

# PICK & PACK

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## On the Road Again: Big Explosions, Dirty Hands, and Amethyst Crystals

BY DR. MIKE NELSON, CSMS

*And I can't wait to get on the road again.  
On the road again  
Goin' places that I've never been.  
Seein' things that I may never see again  
Willie Nelson*

Several years ago I was on a trip to the Pacific Northwest and decided that a visit to Mt. St. Helens was a necessity. It is not often that one, especially a geologist, gets the opportunity to visit a volcano that had recently “blown its stack”. As expected, the mountain was revealed in all of its naked splendor—the eruption was only a few months in the past. Rivers were clogged with ash, trees were strewn about the landscape, and the mountain had a gaping hole on one side. I was truly impressed with the raw and savage fury of nature.

After that observation I was reminded of a long ago field trip to the Creede/South Park area and what was then called the “Wheeler National Monument”, although this formal status had been revoked around 1950. Wheeler was Colorado’s first federally designated national monument (1908). However, the remoteness of the area, coupled with maintenance costs, allowed the U. S. Park Service to deactivate the monument and turn the land over to the U. S. Forest Service where it received a new name—Wheeler Geologic Area (WGA).



Fig. 2. Eroded volcanic ejecta at WGA. Photo courtesy of G. Thomas.

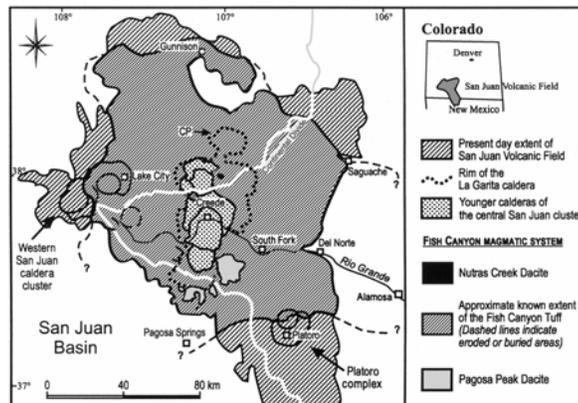


Fig. 1. The San Juan Volcanic Field; note size of La Garita Caldera. Map from Bachman, O., M. A. Dugan and P. W. Lipman (2002).

The WGA, an area of badly eroded volcanic ejecta, lies near the summit of the La Garita Mountains perhaps 10 miles or so, as the crow flies, northeast of Creede, Colorado. The La Garitas are part of the more massive San Juan Mountains, and the area is extremely rugged. In fact, you reach the WHA by either a seven mile hike or a long and rough 4-wheel drive of over 14 miles. The name Wheeler comes from an early U.

CSMS is an incorporated nonprofit organization with these 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 is published 10 times each year to assist and promote the above.

### Proud Members of:

- American Federation of Mineralogical Societies (AFMS)  
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- Rocky Mountain Federation of Mineralogical Societies (RMFMS)  
[www.rmfmms.org](http://www.rmfmms.org)
- Colorado Federation of Gem & Mineral Societies (CFGMS)

**Colorado Springs  
Mineralogical Society**  
Founded in 1936  
**Lazard Cahn**  
Honorary President

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**Fig. 3. Fish Canyon Tuff, Saguache County, Colorado.**

S. Army Corps of Engineers survey of Colorado lead by George M. Wheeler. The San Juan Mountains are known to most geologists as a volcanic terrane since there is a tremendous amount of evidence pointing to numerous volcanic eruptions in the Tertiary (last 66 million years or so or so). The San Juan's are also home to perhaps 60 volcanic calderas, usually circular or oblong collapse features pointing to ancient volcanoes that "blew their stack". The largest of these features is known as the La Garita Caldera, a truly gigantic feature. Ort (1997) estimates the caldera was approximately 22 X 45 miles in size. I was impressed with Mt. St. Helens and its eruption of perhaps .7 cubic-miles of ash and tuff. Consider that the eruption of the La Garita Caldera produced about 5000 cubic-miles of volcanic material (Ort, 1997)! The pyroclastic ejecta is generally referred to as the Fish Canyon Tuff (a silicic volcanic rock crystal-rich quartz latite containing about 40 per cent phenocrysts) that was scattered over a wide area with wind-blown ash perhaps reaching the east coast of the U. S (Fig. 3). There is a radiometric date of 27.8 Ma (Tertiary: Oligocene) on the rock unit (Ort, 1997).

**Fig. 4. Wall of reclaimed Crystal Hill Mine with brecciated volcanic rock.**



The eruption of the La Garita Caldera is related to what has been called the Mid-Tertiary Ignimbrite Flare-Up, a period of very explosive volcanism centered in Nevada, Utah and Colorado approximately 25-40 Ma (Cannon, 2002). In fact, the San Juan Mountains are the result of several of these volcanic explosions producing both lava rock, basalt, and pyroclastic rocks like ash and tuff. Since the initial blowout of the Fish Canyon Tuff, Carter (2009) has described seven additional eruptions seemingly clustered near the center of the La Garita Caldera (Fig. 1).

One of these eruptions created the Bachelor Caldera and spewed out the 190 cubic-mile Carpenter Ridge Tuff. About 27 Ma an explosion created the San Luis Caldera (home of the WGA; Fig. 2) and ejected the 135 cubic-mile Nelson Mountain Tuff. Some 26 Ma the same volcano created the Creede Caldera that expelled the 120 cubic-mile Snowshoe Mountain Tuff. I have been interested in the far eastern area of the La Garita Mountains since CSMS Life Member Chuck ..... showed me a couple of water-clear quartz crystals terminated with a delicate violet amethyst. Always one to listen to wiser voices, I learned that his collecting was done at the "Crystal Hill Mine" near the hamlet of La Garita. He warned me, with a smile, that if I found and traveled to the location--take some along some gloves!



**Fig. 5. Terminated crystal of amethyst projecting from vug. Note other clear quartz crystals.**

The Crystal Hill District is located a few miles north and west of La Garita, near Carnero Creek. The District was founded in 1881 by prospector and mining man Mark Biedell. The District produced native gold and silver from a collapse breccia structure for a few years before mining operations ceased, mostly by 1900. Two small, short-lived mining camps sprang up in the area. The first, Biedell, appeared in 1881 and 1000 men were mining by 1883; the second sprang up in 1886 and was known as El Carnero (GeoZone, 2011). The latter area was producing from "lead carbonate" (BLM information sign), a mineral I presume is cerussite (PbCO<sub>3</sub>). Eckel (1997) did not mention cerussite at Crystal Hill but did note its occurrence at the Bonanza District about 30 miles away: "... cerussite followed angelesite and covellite as shells on massive galena." In the 1940's mining evidently returned to Crystal Hill in the form of the Crystal Hill Mining Company (BLM information sign); however, I was unable to locate additional information about this later activity. Voynick (1994) noted that "exploration geologists returned to crystal Hill in the late 1970's, delineating a large, low-grade zone of disseminated gold near the top of the hill. The Crystal Hill Mining Company developed an open-cut heap leach mine recovering 30,000 troy ounces of gold in four years". In2009? "stimulus funding" allowed the BLM to reclaim, at least partially, the old mine. BLM now allows access on the reclaimed area but warns that the main pit is off

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limits and on private land.

So, in summer 2010 I was headed to Alamosa for a BLM meeting and decided to take a side trip to Crystal Hill with my crack hammer in tow. I found the appropriate brecciated rocks in the cliff associated with the reclaimed mine but was rather unsuccessful (Fig. 4). I then begin to pound on large boulders that were scattered around the area and finally was able to locate some vugs. Many contained very nice, but rather small, slender terminated quartz crystals. However, I did notice the telltale violet color of an amethyst crystal in one vug. I brought the enclosing rock home and cleaned it with water, soap and muratic acid and was able to isolate a very nice crystal (Fig. 5). Unfortunately, the crystal came loose from the host rock. And, I was unable to see “bubbles” within the crystal as commonly report. But, the specimen is a nice terminated and colorful point.

As for the gloves that I neglected, the rocks are covered with black manganese oxide that seems to rub off on clothing and hands alike! It may create a “real mess” on your hands!

*We loaded five tons of dynamite in the far end of a lateral tunnel, sealed the charge with a barricade of broken ore (corked it so to speak) and let her blow. We viewed the blast from an opposite hillside—the earth heaved in a hugh bulge, smoke and dust issuing from its borders; the upheaval slowly buckled, and we then heard a thundering boom. We had cracked up over 15,000 tons of hillside and gold ore.* Johnny Hamm describing “coyote hole blasting” at the Crystal Hill Mine.

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## Oh Lovely Rock by Robinson Jeffers

We stayed the night in the pathless gorge of Ventana Creek, up the east fork. The rock walls and the mountain ridges hung forest on forest above our heads, maple and redwood, laurel, oak, madrone, up to the high and slender Santa Lucian firs that stare up the cata-racts of slide-rock to the star-color precipices.

We lay on gravel and kept a little camp-fire for warmth. Past midnight only two or three coals glowed red in the cooling darkness; I laid a clutch of dead bay leaves on the ember ends and felted dry sticks across them and lay down again. The revived flame lighted my sleeping son’s face and his companion’s, and the vertical face of the great gorge-wall across the stream. Light leaves overhead danced in the fire’s breath, tree-trunks were seen: it was the rock wall that fascinated my eyes and mind. Nothing strange: light-gray diorite with two or three slanting seams in it, smooth-polished by the endless attrition of slides and floods; no fern nor lichen, pure naked rock...as if I were seeing rock for the first time. As if I were seeing through the flame-lit surface into the real and bodily and living rock. Nothing strange...I cannot tell you how strange: the silent passion, the deep nobility and childlike loveliness: this fate going on outside our fates. It is here in the mountain like a grave smiling child. I shall die, and my bows will live and die, our world will go on through its rapid agonies of change and discovery; this age will die, and wolves have howled in the snow around a new Bethlehem: this rock will be here, grave, earnest, not passive: the energies that are its atoms will be bearing the whole mountain above: and I, many packed centuries ago, felt its intense reality with love and wonder, this lonely rock.



