



THE BULLETIN OF THE COLORADO SPRINGS MINERALOGICAL SOCIETY Published Since 1960

Colorado Springs Mineralogical Society

Founded 1936

~ Lazard Cahn ~

Honorary President

"Pick & Pack"

Volume 64 No. 4

May 2024

CSMS General Assembly

Thursday, May 16, 2024 7:00 PM
Colorado Springs Christian School
4855 Mallow Road

Nicolas Sandoval

Geologist, Mining Law Program Lead

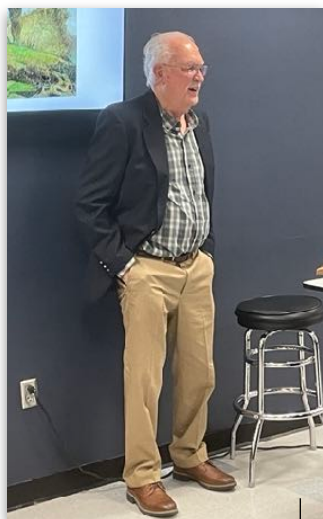
"Filing a Claim and Other Rockhounding Topics"

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

In This Issue ...

Business/ Upcoming Events	2 - 5
Article - Mike Nelson, <i>Galkhaite: an Uncommon Mercury, Cesium, Thallium Sulfosalt</i>	6-10
Report: General Assembly	11
Article - Steven Veatch, <i>Through the Lens of History: The Photography of William J. Gillen in Cripple Creek's Early Years</i>	12-20
Trip Report - RMH by Kyle Atkinson	21
Pebble Pups	22
Classifieds - Field Trips	23

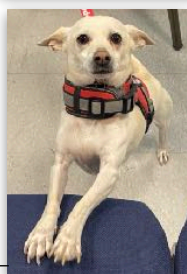
WHAT'S INSIDE . . .



Mike Nelson's Talk



Pebble Pup's Outreach



Buddy the Rockhound

Early bird rockhound
and her buddy
"Potato"



COLORADO SPRINGS MINERALOGICAL SOCIETY PO BOX 2 COLORADO SPRINGS, COLORADO 80901-0002
Visit our website: <http://www.csms1936.com/>

CSMS Group Calendar

May '24 Jun '24

8 May	12 Jun	Fossil Group	2nd Wed	6:00 PM	East Library Annex	Kristine Harris Richard Villareal	719-593-1524 831-760-6985
2 May	6 Jun	Board Meeting	1st Thur	6:00 PM	Zoom	Alex Field	719-351-4897
7 May	4 Jun	Pebble Pups	1st Tue	4:15 PM	East Library	David St. John	719-424-9852
16 May	20 Jun	General Assy	3rd Thur	7:00 PM	Co Sp Christian Sch	Alex Field	719-351-4897
23 May	27 Jun	Crystal Group	4th Thur	7:00 PM	Co Sp Christian Sch	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 18: 12:00-3:00 PM, Colorado Chapter, Friends of Mineralogy Silent Auction, held at Wheat Ridge United Methodist Church, Exhibition Hall, 7530 W. 38th Ave. (just east of Wadsworth). All are welcome to attend, and to bring specimens to sell in the auction (minimum donation of 20% of selling price to the club). Setup begins at 11 AM; there will be a vocal auction as well as silent auction tables.

June 7-9: Pikes Peak Gem and Mineral Show, at the Norris Penrose Event Center, 1045 Lower Gold Camp Road, Colorado Springs, sponsored by the Colorado Springs Mineralogical Society. Fri 10 AM-6 PM, Sat 10-5, Sun. 10-4.

June 13-16: A Mineralogical Symposium, sponsored by the Colorado Chapter, Friends of Mineralogy: "Mineral Oddities: Pseudomorphs, Twinning, Inclusions, and more." As has been previously announced, the Friends of Mineralogy Colorado Chapter will be hosting a symposium in 2024. The 2024 Symposium webpage is now live, with dates and preliminary details: <https://friendsofmineralogycolorado.org/symposium/>. The symposium will include field trips on June 13, a mineral photography workshop on June 14 conducted by Jeff Scovil plus an evening reception at the Colorado School of Mines Museum, and lecture sessions on June 15 + half day June 16. The lecture sessions will take place in Berthoud Hall, CSM campus. All interested persons will be welcome to register to attend. For more information about the symposium as it becomes available please see the FMCC website.

July 25-28: Fairplay Gem, Mineral, and Jewelry Show; Platte Drive, ½ mile west of US-285, Fairplay, CO; free admission and parking.

Aug 8-11: Buena Vista Contin-Tail Gem, Mineral, and Fossil Show, Buena Vista Rodeo Grounds; free admission and parking.

Aug 15-18: Woodland Park Gem & Mineral Show; located outdoors off US-24; free admission and parking.

Aug. 16-18: Lake George Gem & Mineral Show; located outdoors off US-24; free admission and parking. Sponsored by the Lake George Gem & Mineral Club.



Federation News Post

American Federation of Mineralogical Societies
Rocky Mountain Federation of Mineralogical Societies




Cache Rock & Gem Show 2024

May 17, 18, 19
Adults \$3.00, Family \$10.00,
12 and under free

Friday & Saturday 10:00 a.m. - 7:00 p.m.
Sunday 10:00 a.m. - 6:00 p.m.

Cache County Events Center
450 South 500 West, Logan, Utah

Rocks, Minerals, Fossils, Jewelry, Displays
Educational Exhibits, Demos, Supplies
Vendors, Door Prizes, Concessions

Activities for the kids:
Wheel of Fortune, Mystery Bags,
and Gem Dig

Fabulous Fluorescence
cacherockandgemclub.com



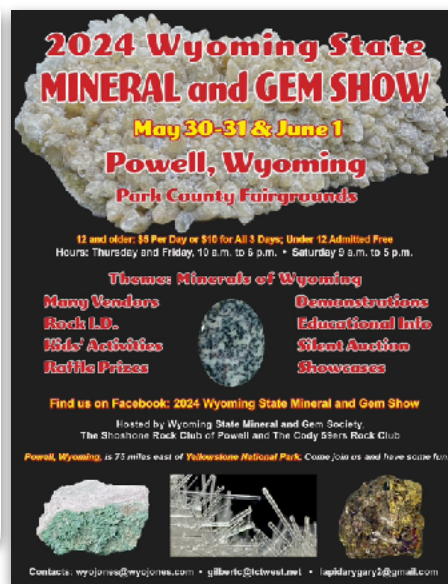
**FRIENDS OF MINERALOGY
COLORADO CHAPTER
2024 SYMPOSIUM**

MINERAL ODDITIES
Twining, Pseudomorphs,
Inclusions, and more!

June 15th - 16th, 2024, at the Mines Museum
of Earth Science at Colorado School of Mines
in Golden, Colorado

Scan me for more
information and to sign
up for the mailing list!

friendsofmineralogycolorado.org/symposium



**2024 Wyoming State
MINERAL and GEM SHOW**

May 30-31 & June 1
Powell, Wyoming
Park County Fairgrounds

12 and older: \$5 Per Day or \$10 for All 3 Days; Under 12 Admitted Free
Hours: Thursday and Friday, 10 a.m. to 6 p.m. • Saturday 9 a.m. to 5 p.m.

Themes: Minerals of Wyoming

Many Vendors
Rock L.I.B.
Kids' Activities
Raffle Prizes

Demonstrations
Educational Info
Silent Auction
Showcases

Find us on Facebook: 2024 Wyoming State Mineral and Gem Show

Hosted by Wyoming State Mineral and Gem Society
The Snakebite Rock Club of Powell and The Cody 55ers Rock Club

Powell, Wyoming, is 73 miles east of Yellowstone National Park. Come join us and have some fun!

Contact: wyojones@wyojones.com • gilbert@rockminerals.com • lapidarygary2@gmail.com



**The 4th
PHOENIX HERITAGE
MINERAL SHOW**

Largest, Quality
Mineral Show in
the Phoenix Area!

