



# Colorado Mineral Society

# Mineral Minutes



Volume 81, Issue 4

April 2017

## Next CMS General Meeting

### April 7, 2017

The next Colorado Mineral Society (CMS) general meeting will include a presentation by Larry Havens on pyrites. An abstract and photos are included on Page 3.

Guests and visitors are welcome at the general meetings. The meeting starts at 7:30pm at the St. Paul's Episcopal Church, 10th and Garrison in Lakewood.

**NEW** – If you are listed as a new first-listing member in the newsletter (see Page 5 for this month's newsletter) and you come to the next CMS General Meeting, you will receive a free specimen donated by our generous members.

**Save the Date - May 6th Auction**  
**See Page 6 for more details!**

## CMS Membership Dues

### Reminder!!

To be included in the 2017 CMS Membership Directory, you must pay your dues by April 7, 2017. You can pay at the April general meetings or mail a check to the CMS P.O. Box in Lakewood before April 7th. Our Member Chairperson, Cara, will not be at the May general meeting, so it is best to pay your dues ahead of the May meeting (which is the field trip meeting) to avoid congestion at the sign in table. You need to be a CMS member to sign up for field trips at the May meeting. When you renew, please provide any updated email addresses so you can receive period CMS announcements.

## INSIDE THIS ISSUE

- 3 April Presentation "All that Glitters...."
- 6 RMFMS Bulletin Awards
- 7 Junior Rockhound Program - April
- 12 Meeting Notes

## President's Message

by John W. Smith

Hello everyone. Well, Spring is here – you can tell because it is snowing. I am sure everyone is looking forward to the start of collecting season. I still have not seen the field trip list but from what I hear it will have plenty of opportunities for each of us that want to go out and find that perfect specimen.

As promised, here is the next installment of how to clean whatever you find. I am by no means an expert in cleaning techniques but everyone I have talked to as well as everything I have read suggests that the first step you should take is the least aggressive, i.e. plain water (with some mild detergent like dish soap mixed in if you want) soak followed by scrubbing the specimen with a stiff bristle brush. Obviously, you should not do this on anything that is delicate or water soluble (hence the reason for picking up some not so good specimens that can be used to test for solubility in water and any detergent that you may use). I have personally tried this cleaning method and while it is generally sufficient to remove about 90% of the unwanted stuff (how's that for a technical term) from the specimen I must warn you, it is sloooow. Since there nothing that tells us how long a certain type of specimen needs to soak I find the best way is to put the specimens in the water / soap and once a week or so scrub them. If you are happy at that point you are done. If not, put them back in the water / soap and repeat the cycle until either you are satisfied or you believe it is time to try a more aggressive approach.

One variation I tried with the soap and water method was instead of using a scrub brush, I picked up a close mesh basket about 12" wide x 24" long and 12" deep, put my specimens in it (not too many at a time so that they had room to move around) and went to the quarter car wash and using the high-

Continued on Page 4

## COLORADO MINERAL SOCIETY OFFICERS

2017

President: John W. Smith

First VP-Programs: Gary Rowe

Second VP-Education: Debbie Kalschauer

Secretary: Sandra Gonzales

Treasurer: Eva Siemonsma

### Appointed Board Members - Committee Chairpersons

Annual Auction: Ben Geller

Auction Co-Chair: Rob Deschambault

Door Prizes-Guests: Cindy and Paul Hatfield

Library: Kevin Atwater

Display Chair: *OPEN*

Membership: *OPEN*

Field Trip Leader: Gary Rowe

Field Trip Leader Co-Chair: Nels Grevstad

Nominations: Bruce Sales

Grab Bags: Marchelle Carlton

Editor: Amber Brenzikofer

Historian: Amber Brenzikofer

Scrapbook: Jennifer Knies

Jr Rockhound Coordinator: Lewis Reynolds

Jr Rockhound Assistant: *OPEN*

Hospitality: Star Edwards

Donations: Debbie Kalschauer

Web Master: Julio Edwards

[coloradomineralsociety@comcast.net](mailto:coloradomineralsociety@comcast.net)



### Representatives (Board Members)

Denver Council Rep: Bruce Sales

Denver Show Rep: Amber Brenzikofer

**COLORADO MINERAL SOCIETY (CMS)** was founded in 1936 by a group of distinguished individuals within the mineralogical field. The organization was incorporated as a non-profit, educational organization in 1948. The Society is affiliated with the Rocky Mountain Federation of Mineralogical Societies and the American Federation of Mineralogical Societies, a founding member of each group.