**Kilcunda East Beach, Victoria, photo by Stephan Graveline.**

## PROPOSED MOTIONS: CSMS BOARD MEETING June 2, 2011

Background information:

We currently provide for our Corporate Members to have one 3.5' X 2" (the approximate size of a typical business card) advertisement in the Pick & Pack each month for an entire year. They get these plus five members for a cost of \$100 per year. It is not known whether we have any Corporate Members at the present time. Their ad size is such that we can fit 8 to a page with spacing around the advertisement, which is the same size as a 1/8<sup>th</sup> of a page advertisement.

**MOTION 1: Be it resolved that:**

**1. CSMS institute the following charges for advertisements in the Pick & Pack:**

**A. A 1/8<sup>th</sup> (business card size) page advertisement shall cost as follows:**

1 month	\$6.00
3 months	\$17.00
5 months	\$28.00
10 months	\$50.00

**B. A 1/4<sup>th</sup> page advertisement shall cost as follows:**

1 month	\$10.00
3 months	\$27.00
5 months	\$45.00
10 months	\$90.00

**C. A 1/2 page advertisement shall cost as follows:**

1 month	\$18.00
3 months	\$50.00
5 months	\$80.00
10 months	\$150.00

**D. A full page advertisement shall cost as follows:**

1 month	\$30.00
3 months	\$80.00
5 months	\$130.00
10 months	\$200.00

**2. All advertisements must relate to the goals or interests of members of CSMS.**

**3. All advertisements shall be paid for in advance and acceptable copy must be provided that meet the guidelines of the Editor.**

**4. All CSMS members, including Corporate Members shall receive a 50% discount on advertisements.**

**5. Advertisements by other AMFMS Clubs for their shows shall be provided at no cost for a one month's listing. Additional months' free listings will be at the discretion of the Editor and President of CSMS.**

**6. CSMS, its officers, members and the Pick & Pack will not be liable for any advertisement or the lack of printing an advertisement.**

**7. These rates shall be in effect until such time as the Board sees fit to change them and will go into effect immediately.**

**8. These advertisement rates do not apply to the Western Museum of Mining & Industry or any other group deemed appropriate by the Board of CSMS.**

Submitted by Ron Yamioloski



## CSMS Constitution Amended for Junior Members

In the March meeting a change to our constitution was motioned and seconded. This would change our definition of Junior Members from: "Article III - MEMBERSHIP B. JUNIOR MEMBERS - Those who are between their twelfth (12th) and eighteenth (18th) birthday." to "Article III - MEMBERSHIP B. JUNIOR MEMBERS - Those who are under eighteen (18) years of age." Submitted by Roger Pittman

2011 ROCKY MOUNTAIN FEDERATION OF MINERALOGICAL  
SOCIETIES ANNUAL CONVENTION,  
THE 3RD ANNUAL ROCK FAIR AT WMMI,  
AND  
THE 48TH ANNUAL PIKES PEAK GEM & MINERAL SHOW  
SCHEDULE OF EVENTS

DATE	TIME	ACTIVITY	LOCATION
6/20/11	0700	FIELD TRIP: DON BRAY, SEDALIA COPPER MINE	BWA HOTEL, S PARK- ING LOT
6/21/11	0715	FIELD TRIP: STEVEN VEATCH, CRIPPLE CREEK & VICTOR GOLD MINE TOUR	BWA HOTEL, S PARK- ING LOT
6/22/11	0800	FIELD TRIP: STEVEN VEATCH, FLORISSANT FOSSIL BEDS NM & FLORISSANT FOSSIL BEDS QUARRY	BWA HOTEL, S PARK- ING LOT
	NOON- 1700	ROCK FAIR SET UP (INSIDE WMMI—TABLES, EMPTY CASES, & POWER FOR NON-COMPETITIVE CASES, ETC.)	WMMI
6/23/11	0900-1600	ROCK FAIR SET UP (INSIDE WMMI—NON- COMPETITIVE CASES, ETC.)	WMMI
	0900-1600	COMPETITIVE CASE SET UP AT BWA HOTEL	BWA HOTEL— ACADEMY ROOM
	1000-1700	PPG&MS SET UP BY VENDORS	BWA HOTEL— ACADEMY ROOM
	1500-1700	DELEGATE CHECK IN & CREDENTIAL CHECK	BWA HOTEL LOBBY
	1700-1830	SPECIAL TALK—STEVEN VEATCH—VICTOR: COLO- RADO CITY OF MINES	BWA HOTEL—ROCKIES ROOM

CONTINUED ON PAGE 6

SHOW SCHEDULE CONTINUED FROM PAGE 5

DATE	TIME	ACTIVITY	LOCATION
6/24/11	0700-0900	ROCK FAIR SET UP (OUTSIDE VENDORS & EXHIBITORS)	WMMI
	0900-1600	ROCK FAIR DAY 1	WMMI
	0900-1600	PIKES PEAK GEM & MINERAL SHOW DAY 1	BWA HOTEL—ACADEMY ROOM
	0900-1900	DELEGATE CHECK IN & CREDENTIAL CHECK	BWA HOTEL LOBBY
	1000	STEVEN VEATCH: GEOLOGY OF THE PIKES PEAK REGION (PART 1)	WMMI—LIBRARY
	1100	STEVEN VEATCH: GEOLOGY OF THE PIKES PEAK REGION (PART 2)	WMMI—LIBRARY
	1230-1400	ED RAINES: THE 1859 GOLD RUSH, THE GREGORY LODGE, AND FITY GOLD MINES CORPORATION	BWA HOTEL—ROCKIES ROOM
	1400	TALK?	WMMI—LIBRARY
	1500	TALK?	WMMI—LIBRARY
	1530-1700	EXECUTIVE COMMITTEE MEETING	BWA HOTEL—ROCKIES ROOM
	1800	POT LUCK DINNER FOR VENDORS, EXHIBITORS, & VOLUNTEERS	WMMI

6/25/11	0800-1000	EDITORS' BREAKFAST	BWA HOTEL—ROCKIES ROOM
	0900-1600	ROCK FAIR DAY 2	WMMI
	0900-1600	PIKES PEAK GEM & MINERAL SHOW DAY 2	BWA—ACADEMY ROOM
	1000	RUNNING OF THE YELLOW JACKET STAMP MILL	WMMI
	1100-1200	JUDGES' MEETING	BWA HOTEL—PEAK ROOM
	1100-1300	DELEGATE CHECK IN & CREDENTIAL CHECK	BWA HOTEL LOBBY
	1100	LIFETIME MEMBER RAY BERRY PRESENTS "QUARTZ WITH GOETHITE INCLUSIONS"	WMMI—LIBRARY
	1200	JERRY SUCHAN "PALEOZOIC FOSSILS OF THE FRONT RANGE"	WMMI—LIBRARY
	1300	RUNNING OF THE YELLOW JACKET STAMP MILL	WMMI
	1300-1530	DELEGATES MEETING	BWA HOTEL—ROCKIES ROOM
	1400	DR. PETER MODRESKI PRESENTS "HOW TO IDENTIFY	WMMI—LIBRARY
	1500	JACK THOMPSON PRESENTS "METEORITES OF COLORADO"	WMMI—LIBRARY
	1800-1900	BANQUET SOCIAL—CASH BAR	BWA HOTEL—ATRIUM
	1900-2200	CONVENTION BANQUET, GUEST SPEAKER DR. MICHAEL NELSON	BWA HOTEL—ROCKIES ROOM

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SHOW SCHEDULE CONTINUED FROM PAGE 6

DATE	TIME	ACTIVITY	LOCATION
6/26/11	0800-1000	ROLLING ROCK CLUB MEETING	BWA HOTEL—PEAK ROOM
	0900-1500	ROCK FAIR DAY 3	WMMI
	0900-1600	PIKES PEAK GEM & MINERAL SHOW DAY 3	BWA HOTEL—ACADEMY ROOM
	1000	RUNNING OF THE YELLOW JACKET STAMP MILL	WMMI
	1100	TALK?	WMMI—LIBRARY
	1200	TALK?	WMMI—LIBRARY
	1300	RUNNING OF THE YELLOW JACKET STAMP MILL	WMMI
	1400	JACK THOMPSON PRESENTS “UNUSUAL QUARTZ”	WMMI—LIBRARY
	1500-1700	ROCK FAIR TEAR DOWN	WMMI
	1600-2000	PIKES PEAK GEM & MINERAL SHOW VENDOR TEAR DOWN	BWA HOTEL—ACADEMY ROOM
6/27/11	0800	FIELD TRIP: YAM YAMIOLKOSKI, CSMS PERIDOT CLAIM	BWA HOTEL—S PARKING LOT
6/28/11	0700	FIELD TRIP: JOE DORRIS, SMOKY HAWK AMAZONITE	BWA HOTEL—S PARKING LOT
6/29/11	0730	FIELD TRIP: YAM YAMIOLKOSKI, HARTSEL BARITE	BWA HOTEL—S PARKING LOT

*Thank you to all the volunteers, speakers, vendors, visitors, and other participants who made this function possible—without you, we couldn't have accomplished this awesome event!*

## Specimens Needed for September Show!

Similar to last year's display of topaz specimens loaned to us by various Colorado mineral collectors, please mention in your newsletters that our featured Colorado minerals this year are those that contain rare earth elements. Some of the more common representatives include: Allanite, Ancylyte, Bastnasite, Bazzite, Betafite, Brannerite, Brockite, Cerianite, Cerite, Euxenite, Fergusonite, Fluocerite, Fluorite (Yttrian), Gadolinite, Monazite, Parisite, Pyrochlore, Polycrase, Samarskite, Synchysite, Xenotime, Yttrocolumbite, and Yttrotantalite.

