had successfully run the O'Brien quarry, to operate the Santa Fe quarry. While Gus was busy supervising the quarry, his wife Anna ran the boarding house (Hoffman, 2005). Her days were filled with cooking and washing for the quarrymen (Hoffman, 2005). It was here that Gus and Anna raised five boys. Three of their boys were born at the Santa Fe quarry.



Fig 11: Quarrymen take a break at the Santa Fe quarry. *Unknown photographer, photo date circa 1890s. Courtesy Douglas County Libraries Archives & Local History, no. 1992.001.0678.0100.*

Prior to his death in September 1945, Gus Nelson had this to say about his lived experiences at the Santa Fe quarry:

In 1896 Jonathan Thomas came to be at the upper O'Brien camp and asked me to take charge of the Santa Fe quarry, west of Castle Rock. When we moved up to the quarry, where we were to remain for ten years, we found a boarding house, a small office building, a bunkhouse for the men, and an artesian well. Mrs. Nelson took charge of the boarding house. I started to work that summer with a crew of men, but it was almost impossible to get out much rock, due to the 25 to 50 feet layer of dirt and fine rock covering the stone.

I was discouraged and was considering giving up my contract when Jonathan Thomas visited the quarry. He persuaded me to stay, offering to pay me \$4.50 wages, as well as anything I might make on contracted stone during the period of time required to strip the outcrop. That was big wages in those days and the wife and I decided to put the whole \$4.50 aside each day in a separate fund toward the cattle ranch we hoped someday to own. It took 8 months to complete the stripping.

We made our living from the boarding house. Most of the time I ran a crew of 12 to 15 men, but sometimes we worked as high as thirty. Mr. Slagel was manager for Mr. Thomas. He had a small office building at the quarry and traveled about the state, soliciting orders for building stone.

After the stripping was done, we followed the cracks or seams in the lava stone, breaking out the rock with a crowbar. When this was impossible, a hole was drilled by hand to a depth of 15 to 20 feet. This would take the men on average of a day and a half. I acted as powder-man most of the time. The hole was filled with black powder and the

fuse ignited. The rock blown out in this fashion was then squared off by the stone masons, loaded into the tram cars for its trip down from the quarry to the railroad spur, where it was reloaded on the flat cars.

In the quarry we used a derrick to load the largest pieces of stone. Whenever possible we ran a tram track over the floor of the quarry to the section in which we were taking out rock. Sometimes we had to use small broad wheeled carts pulled by mules to reach the more remote corners. The mules were used on top the quarry in the stripping process and in operating the derrick. Most of the stone was shipped in pieces weighing about 100 pounds and loaded by the derrick. We shipped lots of rough stone too, and some rubble.

When the stone reached its destination it was cut to blocks of the desired size and squared off on five sides by stone masons. The sixth side was left rough and plastered over on the inside of the building. The dressing of the stone at the building site was an art in itself.

I paid the men two dollars a day. We worked six days a week and they were long days—from seven to seven. The work was hard and it was difficult to get good quarry men. I would go into Denver on Saturday and come back with five or six new hands. They stayed at the boarding house and ate their heads off, over the weekend. On Monday morning we were lucky if even two of them showed up for work at the quarry. They enjoyed a well-fed Sunday and departed by boxcar for Denver or Pueblo on Monday. However, I had one quarryman who stayed on the job for nine years, and another for eight years.

At the end of the first year of operation . . . I handed a check for \$1,000 to Mr. Thomas . . . as for myself, after I paid all wages, settled for the black powder, etc. I cleared about \$500 a year. In the ten years we operated the quarry we saved \$4,000.

When we worked a full crew we took out about six carloads of stone a day. We shipped rock to Colorado Springs, Denver, Nebraska, Pueblo, and Kansas City. It was widely used by the railroads for bridges and depots. Denver was our best market.

In 1906 the stone business was almost finished, due to the wide use of concrete. So we took our \$4,000 savings and bought a cattle ranch in Jarre Canyon, just above Sedalia. I operated it for years, making a good living running cattle. My son Harry lives there now but the ranch still provides us with a good income. We have lava rock to thank for the realization of our dreams, a large cattle ranch of our own (Harvey and Harvey 1946, p. 124-125).



Fig 12: Photograph of Anna Nelson, wife of August Nelson, standing in the doorway of her boardinghouse at the Santa Fe quarry near Castle Rock, Colorado, on July 1, 1903.

Unknown photographer. Courtesy Douglas County Libraries Archives & Local History, no. 1992.001.0633.0001.

Mrs. Anna Nelson recalls her life at the Santa Fe quarry boarding house:

I operated the boarding house for ten years . . . We had from 10 to 30 men to feed each day. The men had to be up on the hill at seven o'clock so breakfast must be on time. We got everything ready the night before, set the tables, ground the coffee, and cut the meat so that in the morning all we needed to do was make the oatmeal and stir up the pancakes.

We set a good table. Mr. Nelson wouldn't stand for anything else; he worked the men hard and said they needed good food and lots of it. We baked 20 large loaves of bread every other day. I had a big strong Bohemian woman to help me . . . For dinner we always started with some kind of soup. The men were very fond of a dried fruit soup, a Swedish dish, made with ground prunes, raisins, tapioca, and sugar. Sometimes we served milk soup made with rice, water, milk, and salt. We had two or three vegetables, bean peas, tomatoes, and always potatoes. We served two kinds of meat at each meal, except breakfast. For dessert there was dried stewed fruit and cake, or else pie. When the manager came, of course we always fixed extra.