JUNE 1st & 2nd 2024
PHOENIX SHRINE AUDITORIUM
532 NORTH STREET, PHOENIX, AZ 85004

For more information: www.phxhermineralsociety.org



**41st Annual
GEM & MINERAL SHOW**

July 27-28, 2024

SATURDAY 9 AM - 5 PM • SUNDAY 9 AM - 3 PM

Admission: \$4 per day • Children 12 and under FREE with paying adult

Hosted by: WESTERN DAKOTA GEM & MINERAL SOCIETY

CENTRAL STATES FAIRGROUNDS, Rapid City, SD
NERDY NUTS EXPO HALL

• Dealers offering Rock, mineral & fossil specimens
• Free Rock and Mineral Identification

• Silent Auction
• Children's Activities
• Hourly Door Prizes

• Panning for Gold
• Exhibits/Fluorescent Display
• Grand Prize Drawing

For more information: WestDakotaRocks@gmail.com

www.WDGM.S.org



**Sublette County Rockhounds
present their 8th annual
Gem & Mineral
Show**

June 14 - 16, 2024

Friday & Saturday, 9am - 5pm
Sunday, 9am - 3pm

**Sublette Co. Fairgrounds
Event Center, 10937 Hwy 351
Big Piney, Wyoming**

**Vendors: Opals, jade, jewelry, slabs, cabs, rough rock,
decorative items, fossils, specimens, & more!**

Demonstrators Raffles Exhibits Door Prizes

Mr. Bones Dinosaur puppeteer Kid's Activities

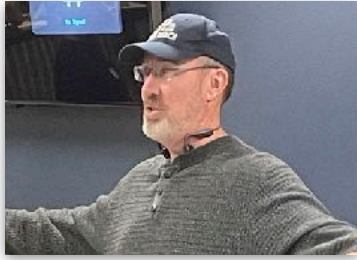
Contact: [Jim Gray jimgray@wyoming.com](mailto:JimGrayjimgray@wyoming.com) or [Mike Schaffer mschaffer1@gmail.com](mailto:MikeSchaffer.mschaffer1@gmail.com)

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.

Secretary's Spot

John McGrath



2024 CSMS Officers

Alex Field, 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
John Massie, Past President

2024 CSMS Chairpersons

Shane Riddle, Program Coordinator
John Massie, Show Vol Coordinator
Kyle Atkinson, Field Trip Coordinator
Vacant, Science Fair Chair
Frank and Ellie Rosenberg, Librarians
Tina Cox, 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 18 Apr, Colorado Springs Christian School

Address: 4855 Mallow Rd, Colorado Springs CO 80907

Board Attendance: President: Alex Field, Past President: John Massie, Secretary: John McGrath, Member-at-large: Chris Burris, Member-at-large: Bill Meyers, Editor: John Emery.

Agenda:

- I. Meeting was called to order by our President Alex Field at 7:09 PM
- II. The Pledge of Allegiance was led by our President
- III. Introduction of Guests: None
- IV. Introduction of New Members: Joe Hardebeck, Jason Zots (signed up at the meeting on our new membership/field trip website)
- V. Program Speaker - Mike Nelson, Tales from Yooperland. Excellent, Entertaining and Informative as always.
- VI. Recent Finds - Mark Mann discussed finding a Smoky Quartz pocket in the Fern Creek area by tracking partial crystals or facets along a ridge line and then deep to a pocket.
- VII. Meeting - There were 41 members/guests in attendance and 8 minerals were given out.
- VIII. Officer Reports
 - A. President - Meeting - There were 41 members/guests in attendance and 8 minerals were given out.
 - B. Vice President - Shane Riddle, VP, Absent
 - C. Treasurer - Ann Proctor- Absent
 - D. Secretary - John McGrath - Present, He reported that the WMMI will be joining us on 11 May at the April Fools claim.
 - E. Membership Secretary - Adelaide Bahr, absent
 - F. Editor - John Emery. Present, He requested that folks send pictures from their trips and digs.
 - G. Members at Large
 1. Bill Myers - Present, no report
 2. Chris Burris - Present, no report
 - H. Past President - John Massie, Present, He stressed the need for everyone to volunteer to support the Mineral and Gem show in June.
 - I. Website and Show Coordinator - Lisa Cooper, present. She reported that all the booths have been filled and that she is working through a long waiting list of vendors for some additional space that is available.

IX. Satellite Groups

- A. Crystal Group - Kevin Witte and Austin Cockrell present. They reported that the next meeting would occur on Thursday night at CSCS at 7pm. The Topic would be Pyrite.
- B. Faceting Group - John Massie has 3 members signed up for lessons. Contact him for classes. He also stated that he has a donated display case looking for a good home.
- C. Pebble Group -David St John, Present. Thanked everyone for the donations.
- D. Fossil Group - Fossil Group -Kristine Harris and Richard Villareal. Working on getting display cases at the East Library on Union Blvd.
- E. Jewelry Group - still in need of a Chairperson.
- F. Lapidary Group - Sharon Holte, Present

X. Liaisons

- A. Claims - Frank Rosenberg and Mike McCarty, absent
- B. Field Trip Coordinator - Kyle Atkinson, Present. He has a Baculite Mesa trip lined up for 04 May and an 11 May April Fools Claim trip.
- C. Social Coordinator - Tina Cox, Present. Not here next month, so she encouraged everyone to bring food and noted that much of the equipment is stored in CSCS.
- D. Store Keeper - Ann Proctor. Absent

XI. Unfinished Business - None discussed.

XII. New Business - None discussed

XIII. Meeting adjourned by President Alex Field at 8:45 PM

RESPECTFULLY SUBMITTED by **John M McGrath** MD COL (RET) USA

President's Corner

Alex Field
CSMS President



2024 Satellite Group Chairs

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

2024 Liaisons

Florissant Fossil Beds National Monument:
S.W. Veatch
Western Museum of Mining and History:
S.W. Veatch



Presidential Matters



Happy May friends!

Summer is almost here in Colorado, and you all know what that means: Digging Season is upon us. The snow is starting to melt and the mountains are opening for us to begin prospecting again—I hope you're all as excited as I am to be back out in the wilderness getting some dirt therapy and looking for cool mineral specimens.

We have a few updates this month to share:

SILENT AUCTION DONATION - In early June we have our 60th Annual Gem, Mineral, and Jewelry Show and we need mineral donations for our Silent Auction. If you have mineral specimens you'd like to donate, please bring them to our next General Assembly meeting on May 16 at 7 pm at the Colorado Springs Christian School. Or you can email Frank Rosenberg (fs_rosenberg@hotmail.com) and drop any donations off at his house. Remember: Proceeds from the Silent Auction go toward student scholarships and other society programs for members.

JEWELRY GROUP - Good news for all you wire-wrappers, beaders, and jewelry makers. We are restarting the CSMS

Jewelry Group next month (June), and the group will be led by Jen Barglowski. Keep an eye out for more details: We will share updates and meeting days/times through the Pick & Pack, on the website, through Facebook, and at upcoming meetings.

FIELD TRIPS - Our field trips have kicked off for the year, including a recent successful trip to Baculite Mesa, which saw a huge number of members out digging for amazing fossils. Some of those members will be bringing some of their finds to the General Assembly meeting on May 16th to show off. Check out our Field Trips website (<https://csms.tectonictreks.com>) to sign up for and find out more details on upcoming field trips for this Summer.

That's it for this month—I am looking forward to seeing all of you in person soon! :)

Warm Regards,
Alex

Alexander Field
alexfield1@gmail.com

Galkhaite: an Uncommon Mercury, Cesium, Thallium Sulfosalt

Mike Nelson
csrockguy@yahoo.com



Most rock and mineral shows that I attend have at least one dealer who displays colorful orange, red, yellow, and mixed-color specimens for sale. These vivid minerals often draw looks and attention and much reaching for their money stash, especially when children are asking for a purchase. Then an honest dealer will explain to the prospective buyer that the red to red-orange specimens are realgar (As_4S_4) while the orange yellow to yellow specimens are orpiment (As_2S_3); both are arsenic sulfides, and both are toxic. Therefore, care must be taken when handling these specimens, especially by children, and by adults who are not fond of scrubbing their hands after handling minerals.

These two arsenic sulfides are always associated with each other in nature. Both have nonmetallic lusters but may have adamantine (especially realgar) to resinous lusters (especially orpiment) and are quite soft at ~1.0–2.0 (Mohs). Orpiment is photo-



Above: Realgar (top); width ~3.0 cm., and orpiment (lower); width ~3.6 cm. from the "Getchell" Mine. Photos: M. Nelson.

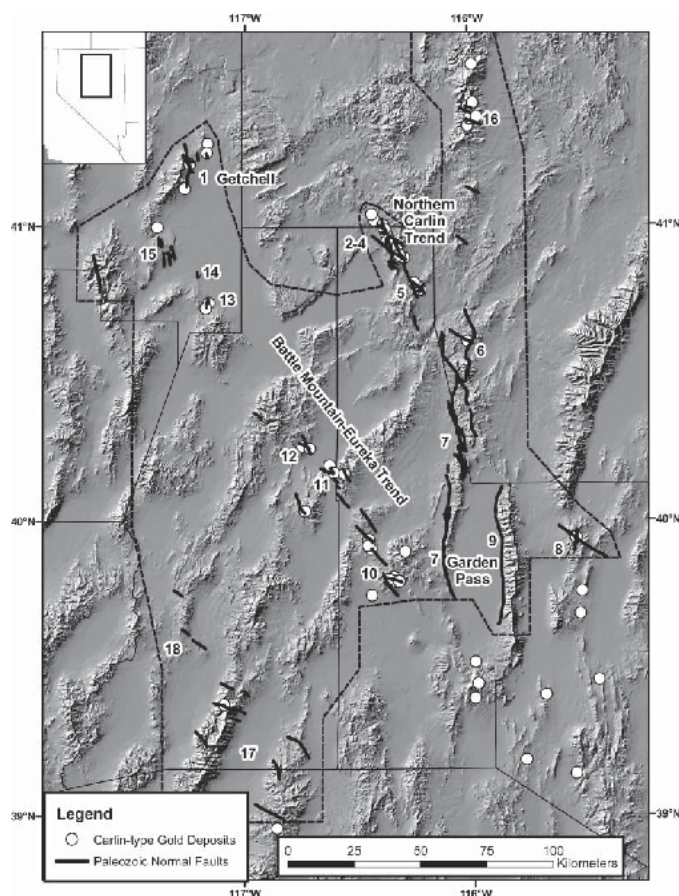
sensitive and over time will degrade into a friable, white arsenic oxide. In past centuries orpiment was used as a lemon-yellow pigment for paintings by many of the masters. However, these oxides are quite soluble in moisture of any kind and their migration to the surface on the works of art caused a color change. Today, conservators seem constantly at work trying to protect these oil paintings by limiting exposure to strong light, controlling humidity, and discontinuing the use of water-based cleaners.