We are asking whether collectors can loan us specimens of any of the above minerals, from which we will choose the dozen or so most impressive/aesthetic pieces (from as many collectors as possible) for display. Specimens should arrive in our Museum sometime before August 1st, so we can begin creating the exhibit. The loan paperwork is simple and the loan period will be for one year. This will be one of the new displays we want to feature at our Annual Open House on September 14, from 6 P.M. - 9 P.M. Please phone me any questions or concerns.

Of course, all your club members are welcome to attend our Annual Open House. Come meet some of our Museum Advisory Council members, Student Aids, volunteers, members of the Friends of the Colorado School of Mines Museum, see our new acquisitions, our ever evolving collection, and our newest displays. Some of you might even enjoy a visit to our Gift Shop. We hope to see you then.

Cordially,

Bruce Geller, Director  
CSM Geology Museum



## 31st Annual South Dakota Gem & Mineral Show!

Hosted by the WESTERN DAKOTA  
GEM AND MINERAL SOCIETY

Saturday, June 18, 9 a.m. - 6 p.m. and  
Sunday, June 19, 10 a.m. - 4 p.m. at the

Pennington County Fairground Events  
Center  
Campbell & Centre St  
Rapid City, South Dakota

ADMISSION: \$3.00 adults; 12 and under free

Camping Spaces available: Contact the Fairground  
Office

FOR MORE INFO CALL:

605-484-3754

605-685-4847

605-431-5491

OR EMAIL: [edtilley@msn.com](mailto:edtilley@msn.com)



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**THE ROCKY MOUNTAIN FEDERATION OF MINERALOGICAL SOCIETIES**

**2011 ANNUAL CONVENTION**

**Held in conjunction with:**

**THE THIRD ANNUAL**

**ROCK FAIR AT WMMI**

**&**

**THE 48TH ANNUAL PIKES PEAK GEM**

**& MINERAL SHOW**

**SPONSORED BY THE COLORADO SPRINGS MINERALOGICAL SOCIETY**

<b>SHOW DAYS AND HOURS</b>			
<b>DATE</b>	<b>TIME</b>	<b>EVENT</b>	<b>LOCATION</b>
<b>FRIDAY, 6/24/2011</b>	0900-1600	ROCK FAIR	WMMI
	0900-1600	PIKES PEAK GEM & MINERAL SHOW	BEST WESTERN ACADEMY HOTEL
<b>SATURDAY, 6/25/2011</b>	0900-1600	ROCK FAIR	WMMI
	0900-1600	PIKES PEAK GEM & MINERAL SHOW	BEST WESTERN ACADEMY HOTEL
<b>SUNDAY, 6/26/2011</b>	0900-1500	ROCK FAIR	WMMI
	0900-1600	PIKES PEAK GEM & MINERAL SHOW	BEST WESTERN ACADEMY HOTEL

**JOIN THE FUN & ACTIVITIES AT THE ROCK FAIR:**

Lots of fun for the entire family! The Rock Fair will have gem, jewelry, mineral & fossil vendors; educational talks on rockhounding, geology, and paleontology; demonstrations of gold panning by the Gold Prospectors of Colorado; rock identification, a special Kids' Area; food vendors; the exhibits of the Museum, RMFMS non-competitive display cases, and WMMI equipment operation. WMMI has chosen Fair Saturday & Sunday to run their Yellow Jacket Stamp Mill at 100 & 1300—come to the fair and see this awesome machine in action. Admission is \$5/adults, \$2/children. 225 North Gate Blvd., Colorado Springs CO.

**MORE FUN AT THE PIKES PEAK GEM & MINERAL SHOW!**

The Pikes Peak Gem & Mineral Show is an INDOOR SHOW at the Best Western Academy Hotel where the RMFMS Convention will be held. It will include gem, jewelry, mineral & fossil vendors; exhibits, demonstrations, and the competitive cases, as well as PPF & MS and RMFMS Convention Activities. All RMFMS meetings and meal functions to be held at the Convention Hotel including the judging and presentation of the competitive cases. The Convention Hotel will also serve as the departure point for pre-show and post-show field trips planned for RMFMS Convention participants. The Convention Hotel will also be the site of two very special presentations. Admission is \$2/adults, CHILDREN UNDER 18 ARE FREE! 8110 North Academy Blvd., Colorado Springs CO.

## Picks & Pans will be back next month

### The Florissant Fossil Quarry: A Field Trip Guide

by Jack Shimon (CSMS Pebble Pup)

The Florissant Fossil Quarry is a fun place to take friends when you definitely want to find a fossil and if your friends don't always like to hike far. I like it because I made a friend who works there, and she has a dog named Jack. I've been there two times, and each trip I also went to the Florissant National Monument just down the street.

To get on the site the quarry needs to be open. All the information is on their website ([florissantfossils.tripod.com](http://florissantfossils.tripod.com)). Unlike most collecting trips you also have to pay by the hour, \$10 for kids, because the owners mine the quarry and bring the shale to you. They also have all the tools you need. Mostly you will find parts of leaves but we also found a fern and some lucky people found insects and even one bird.

This is what the site and shale piles look like. You never want to walk ON the shale piles because you could damage any fossils inside, always walk around them to pick up pieces.



CSMS Pebble Pup Jack Shimon is busy splitting shales at the Florissant Quarry. This commercial operation provides all the tool needed to recover the delicate plant and insect fossils from the Florissant Formation. All fossils found can be kept by the collector.

On a hot summer day like this one was make sure you have water to drink.



Jack proudly displays his box of fossils. There is nothing quite so exciting as collecting fossils in the field. This field trip was done in partial fulfillment of earning a merit badge under the American Federation of Mineralogical Societies.

The nice people who work at the quarry will show you how to carefully break the shale apart. They will give you all the tools you need. I'm not allowed to use a razor blade, so I used a metal tool like a scraper to get in between shale layers and a paint brush to clean off samples. When I took a bag of shale home to share with my friends we soaked the shale in water and then it broke apart very easily.



Some of my best fossils from the quarry: My mom put these in a shadow box to protect them. My dad actually found the large piece with the leaf on it and I found the other two. This fern fossil is very delicate. This piece of shale is paper thin so no one is allowed to touch it



## Summer Geocaching Club for Kids



### What is Geocaching?

Geocaching is a high-tech treasure hunting game played throughout the world by adventure seekers equipped with GPS devices. The basic idea is to locate hidden containers, called geocaches, outdoors and then share your experiences online. Geocaching is enjoyed by people from all age groups, with a strong sense of community and support for the outdoors. You can find more information at [geocaching.com](http://geocaching.com) and [geocachingcolo.com](http://geocachingcolo.com)

### Club Details:

Club will meet on Friday mornings at 10am at the designated location. Parent participation is required unless arrangements have been made.

**June 24:** Fox Run- pick a team name, learning about geocaching, find geocaches; **July 1:** Black Forest Regional Park- hide a team cache with a travelbug we can track online, find some geocaches; **July 8:** Woodmoor- multi caching with a local highschool geocacher as our guide; **July 15:** Res Rock Open Space Preserve- Earth caches; **July 22:** Mt Herman- puzzle cache, possibly virtual cache and benchmarks too;

**July 28 (THURSDAY)** Pulpit Rock Park- Caching at night with a local highschool geocacher as our guide. Club will meet at dark and not Friday morning;

**August 5:** no meeting; **August 12:** TBD- local park for some caching favorites; **August 19:** Fox Run- club "cache and dash" event, potluck

### Contact Information and Requirements:

- Organized by a Kilmer Elementary Mom with help from local geocachers
- No experience necessary and you do not need to own your own GPS device
- Space is limited and sign ups for the entire 8 weeks is requested
- Hosted by Julie Shimon, [geocaching.com](http://geocaching.com) name "thebobcats", [julieshimon@yahoo.com](mailto:julieshimon@yahoo.com)

Editor's Note **Geocaching will get kids outdoors and they will learn about GPS technology. Steven Veatch, the CSMS Pebble Pup chair, has stressed in many of his classes the importance of taking a camera with you when you go on rock hunting adventures. Steven Veatch is requesting that all CSMS Pebble Pups/Juniors that go geocaching to take their camera and obtain good images of the landscape, rocks, rock outcrops, and other items of geologic interest. Steve requests that the pups bring the images on a flash drive during the first fall class or to email one or two to him**

([steven.veatch@gmail.com](mailto:steven.veatch@gmail.com)). These images will most likely be the start of a geologic investigation that the kids can start. Also, the CSMS Pups should invite their friends to join the Pebble Pups.



## Cripple Creek Parks and Recreation Department Earth Science Field Classes

*All of the classes are outdoor-based adventure type classes designed for people of all ages and interest levels, led by Steven W. Veatch. These field classes do carry Colorado School of Mines credit for a small fee, but that is entirely optional. The fees have been kept very low due to the poor economy.*

These classes are for **everyone** interested in rocks, minerals, fossils, and geology. For teachers or others needing college credit, each field class carries 0.50 semester hours of Colorado School of Mines graduate level credit. If you desire college credit, you may register with the instructor during the start of the class and pay a small Colorado School of Mines tuition fee. If you don't need the college credit, come and spend a fun day out in the field. Register today with the Cripple Creek Parks and Recreation Department (719/689-3514) as these classes are very popular and fill up fast.

### Field Studies in Geology: The Greater Alma Mining District (K-12)

Credit 0.50 semester credit hours



#### Date July 10

Time: 8:00am-5:45pm

Instructor: Steven Veatch  
 Tuition Fee: (payable during workshop for Colorado School of Mines credit—entirely optional): \$ 35.00.  
 Registration Fee (payable to Cripple Creek Parks and Recreation Dept., can pay by VISA via phone): \$ 49.00.

Registration Contact: Crip-

ple Creek Parks and Recreation, 719/689-3514. Registration fee includes field guide and snacks.