We bought everything wholesale from Denver or Castle Rock. I had a large ice-box outside the door where I could store a quarter of beef or pork. We had our own chickens and milked five cows. Mr. Nelson broke out a piece of land where we raised our own vegetables. The men paid \$4.50 a week board. After all bills were paid, we showed little or no profit on the boarding house but we had our living from it.

It wasn't exactly an easy life, but I managed . . . and I had five small boys. My oldest son, Harry, was born in Denver in 1894, George was born at the upper O'Brien camp and Gus, Carl, and Frank at the Santa Fe quarry. You can do anything if you plan your work. I cooked three meals a day for ten or more men, cared for five children under 10 years of age, took care of the garden, milked five cows, and still had time in afternoons to hitch up the horse to the buggy and drive into Castle Rock to shop . . .

We lived at the quarry for ten years, and it was a welcome relief to move my family of growing boys to the ranch at Sedalia (Harvey and Harvey 1946, p 126-127).



Fig 13: A mechanical stone breaker used in the quarries, to break rocks into smaller pieces for shipping. Photo date 2020 by Ben Elick.

The town of Castle Rock knew Nelson for his legendary strength, and the old timers told this story: One day teamsters unloaded a large block of rock salt, weighing over 500 pounds, in front of the general store in Castle Rock. The store proprietor, as a joke, offered the salt block to anyone who could take it away. Several local men tried, but no one could move it. Gus Nelson accepted the challenge. He put his brawny arms around it, lifted it off the ground, and heaved it onto his wagon. Nelson then climbed on his wagon and drove away with enough salt to last him a lifetime.

Continued ...



Fig 14: View of the Santa Fe quarry. A Santa Fe Railway spur improved transportation of the building stone to important markets in Colorado. *Unknown photographer. Photo date circa late 1890s. Courtesy Douglas County Libraries Archives & Local History, no. 1997.011.003.*

Decline of Quarries

By mid-1882 Castle Rock's stone quarries reached the height of their production. The quarries employed around 100 men and shipped between 30 to 40 carloads of building stone each day. Demand for the stone began to decline in 1884, and by 1886, business markedly slowed at the quarries, and they later closed.

By 1900, the Santa Fe quarry had captured most of the local building stone business. The increasing use of bricks and concrete by 1906 brought the closure of the Santa Fe Quarry, the last of the three main quarries (Murphy, 1992).

In 2007, thanks to a Great Outdoors Colorado grant, the Town of Castle Rock, together with Douglas County, bought 44 acres of the Madge quarry. This purchase, combined with other open space property, created the 174-acre Rhyolite Regional Park. The Madge trail reaches the mesa top where the remains of the quarry are located. Today, the Santa Fe quarry is part of the Meadows subdivision west of I-25 and Castle Rock.

Limited quarrying of the rhyolite, which is still used today in buildings, landscaping, and road base, continues today. Rhyolite stonework decorates the bridges that span Sellars Gulch at Wilcox Street and Perry Street in Castle Rock. Schmidt Aggregate operates the Mencenberg quarry southeast of Castle Rock.

To be continued. Next issue: "Buildings Made of Castle Rock Rhyolite"

Acknowledgments

I thank Ben Elick for preparing and modifying the map used for this paper and for obtaining photos of Castle Rock Rhyolite. I thank Shelly Veatch and the Colorado Springs Oyster Club critique group for reviewing the manuscript, and Dr. Bob Carnein for his valuable comments and help in improving this paper.

References and further reading:

Castle Rock Journal, 1900, The Quarries: Castle Rock Journal, January 5, 1900.

Chronic, H., and Williams, F., 2014, Roadside Geology of Colorado: Missoula, MT, Mountain Press Publishing Company.

Epis, R. C., and Chapin, C. E., 1974, Stratigraphic nomenclature of the Thirtynine Mile volcanic field, central Colorado: U.S. Geological Survey Bulletin 1395-C, 23 p.

Harvey, J., & Harvey, R., 1946, The Quarries of the Castle Rock Area: The Colorado Magazine, 23 (3), pp. 114-128.

Hoffman, D., 2005, "Castle Rock" in Douglas County, Colorado A Photographic Journey: Castle Rock, CO, The Douglas Counties Library Foundation.

Izett, G. A., Scott, G. R., and Obradovich, J. D., 1969, Oligocene rhyolite in the Denver Basin, Colorado: U.S. Geological Survey Professional Paper 650-B, p. B12-B14.

Jacobsen, J., 2014, Closing of the Frontier, in Chronicles of Douglas County, Colorado: Charleston, The History Press.

Koch, A. J., D. S Coleman, A. M. Sutter, 2018, Provenance of the upper Eocene Castle Rock Conglomerate, south Denver Basin, Colorado, U.S.A. Rocky Mountain Geology. 53 (1): 29-43.

Matthews, V. (ed.), 2009, Messages in Stone: Colorado's Colorful Geology: Denver, Colorado Geological Survey.

Meyer, H. W., 2003, The Fossils of Florissant: Washington, Smithsonian Books.

Murphy, J. A., 1992, Castle Rock Building Stone Graces Historic Denver Building, Bear Pause: May 1992, Denver Museum of Natural History.