**PURPOSE:** To promote the study of minerals and other geologic materials, to encourage mineral collecting as a hobby and to conduct public meetings, lectures, and field trips, and to engage in all activities which relate to said purposes of the organization.

**MEETINGS:** General membership meetings start at 7:30 PM on the first Friday of each month, October through May, at St. Paul's Episcopal Church, at 10th and Garrison in Lakewood, CO. Displays are set up by members about one-half hour before meetings. Specimens may be available for sale and trade.

**VISITORS and GUESTS** are welcome.

**BOARD MEETINGS:** The board members meet once a month to complete the executive business and affairs of the Society. Meetings will start at 7:00 PM usually the third Tuesday of each month. Additional meeting times, if necessary, may be called by the President or any three members of the board and will be announced at the general or board meetings.

**MEMBERSHIP:** Open to all persons who agree to abide by Society rules and rules of the Federations. Annual fees: \$16.00 for a Family or Newsletter Membership, \$14.00 for a Single Membership, \$12.00 for a Senior Membership (single or family

over 65), and \$12.00 for junior members under the age of 18 who are not included in a family. Name badges are available for a one-time fee of \$7.50.

**ANNUAL EVENTS:** Yearly activities include a silent auction of minerals, fossils, gems, jewelry, equipment and other items related to our interests; participation as a member of the Denver Greater Gem and Mineral Council and the original Denver Gem and Mineral Show; and the Founder's Day celebration.

**FIELD TRIPS:** The Society sponsors several field trips from Spring through Fall for the purpose of collecting minerals, crystals, and fossils. These trips are one-day, two-day, and occasionally several-day adventures. A field trip guide is published each year in May.

**NEWSLETTER GUIDELINES:** CMS has a proud history of promoting the education and pure enjoyment of the mineralogical world. At the very heart of its existence are the many volunteers and contributors who spend their time and efforts in direct support of the club's mission. The CMS official newsletter **MINERAL MINUTES** is published monthly during the active meeting season (October through May) and a summer edition, and is the primary way the club's activities and mission are communicated to its members and prospective members. On that basis, the Board of Directors would like to offer the following content guidelines for CMS newsletter contributions:

- Formal announcements concerning club business and/or membership
- Information around mineral-related education opportunities or fundraising activities
- Stories or history that concentrate on the edifying aspects of mineral collection and education
- Sharing of personal mineral-related experience from field trips or other related adventures serving an educational purpose
- Announcements of volunteer/leadership opportunities for the club or club representation
- Worthy news events or discoveries related to mineralogy or geology that align to club's core interests
- Appropriate announcements regarding mineral shows, one-time mineral related events, mineral auctions, sale of private collections and/or equipment, etc.
- Information around relevant donations and/or gifts made available to the club or club members

Please note that the editor may correct spelling, syntax, or content to conserve space and is also entitled to bring contributions in compliance with newsletter guidelines.

Any material herein may be reproduced by any club if proper credit is given. Material from many sources is used in the Mineral Minutes. While it is believed that these items are accurate, neither the editor nor CMS assumes any liability for their use. Advertiser's claims are their own, and their products are not warranted by CMS.

Deadline for publication is the 20th of the month prior to publication. All correspondence to Mineral Minutes or questions should be sent to Amber Brenzikofer, Editor, P.O. Box 280755, Lakewood, Colorado 80228-0755; phone: 720-480-5234; or by email to:

[editor.coloradomineralsociety@gmail.com](mailto:editor.coloradomineralsociety@gmail.com)

# APRIL GENERAL MEETING PRESENTATION

## “All that Glitters . . .”

by Larry Havens

David Rickard’s recent book *Pyrite: A natural history of fool’s gold* (Oxford University Press, 2015) gives us an enthusiastic recasting of pyrite, not as common-as-dirt fool’s gold and a metaphor for false values, but as a “super-hero” mineral that influenced human evolution and culture, science and industry, and ancient, modern and future Earth environments.

Rickard’s praise of pyrite reawakens interest in a mineral so often taken for granted. Commonplace they may be, yet pyrite crystals work a siren call that lures us in despite our best efforts to resist. This bright, shiny mineral enthalls people of all ages, cultures and backgrounds. Budding collectors gravitate to pyrite right out of the gate thanks to its allure, abundance and affordability; it’s our gateway “drug.” Therefore, revisiting an old, comfortable friend of the mineral world, and refreshing what we know of its history and nature, is a worthwhile pursuit.