Realgar, AKA ruby sulfur, almost always occurs in the same rocks as orpiment, and many times in the same individual specimen. Besides the vibrant red color, realgar differs

from orpiment is that the soft mineral may be cut with a sharp knife (known as a sectile property) into thin strips and pieces. In non-crystalline specimens, realgar may be granular or powdered or incrusting. It burns with a blue flame and releases arsenic and sulfur fumes that smell like garlic (remember toxic). In our basic mineralogy class, we were not allowed to subject realgar to a blowpipe analysis due to the prospect of inhaling the toxic fumes. I doubt if blowpipe analyses with charcoal, along with flame tests, are even noted in a beginning mineralogy class today. It is much easier to stick samples in an electronic gizmo and receive accurate results.

Like orpiment, realgar is very photosensitive and degrades into orange yellow pararealgar (As_4S : same elemental composition as realgar but different internal structure), or arsenolite (arsenic trioxide As_2O_3), or orpiment.

There is a good chance that the arsenic sulfides noticed at various shows were collected at the Getchell Mine in Humboldt County, Nevada, about 35 miles northeast of Winnemucca on the east side of the Osgood Range. The Osgood Range is a typical Basin and Range uplift trending north-south defined by narrow faulted mountain ranges with adjacent rather flat basins—a horst and graben topography with normal faults (Muntean and others, 2007). This landscape is largely due to extensional tectonics (pull-apart) of the later Tertiary (Miocene, ~17 Ma and probably continuing) after a lull in the previous extensive volcanism. However, later work by Berger and Taylor (1980) identified a much earlier (~Late Cretaceous) complex fault system on the east flank of the Osgood



Above: The Getchell Mine is located in the Osgood Mountains, a typical Basin and Range feature as noted in this shaded relief map of north-central Nevada. The map also delineates the locations of Carlin-type gold deposits and Paleozoic normal faults (Muntean and others, 2007).

The Osgood Mountains have a thick Paleozoic section of sedimentary rocks that formed on the shallow water Continental Shelf off the North American craton. However, the mountains are cored by Cretaceous igneous plutons (notably the Osgood Mountain Granodiorite Stock) that were exposed in the horsts of the Basin and Range Orogeny. The entire section is then unconformably overlain by late Tertiary volcanic rocks (Chevillon and others, 2000). Both the Osgood Mountains Stock and the Getchell Fault System are critical to this story.

Early prospectors nosing around the Osgood Range were initially interested in copper, silver and lead associated with skarn dep-

osits of the Osgood Stock (in this case the Granodiorite Stock intruded the older continental-margin carbonate layers). Instead, they located skarn related tungsten and mining started in 1916 and with starts and stops lasted until the late 1950s.

However, gold was the commodity most in demand and was finally discovered ~1933 at what is now termed the Getchell Mine and brought into production in 1938. Originally gold was produced from roasted sulfide and oxide ores and the Getchell site produced nearly 800,000 ounces until production was suspended after World War II. Someone also got the bright idea to collect the arsenic produced from the roasting of the sulfides. Great idea since around 1943 U.S. government restrictions shut down many/ most non-essential gold (and other) mines. However, arsenic was considered a strategic mineral and Getchell continued operation. That led to another bright idea and in 1942 Getchell increased their production of tungsten from the mineral scheelite (CaWO_4). One of tungsten's major uses in WWII was the hardening of steel and it was critical for the war effort. Production dropped off after the War but continued sporadically until the late 1950s when the U.S. government terminated the "tungsten purchase program" (Defense Production Act). The production of gold after the War was off and on from both open pit and underground mines (Getchell, Turquoise Ridge, North Zone, Twin Peaks, and others) as well as heap leaching of the earlier accumulated dumps. Core drilling in the 1990s convinced mining geologists that large reserves of gold were present in the area but tied up in Carlin-type deposits defined as Cambrian/ ?Ordovician sedimentary rocks with sub-micron sized

gold found on arsenic-rich rims of pyrite and marcasite with the richest deposits found along intersecting mid-to late Paleozoic fault zones. The sources of the gold were hydrothermal fluids associated with the Osgood Pluton and associated dikes with mineralization during two events: 1) ~83Ma [may actually be older] during emplacement of the pluton (minor event); and 2) major mineralization in the Eocene (Chevillon and others, 2000). That information was followed in 2019 by the formation of Nevada Gold Mines LLC, a joint venture by two giants of mining Carlin-type deposits: Barrick Gold Corporation (61.5% and the operator) and Newmont Corporation (38.5%). Officially the Turquoise Ridge Project (popularly known as Getchell), is composed of Turquoise Ridge Underground, Vista Underground, and the Turquoise Ridged Surface mines (Turquoise Ridge Complex Technical Report NI 43-101 – March 25, 2020). I could not locate the current production figures.

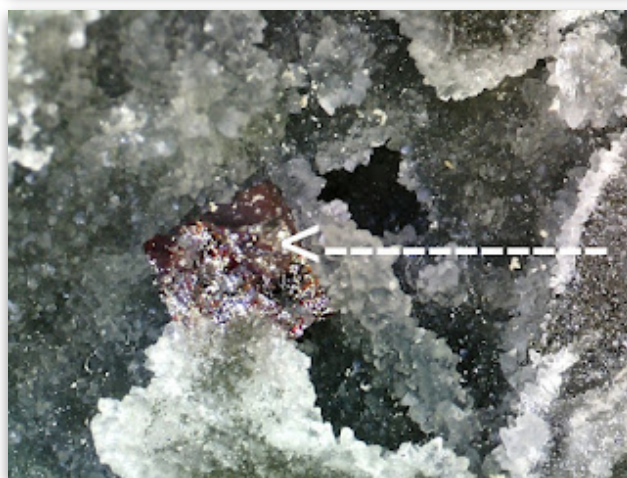
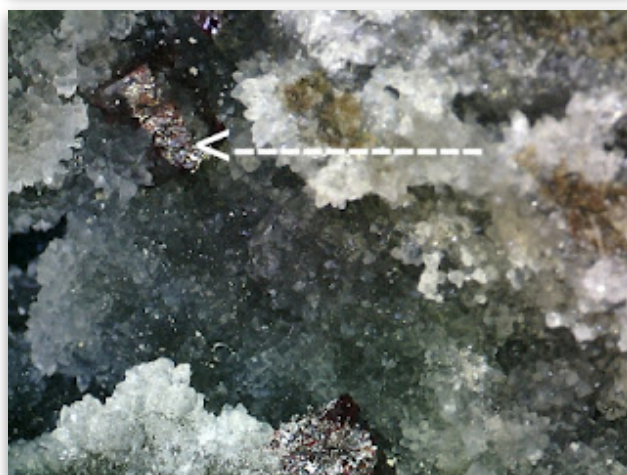
MinDat listed 93 valid minerals, including one Type (getchellite, AsSbS_3), and an impressive number of commodities (gold, silver, arsenic, tungsten, antimony, mercury, barium-barite, molybdenum, fluorite, thallium, tellurium, bismuth, tin, lead, zinc, and copper) from the Getchell Complex. Besides the commodities and associated gangue minerals, the Complex is noted for the large number of colorful mercury and arsenic minerals like common arsenopyrite, cinnabar, realgar, and orpiment but also rare mercury minerals such as coloradoite, getchellite, laffittite, and galkhaite (USGS, retrieved November 2023).

As noted earlier my interest in the Getchell centers on the arsenic and mercury minerals, and for a "long time" I wondered why these

minerals crystallized at the Complex. My “knowledge” of geochemistry is a little weak, well actually quite weak, and that question really bugged me. What I do know is that hydrothermal fluids associated with the Osgood Pluton: 1) supplied the elements; 2) “As-W-Hg anomalies occur in rocks and soils over the arsenic-gold deposits and that these anomalies are not broad haloes but are restricted to the mineralized area” (Retrieved from MinDat November 2023 but original publication unknown) and 3) it has long been speculated that the origin of the many heavy metals such as Au, Hg, Sb, and Tl found in anomalous quantities in sediments in Carlin-type systems were originally derived from biogenic concentration (2011 MinDat paper authored by Phil Persson).