Explore the history of the Greater Alma mining district -- how it accelerated the settlement of the West, and the contributions the district made to the economic growth of Colorado. Life in frontier mining camps, early prospecting methods, and lode mining adapted to high elevations will be presented. Area geology will be reviewed, including recent mineral exploration and production. Transportation from Cripple Creek to Alma and a field guide will be included.

### Field Studies in Geology: Garden of the Gods (K-12)

Credit 0.50 semester credit hours

Location Cripple Creek Parks and Recreation Dept., Garden of the Gods



### Date August 20

Time: 7:30am-6:30pm

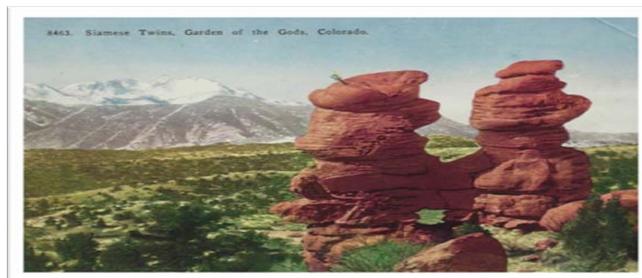
Instructors: Steven Veatch, Lucy Bell

Tuition Fee: (payable during workshop for Colorado School of Mines credit—entirely optional): \$ 35.00

Registration Fee (payable to Cripple Creek Parks and Rec, can pay by VISA via phone, 719/689-3514.): \$ 25; cost of movie at the Garden of the Gods is \$5. Registration fee includes field guide and snacks.

Bus will pick up participants in Cripple Creek, Divide, Woodland Park. Those who are not coming from Teller County can meet the class at the Garden of the Gods visitor center. The Cripple Creek Park and Recreation bus will provide convenient transportation to all of the sites in the park and take us to a very special place to view "injectites"—rocks formed from violent earthquakes. This is the only place in the world where "injectites" (sandstone injected into Pikes Peak Granite ) occur.

This field trip focuses of the rocks at Garden of the Gods. We will start on the west side of Manitou Springs where we will look at the oldest rocks in the Pikes Peak region and then explore the magnificent rocks of the Garden of the Gods (the Fountain Formation and the Lyons Sandstone). The park's geologic history includes Colorado's "disappearing" mountain range, evidence of ancient oceans and deserts, dinosaur bones, and the uplift of the modern-day Rocky Mountains.



### Field Studies in Paleontology: Dinosaur Ridge Paleocology (K-12)

Credit 0.50 semester credit hours **Field Studies in Geology:**

#### Garden of the Gods (K-12)

Credit 0.50 semester credit hours

Location Cripple Creek Parks and Recreation Dept., Garden of the Gods

Location Trip begins and ends in Cripple Creek

#### Date October 1

Time 6:15am-5:45pm

Instructor Steven Veatch, Gregory Kats, Beth Simmons

Tuition Fee (payable during workshop for Colorado School of Mines credit—entirely optional): \$ 35.00

Registration Fee (includes transportation, lunch, and resource CD) : \$ 53.00

Registration Contact: Cripple Creek Parks and Recreation, 719/689-3514

Paleocology relies on the use of fossils to study relationships among organisms and environments of the past. Paleontologists interpret clues to reconstruct not only what extinct animals and plants looked like but also when and where they lived and under what environmental conditions. The focus will be on the late Jurassic and Cretaceous ecology of Dinosaur Ridge and the dinosaur tracks preserved there. In the afternoon we will visit the Colorado School of Mines Museum.

*Continued on Page 16*



### INSTRUCTOR BIOGRAPHIES:

**Steven Wade Veatchis** is a geoscientist and an adjunct professor of Earth Science at Emporia State University in Kansas where he received an MS in Earth Science. He has an MA from Webster University, St. Louis, MO. Steve is from a pioneering mining family from Cripple Creek. He lives near the Florissant Fossil Beds in Colorado.

**Beth Simmons, PhD**, is an instructor at Metro State College in Denver where she teaches geology. Beth has authored and contributed to a number of books and has made countless presentations on history and geology across Colorado. Beth has made major contributions to our understanding of the Florissant Fossil Beds National Monument and Dinosaur Ridge.

**Lucy Bell** is a retired teacher and writing consultant. Lucy is a naturalist at Cheyenne Mountain State Park and a certified guide (National Association for Interpretation). Lucy Bell lives in Colorado Springs.

**Gregory Kats** is an interpretive ranger with Dinosaur Ridge. He volunteers working with youth and getting the outdoors. He holds a B.S. in outdoor recreation. Greg lives in downtown Denver.



## WMMI HAPPENINGS

225 Northgate Blvd., CS, CO 80921

Main: 719.488.0880/Toll Free:  
800.752.6558 info@wmmi.org

Hours: 9 a.m.-5 p.m., Monday-Saturday  
(June-August)

9 a.m.-4 p.m., Monday-Saturday (September-May)

Daily Guided tours at 10 a.m. and 1 p.m. (included in admission).



**The Western Museum of Mining and Industry is a private, nonprofit museum founded in 1970. We educate over 8,000 school children a year on the importance of mining in the American West.**

**Farmers' Market:** Open every Monday and Wednesday through October. Fresh vegetables from local Pueblo farms, breads, meats and more. Look for vendors in front of the red house. Guests visiting the museum get the opportunity to see operable steam engines, learn how to gold pan, see a recreated mine drift, play with hands-on exhibits, and catch a glimpse of the pioneer lifestyle. There are over 27 acres to explore at the Museum, with picnic grounds and two very adorable burros. For farmers' market times, contact the museum at [\(719\) 488-0880](tel:7194880880).

**Rock Fair:** Friday, Saturday & Sunday, June 24-26

Friday & Saturday: 9-4, Sunday: 9-3; Admission: \$5.00 Adults and \$2.00 Children. Join us for the third annual Rock Fair at the museum. Due to popular demand this event has been extended to three full days. Come see vendor displays, demonstrations, rock-talks, and much more. This is the only time of year we run the Yellow Jacket Stamp Mill - a sight to see in itself! Don't miss this family friendly event with activities for all ages. Please visit us at [www.wmmi.org](http://www.wmmi.org) or call [719-488-0880](tel:7194880880) for more information. Sponsored by Colorado Springs Mineralogical Society.

**Outdoor Machinery Days:** Fridays, July 8 & 22, 10:00 a.m. & 1:00 p.m. Hear the shrill whistle of the Western Museum of Mining & Industry's 1928 Osgood Steam Shovel. Learn how compressed air locomotives replaced the poor mule in hauling mountains of ore, and then see one rumble out of the past and down the track! Listen to the stories describing the dangers of being a mill man. Understand how industrial revolution technology helped our ancestor's hew a living out of Colorado's hard rock, and then brace yourself as the kinetic energy of the 1890's refinery comes alive. Included with paid admission.

**WMMI 29TH Anniversary:** Tuesday, July 12, 9:00 a.m. - 4:00 p.m. The Western Museum of Mining & Industry celebrates it's 29th Anniversary! Celebrate with us as we offer \$2.90 admission per person. The museum opened in 1982 with the mission to preserve America's rich western mining heritage. Since then, we have been education the public about the importance of mining, past, present and future. Don't miss this special day at the museum!

## THINGS TO DO FROM CSMS

### MEMBER PETE MODRESKI

First question: someone had written asking for advice about where they might find a person or institution that could help them with identification of mineral samples requiring analysis by X-ray diffraction. One suggestion I have is Dr. James Murowchick, at UMKC (University of Missouri-Kansas City); Jim is interested in mineral collecting and I believe he is able to carry out XRD analysis of small numbers of mineral samples "at a nominal cost", and is willing to do this for people who might write to him. If you are the person who was looking to have this done, I suggest you try contacting Jim at, [MurowchickJ@umkc.edu](mailto:MurowchickJ@umkc.edu).

Second, question plus the invitation: one of the "new events" to list on my calendar will be a field trip to "interesting geologic and mining sites" in and around Jamestown, Boulder County, Colorado, led by myself and which will be held as the monthly meeting & field trip of the Florissant Scientific Society, the afternoon and evening of Saturday, June 18. The FSS is an informal group (no membership or membership list as such, only shared info by email for periodic meetings) of persons interested in geology; our meetings take place usually monthly, anywhere in the Front Range area (from Florissant and Colorado Springs to Golden, Morrison, Fairplay, and beyond), and they include either a lecture or a field trip or both, which anyone is welcome to attend. Our June meeting will be a field trip June 18 in Jamestown--exact meeting time and meeting place to be determined (we'll let those who are interested know the details) but probably not until late afternoon, because it will include an after-dark visit to an old fluorite mine where black lights can be used to observe and collect fluorite and other fluorescent minerals. Thus, here is my request for help: I have been having trouble charging up the battery for my large portable short-wave UV light, so I am hoping that one or two persons might be willing to come along who also own a high-output, battery-powered UV light; I know there are several among our Denver area mineral collectors who have such a light; for those who know about such things, this would be a "Superbright" or a "Way-Too-Cool" UV light. If you have such a lamp and would be interesting in coming along on the field trip that after

*Continued on Page 18*

noon/evening--or failing that, would be willing to loan me the use of your light--we'd very much appreciate it! (In case I don't get my own battery problems resolved in time for the field trip; I do have a couple of smaller, weaker portable UV lights, which I will bring along.) Thank you! Please let me know if you can help with this. --- Pete Modreski, USGS

### Earth Science events, June-September 2011

#### June

**Sat., June 11, Dinosaur Discovery Day at Dinosaur Ridge, Morrison, CO**, 10 a.m. to 3 p.m. "National Get Outdoors Day"; tours of the geology and fossil sites along the Ridge; special activities include gold panning and fossil sieving. Admission and hiking the trail are free; an optional shuttle bus costs \$3 with ages 4 & 5 half price and 3 and under free. The Dinosaur Ridge Visitors Center is located just west of the C-470 exit at Alameda Parkway. For more information see [www.dinoridge.org](http://www.dinoridge.org).