### The Usual Basics

Name: pyrite (early – *py-ri-tes*, iron pyrites) from the Greek *pyr* for “fire” because it sparks when struck with stone or iron, and, hence, a useful fire starter.

With its pale, brassy-yellow color and metallic luster, pyrite bears a close enough resemblance to gold to dupe the gullible and early on earned the label “fool’s gold.” It further helped spawn the familiar phrase “All that glitters is not gold.” The phrase was considered proverbial by the 16<sup>th</sup> century.

Of course, in reality, pyrite’s physical characteristics are far from gold-like. Pyrite fails the density test with gold – 5 grams/cm<sup>3</sup> to 19 grams/cm<sup>3</sup>. Pyrite is twice as hard as gold; its color is off; and it certainly is not malleable with its conchoidal fracture and brittle tenacity.

The metallic sulfide FeS<sub>2</sub> occurs in virtually all geologic formations. Pyrite displays a great variety of crystal forms for a common mineral. It and calcite go head to head in Goldschmidt’s Atlas of crystal drawings for the most sketches. This is a validation of pyrite as a worthy collectable.

### Uses – Historical and Modern

Pyrite has proved to be a utilitarian mineral for mankind, serving him in many an imaginative way, increasing in sophistication as he developed his arsenal of scientific tools. Probably the earliest application of pyrite was as a fire-starter. No smart, early human would go anywhere without his kit of pyrite and tinder.

A logical adaptation of the “pyrite makes sparks” technology to the human tendency to apply benign processes to the tools of war is seen in the evolution of firearms. In the 1500’s the clumsy matchlock firearm gave way to the “wheel lock” mechanism. In simple terms, a piece of pyrite was levered against a spinning, grooved wheel that shot sparks into a pan of powder that, in turn, touched off the main charge. Finally, a weapon that could be concealed under clothing. This leap forward in firearm design led to the first gun control laws. Fear of assassination among the nobles of the day led to the wheel lock being banned throughout the Holy Roman Empire. Fortunately for the nobles, the wheel lock was too expensive to manufacture in any practical numbers. In no time at all, the flintlock replaced the wheel lock – so much for gun control.

Pyrite was used in classical times to produce *copperas* (iron sulfate), a chemical used in the textile industry as a *mordant*, a dye fixative, and as a means to blacken leather, and also as ink.

By the 15<sup>th</sup> century, such leaching replaced the burning of pyrite as a step in the production of sulfuric acid, one of the most versatile chemicals ever discovered. While today much of elemental sulfur is produced as a byproduct of gas and oil production, some 14 million tons of pyrite are mined per year for its sulfur (85% in China); for use in, what else, sulfuric acid production.



Continued on Page 4

## April General Meeting Presentation (continued)

Pyrite has served human vanity. Pre-Columbian Indians crafted mirrors of polished mosaic surfaces of pyrite. Queen Victoria and the Art Nouveau movement popularized “marcasite” (actually pyrite) jewelry. That such jewelry is still popular in our time serves as a bridge from the old to the new.

- Pyrite was used as a semi-conductor by crystal radio hobbyists.
- Pyrite has become a significant ore of gold thanks to the high price of gold.
- Combined with other conductors, it is used as cathode material in non-rechargeable batteries.
- It has been suggested as an abundant material to use in solar panels.
- Scientific applications abound, for example:
  - Study of sedimentary pyrite may serve to probe ancient marine environments.
  - Analysis of pyrite grains has added to our knowledge of early earth, especially the Great Oxygenation Event.
- New Age practitioners claim that pyrite is a protective, shielding stone to use as an amulet to deflect harm and danger; especially helpful when one is away from home or performing hazardous work.



Collectable pyrite specimens and notable locations are presented.

*Photographs by Larry Havens*

### President's Message (continued)

pressure wash setting set about hosing down the specimens. You will find that you can get your rocks to dance around in the basket getting to all sides of them. I did not try my pressure washer at home because not everyone has one but the car wash is available to all.

**WARNING:** If you try the car wash method above or any variation of it, wear your safety goggles and some good leather gloves if you are going to get your hands anywhere near to high pressure water. I had one big piece that I tried to hold by hand and erred by spraying my hand a little. Boy did that hurt; left my thumb numb for over an hour.