Murphy, J. A., 1995, Geology Tour of Denver's Buildings and Monuments: Denver, Historic Denver Guide Series.

Ormes, R., 1992, Tracking Ghost Railroads in Colorado: Colorado Springs, CO, Century One Press,

Thorson, J. P. 2004, Geologic Map of the Castle rock south quadrangle, Douglas County, Colorado. Open-File Report 04-5. Colorado Geological Survey, Division of Minerals and Geology Dept. of Natural Resources Denver, CO.

Thorson, J. P. 2005, Geologic Map of the Castle rock north quadrangle, Douglas County, Colorado. Open-File Report 05-2. Colorado Geological Survey, Division of Minerals and Geology Dept. of Natural Resources Denver, CO.



Pebble Pups and Earth Science Scholars 2022

Huge shout out to Steve Veatch for the awesome presentation and poetry session in March. We had a great turn out and the poems that were created will be published and sent for competition in **April for Poetry Month**. If anyone still wants to write an Earth Science Theme poem for April, please send it to David at fossilfun14@gmail.com or just keep it for yourself.

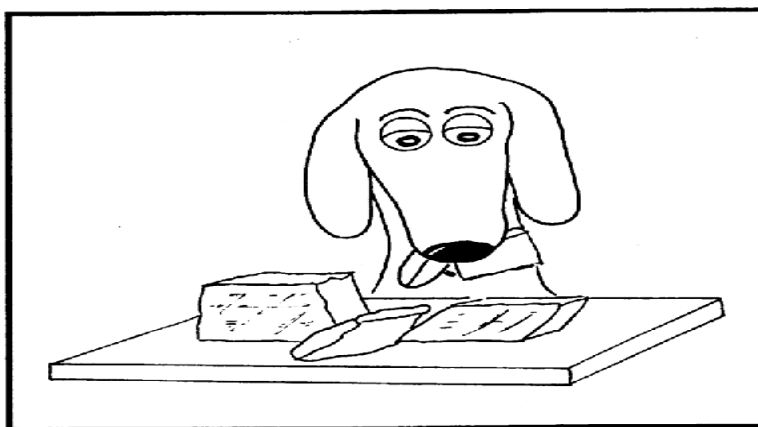
April Meeting 4/21/22 and Earth Day 4/22/22

We have purchased a portable digital microscope that can take pictures, and project on a big screen tv/monitor. Bring small crystals or fossils to the meeting and we will make them TV Stars. The topic this month will be on Crystals and Gems and Q and A time or share and tell.

Earth Day is next so do something good for our Earth like recycle, pick up trash, use water responsibly, and share with your Family and friends something Earth science related. See ya at 5:30 - 6:15 PM at Mt. Carmel Veterans Center and park in the back. If you have a specific food allergy or medical need for snacks, please contact me so we can include everyone for snacks. Art contest is still going on too, so draw your favorite rock, mineral, fossil, dinosaur, or Earth Science Topic.

Calling all Pebble Pups and Scholars

We are in need of volunteers to run our booth for the June 10,11,12 Pikes Peak Gem, Mineral and Jewelry Show. Let me or the Board members know if you can volunteer.



A mineral collector's best friend:
a Labradorite Retriever

national poetry month

A Photo at the Museum

By Steven Wade Veatch

I see you in the fading photo looking back at me.
Evidence that shows you lived.
I wonder who you were, touching the world,
learning in a one-room school, following
a deer trail, and then working in a gold mine.
Nothing else mattered. Just years passing by.
You stepped into an unknowable darkness,
then you were gone, and your possessions disappeared—
one

by

one.

As your world collides with mine,

I ask:

What will I leave behind?

A yearbook, a photograph album, postcards, letters.

Will they go to a museum?

Or a dumpster?

Will they fill a cigar box?

I am lucky, I filled

someone's heart.

A young miner in the
Cripple Creek Mining
District. Photo
circa 1896.
Courtesy
of the
Cripple
Creek
District
Museum.



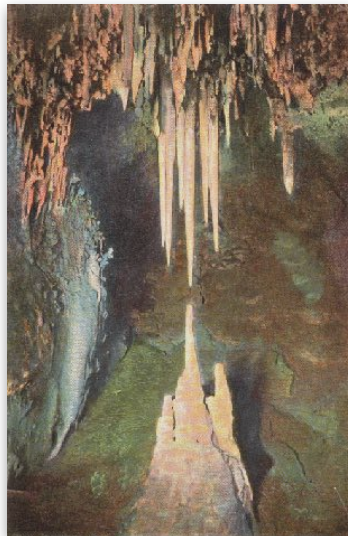
Cave of the Winds

By Josh Hair

Ancient cave of winds

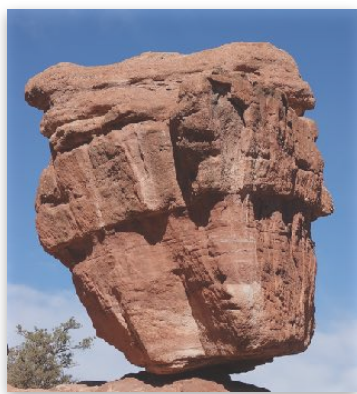
Howling through winding tunnels

Where Indians lay



The Shafts and Cathedral Spires,
Cave of the Winds, Manitou CO.
Photo: from S.W. Veatch personal
postcard collection.