One of the more interesting mercury minerals from the Getchell Complex is galkhaite $[\text{Hg}_5\text{Cu})\text{CsAs}_4\text{S}_{12}]$, a rare and complex sulfosalt (a sulfide with both metals {cesium, thallium, mercury, copper, and zinc} and semi-metals {arsenic and antimony} as cations). According to the Handbook of Mineralogy and Webmineral, it is the only known natural cesium-mercury and cesium-arsenic phase (Chen and others, 1981). Throw in the thallium and my sparse geochemical knowledge really lights up: $\text{Cs}_{0.6}\text{Tl}_{0.4}\text{Hg}_{3.5}\text{Cu}_{1.5}\text{ZnAs}_{3.6}\text{Sb}_{0.4}\text{S}_{12}$. (Empirical formula from Webmineral). Although galkhaite was originally described from mercury deposits in Kirgizia, Russia, it is best known from the Getchell Complex and other Carlin-type rocks in Nevada.

Galkhaite, like many other mercury minerals, is red in color, usually a dark cherry red or dark orange. It belongs to the Isometric Crystal System (all three axes are equal in length and meet at right angles to each other to form a cube). Galkhaite is soft (~3.0 Mohs)



Above: Submillimeter, dark cherry red cubes of galkhaite from the "Getchell Mine." Photos: M. Nelson.

and the opaque crystals have an adamantine luster, an orange-yellow streak, and an uneven fracture. In other words, it would be easy for an ole plugger like me to confuse galkhaite with other mercury-rich minerals.

I also noted a 2011 MinDat paper authored by Phil Persson of Denver that “galkhanite is an important mineral for use in radiometric dating of Carlin-type deposits. Galkhaite is a trace mineral in at least four Carlin-type Nevada deposits and contains significant amounts of Rb and virtually no Sr, making it an ideal candidate for radiometric dating. Galkhaite from the Getchell Mine in the Potosi (Getchell) Mining District, Humboldt County, Nevada, was analyzed using Rb-Sr isotope dating techniques, and was found to be ~39.5 Ma [indicating the time of mineralization].”

REFERENCES CITED

Burger, B.R. and B.E. Taylor, 1980, Pre-Cenozoic normal faulting in the Osgood Mountains, Humboldt County, Nevada: *Geology*, Vol.8, No. 12.

Chevillon, V., E. Berentsen, M. Gingrich, B. Howard, and E. Zbinden, 2000, Geologic overview of the Getchell gold geology, exploration and ore deposits, Humboldt County, Nevada: Geological Society of Nevada Symposium Geology and Ore Deposits: The Great Basin and Beyond.

Chen T. T. , J.T. Szymanski, 1981, The structure and chemistry of galkhaite, a mercury sulfosalt containing, Cs and Tl: *The Canadian Mineralogist* , Vol. 19.

Muntean, J., M. Coward, and C. Tarnocai, 2007, Reactivated normal faults: Controls on the formation of Carlin-type deposits in north-central Nevada: Geological Society, London, Special Publications 272.

USGS, 2023, https://mrdate.usgs.gov/mrds/show-mrds.php?dep_id=1031033

About the Author



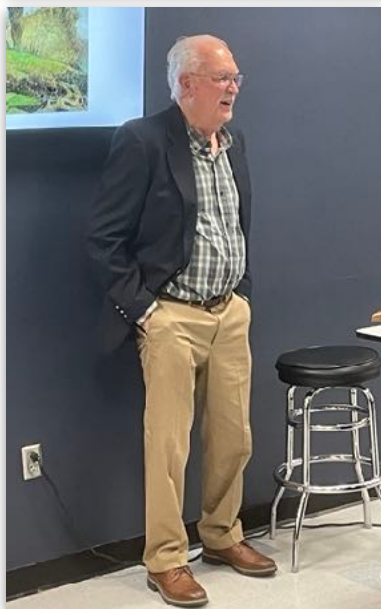
Mike is a former University professor and administrator who enjoys outdoor activities, and writing articles for the *Pick & Pack*, other rock and mineral clubs, and the Newsletter of the Rocky Mountain Federation of Mineralogical Societies (www.rmfmts.org). He also writes, and occasionally speaks, about 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.

CSMS UNDERGRADUATE RESEARCH GRANTS

Mike Nelson
csrockguy@yahoo.com

CSMS colleagues: I am pleased to announce that our club has reinstated the Student Research Grant Program that has been paused since the start of the “pandemic.” In years past the program was extremely successful and offered awards to students who later presented their research results at professional meetings and often published in respected professional journals. In both instances CSMS received much positive recognition from the national geological and rockhound communities. The application form describing the program may be located on the CSMS website at www.csms1936.com or by contacting Mike.

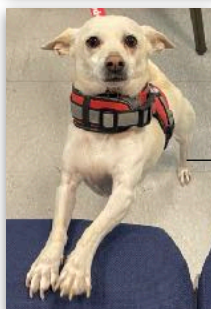
The primary goal of the Colorado Springs Mineralogical Society (CSMS) Student Research Grant Program is to promote and support original research on Colorado geology by **undergraduate students**. The grant program does not seek to cover all the researcher's expenses but instead should be viewed as a professional endorsement of the research endeavor. Requests for grants are judged on how well the proposed research will advance the science of geology and its related branches **within the State of Colorado**. Since the grant program budget is not anticipated to be large enough to fund every research proposal, the grants will be awarded on a competitive basis.



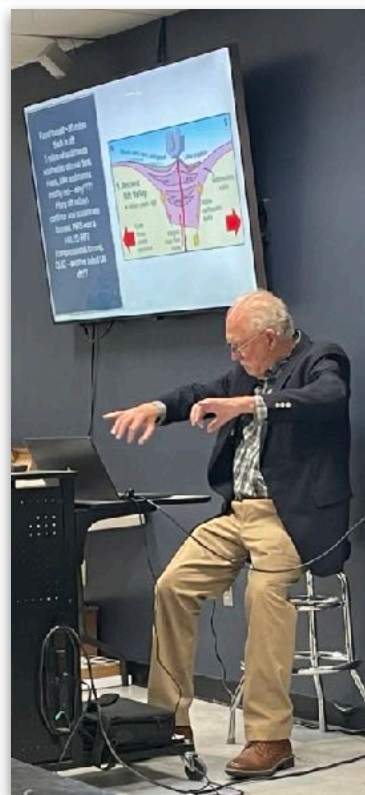
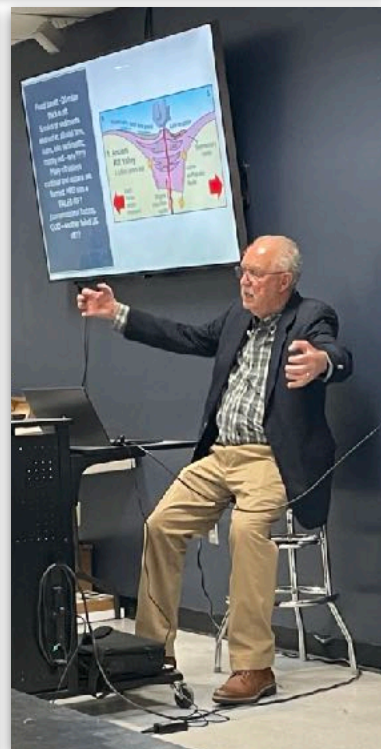
General Assembly 18 Apr 24

39 hardy rockhounds gathered at Colorado Springs Christian School on a ch-chilly Thursday night for CSMS general assembly 18 April 2024. The speaker was Mike Nelson. Mike taught us where Yooperland is, the “trolls” that live there and the types of gems and minerals found in the upper peninsula. Thanks Mike!

We also did regular business and gave out free gems and minerals to guests. Alex Field, Mark Mann and Super Rockhound John McGrath talked to us about the “rock stalk” activity. Sign up for the next rock stalk with John McGrath. It’s focused on the hunt more than the dig. Happy hunting!



Buddy the
Rockhound



Through the Lens of History: The Photography of William J. Gillen in Cripple Creek's Early Years

By Steven Wade Veatch

A photograph is a moment of time captured forever. It is a glimpse into the past and a reminder of the present — Unknown

Little is known about William J. Gillen, who worked in Denver, Colorado as a photographer, starting perhaps as early as 1885.¹ One of the things that he left behind was an intuitively and masterfully made collection of photographs of the early days of the Cripple Creek mining district.

Near the end of 1890, while Gillen was taking pictures in Denver, Bob Womack filed his El Paso lode claim in what was to become the Cripple Creek mining district. News spread beyond the hills of Cripple Creek, and prospectors and merchants flowed into this area on the west side of Pikes Peak.