Next month I will start to examine some of the more aggressive cleaning methods. I must warn you – when using more aggressive methods like chemicals it is extremely important to follow all safety precautions and to be responsible to the earth – dispose of the solutions according to the manufacturer's directions and according to the law.

Have a happy Easter (you didn't hear this from me but I heard a rumor that the Easter Bunny is going to drop off some special specimens so that I can give them out at our April 7<sup>th</sup> meeting to our young members).



## Colorado Mineral Society's Silent and Verbal Auction

**Saturday - May 6, 2017**

**Minerals, fossils, faceted stones, lapidary pieces, books, jewelry,  
and fluorescent minerals**

- ✚ Door prizes every half hour, raffle at 2:45pm
- ✚ Special verbal auction at 1:00pm of museum quality specimens donated by special dealers
- ✚ Abundant parking, refreshments, and easy handicap access
- ✚ A few auction tables reserved for only children to bid on

**Location:** Holy Shepherd Lutheran Church  
920 Kipling Street (3 blocks north of West 6th Ave.)  
Lakewood, Colorado 80215

**Time:** 11:00am to 2:45pm  
Checkout will begin at 2:45pm (Cash or Check Only)

**\*\*A special invitation is extended to non-CMS members to participate in this auction as sellers and buyers\*\***

Limit of sales to three flats of materials. Sellers can get copies of bidding slips on our club website (fillable and printable pdf file):

**[www.coloradomineralsociety.org](http://www.coloradomineralsociety.org)**

Checkout will be by bidder number so contact Leslie Osgood at 303-986-4488 (leave a message) or [osgood.castle@juno.com](mailto:osgood.castle@juno.com) for a bidder number and/or seller letter.

Any questions about the auction should be directed to Ben Geller by phone at 303-550-5993 or by email at [geller520@gmail.com](mailto:geller520@gmail.com)

## March 3, 2017 Raffle News

March's ticket sales amounted to \$232, with the retail value of \$158. The two most popular specimens were the Boulangerite specimen from Trepca, Yugoslavia (\$68) donated by **Rocky Mountain Gems & Minerals** and won by *Bruce Sales* and the selenite specimen from New Mexico (\$68) donated by **Richard Owens** and won by *Dan Gillett*. The barite specimen from possibly Stoneham (\$27) donated by **Ken and Mary Black** from the **Lee Barnett Collection** was won by *Mike Dempsey*. The cerussite and barite on galena specimen from Mibladen, Morocco (\$25) donated anonymously was won by *Terry Beh*. The beryl specimen from Centennial Cone in Jefferson County, Colorado (\$23) from the **Charles Spletz Collection** was won by an extra-happy *Bruce Sales*. *Jack Gray* won the veriscite specimen from Avant, Arkansas (\$21) donated by **Self-A-Ware Minerals**.

**Thank you for the donations of these great specimens, without you we wouldn't have this successful raffle.** The proceeds are spent on CMS education, the purchase of library materials, and the state science fair awards. Thanks to a new junior rockhound who's family just joined CMS for helping with the raffle (sorry I did not get your name).

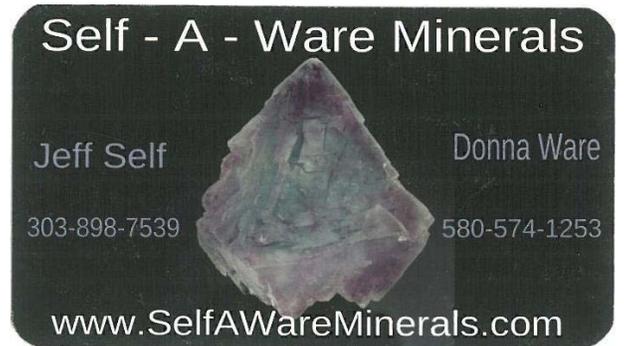
*Congratulations to all the lucky winners!!!!*

*Submitted by Amber Brenzikofer, CMS Deputy Raffle Manager*

**Charles Spletz  
Collection**

**Ken and Mary Black  
Lee Barnett Collection**

**Richard Owens**



### CMS New Members

#### First Listing

Eva Boyer and family  
Melanie Dies  
Jeanne & David Sprowls  
Seana Strle

**Welcome!**

#### Second Listing

Jerry Anderson  
Amy & David Lawson and family  
Lisa Stone  
Sheri Atencio-Church & Daniel Church and family

*\*Per CMS Bylaws, comments concerning new, first listing members should be formally submitted to the President.*

### *Announcing another ridiculously exciting Book/Garage Sale*



1310 Maple Street, Golden, CO

**April 29+30, 2017  
9 A.M. - 4 P.M.**

Thousands of maps; hundreds of books, journals, minerals, fossils, etc.