national poetry month



Balanced Rock

By Jon Hair

Rain, snow, sleet nor hail

No force weakens its resolve

Balanced, will prevail

Balanced Rock in Garden of the
Gods, Colorado Springs. Photo:
S. W. Veatch

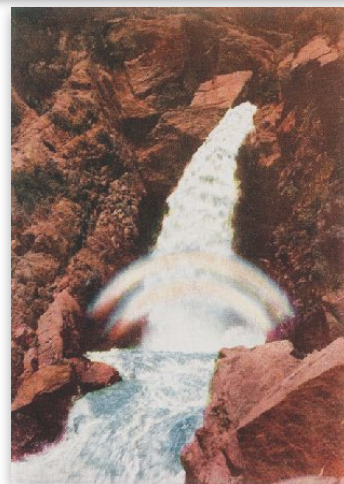
Rainbow Falls

By Ben Elick

Unchanged over time

Worshiped by all natives

Hurt by graffiti



The Rainbow Falls, Manitou
CO. Photo: from S.W. Veatch
personal postcard collection.

national poetry month

2022 Tucson Gem and Mineral Show®

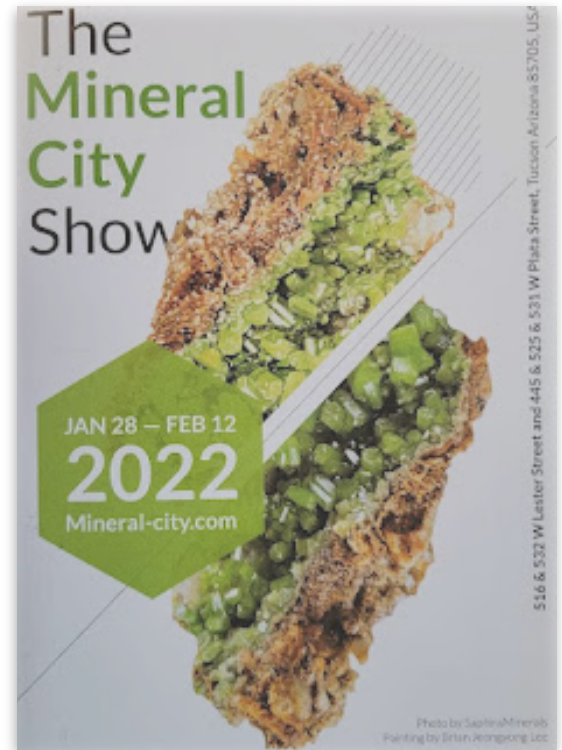
Mike Nelson
csrockguy@yahoo.com

Tucson 2022 has completed its stay in the “Old Pueblo” and featured tens of thousands of mineral and other items to ogle at, or perhaps even purchase. The Tucson Gem and Mineral Show® completed its 67th version in the second week of February and incorporated material from the cancelled 2021 event (Fluorescent Minerals) with the original 2022 theme (The Apatite Supergroup). More information on this “main show” will come in a later article.



The “main show” is sponsored by the Tucson Gem and Mineral Society and is restricted to the one show in the Convention Center. However, there are numerous other events scattered around the city in motels, big tents, little tents, gravel parking lots, permanent buildings, and the beds of pickups. At one time most of these ancillary events started two weeks before the last day of the “main show.” However, since these shows are self-regulated, they now start and close on their own schedules, and this year several events started on various dates in January. The largest of these ancillary shows is the Mineral

City Show located north of the Tucson City Centre along Oracle Road. According to Graham Sutton the idea of forming/building Mineral City was conceived around 2018 when he asked several dealers if they were interested in establishing permanent showrooms for their collections.



Today, after several setbacks mostly concerned with Covid, Mineral City has constructed several permanent buildings and remodeled others and is anchored, at least by people who remember, the old La Fuente eating establishment. The so-called warehouses are subdivided into different sizes of rooms that serve as selling venues, offices, and in the off season as storage areas. The selling venues are often furnished with fantastic glass display cases, tables for specimens, overstuffed chairs for resting and visiting; the dealers are mostly middle to high end. There is also a cantina and snack area snuggled in. I counted 121 different selling

establishments with room for perhaps a few more in future years.

The Mineral City concept is an interesting experiment! In visiting with some dealers, I got the idea that perhaps some stores would have selling events scattered thru the year, perhaps before Christmas as an example. I also heard “gossip” that the only people at the 2022 event were collectors and the “general public” and visitors did not show up. I attended Mineral City on four different days and the traffic thru the selling areas was light (at least in my opinion) and one long time dealer told me that it was his worst Tucson selling event—ever. My biggest concern for the event is a lack of parking. Few gravel lots are available and parking on curb-less, pothole filled, roads is tough, at best. Handicapped parking is sparse. However, I wish Mineral City the best.

My favorite dealer in the Tucson shows, Mike Shannon of Shannon Family Minerals, was located in Mineral City and occupied a large room packed full of flats filled with a variety of minerals with reasonable prices (great for a frugal collector like me). It took me several hours for a cursory search of the flats; however, I did come up with several goodies, especially from the collection he purchased from Mineralogical Research Company.