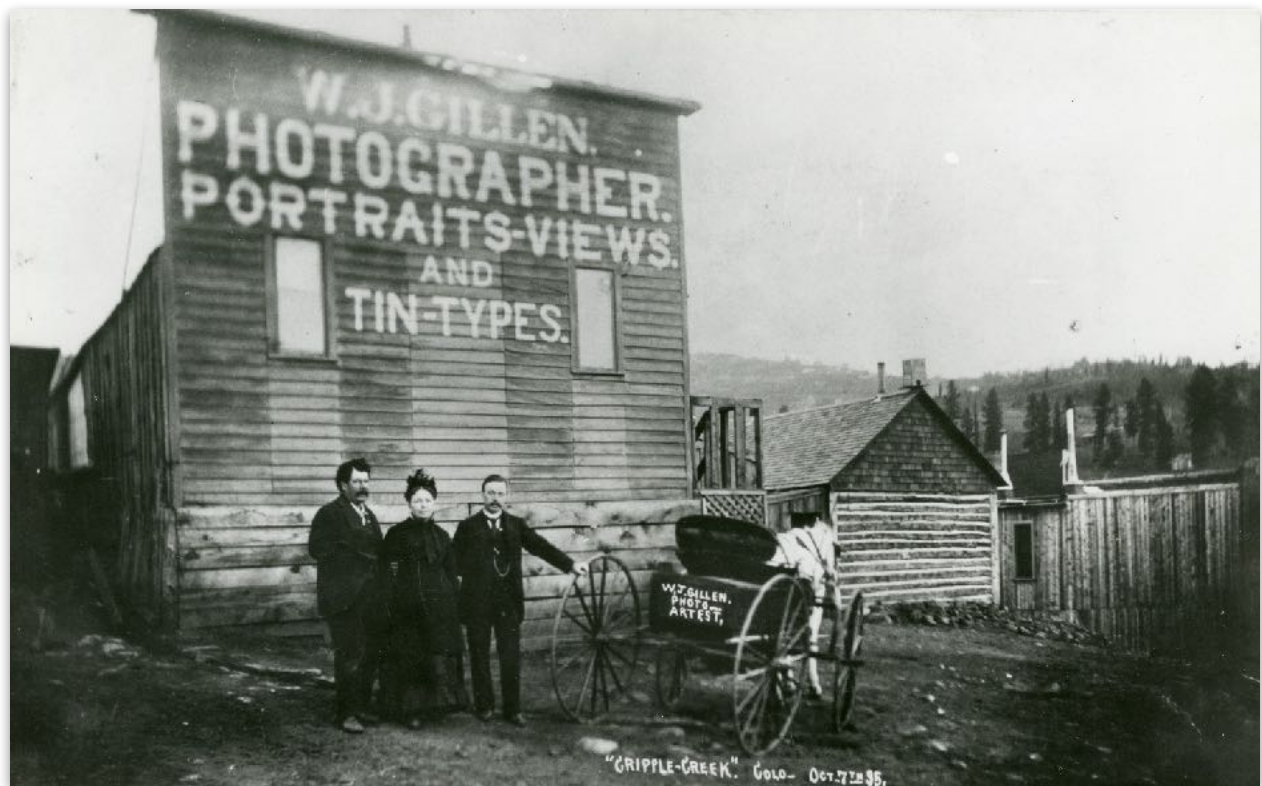


Figure 1. A photo of W. J. Gillen and his photography studio. The false front of this wooden building declares: W. J. Gillen, photographer. It is possible that the well-dressed man standing next to the buggy is Gillen, and next to him is his wife, Louisa A. Gillen. Photo date October 7, 1895 by an unknown photographer. Courtesy of the Cripple Creek District Museum.

¹ Amon Carter Museum of American Art, accessed March 1, 2024. www.cartermuseum.org/artists/william-j-gillen

In 1891, entrepreneurs platted the town of Fremont on land that was part of the Broken Box Ranch. Hayden Placer, east of Fremont, was established in 1892 (Figure 2). The rival towns of Fremont and Hayden Placer merged in 1893 to form the City of Cripple Creek.

Cripple Creek's brawling, sprawling free-for-all gold strike generated national headlines in the 1890s. Gillen no doubt read these stories. It is possible that he grew restless taking portraits of babies, couples, and individuals in his studio at 1332 Larimer Street in Denver. He was helpless to resist the lure of the Cripple Creek goldfields. Sometime in 1892, moved by the news accounts of Cripple Creek, Gillen packed his bags, grabbed his equipment, and headed to the booming Cripple Creek mining district and opened a photography studio.² The 1893 Cripple Creek City Directory lists Gillen as proprietor of the Cripple Creek Photo Gallery.³ At that time, he competed with only one other photographer, J. G. Wilson.

Gillen's photographer's stamp and address appear on the back of many of his cabinet cards: "Wm. J. Gillen, photographer, tin types a specialty, open Sundays, duplicates furnished on short notice, Cripple Creek, Colo." The 1894 Cripple Creek City Directory shows him operating a gallery on the southeast corner of Fifth and Bennett.⁴ Gillen now competed with two other photographers: D. P. Morgan had a studio two doors north of the Palace Hotel and J. W. Shaw, operated on Third Street.

W. J. Gillen captured the vibrant activity and rugged landscapes of the Cripple Creek mining district. He played a pivotal role in documenting the transformative era of the mining district. Using his camera, he preserved the perseverance of miners and the lively communities that emerged in and near the gold camp. These historic photographs go beyond being visual chronicles of the past; they provide us with invaluable insights into the social, economic, and cultural dynamics of a bygone era, offering a glimpse into the lives and times of the individuals who played a role in shaping the Cripple Creek mining district.

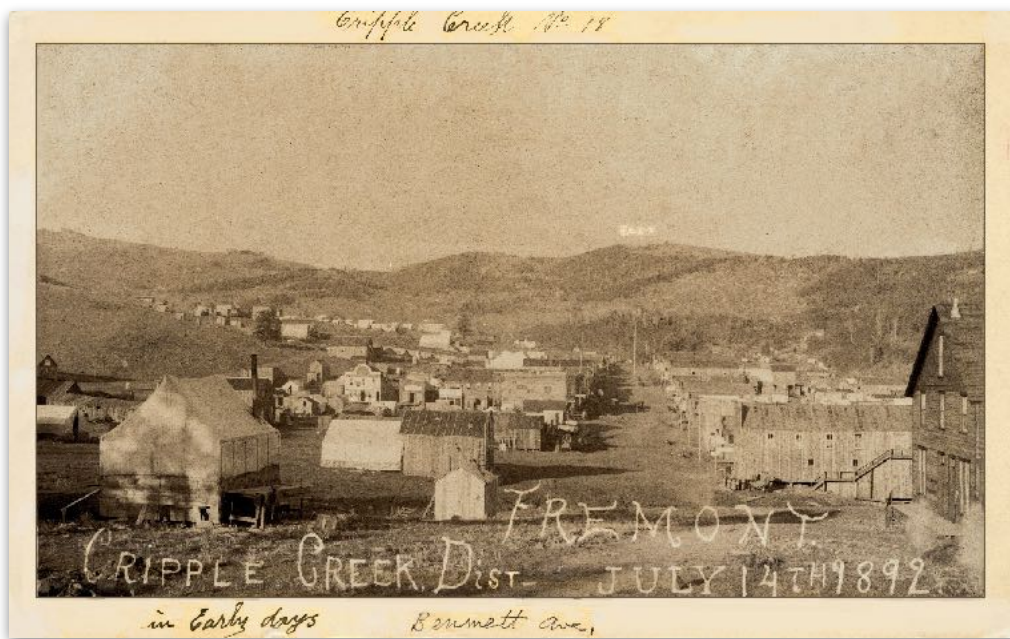


Figure 2. The town of Fremont merged with Hayden Placer in 1893 to form the City of Cripple Creek. Photo date July 14, 1892, by W.J. Gillen. Courtesy of the Cripple Creek District Museum.

² 1892 is the last Denver City Directory listing William J. Gillen as a photographer. It is likely that he left for Cripple Creek sometime in 1892.

³ Cripple Creek Complete Directory, 1893. (Johnson Bros. Publishers) pg. 28.

⁴ Cripple Creek City Directory, 1894. pg. 141.

Figure 3. An early view of Cripple Creek. Photo date July 14, 1892, by William J. Gillen. Courtesy of the Cripple Creek District Museum.