Prices vary by item or box. Most prices will drop throughout the event.

Information: 303-273-3815

## CONGRATULATIONS!!!!

At this year's Rocky Mountain Federation of Mineralogical Societies (RMFMS) annual convention in Albuquerque, New Mexico on March 17-19<sup>th</sup>, several CMS members and the editor won awards (including four 1<sup>st</sup> place awards) for newsletter bulletins and articles that were submitted to the RMFMS bulletin contest. Congratulations, plaques, and ribbons go to:

- ✓ **Amber Brenzikofer, 1<sup>st</sup> Place**, Large Bulletin "Mineral Minutes" (received a plaque, ribbon, and certificate)
- ✓ **Bill Hutchinson, 1<sup>st</sup> Place**, Written Features "Adventures in Rockhounding" from the February 2016 newsletter (received a plaque, ribbon, and certificate)
- ✓ **Ray McPadden, 1<sup>st</sup> Place** Adult Article Humor "Aquaholics and Outlaws" from the October 2016 newsletter (received a plaque, ribbon, and certificate)
- ✓ **Craig Hazelton, 1<sup>st</sup> Place**, Adult Advanced Article "Teknite Gold: The Making of a Pendant" from the November 2016 newsletter (received a plaque, ribbon, and certificate)
- ✓ **Amber Brenzikofer, 2nd Place**, Adult Article Club Activities, "2016 Denver Gem and Mineral Show Recap" from the October 2016 newsletter (received a ribbon and certificate)
- ✓ **Debbie Kalsheur, Certificate of Appreciation**, Photo Collage Features "CMS Gemology Identification Course" from the May 2016 newsletter (received a certificate)

The plaques and ribbons will be presented at the April 7th general meeting. The articles from the top three RMFMS winners in each category are entered in the American Federation of Mineralogical Societies (AFMS) bulletin contest that will occur later this year.

Go to the RMFMS website for additional info on the contest and entry requirements for articles, photo collages, poems, drawings, etc. For articles published in Mineral Minutes, they can be informational (how to, historical, lapidary, hints), collecting localities (old or new, no travelogues), club activities/members interests (editorials, shows, judging, community/civil affairs), science (mineralogy, geology, paleontology), and humor (must relate to hobby, but can be a "fun" article). There are awards for junior authors as well, so encourage your junior rockhounds to write an article, draw a picture of a mineral, or create a cartoon and submit to the editor for publication in the newsletter, which will be submitted for competition.

Contact the editor if you have any questions on future submittals.

*Submitted by Amber Brenzikofer, Editor*

CMS

## May 6th Auction

CMS will have its annual silent auction of mineral hobby items on May 6th at the Holy Shepherd Lutheran Church located at 920 Kipling, 3 blocks north of 6th Avenue in Lakewood, from 11:00am to 2:45pm. Admission is free. Checkout begins at 2:45pm (**cash or check only**). We need volunteers and a sign-up sheet will be available at the upcoming general meetings. The auction features reasonably priced minerals, fossils, faceted stones, lapidary equipment, books, and jewelry to the general public. A unique aspect of this auction is the ability for visitors to view and bid on fluorescent minerals in a special ultraviolet powered Fluorescent Room! There are door prizes every half hour, and a special verbal auction at 1:00pm of museum quality specimens donated by special dealers. There is abundant parking, refreshments, and easy handicap access without any stairs. As always, the club will have a few auction tables reserved for only children to bid on.

If you would like a seller letter/bidder number for the May auction, please call **Leslie Osgood** at 303-986-4488 and leave a message or if you can't reach her at the phone number, send her an e-mail requesting a letter/number and she will send it by e-mail. Her e-mail is [osgood.castle@juno.com](mailto:osgood.castle@juno.com).

Sellers can get extra copies of bidding slips in the May CMS newsletter or on our club website at [www.coloradomineralsociety.org](http://www.coloradomineralsociety.org). The website version of the forms can be filled in electronically. Be sure to include a minimum bid and make sure the seller letters are legible on the bid forms or you may not get your specimen or cash back. There will be small cards available at the auction that you can place next to your bid slip that state "do not touch specimens" if you have delicate specimens.