**Sat., June 18, Field Trip sponsored by the Florissant Scientific Society, to Jamestown, Boulder County, Colorado.** Approx. meeting time, 4:00 p.m. in "downtown" Jamestown. The trip will include assorted sites of geologic interest and mining history, including an after-dark visit to an open-cut fluorite mine to see fluorescent minerals, and a refreshment stop at the "Jamestown Merc", source of the best (and only) food and the coldest (and only) beer available in Jamestown as well as live local music. Any interested persons are welcome to join us; to confirm the exact meeting time & place, please contact Pete Modreski, [pmodreski@usgs.gov](mailto:pmodreski@usgs.gov), 303-202-4766 (office) or 720-205-2553 (cell), or Beth Simmons, [cloverknoll@comcast.net](mailto:cloverknoll@comcast.net) or 303-986-9693.

**Fri.-Sun., June 24-26, Rock Fair and Pikes Peak Gem and Mineral Show and Rocky Mountain Federal Show** at the Western Museum of Mining & Industry and at the Best Western Academy Hotel, 225 North Gate Blvd. (I-25 Exit 156A) and 8110 North Academy Blvd. (I-25 Exit 150), Colorado Springs, CO. Sponsored by the Colorado Springs Mineralogical Society and the Rocky Mountain Federation of Mineralogical Societies. For complete info see <http://www.csms.us/>

#### July

**Sat., July 9, Dinosaur Discovery Day at Dinosaur Ridge: Reptile Day.** Live reptiles on display and hands-on activities at the Visitor Center. Expert guides stationed along the Ridge trail. Hike free or take the optional shuttle bus (\$3, 4 & 5 yrs. half price, 3 & under ride free). 10 am – 2:30 pm. Free admission. See [www.dinoridge.org](http://www.dinoridge.org)

#### August

**Sat., Aug. 13, Dinosaur Discovery Day: Geocaching Day.** Rockhounding activities and hands-on fossil searches. Expert guides stationed along the Ridge trail. Hike free or take the optional shuttle bus (\$3, 4 & 5 yrs. half price, 3 & under ride free). 10 am – 2:30 pm. Free admission. See [www.dinoridge.org](http://www.dinoridge.org)

**Thurs.-Sun., Aug. 11-14, "Contin-Tail Rock Show",** Buena Vista Rodeo Grounds, Buena Vista, CO; a fun outdoor annual event; free admission. See [www.coloradorocks.org](http://www.coloradorocks.org) or [www.ct-coloradorocks.blogspot.com](http://www.ct-coloradorocks.blogspot.com).

**Fri.-Sun., Aug. 19-21, Lake George Gem and Mineral Show,** Lake George, Park Co., CO; sponsored by the Lake George Gem & Mineral Club; free admission, free parking; for more info see <http://www.lggmclub.org/>

#### September

**Sat., Sept. 10, Dinosaur Discovery Day: Reading Really Rocks.** Festivities will include a storytime for kids. Hands-on activities include gold panning and exploring for fossils. Expert guides stationed along the Ridge trail. Hike free or take the optional shuttle bus (\$3, 4 & 5 yrs. half price, 3 & under ride free). 10 am – 2:30 pm. Free admission. See [www.dinoridge.org](http://www.dinoridge.org)

**Sat., Sep. 10, Symposium on Minerals of Russia,** co-sponsored by Friends of Mineralogy Colorado Chapter, Colorado School of Mines Geology Museum, and Denver Gem and Mineral Show; to be held in Petroleum Hall, Green Center, Colorado School of Mines campus, Golden, CO. For more info contact Pete Modreski, [pmodreski@usgs.gov](mailto:pmodreski@usgs.gov), or see <http://friendsofmineralogycolorado.org/>

**Wed., Sept. 14, CSM Geology Museum Annual Open House, Reception, and Silent Auction** held during the week of the Denver Gem and Mineral Show; 6 to 9 p.m. at the Colorado School of Mines Geology Museum, 13th and Maple Streets, Golden. All are invited!

**Sep 14-18, Colorado Mineral and Fossil Show,** Holiday Inn - Denver Central, 4849 Bannock St.; free parking and admission, many mineral dealers; see [http://www.mzexp.com/colorado\\_fall.htm](http://www.mzexp.com/colorado_fall.htm) Many of the dealers will be open as early as Sept. 10. This and several other "satellite shows" take place during the week of the Denver Gem and Mineral Show.

**Sep. 14-18, Denver Coliseum Show;** another "satellite" show of dealers in "minerals, fossils, dinosaurs, gems, jewelry, gold, meteorites"; free admission and parking; 9 a.m. to 6 p.m. daily; 1900 44th Street, Denver CO 80216; from I-70, exit 275B at Brighton Blvd; outside tents open Sept. 10-18, tents and Coliseum open Sept. 14-18; see <http://coliseumshow.com/>

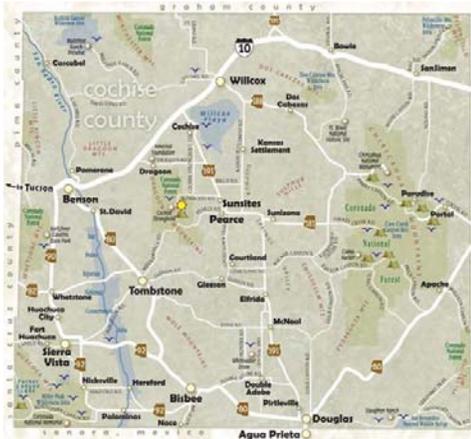
## ASK A GEOLOGIST

BY MIKE NELSON, CSMS



Robert from Washington (state) writes: *Rockguy, did you visit any “ghost towns” while camping in Arizona? Find any interesting minerals? I want to visit Arizona next year after retirement and hunt with my metal detector, and visit the Tucson Show. Can’t wait to visit next year.*

Robert, I did visit a few areas called ghost towns while in Arizona and the results were quite mixed. For example, the Court-



**Fig. 1. Map of Cochise County, Arizona, showing localities around Gleeson—Courtland, and Dos Cabezas. Map from Stephen Christian.**

land-Gleeson-Pearce area east of Tombstone is often listed under the category of “ghost towns” and old mining districts (Fig. 1).

Pearce was a gold mining town and the Commonwealth Mine produced over 15 million dollars in gold (much more at today’s prices of ~\$1500 oz.) in the late 1800’s and early 1900’s. The boom town had a 200-stamp mill but a 1904 cave-in at the Commonwealth was the “beginning of the end”. The town barely hung on until the Great Depression when the town finally folded, or almost. Today there is some movement in the area with new business and restored buildings and attempts are being made to attract tourists.

Gleeson was the site of copper, and some lead and silver, production in the late 1800’s and early 1900’s. In fact, a gentleman in Tombstone told me that the area had produced in excess of 75,000 oz. of gold. Let’s see, at ~\$1500 oz. that amounts to .....!! The town suffered greatly due to a fire in 1912. That event, plus the “playing out” of the rich copper ore was a death call for the town. However, some activity is still going on due to the small scale mining of turquoise. In fact, the original name of the town was turquoise; however, the stone was not really valued in those early mining days.

Courtland came about a few years later as surficial clues indicated an extremely rich copper ore body and for a time in the early 1900’s the area was thought to have the most promising copper vein in Arizona. Two



**Fig. 2. Turquoise polished slab, ~4.5 X 4.5 cm., labeled “Courtland”. Turquoise is a secondary mineral caused by an alteration of rocks rich in aluminum.**

railroads served the area and by 1909 four major mining companies had constructed in excess of 8000 feet of underground shafts and the ore was being mined at ~7.5% copper. Newspapers opened up and by 1911 over five miles of water mains were in operation---the boom was on (2000 people). By 1920 the mining companies were losing money and the town literally disappeared! It seems as the “mother lode” disappeared at about the 300 foot level, probably the result of faulting, and, the mines also were flooding. Above information on the district is from Ghost Town Trails (2011).

Mineralization at Courtland-Gleeson-Pearce is of several types: (1) copper carbonates and oxides in irregular blanket deposits where the Cambrian quartzite is thrust over (faulted over) Mississippian limestone creating a fault breccia (broken rock) close to a contact with an igneous intrusion; (2) lead and zinc carbonates, lead sulfates and zinc silicates with silver chloride, manganese and minor copper and gold in irregular ore bodies in Pennsylvanian-Permian limestones along fractures and faults; (3) turquoise in near-surface stringers and lenses in altered granite and quartzite—solution in fracture zones; (4) manganese oxides in irregular masses along fractures in limestone; and (5) spotty base metal ores with gold and silver values in veins located in intrusive rocks (MinDat, 2011). What all this means is that faulting in the area created fracture zones that allowed heated (from the igneous intrusions) and mineralized solutions to travel through and deposit the metallic ores.

I was intrigued by geologic descriptions of the area and of the many mines and recovered minerals. However, upon traveling to the mining areas I was disappointed in that essentially all of the land is private and I could



**Fig. 3. Fairbank, Arizona ca. 1890. Photo courtesy Arizona Historical Society.**

not locate owners who would allow me access. However, I was able to purchase a nice piece of polished turquoise labeled “Courtland” (Fig. 2). With all of the private land at the mines, I would not count on being able to use your metal

detector!

A similar situation (private land without access) occurs to the north in the Dos Cabezas Mining District (Fig. 1), an area that was booming in 1880's. Wilson (1933) stated "practically all the gulches in the vicinity contain gold-bearing gravels". That statement was enough to get me off and running to the area. The Dos Cabezas Mountains are a typical "Basin and Range" horst (uplifted block of mountains with down-dropped valleys on either side). The mountains have a wide array of rocks crop-

**Fig. 4. Railway (tracks on top of concrete pillars) ore dump at Sasco. Railroad with ore came in from west (up) and dumped ore (right) where it was hauled a short distance to the smelter.**



ping out ranging from Precambrian granite to Paleozoic and Mesozoic rocks to Tertiary volcanics and intrusives. However, it seems the entire area is covered with no trespassing signs and the "locals" I could discover are quite unfriendly. Perhaps they are just tired of out-of-state treasure hunters? I did manage to grab several bags of sand from along the road (without trespassing) but was unable to confirm Wilson's statement about the gold.