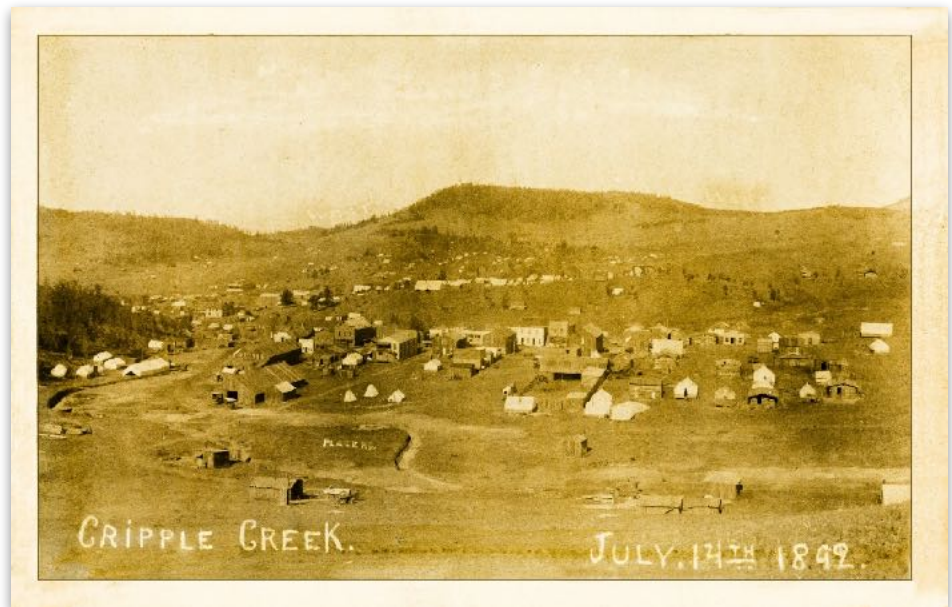
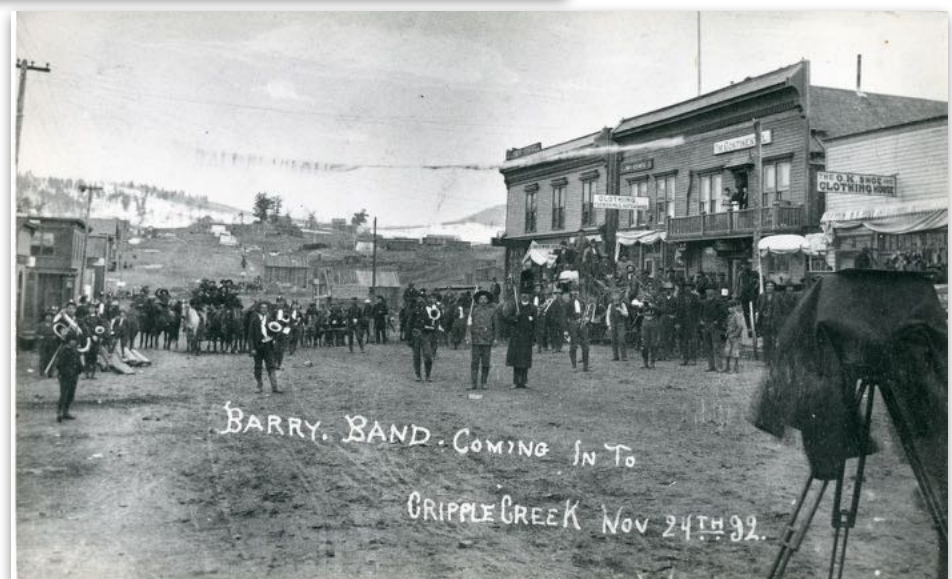


Figure 4. Early panoramic view of Cripple Creek. The large white building is the Anheuser Bush Hotel, 416 Bennett Avenue. Photo date August 1, 1892, by W. J. Gillen. Courtesy of the Cripple Creek District Museum.

Figure 5. The Band from Barry, one of the camps in the Cripple Creek mining district, is marching into Cripple Creek. Clothing stores are on either side of the Continental Hotel. A photographer's tripod and camera are seen on the right side of this photo. Photo date November 24, 1892, by W. J. Gillen. Courtesy of the Cripple Creek District Museum.

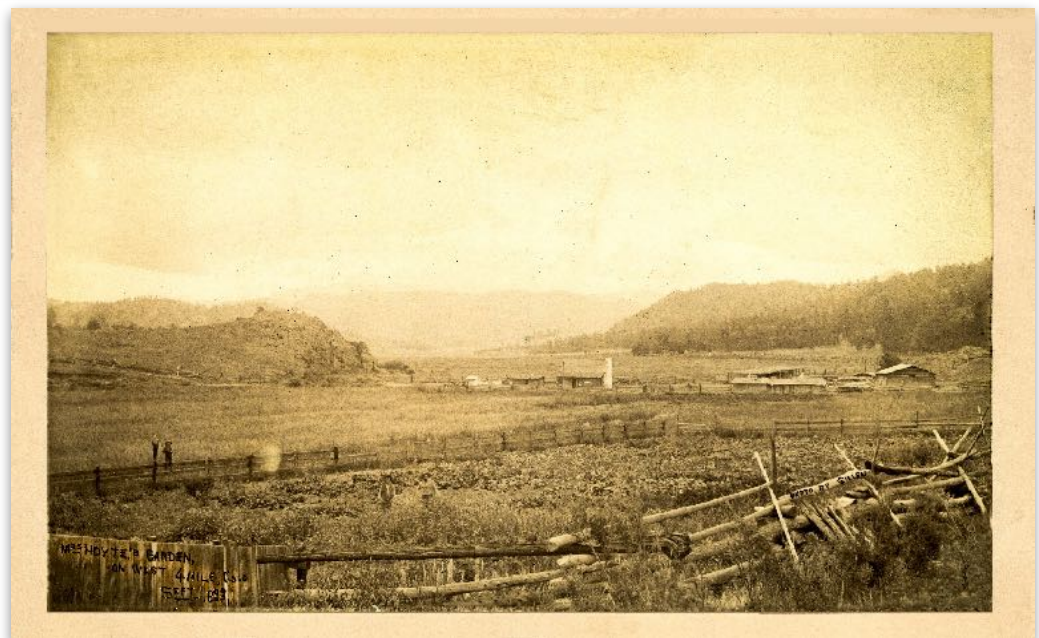


One August day in 1893, Gillen left his Cripple Creek studio and rode over to Mrs. Hoyte's ranch in the West Four Mile Creek area. He had a job to photograph Mrs. Hoyte's and her neighbor's ranches. Hetty (Hattie) Hoyte had a 160-acre homestead.⁵ Mrs. Hoyte's homestead was near those of the Tremayne family and the Grose family. All these neighbors were British immigrants and appeared to be friends. Together, they owned a patented lode claim on Gold Hill above Guffey, Colorado.⁶



Figure 6. Home of Mrs. Hoyte on West Four Mile Creek. Mrs. Hoyte was a British immigrant. She later became a U.S. citizen. Nine people are seen in the front of her rustic home. One man sits in front of a window holding a dog. An older man who is dressed up sits in a chair. Two chairs, with potted plants, are in the front of her home. Photo date September 1893, by W. J. Gillen. Courtesy of the Cripple Creek District Museum.

Figure 7. Pictured is Mrs. Hoyte Ranch outside of Cripple Creek. Mrs. Hoyte's large garden, protected by split-rail fencing, is in the foreground. Her log cabin has a stone chimney. The cabin is surrounded by buildings that include a barn, chicken coop, root cellar (used for storing vegetables, fruits, and other perishables), corrals, wagon sheds, and blacksmith shop. Note the great quantity of hay being grown in the meadow at the ranch. Today nothing exists here except for one old building. Photo date September 1893 by W. J. Gillen. Courtesy of the Cripple Creek District Museum.



⁵ Today that property is located in the Bear Trap subdivision in Park and Teller Counties (T15S, R71W Section 15 - W1/2 NW1/4, SE1/4 NW1/4, NE1/4 SW1/4).

⁶ Personal communication Flip Boettcher, email. March 7, 2024.



Figure 8. Haying on Mrs. Hoyte's Ranch. Hay wagon and hay barn in the foreground. Two horses are hitched to the wagon. Three men are on top of the hay. Mrs. Hoyte's log cabin is in the background on the left. A man and a boy stand near the back of the wagon. Photo date September 1893 by W. J. Gillen. Courtesy of the Cripple Creek District Museum.