Above: Minerals for sale at Shannon Family Minerals.
Photo: M. Nelson



All Above: Minerals for sale at Shannon Family Minerals. Photos: M. Nelson

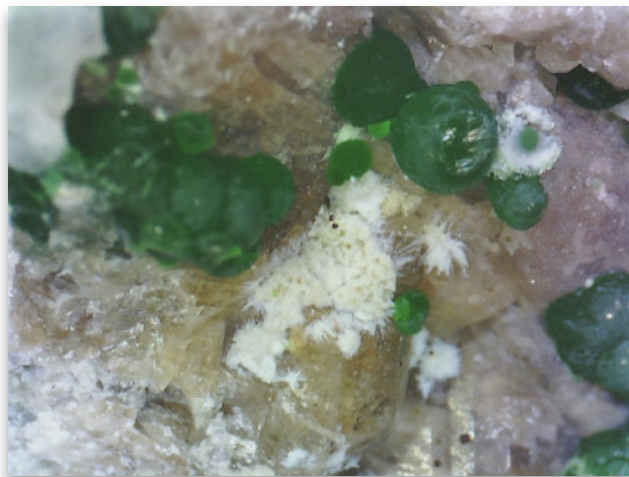


Above: Minerals for sale at Shannon Family Minerals. Photo: M. Nelson

One of my new specimens is from a favorite Utah collecting site, Gold Hill, an old mining community located south of the bi-state town of Wendover, Nevada/Utah, that was mined for gold, copper, zinc, lead, arsenic, and tungsten from the mid to late 1800s until the late 1940s. The peak activity was in the early 1900s when a spur railroad reached the area in 1917. There was only sporadic mining after World War I.

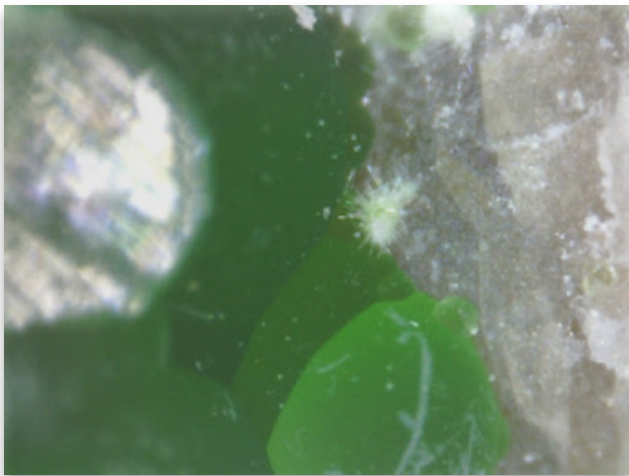
Gold Hill or the Clifton District, contains numerous mines, including an open pit, and is located near the northwest end of the Deep Creek Mountains, perhaps Utah's most isolated and unknown mountain range. Peaks do reach 12,000 feet—Ibapah Peak at 12,087 and Haystack at 12,020. The Deeps are the major topographic feature in western Utah. The range has a Precambrian core surrounded by Paleozoic sedimentary rocks with later Mesozoic intrusions—mostly quartz monzonite and granite/granodiorite, and later Tertiary volcanics.

I have described a number of minerals in past articles from the Gold Hill District and refer readers to these where the mineralization is described in greater detail. Today I want to add the mineral zálesíite $[\text{CaCu}_6(\text{As}_2\text{O}_4)_2(\text{AsO}_3\text{OH})_6 \cdot 3\text{H}_2\text{O}]$ to my list. This somewhat rare hydrated hydrous calcium copper arsenate was not named and described until the end of the 20th Century (Sejkora and others, 1999) from the Czech Republic, and noted from Gold Hill soon after (Adams, 2005). Previously, known (at times) specimens of zálesíite were called agardite-Ca or REE-free agardite. Agardite is a REE-dominant hydrated hydrous copper arsenate that is a member of the Mixite Group and is in a solid solution relationship with zálesíite (Sejkora and others, 1999). The Mixite Group, according to MinDat.org, is a “group of chemically complex, visually indistinguishable arsenates and phosphates.” I have described, in past postings, mixite from the Gold Hill and Tintic areas in Utah.



Above: Photomicrograph, best I could do, of sprays of zálesíite ~1 mm in diameter with green spheres of conicalcrite $[\text{CaCu}(\text{AsO}_4)(\text{OH})]$. With a binoc scope the sprays appear to be pale green in color. Photo: M. Nelson

Zálesíite is the calcium- and arsenate-dominant member of the Mixite Group and forms from chalcopyrite and arsenides in



Above: A sub-millimeter spray of zálesiite with ~2 mm spheres of conicalcrite. Photo: M. Nelson

conditions of supergene zone in-situ weathering (Sejkora and others, 1999). The crystals of zálesiite are: acicular and needle like, very minute (usually less than half a millimeter in length), often forming radiating small masses, generally transparent, very soft (~2-3, Mohs), having a semi vitreous to silky luster, and are said to be pale green in color. However, crystals on the specimen I have are more “pale white” in color and match the photos on Mindat.org of other specimens from Gold Hill. In reality, I am depending on the identification of the Mineralogical Research Company since Mindat.org states, members of the Mixite Group are “often only unambiguously identifiable by quantitative electron microprobe analysis.” This is sort of above my pay grade!