Two "ghost towns" that are friendly to visitors include the settlements of Charleston and Fairbanks; both are managed by the Bureau of Land Management (BLM) so collecting, including metal detectors, is off limits. These towns grew up along the San Pedro River in southern Arizona due to the proximity of the mines at Tombstone (Fig. 1). It seems as if Tombstone, 10



**Fig. 5. Remains of Rockland Hotel at Sasco.**

miles away, suffered from a lack of water so several stamp mills were established at Charleston and one at Fairbanks; ore was hauled by wagon. A railroad was constructed to the mill town and later two more were added. Fairbanks, six miles north of Charleston, became a major train stop between Guaymas, Mexico, and Benson, Arizona. The Fairbanks depot became a major transport area with the travelers coming and going from Tombstone, and cattle

being shipped out of the area (Fig. 3). Both communities were thriving towns in the late 1800's, but both owed their existence to Tombstone's fortunes. Fairbanks existed into 1900's; Charleston was essentially destroyed when the U. S. Army used the buildings as a training base in World War II.

Both communities are part of the San Pedro Riparian National Conservation Area (NCA) with a mission of enhancing and protecting the ecosystem along the river. The NCA is managed by the BLM and the agency is slowly restoring many of the well-preserved buildings in Fairbanks. I have visited the communities and have hiked along the river for many miles and have found the area fascinating. First, the river is unique (at least to me) in that it flows north from Mexico into the U. S. Therefore, it offers an interesting bird flyway with several tropical species fluttering north; one of my favorites is the Vermillion Flycatcher. Second, the river flows in a large graben (down-dropped block) and is filled with late Tertiary lake and stream sediments and sedimentary rocks. These units have produced a spectacular array of vertebrate fossils, hold the Desert Roses near St. David (see *Pick & Pack*), and are the source of the glauberite pseudomorphs near Camp Verde (see *Pick & Pack*). And finally, the community of old Fairbanks is well-preserved and the buildings contain much history. You can locate the old cemetery and stamp mill at Fairbanks and some of the old mining structures at Charleston. Until visiting the area I had always assumed, although not much personal thought was given to the matter, that Tombstone produced its own stamp mills! An erroneous thought!

One of the more interesting accessible "ghost towns" to visit is Sasco, an acronym of its parent company, the



**Fig. 6. Azurite and encrusting malachite, both hydrous copper carbonates. Specimen ~5 cm. in length.**

Southern Arizona Smelter Company. The town, west of Tucson, was established as the smelter site for the mining operations at the nearby Silver Bell mining complex. Silver Bell was the site of major copper mining in the late 1800's (minor silver, gold and lead) but seemed to suffer from a lack of potable water. In the very early 1900's the owners built a new smelter about 10 miles away and named it Sasco. By 1904 the Arizona Southern Railroad (Fig. 4) was built from Silver

*Continued on Page 18*



**Fig. 7. Chalcantinite ~3 cm. length, a hydrated copper sulfate found in the oxidized zone of copper deposits**

Bell to Sasco and on to Red Rock and Sasco boomed with over 600 residents. Numerous buildings were constructed including houses, hotels, a jail, post office and several saloons. Unfortunately, mining at Silver Bell went south and the smelter closed in 1919 and Sasco started its demise. Today Sasco is vacant but there are really good remnants, and foundations of the former buildings are numerous (Fig. 5). Unfortunately the site has been trashed—literally and figuratively. Visitors have hauled in a tremendous amount of trash and debris and the ground is littered with shell casings. Paintballers have discovered the place and walls are covered with the remains of the spent balls. It is unfortunate that Arizona and/or BLM passed up the opportunity to stabilize an area of important historical aspect.



**Fig. 8. Encrusting (on calcite) botryoidal ?chalcoalumnite, a hydrated copper-aluminum sulfate. Length of light green encrustation (lower part of rock) ~7 cm.**

Silver Bell, the original town at the mine has been completely destroyed since ASARCO begin open pit operations in 1954 and continues today as a major copper producer.

I was able to poke around in the desert and actually came up with some interesting specimens: azurite ( $\text{Cu}_3(\text{CO}_3)_2(\text{OH})_2$ ) and malachite  $\text{Cu}_2(\text{CO}_3)(\text{OH})_2$ , chalcantinite ( $\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$ ), turquoise ( $\text{Cu}(\text{Al}, \text{Fe}^{3+})_6(\text{PO}_4)_4(\text{OH})_8 \cdot 4\text{H}_2\text{O}$ ), and what I believe is chalcoalumnite ( $\text{CuAl}_4(\text{SO}_4)(\text{OH})_{12} \cdot 3\text{H}_2\text{O}$ )—Figs. 6, 7, 8.

*Now about those ghosts. I'm sure they're here and I'm not half so alarmed at meeting up with any of them as I am at having to meet the live nuts I have to see every day.*

[Bess Truman](#)

#### REFERENCES CITED

- Ghost Town Trails (2011). [www.arizonaghosttowntrails.com](http://www.arizonaghosttowntrails.com)  
MinDat, 2011, [Turquoise District \(Courtland-Gleeson District\), Dragoon Mts, Cochise Co., Arizona, USA: http://www.mindat.org/loc-3316.html](http://www.mindat.org/loc-3316.html)



## Rare Fossilized Wood Found Deep in Cripple Creek's Volcanic Complex of Gold

By: Steven Wade Veatch & Timothy R. Brown

Cripple Creek, Colorado, is the premier gold mining district in the state. The Cripple Creek Mining District has produced more than 21 million ounces of gold since 1891—almost half of Colorado's gold production of 44 million ounces. Exploration activities recently revealed one of the most interesting discoveries in the geologic record—fossilized wood found more than three thousand feet below the surface of the earth.

Gold in the district is found in veins and surrounding rocks associated with a small, six square mile, 32-million-year-old volcanic complex composed of three main vents. The complex, formed by violent volcanism, made a funnel-shaped pipe that went deep into the earth. The explosive volcanic activity collapsed the land around the pipe. This intense volcanic activity may have persisted 3 to 4 million years.



A carbonized wood fragment, from the Cresson surface mine, is circled in this core sample at the top. This impressive sample was sliced from a piece of NQ-sized drill core (just under 2 inches in diameter). The photo is marked 3527 feet down hole. The additional footage is from the drilling being done at an angle. Image courtesy of the Cripple Creek and Victor Gold Mining Company.

Today the Cripple Creek and Victor Gold Mining Company (CC&V) operates the Cresson surface mine, clearly the most valuable deposit in the district, having produced over three million ounces of gold. This operation is a joint venture between AngloGold (Colorado) Corporation and Golden Cycle Corpora-

tion.

Recently, while drilling with an exploration drill rig that provides a view of the rocks below the surface of the district, a core sample of Cripple Creek rock at the Cresson mine was obtained at just over 3,000 feet beneath the surface. This core contained a fossil wood fragment that was carbonized. The carbonized wood was still a solid and not easily broken apart.

Although this Cresson core sample is remarkable, fossil wood was found in the Cripple Creek mines in the early days—just not as deep. T. A. Rickard, a noted geologist, wrote in 1900 that a number of tree parts, ranging from small pieces up to the size of a trunk, were found in the mines. Rickard reported: “In the Jack Pot mine, at 400 feet from the surface, in the Logan at 600 feet, and in the Doctor at 700 feet, there have been found fragments of coal, exhibiting traces of wood-structure. In the Independence [mine], at 500 feet, a stump of a tree was discovered in the very midst of rich ore.”

In July, 1905, a carbonized tree trunk 18 inches in diameter and five feet long showing impressions of knots, bark, and tree rings was found on the 800-foot level of the Elkton mine. Miners created quite a stir in the gold camp when they discovered bird tracks in sedimentary rocks in one of the mines.

The core sample recently obtained with the ancient wood fragment is significant. It was found at a depth lower than 3,000 feet underground.

How do these trees get into the ground so deep? The mechanism that brings trees and other surface materials to great depths within the volcanic complex is subsidence or collapse of the land that follows violent volcanic explosions. Jets of volcanic ash, billowing clouds of steam (caused by super-heated ground water in contact with magma), and deep volcanic eruptions caused collapse of the surrounding landscape. Surface materials, through this active process of subsidence, were brought deep within the volcanic complex and mixed with shattered rocks of all sizes.

The recently drilled core sample that contains a carbonized wood fragment came from a depth greater than 3,000 feet below the surface. The rock unit this core was drilled from reveals the shattering of rocks and subsidence resulting from the volcanic eruptions and steam—explosions that occurred here 32 million years ago. From Cripple Creek's early days on into modern times, the district continues to yield earth's fantastic treasures—from precious gold to incredible fossil wood—helping the district maintain its title as the “World's Greatest Gold Camp.”

## 2011 CSMS Officers & Chairpersons

Roger Pittman, President  
 Kay Thompson, Vice President  
 Joni Peterman, Secretary  
 Ann Proctor, Treasurer  
 Teri Stoiber, Editor  
 Ann Proctor, Editor  
 Roni Poteat, Membership Secretary  
 Sharon Holte, Member-at-Large  
 Al Zelenak, Member-at-Large  
 Ron Yamiolkoski, Past President  
 Ron Yamiolkoski, Annual Show Chairperson  
 Ron Yamiolkoski, Field Trip Director  
 Ron Yamiolkoski, Science Fair Chair  
 Brenda Hawley, Historian  
 Frank & Ellie Rosenberg, Librarians  
*Camera Club Chair is Vacant*  
 Maria Weisser, Social Committee Chair  
 Ann Proctor, Store Keeper  
 Kerry Burroughs, Crystal Studies Group  
 Paul Berry, Faceting Group  
 Mike Nelson, Fossil Group  
 Bill Arnson, Jewelry Group  
 Sharon Holte, Lapidary Group  
 Steven Veatch, Juniors & Pebble Pups  
 Dave Olsen, Micromount Group  
 Brian Paterson, Webmaster  
 Sharon Holte, Webmaster  
 Allen Tyson, Webmaster  
 To contact an officer or chairperson, go to csms.us, click on Board Members, and, if their name is underlined, click on it.