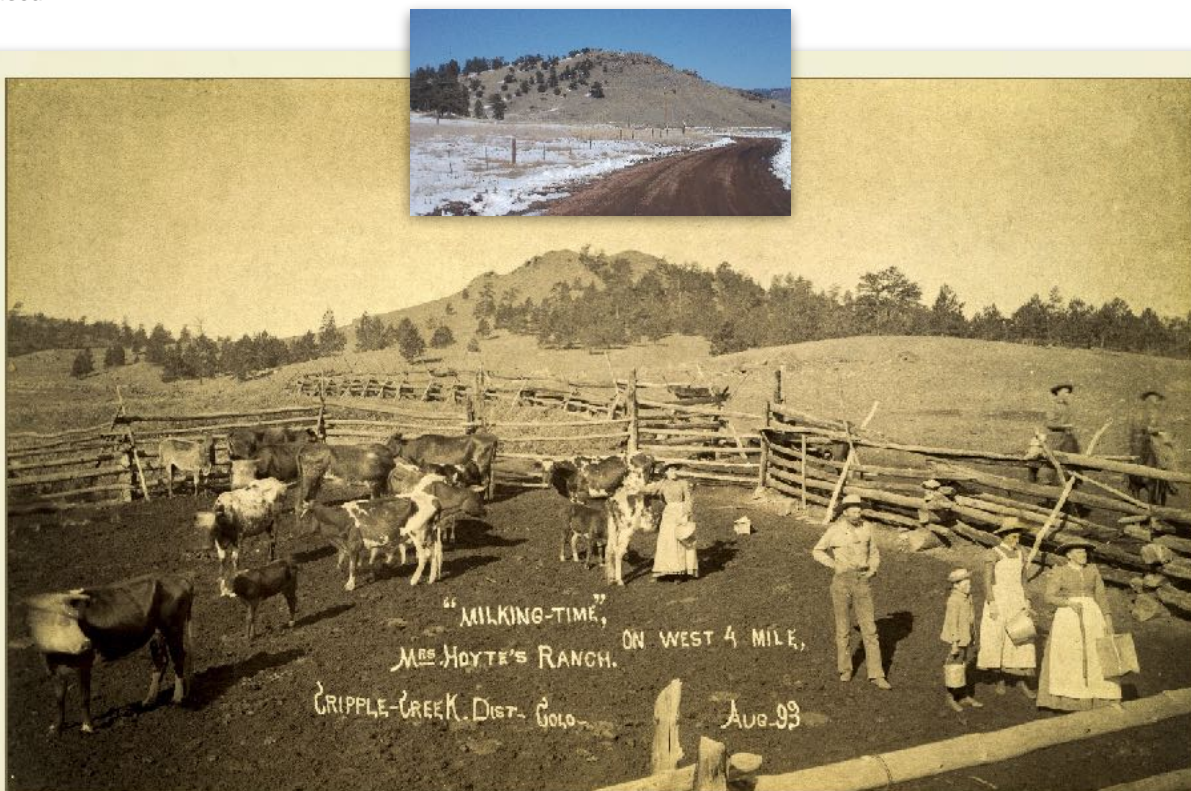


Figure 9. "Milking time" on Mrs. Hoyte's Ranch. Photo date August 1893 by W.J. Gillen. Courtesy of the Cripple Creek District Museum. Color photograph in insert, taken by Flip Boettcher in 2024, is of the same site (at a slightly different angle) as it exists today.



Figure 10. "Recess" at the Four Mile School. Eight students surround the teacher. Some of the students are holding slates where they have written the year the photo was taken on them. The boy in the second row on the left, who is holding a chalk board, has leather cowboy cuffs on. These leather cuffs protected him from rope burns and from kicking hooves of cattle. Three buggies are seen in the middle ground. In the background is the one room schoolhouse. Photo date August 1893 by W. J. Gillen. Courtesy of the Cripple Creek District Museum. Color photograph in insert, taken by Flip Boettcher in 2024, is of the same building as it exists today. Someone added a small addition to the back of the school sometime after Gillen took the photo.

Figure 11. Early view of Myers Avenue, Cripple Creek. The St. James Hotel is on the right. Businesses line both sides of the street. Photo date 1893 by W. J. Gillen. Courtesy of the Cripple Creek District Museum.

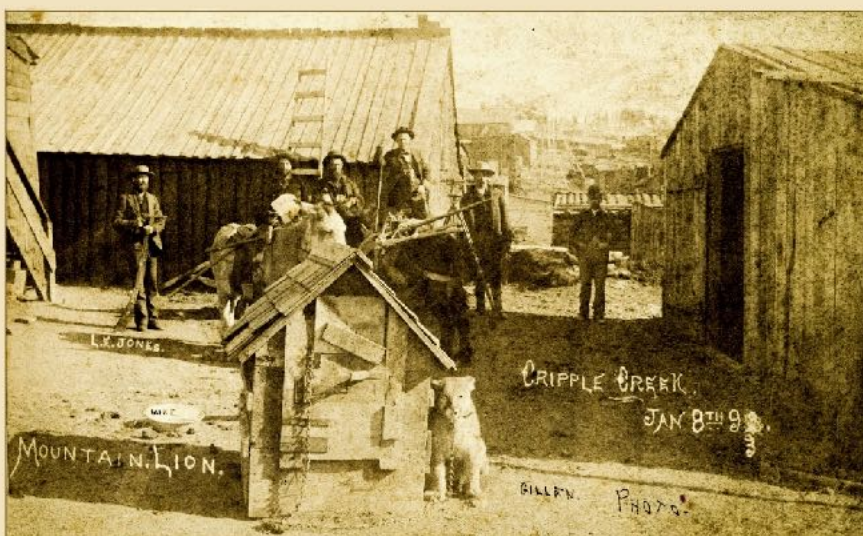
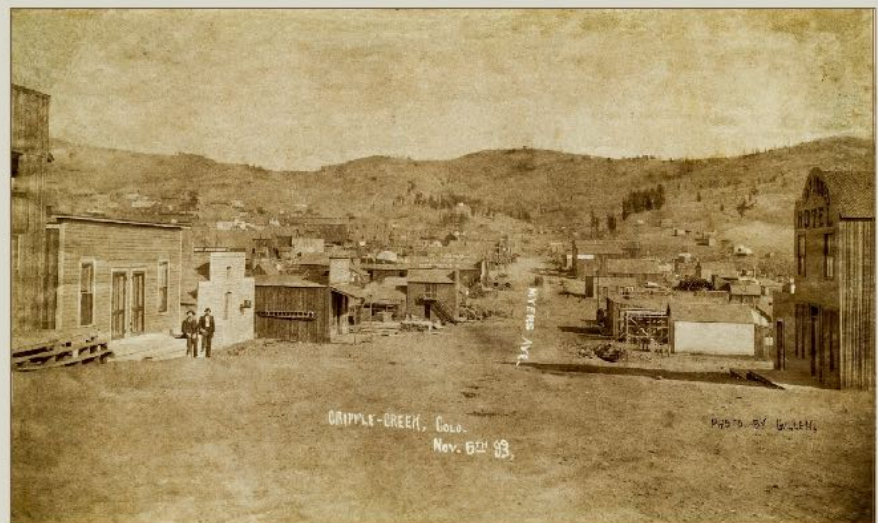


Figure 12. "Mike" the mountain lion poses next to his cathouse in a cabinet photo. A man with a rifle stands to the left in the background. Two donkeys, loaded with prospecting gear, stand behind Mike and in front of two prospectors. A man with a surveyor's transit stands next to a building. A man is wearing a bowler hat with his hands in his pockets on the right of the photograph. Photo date January 8, 1893, by W. J. Gillen. Courtesy of the Cripple Creek District Museum.

Figure 13. Chicago Cripple Creek Tunnel, Cripple Creek. The Chicago tunnel enters Globe Hill from Poverty Gulch, a short distance east of the Abe Lincoln mine, and continues to the Plymouth Rock shaft, located between Globe and Ironclad hills. By William Gillen. Photo date October 3, 1893. Fred and Jo Mazzulla Collection, Credit: Amon Carter Museum of American Art, Fort Worth, Texas. P1976.36.3. Public domain.



Figure 14. A scene 700 ft. Underground in the Great" Chicago Cripple Creek Tunnel, Colorado. Photo date October 3, 1893, by W. J. Gillen. Fred and Jo Mazzulla Collection, Credit: Amon Carter Museum of American Art, Fort Worth, Texas. P1976.36.2. Public domain.

Figure 15. The cabin of S. J. Roberts (possibly the man standing). These young men, seen with a fife and fiddle, likely owned a mine they were developing themselves during the early days of the gold camp. The tools, rope, and wooden buckets were used to dig a shaft. Photo date August 1893 by W. J. Gillen. Courtesy of the Cripple Creek District Museum.