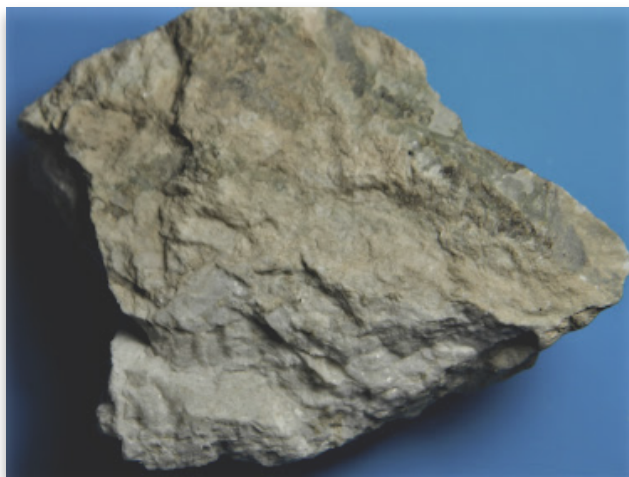
Speaking of Gold Hill — I also picked up another mineral from that locality (collected from Alvarado Mine) at the Show: spadaite. Well, maybe a mineral since Mindat.org offers this opinion: “questionable species with unknown structure. No x-ray pattern has been published in the literature.” However, spadaite has been around for a long time

since its initial description in 1843 from Italy (von Kobell).

The magnesium silicate spadaite $[\text{MgSiO}_2(\text{OH})_2 \cdot \text{H}_2\text{O}(?)]$ is a nondescript, colorless to cream to pinkish, soft (2.0-2.5 Mohs), amorphous, dull, mineral. It forms massive “hunks” with no visible crystal structure that some-times are felted and shreddy, or sometimes dense porcelain-like. Spadaite seems limited to areas of skarn rocks (AKA tactite) where contact metamorphism and metasomatism (“cooks/heat”) affects carbonate rocks. At its type locality in Italy spadaite is associated with leucite-bearing basalt, in Germany with amygdular diabase.

Spadaite was first noted from the Gold Hill area by Schaller and Nolan (1931) as they prepared for Nolan’s seminal paper on Gold Hill (1935): “During the survey of the Gold Hill quadrangle in west central Utah, several specimens of an unusual type of gold ore were collected by one of us (T. B. N.). On microscopic examination these specimens were found to contain considerable quantities of a fine grained shreddy mineral which could be referred only to the very rare mineral spadaite on the basis of optical and chemical.” He noted that spadaite only occurs in the ore shoots and is associated with the siliceous silicates wollastonite, garnet, diopside, and others. He believed that spadaite preferentially replaced wollastonite but was definitely younger than the original calcsilicate, contact metamorphic mineral (CaCO_3). A follow-up paper by University of Utah graduate student H. El-Shatoury and his advisor James Whelan (1970) briefly noted Nolan’s description of spadaite but

preferred to use massive-bladed wollastonite for the major skarn mineral.



Above: A pretty ugly piece of dirty white, massive spadaite that has replaced wollastonite in a skarn deposit.
Photo: M. Nelson

Today one does not see many specimens of spadaite on the market and Mindat.org shows only 8 photos, half of which are from the Alvarado Mine at Gold Hill. So, I would say that it is not an attractive nor popular or common mineral.

REFERENCES CITED

Adams, P.M. (2005): Zalesiite from the Gold Hill Mine, Toole County, Utah: Mineral News, v. 21, no. 8.

Nolan, T.B., 1935, The Gold Hill Mining District, Utah: USGS Professional Paper 177.

Schaller, W.T. and T.B. Nolan, 1931, An occurrence of spadaite at Gold Hill, Utah: American Mineralogist v. 16.

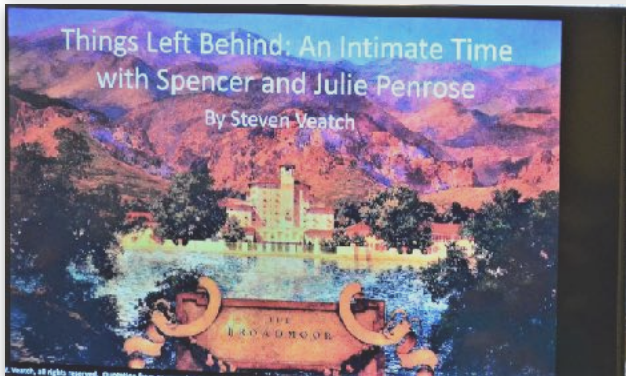
Sejkora, J., T. Řídkošil, and V. Šrein, V., 1999, Zálesiite, a new mineral of the mixite group, from Zálesí, Rychlebské hory Mts., Czech Republic: Neues Jahrbuch für Mineralogie, Abhandlungen v.175.

Shatoury, E.L. and J.H. Whelan, 1970, Mineralization in the Gold Hill Mining District, Tooele County, Utah: Utah Geological and Mining Survey Bulletin 83.

von Kobell, F., 1843, Ueber den Spadaït, eine neue Mineralspecies, und über den Wollastonit von Capo di bove: Journal für Praktische Chemie v. 30.

CSMS General Assembly

Mt. Carmel Veteran Service Center
530 Communications Circle, Colorado Springs CO 80905
17 Mar 22



CSMS General Assembly Thursday, March 17, 2022

We were treated to an evening of personal memories, charged with emotion, as club member Steve Veatch shared an intimate look into the lives of Spencer and Julie Penrose through stories, historic photographs, and artifacts from when Steve's grandfather was the private secretary for Spencer Penrose and later Julie Penrose. We learned, through Steve's excellent presentation, of just how huge an impact Spencer and Julie Penrose had on Colorado Springs.