### Sub-Group Responsibilities for Refreshments for

Feb.—Crystal	Mar.—Faceting	Apr.—Fossil
May—Jewelry	June—Lapidary	July—Micromounts
Aug.—Picnic	Sept.—Projects	Oct.—Board

Continued from Page 17

**Fri.-Sun., Sep. 16-18, Denver Gem and Mineral Show**, Denver Merchandise Mart, I-25 at 58<sup>th</sup> Ave., Denver CO; featured theme, Minerals of Russia. The second-largest gem and mineral show in the U.S. Combined with the Colorado Fossil Expo in the same building complex; a wholesale-only jewelry trade show also takes place there. Dealers, museum displays, lectures, club exhibits, and gold panning; public welcome (admission charge); free parking. See <http://www.denvermineralshow.com/>

**Sept. 16-18, Colorado Fossil Expo**; 50 dealers specializing in fossils, meteorites, amber, petrified wood and related items; special paleontological exhibits. Held in conjunction with the Denver Gem & Mineral Show (single admission fee applies to both shows) at the Denver Merchandise Mart Plaza Annex, 451 E. 58th Ave., Denver, CO 80216.

### June 2011 CSMS Calendar

Tues., **June 7**—*Fossil Group*, 7 p.m., Senior Center. Mike Nelson, Leader, csrockguy@yahoo.com

Tues., **June 14**—*Micromounts*, 7 p.m., Senior Center. Dave Olsen, Leader, 719.495.8720

Thurs., **June 16**—*General Assembly*, 7:30 p.m., Senior Center.

5:20 p.m. Pebble Pups; 6:30 p.m. Juniors. Steven Veatch, Leader, 719.748.5010

Thurs., **June 23**—*Crystal Group*, 7 p.m., Senior Center. Kerry Burroughs, Leader, 719.634.4576

*Faceting Group*, 7 p.m., Senior Center. Paul Berry, Leader, 719.578.5466

*Project Group*—**TBD**—contact Ron “Yam” Yamiolkoski, yamofthewest@gmail.com

The Senior Center is located at 1514 North Hancock in Colorado Springs.

Thurs., **June 2**—*Board Meeting*, 7 p.m., Senior Center.

Sat., **June 11**—*Lapidary* is cancelled until Sept. If you would like to cut stones, call Sharon Holte at 217.5683 for an appointment.

Sat., **June 18**, *Jewelry Group*, Noon, 15610 Alta Plaza Cir., Peyton. Bill Arnson, Leader, 719.749.2328

*Camera Club* is looking for a leader and meeting place, date and time. Interested? Contact Roger Pittman.

For more information on any of the sub-groups, meetings, and other CSMS valuable information, go to our website, csms.us

**June 24-26, 2011 RMFMS Annual Convention, 3rd Annual Rock Fair at WMMI, and 48th Annual Pikes Peak Gem & Mineral Show at Best Western Academy Hotel! Details in this issue!!!**

## FRIENDS OF THE FLORISSANT FOSSIL BEDS: SUMMER SEMINAR SERIES 2011

This is the 17th summer that the Friends of the Florissant Fossil Beds have offered seminars for the general public. Continuing Education credits (CE) through BOCES and undergraduate and graduate credit are available through Adams State College. If you are interested in any of the seminars listed below, please call the Florissant Fossil Beds NM at (719) 748-3253 and ask for Seminars ext. 109. Registrations will be taken anytime after April 15. Discounts are available for members of the Friends and teachers. We look forward to seeing you this summer at one or many of our seminars. A more complete description of each seminar will be available on the Friends' website [www.fossilbeds.org](http://www.fossilbeds.org) after **April 15** or at this website: <http://www.nps.gov/flfo/forteachers/seminar-series.htm>. **Seminars related to geology or fossils are in BOLD.**



### 2011 SEMINARS:

1. Saturday, May 7, 2011, "Choices for Sustainable Living and Learning to Grow Your Own Food" Larry Stebbins, Director of Pikes Peak Urban Gardens, 9 AM to 5 PM at Harlan Wolf Ranch in Colorado Springs.
2. Saturday, June 18, 2011 - "Historical Ranch Sites of the Sanborn Western Camps," Jerry McLain, Director of Alumni Relations, Colorado Outdoor Education Center, 9 AM to 5 PM, Sanborn Western Camps, Florissant, CO.
3. Friday, July 8, 2011, "Natural History and Ecology of the Flammulated Owl," Dr. Brian Linkhart, Biology Department of Colorado College, \*\*5 PM to 2 AM, Manitou Experimental Forest, Woodland Park, CO.
4. Monday and Tuesday, July 11th and 12th, 2011, Day 1 - "Wildflowers of the Central Rockies," and Day 2 - "Blowing in the Wind: Knowing Your Grasses." Doug Coleman, Director, Wintergreen Nature Foundation, Wintergreen, Virginia. 9 AM to 5 PM, Florissant Fossil Beds NM, Florissant
5. **Saturday, July 16, 2011, "Exploring the Basement: Learning to See What Isn't There" Reinhold Wobus, Geology Department of Williams College, MA. 9 AM to 5 PM, Florissant Fossil Beds NM**
6. Tuesday, July 19, 2011, "Easy Print Making - Indoors or Out,"- Toni Ratzlaff, Art teacher, Woodland Park Schools, 9 AM to 5 PM, Florissant Fossil Beds NM
7. **Saturday, July 30, 2011m "Discovering Colorado's Ice Age Environments"- Steven Veatch, Vice-President of the Friends, 9 AM to 5 PM, Florissant Fossil Beds NM**

8. **Wednesday and Thursday, August 3rd and 4th, 2011, "Geologist as Detective" - Part 1 and 2, (can be done separately but 2 can't be done without taking 1)- Dr. Bob Carnein, retired Geology professor, 9 AM to 5 PM, Florissant Fossil Beds NM**

9. Tuesday, August 9, 2011, " Teaching Renewable Energy, Tools for K-12 Teachers and Parents." - Chris Tholl, Director of High Trails Outdoor Education Center, Florissant, CO 9 AM to 5 PM - Sanborn Western Camps, Florissant, CO



## PRESIDENT'S CORNER

by Roger Pittman, CSMS

It's just days until our show! We'll be doing a split show for the first time ever and that should be interesting in and of itself. We'll need everyone's help and patience getting all our ducks rounded up and lined up. We are hosting several field trips for our guests and it looks like there are openings for several members. It would be nice if we could provide rides for our out-of-town guests so they aren't lost and can get a feel for our local collecting opportunities.



After the show, I would be interested in seeing if anyone or a small group would be interested in exploring some collecting locations that are not familiar to me/us. When I first became a member our President was Ernie Hanlon and he was attempting to go to every location in Pearl's Colorado rock-hounding book. I have no such ambition but would like to hit several that I've never been to.

See you at the Shows!

Roger

## FROM THE LIBRARY

by Joni Peterman, CSMS

*While Frank and Ellie are on the adventure of a life time to the land down-under, Joni Peterman is staffing the CSMS library. Remember this is your library, so CSMS members take advantage of the extensive learning resource data available.*

*Be sure to look at CSMS website to make your selection then Email Joni at [rp\\_colorado@hotmail.com](mailto:rp_colorado@hotmail.com) We greatly appreciate donations from everyone. We don't accept only books; bring in DVDs, videos, and magazines, anything relative to CSMS.*

*This is your library. We encourage all CSMS members to take advantage of our fairly extensive inventory of reading material. Check the CSMS website to make your selection then Email or call Frank or Ellie to make your request. We appreciate all mineralogical book donations.*



## RMFMS PRESIDENT'S LETTER

BY BILL SMITH, RMFMS



On hiatus until next month, but will be talking to many of you at the RMFMS/CSMS Show in June!

Bill



## The Stones Where the Haft Rotted

By Meng Chiao

***Less than a day in paradise,***

***And a thousand years have  
passed among men.***

***While the pieces are still being  
laid on the board***

***All things have changed to empti-  
ness.***

***The woodman takes the road  
home,***

***The haft of his axe has rotted in  
the wind:***

***Nothing is what it was but the  
stone bridge***

***Still spanning a rainbow cinna-  
bar red.***

# MAY 19, 2011 GENERAL ASSEMBLY MINUTES

BY JENNIFER BEISEL, CSMS SECRETARY

- **MEETING CALL TO ORDER**
  - o Call to order at 7:32 pm by CSMS President Roger Pittman
- **PLEDGE OF ALLEGIENCE**
- **APPROVAL OF APRIL MINUTES**
  - o Could not be accepted Pick and Pack not forwarded to members
- **TREASURER'S REPORT**
  - o Presented by Ann Proctor
- **LIBRARIAN'S REPORT**
  - o Updated by Frank and Ellie Rosenberg – the library duties will return to them in June, in the meantime the materials are kept with Joni Peterman
- **VISITORS, GUESTS, NEW MEMBERS**
  - o One guest present and 3 new members
- **SATELLITE GROUP REPORTS**
  - o CRYSTAL STUDY – Summer collecting – meetings not held June, July and August
  - o FACETING – Thurs 7:00 PM Sr. Center
  - o FOSSIL STUDY – Six field trips planned; meetings not held in July and August
  - o LAPIDARY – Sharon Holte – 2<sup>nd</sup> Sat. of the month at noon to 4; off for summer, Sharon Holte POC for information
  - o JEWELRY- 3<sup>rd</sup> Sat. of the month – Topic/Project – Setting Cabs into Bezels
- **SHOW UPDATE/ JUNE 24, 25, and 26**
  - o Yam summarized the event preparations and schedule
  - o Both shows sold out for vendor participation
  - o Planned six field trips, three prior and three after event (non-participating CSMS members may sign up on a first come first serve basis after participants have registered on May 24th)
  - o Scheduled a pot-luck dinner Friday June 24<sup>th</sup> at 6:30 PM at the Mining