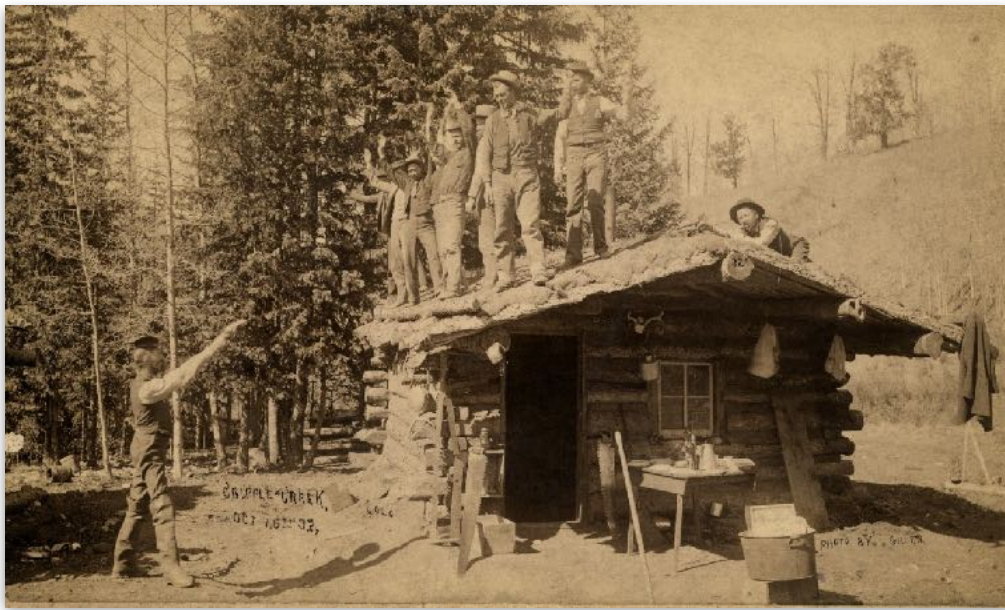


Figure 16. In this posed photo, a man, with his hat upside down points a revolver at seven men, with their hands up, on the roof of a Cripple Creek miner's cabin. Another man, holding a revolver in his right hand, is sneaking up on the roof behind the standing men. Photo date October 15, 1893 by W. J. Gillen. Courtesy of the Cripple Creek District Museum.

Figure 17. Spencer Penrose and Charles L. Tutt stand in front of their one-story log cabin with a low gable and sod roof. Two saddled horses are tied to the corner of the cabin. Penrose and Tutt built the cabin in 1891. Photo date February 1894 by W. J. Gillen. Courtesy of the Cripple Creek District Museum.

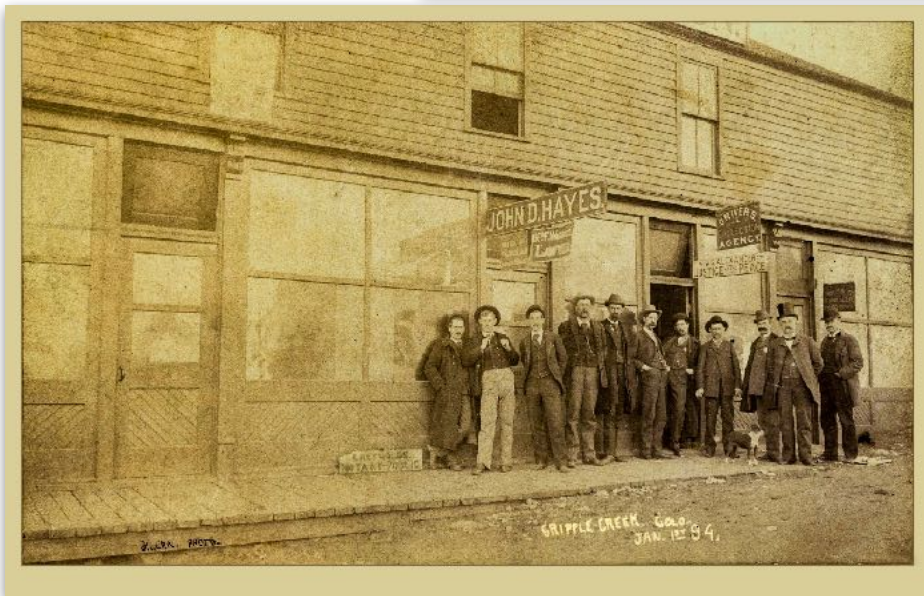


Figure 18. Lawyers, bill collectors, a notary public, and a justice of the peace, gather outside of Driver's Collection Agency on New Year Day, Cripple Creek, Colorado. The men stand on a boardwalk behind a small dog. Photo date January 1, 1894, by W. J. Gillen. Courtesy of the Cripple Creek District Museum.

Figure 19. Fourth of July 1896 in Cripple Creek, Colorado. A large crowd gathers in front of a tent to celebrate the holiday. Fourth of July was often celebrated over several days in the mining camps of the Cripple Creek district. *Photo by W. J. Gillen. Courtesy of the Cripple Creek District Museum.*

Four years had passed since Gillen arrived in the gold camp in 1892. He would soon witness a terrifying series of events. In April 1896, two raging fires, within four days of each other, devastated the town of Cripple Creek. The combination of flimsy construction materials, chilly winter winds, and a scarce water supply made it challenging for volunteer firefighters to put out the flames, leading to the rapid spread of both fires. The fires destroyed the central business district and burned over 1,000 homes, displacing over 3,600 people. Several fatalities occurred, and many more individuals experienced severe injuries. It took the town close to a year to rebuild, this time using fire resistant brick.

Although some of Gillen's photos have dates past the great fire, it is likely that his business declined after the spring of 1896. The people of Cripple Creek were busy with the arduous task of rebuilding their town. With his business reduced to a snail's pace, it appears Gillen left the district after the summer of 1896. He was not listed in the 1896 City directory.

Today, we have little information about Gillen. He seems to have disappeared into history after 1896. We know Gillen played a key role in capturing early images of local landscapes, ranches, mines, and towns in the early days of the Cripple Creek mining district. Despite Gillen's obscurity, his photographs, undiminished by time, have left



an indelible mark on the pages of Colorado's history.

Acknowledgements

The author is grateful for the help of Flip Boettcher in interpreting the West Four Mile photographs of Gillen. I thank Eleanor DeYoung for retouching some of these photos for clarity.

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Denver City Directory, 1888.



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. He was inducted into the Rockhound Hall of Fame in 2015. His complete profile is available at:

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



Trip Report
Rocky Mountain High
13 Apr 24

7-8 hardy rockhounds couldn't wait for the snow to thaw and hit the slopes at CSMS club claim Rocky Mountain High anyways. It was a great day! Plenty of sunshine, and some got got sunburned but most walked away with a ton of material. The ground was easy to dig, nothing frozen or covered, just some random patches of disappearing snow. The lead dog on the scene ("Potato" is the name) reported quite favorable napping conditions. Apparently dogs can sleep literally anywhere.



Spring has sprung! Sign up for field trips on the CSMS app. See the *Pick & Pack* for the schedule (pg 23 in this pub). Contact atkinson.kyl@gmail.com 719-453-3653.

Pics and report by inimitable CSMS field trip leader Kyle Atkinson.





Fossilfun14@gmail.com

April 2 Meeting at East Library

Our April 2, meeting at the East Library was about geodes, nodules, and how they are formed. We explored all different varieties of geodes and the more common minerals inside them like Amethyst, Pyrite, Quartz, Calcite, Agate, Celestite and other rare minerals. The pups received free samples of polished tiny geodes and palm size Quartz geodes unopened donated by our VP Shane Riddle from one of his many adventures. Next meeting May 7th East Library 4:15-5:15 Requested Space Geology and Eclipse adventures from the group. Please check both areas F1 or Annex as the change us often.



Outreach Programs

Outreach programs are buzzing this month in our schools Twain, Edison, and more to come. Thank you for all the donations and consider volunteering for the show in June, we need you all three days often new members join during this time. The kids had so much fun and so did I.



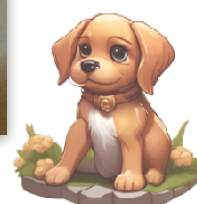
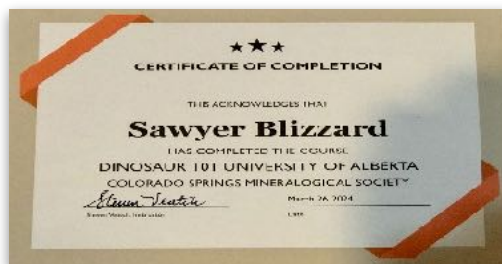
Big Kudos

Big kudos to Sawyer Blizzard our famous Earth Science Scholar for completing a course with Steve's mentoring. Our club is so proud of all your accomplishments for 2023 - 2024.



wonderwoman627 at Pixabay

May 2024



wonderwoman627 at Pixabay

Visit the CSMS Pebble Pup website: <http://>

CSMS Pick & Pack

22



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. The newsletter is produced in Mac Pages.

e-mail the editor:
pickandpackeditor@gmail.com

Mail to: Pick & Pack Editor PO Box 2 Colorado Springs, CO 80901

The PICK & PACK is published ten 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.

Field Trip Schedule

Subject to the Laws of Nature

11 May 24:	April fools claim
1 Jun 24:	Arroya Gulch Garnets - June 1st
15 Jun 24:	Smoky Hawk Mine - June 15th
22 Jun 24:	Rocky Mountain High - June 22nd
29-30 Jun 24:	Wyoming Fossil Digs
6 Jul 24:	Topaz Mountain Mine, Colorado
20 Jul 24:	Rocky Mountain High with Lake George Club
24 Aug 24:	Mt Antero
7 Sep 24:	CSMS Denver Show Meet-up
October:	Book Cliffs

Contact field trip planner Kyle Atkinson with questions:
atkinson.kyl@gmail.com 719-453-3653

MayaQ at Pixabay

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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), 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