Steve Veatch has generously donated the majority of the Penrose artifacts which had been passed down to him to a variety of local historical institutions to ensure these important memorabilia stay in the local area to be shared with future generations. Thank you, Steve.

Pics and report by Frank Rosenberg



Pike's Peak Gem & Mineral Show

Presented by the Colorado Springs Mineralogical Society
June 10-12 2022, 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:

--

<input type="checkbox"/>	I will bring my own display	Your case length:	# of cases:
<input type="checkbox"/>	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 8 PM on Thursday June. 9 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 his person for any cause and all claims for injury are expressly waived by the exhibitor.

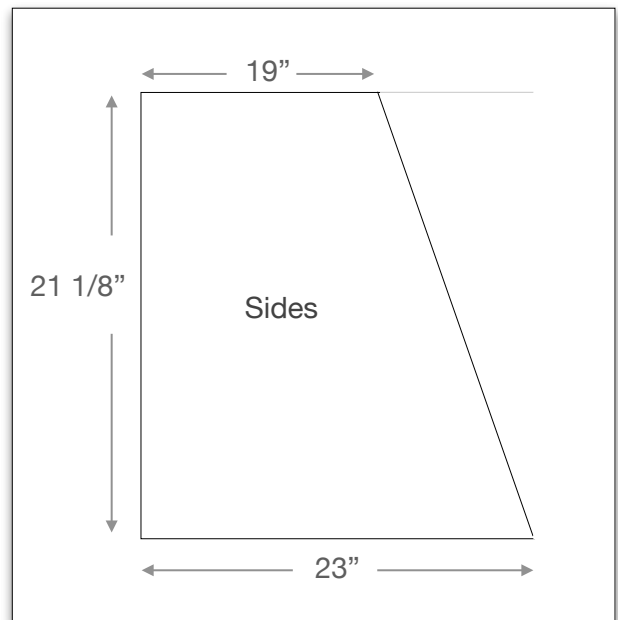
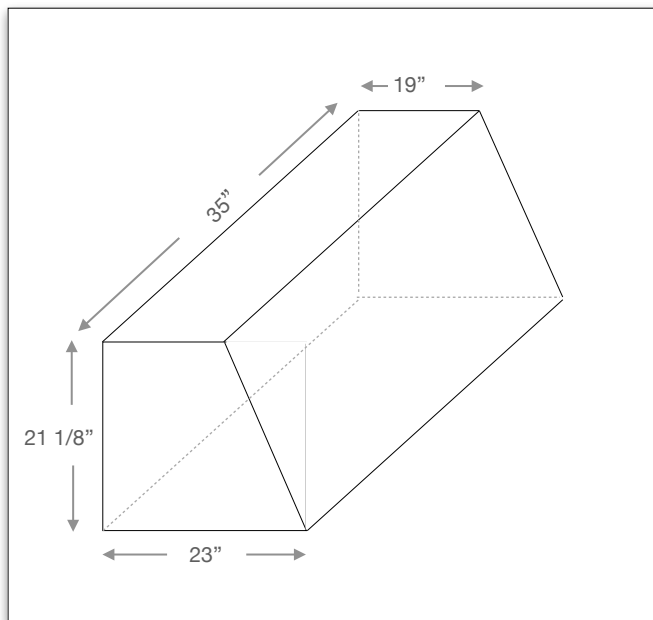
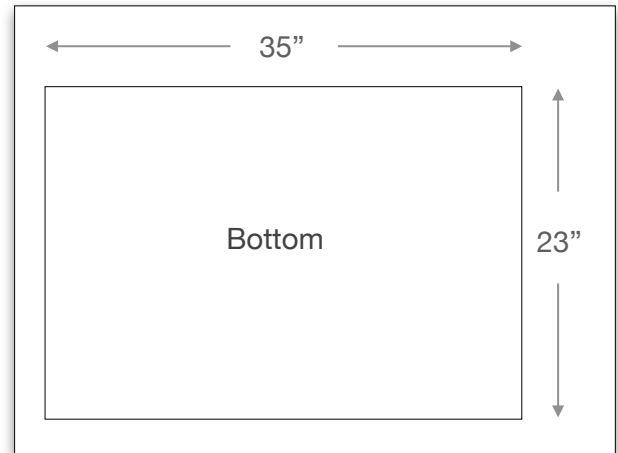
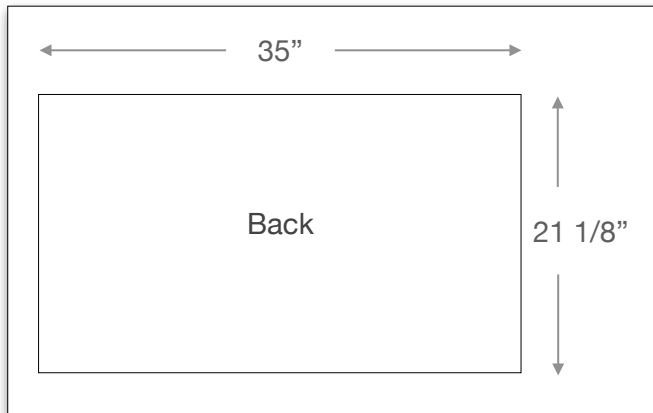
Pike's Peak Gem & Mineral Show

by the Colorado Springs Mineralogical Society

June 10-12 2022, 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

The Colorado Springs Mineralogical Society Case



All measurements are inside measurements. However, since all cases are handmade there may be some slight variations in the cases. Be sure to bring any necessary tools required to make adjustments to your liners. Also remember to allow for thicknesses of your liners to make the final fit.