## Museum

- o Request for 4 speakers still needed for the Rock Fair
- o Volunteers GPOC and CSMS members will get free admission. Members will have membership cards as proof of membership. All exhibitors will also get free admission to the venue at which they are exhibiting.
- o Silent auction donations requested

## NEW BUSINESS

- o Review of constitution wording for age of youngest members (amendment to constitution motion made and seconded – to be published according to by-laws in Pick and Pack)
- o Field Trips:
  - § Fossil Trip (near Delhi, CO) – May 21
  - § Utah and Grand Junction Show Trip – October 2011

## OLD BUSINESS

## PRESENTATION FOR THE EVENING

- o Larry Havens on the topic of BARITE

## DOOR PRIZES

## ADJOURNMENT

- o Meeting adjourned approx. 9:05 PM prior to program

Joan L. Peterman  
CSMS Secretary 2011



May 2011



**Our Staff...**

Teri Stoiber and Ann Proctor  
Editors

CSMS Members Reporters

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

Share your experiences, trials and tribulations, your new finds, or simply your experience at our last field trip.

The ability to write well is NOT a requirement. We will fix the grammar while keeping the author's voice, style, and work intact.

Handwrite it, type it, or email it. Format does not matter. All submissions are welcomed.

DEADLINE for items to be included is the Saturday after the General Assembly every month.

To submit an item, please use the following:

For hardcopy photos or articles, mail to the address below or bring them to the General Assembly Meeting. All hardcopy photos remain the property of the submitter and will be returned. Electronic photos should be submitted at resolutions above 200 dpi in TIF, BMP, JPG, or PIC format.

All articles not shown with an author are provided by the Editor.

Mail or email to:  
blacklabaccounting@gmail.com

Pick & Pack Editors  
PO Box 2  
Colorado Springs, CO 80901

*The PICK&PACK is published at least ten (10) times per year; 350-375 copies e-mailed/mailed per month (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.*

*This is a shorter edition of the Pick & Pack as everyone is getting ready for our expansive 3 day split show June 24-26. Check out the events calendars and requests for volunteers to drive people to different field trip sites—it's an opportunity for CSMS members to go on these trips as well!*

*We had to delay entering the Dangerous Dust article, as well as the Build a Lap article, due to time constraints and issue length. The July issue is already being formatted with those two articles in them, and as always, we are looking for articles, pictures, etc., and remember, submissions are eligible for nomination in next year's Editor's Contest.*

*The smoke in the air will hopefully not hinder our field trips, outdoor excursions, and other activities, but those of us with lung issues really need to be aware of how much strain the smoke is putting on us. PLEASE use extra precautions until those fires are under control.*

Teri & Ann

*NOTICE—Items listed for sale in the Pick & Pack are displayed only as an informational service to our members and advertisers. CSMS and/or the Pick & Pack do not promote nor warranty any item displayed. The sellers and buyers are responsible for the condition and ownership of any item shown.*

**CLASSIFIEDS**

**CSMS T-Shirts, Badges, and Pins** are available for sale. See Store Keeper, Ann Proctor.



**Have You Picked Up Your Membership Award Pin?**

If you celebrated a CSMS anniversary in 2007, 2008, 2009, or 2010, your year pin award is available from the Storekeeper, Ann Proctor. Last call for 2008 pins.

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(719) 783-9459 [gallery@ris.net](mailto:gallery@ris.net)



## APPLICATION FOR MEMBERSHIP

- All memberships run from **January 1 to December 31**.
- Any person or corporation joining the CSMS as a new member after June 30<sup>th</sup> shall pay half of the yearly rate. Corporate Membership grants up to five (5) Individual Memberships. Any person or corporation joining as a new member after October 1<sup>st</sup> receives membership for November and December plus the following year beginning January 1. The partial year membership shall not apply toward the 25 year Lifetime Membership.
- Anyone who has previously been a member **MUST** pay the full rate each year **REGARDLESS** of the time of the year they pay their dues.
- Members who have paid their dues for 25 years will be awarded a Lifetime Membership on their 26<sup>th</sup> year. Lifetime Members receive all of the CSMS benefits and no longer have to pay the annual dues. Individual Memberships provided by Corporate Membership are excluded from Lifetime Status.
- Corporate membership grants up to 5 individual memberships and one Yearly (10 issues) 3.5 x 2" advertisement in the CSMS Pick & Pack.
- Members in good standing receive the following benefits: 10 electronic issues of the CSMS *Pick&Pack* newsletter, right to participate in all field trips (additional fees may be required on some field trips and members are responsible for all transportation to and from), participation in one or all Satellite Groups (some groups may request additional fees to help cover resource costs), free admission to the Western Museum of Mining and Industry, a year of learning and enjoyment, plus a lifetime of memories.

LAST  FIRST  MIDDLE

SPOUSE

STREET

STATE  ZIP

PHONE

CITY

EMAIL\*

CELL

HAVE YOU PREVIOUSLY BEEN A MEMBER OF CSMS      NO       YES       WHEN

YOU ARE PAYING FOR THE YEAR

Each year the Colorado Springs Mineralogical Society publishes a Membership Directory. *The directory is distributed **ONLY** to CSMS members.*

Your dues **MUST** accompany this application       Check if you do **NOT** want your name & address included

\* Will and can you receive the newsletter via email?    YES     NO

	All Members	All Members	New Members Only	
	Before Jan 31	After Jan 31	After June 30	Oct 1 – Jan 31
<input type="checkbox"/> Junior Membership (12 –17 years old and parent is not a member)	<input type="checkbox"/> \$10.00	<input type="checkbox"/> \$15.00	<input type="checkbox"/> \$ 7.50	<input type="checkbox"/> \$10.00
<input type="checkbox"/> Individual Membership (18 and over)	<input type="checkbox"/> \$25.00	<input type="checkbox"/> \$30.00	<input type="checkbox"/> \$15.00	<input type="checkbox"/> \$25.00
<input type="checkbox"/> Family Membership (parents & dependents under 18)	<input type="checkbox"/> \$35.00	<input type="checkbox"/> \$40.00	<input type="checkbox"/> \$20.00	<input type="checkbox"/> \$35.00
<input type="checkbox"/> Corporate Membership (entitles up to five (5) Individual Memberships)	<input type="checkbox"/> \$95.00	<input type="checkbox"/> \$100.00	<input type="checkbox"/> \$50.00	<input type="checkbox"/> \$95.00

<b>YOUR INTERESTS</b> <i>Please check ALL that apply</i>			
CRYSTALS <input type="checkbox"/>	MICROMOUNTS <input type="checkbox"/>	PROJECTS <input type="checkbox"/>	Sometimes knowing where our members are employed or retired from helps us when we are looking for special information or guidance in our activities. This information will not be published or accessible except by the CSMS Board of Directors.
FOSSILS <input type="checkbox"/>	FACETING <input type="checkbox"/>	YOUTH ACTIVITIES <input type="checkbox"/>	
LAPIDARY <input type="checkbox"/>	SILVERSMITHING <input type="checkbox"/>	OTHER <input type="checkbox"/>	
JEWELRY <input type="checkbox"/>	PHOTOGRAPHY <input type="checkbox"/>		
METEORS <input type="checkbox"/>	FLUORESCENTS <input type="checkbox"/>		
<b>VOLUNTEER CAPABILITIES</b> <i>Clubs are made up of volunteers!</i>			
ARTIST <input type="checkbox"/>	CLUB OFFICER <input type="checkbox"/>	EDITOR <input type="checkbox"/>	List any other things you may be willing to do:
MAILING <input type="checkbox"/>	LOCAL SHOWS <input type="checkbox"/>	WRITING <input type="checkbox"/>	
PROGRAMS <input type="checkbox"/>	FIELD TRIPS <input type="checkbox"/>	LIBRARY <input type="checkbox"/>	
PUBLICITY <input type="checkbox"/>	WEB SITE <input type="checkbox"/>	REFRESHMENTS <input type="checkbox"/>	

**I hereby agree to abide by the Constitution and By-Laws of the Colorado Springs Mineralogical Society.**

CSMS Constitution and By-Laws are available at our website: [www.csms.us](http://www.csms.us)

Signature of Primary Applicant \_\_\_\_\_

Application Date \_\_\_\_\_

Mail this form and your payment to:

Colorado Springs Mineralogical Society  
 PO Box 2  
 Colorado Springs, CO 80901



**PICK&PACK**  
**P.O. Box 2**  
**COLORADO SPRINGS, CO 80901-0002**

Time Value  
Do Not Delay  
JUNE 2011



## Joining the Colorado Springs Mineralogical Society (CSMS)

General Assembly meetings are held the third (3rd) Thursday of each month, except January & August, beginning at 7:30 p.m. at the Colorado Springs Senior Center, 1514 North Hancock Blvd., Colorado Springs, CO. **Visitors are always welcome.**

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, Jewelry Group, Lapidary Group, Micromounts Group, and Pebble Pups/Juniors. For details on Satellite Group meetings, see page 30.

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*, a year of learning and enjoyment, plus a lifetime of memories.

Individuals—\$30 Family—\$40 Juniors—\$15 Corporate—\$100 Application is on page 33 and at [csms.us](http://csms.us)

If you are interested in joining CSMS or would like more information, we encourage you to attend our next General Assembly meeting or visit our web site: [www.csms.us](http://www.csms.us).