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.

Fossil Group 2022

The Fossil Group will be starting back up on Wednesday April 6, 2022. The first meeting will be at the Ruth Holley Library, located at 685 N Murray Blvd. The meeting time will be 6 PM to 7:30 PM.

Following meetings will be at the East Library, located at 5550 N Union Blvd on May 3, and June 7. These meetings will also be from 6 PM to 7:30 PM. The meetings are starting at 6 because the libraries close at 8 PM.

All interested members are welcome to join.

Silent and Verbal Auction

Colorado Mineral Society
Saturday May 7, 2022

Location: Wheat Ridge United Methodist Church, 7530 W. 38th Ave, Wheat Ridge CO.

Time: 12:00 PM to 4:30 PM; Checkout will begin at 3:30 PM.

Minerals, fossils, faceted stones, lapidary equipment and materials, books, jewelry, and fluorescent minerals

- Door prizes every half hour, raffle at 3:15 PM
- Verbal auction at 1:00 PM of museum quality specimens donated by supporters
- Special direct sale area of rocks and minerals, including bulk material, will occur during the auction; buy and carry home! Cash only
- One or more auction tables reserved for only children to bid on
- Special fluorescent minerals room
- Free parking and easy handicap access
- Limited refreshments so, if needed, bring your lunch
- Cash, Check, and Credit Card will all be accepted at the auction

A special invitation is extended to non-CMS members to participate as sellers and buyers

Contact Leslie Osgood, for a bidder number and/or seller letter, preferably by email at jandlosgood@gmail.com or at 303-986-4488 (leave a message and she will call you back).

General questions about the auction should be directed to Lesley Sebol by email at: lesleysebol@gmail.com

Classifieds and Announcements

Field Trip: Utah with Marge Regel

May 21-26, 2022

Contact: marjory.regel@yahoo.com 719-650-8148

Itinerary - 5 different areas

1 day: Grand Junction – Book Cliffs barite

2 days: Yellow Cat - agate, redwood, and barite pseudomorphs, and black/white wood

2 days: San-Rafael Swell area - celestine, grape agate

1 day: Crystal Geyser (6 miles out of Green River) – travertine “buttons” that have precipitated out of the overflow geyser, which goes off every 2 or 3 days (not predictable). It is a coldwater geyser that goes off 2-3 feet in the air; used to go 20 feet plus. May go 4-5 miles further to look for barite pseudomorphs as there is the Morrison formation that way. I only scouted it once as was told it was there and I found a few as it was late and a fellow that lives a mile from the geyser told me about it, but I was limited on time.

Instructions

All trips meet at 7:45 AM. Please be ready to leave at 8:00 AM, as we have to drive to get to locations. I will be staying in Green River motel May 22-26, so if dry camping you won't have to stay in Green River on May 22, 23, or 25. There's a state campground in middle of Green River which you can pay and stay, but make reservations as I'm told it's busy.

May 21: Meet at Super 8 motel parking lot in Grand Junction (Exit Horizon Dr. off I-70, on south side of I-70). A gas station and Green Pastures restaurant are across from Super 8 motel.

May 22 and 23: Meet at Exit 193 about 70-75 miles West of Grand Junction off I-70. Large parking space and then it turns into a dirt road. Yellow Cat-Cisco exit. We will be on south side of I-70 for prep meeting. There is a gas station at Thompson Springs, Exit 187, so make sure to fill up with gas before you head out to Yellow Cat.

May 24 and 25: Meet at Green River West exit at the Loves Convenience Store on the south side of Main Street. From there we will go to San Rafael Swell area. You can dry camp in the San Rafael Swell area that night as we will come back to the same place on the second day. I will be in Green River both days and meet at the gas station West exit as the day before.

May 26: Meet near the Green River East exit at the Conoco gas station/Burger King. We will travel to Crystal Geyser (6 miles out of Green River).

These trips are flexible, because there's lots to find and if you want to stay in one area, just let me know. Let me know if you want to drop out any part of the trip as I want to be sure everyone is safe and accounted for. You can sign up for just one day trip or multiple day trips.

Sign Up Instructions

Call Marge Regel 719-650-8148 or email marjory.regel@yahoo.com until April 30th to sign up for any or all the trips. NO SIGN UP AFTER MAY 1st. I don't check my computer every day so phone would be best and leave a message if I don't answer. My vehicle is a Silver Toyota RAV4.

Here is the information I need when you sign up:

Name:

Phone:

Email:

Vehicle Make and Model:

License:

In May, I will send out the contact information for those that have signed up for the trip so you can set up your own carpools, if needed.

Weather

We will not go to these areas if it rains as it's not drivable. There are other places to visit if it rains, so don't be discouraged. Also dress for any kind of weather as hot, cold, etc. changes with little warning. Bring bug juice, water, food, sunscreen, hat, and your favorite book.

Cell Service

Remember not all areas have cell service, so if you need to cancel, do it early. I can check phone messages in the evening back at the motel, if needed.



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.rmfmms.org