### Volunteers Needed:

- |                           |                  |
|---------------------------|------------------|
| * Set up team             | * Cashiers       |
| * Food service help       | * Back room help |
| * Check-in help           | * Clean up       |
| * Verbal Auction help     | * General help   |
| * Table clearers & movers | * Raffle helper  |

Contact **Ben Geller** at [geller520@gmail.com](mailto:geller520@gmail.com) for more information.

# CMS Junior Rockhounds Program – April 2017 Meeting

***“Turning those dirty, old rocks into a beautiful, organized collection.”***

by Dr. Lewis Reynolds, Junior Rockhound Chairperson



“Yee-haw!” Your perseverance has finally been rewarded as you pull a stunning crystal of amethyst from the dirt at the bottom of your deep prospect hole. The soil begins to fall away from the large, smooth faces as you hold the specimen to the sunlight to confirm the stone’s deep purple color. After sharing your joy with your field trip companions, the crystal is carefully wrapped in newspaper to be kept safe during the journey home.

At our April meeting, the Junior Rockhounds will discuss the next steps required to prepare a field-collected specimen for display. One helpful topic will be the use of acids to remove iron oxide-hydroxide (rust) stains commonly found on specimens recovered from pegmatites (as shown below). We shall also emphasize the importance of labeling.

Amethyst

Red Feather Lakes area, Larimer County, Colorado

Collected by Lewis Reynolds in 2012.

Jennifer Muske photo from <http://www.coloradomineralsociety.org/photogallery/redfeather2012/>.



*Cleaned with Water    Rust Stain Removed    On Display at the 2012 Denver Gem & Mineral Show*

Parents or guardians are strongly encouraged to attend the Junior Rockhounds Program with their children. Because our field trips require the participation of parents, our program is intended as much for adults as for their children. Some mineral preparation techniques will require parental supervision at home. Although no supplies are needed for this meeting, a pencil or pen and a notebook may be helpful for taking notes.

Looking ahead, the CMS Junior Program will not meet during the CMS regular meeting on May 5, 2017 for this evening is devoted to field trip introductions and sign-ups. Hard hats will again be available for youth whose families are planning to join CMS field trips this summer. Please bring permanent markers and stickers to personalize your hard hat while you learn about our club’s upcoming field trips!

## **GEODyssey's Annual Mineral & Fossil Home Sale**

**June 10-11, 2017, 9 am to 3 pm**

15339 West Ellsworth Drive, Golden, CO 80401 ([303-279-5504](tel:303-279-5504))

This will be a **2-day sale!** Help us reduce our inventory, and celebrate our 20 years in business, at our annual mineral and fossil "garage sale". This year we will be featuring specimens that we obtained on our trip to Bulgaria, as well as specimens from our personal collection. All specimens are a minimum of 20% off, with bigger discounts for volume purchases. We'll have many new specimens priced at 50% off, and some at 75% off. We will also be featuring jewelry and beads. Drinks and snacks provided while you relax on our shaded patio. You can preview some representative specimens on our web site, [www.geodyssey-rocks.com](http://www.geodyssey-rocks.com).

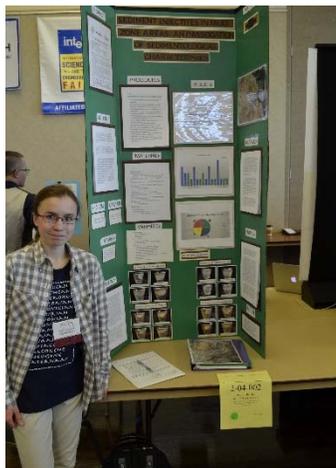
Directions: from west 6th Avenue, exit onto Indiana Street and go south on Indiana. Drive into Mesa View Estates. Turn right at the first street (McIntyre Circle) and right at the next street (Ellsworth Drive). We are about midway down the street on the left.

Pat & Zelda

# 2016 Colorado Science and Engineering Fair: Connecting with Kids Through Earth Science (Reprint)

by Craig Hazelton

The photograph of Jenna Salvat from the 2016 Colorado Science and Engineering Fair in the March 2017 Mineral Minutes newsletter regrettably had some printing issues, so the featured artist portion of the article has been reprinted here.



## Featured Geologist In-Training, Jenna Salvat

Meet Jenna Salvat, a particularly bright 9<sup>th</sup> grader from Colorado Springs, you may have met her at the Denver Gem and Mineral Show. Jenna conducted an interesting and very impressive study of sedimentary formations within igneous formations near Helen Hunt Falls outside of Colorado Springs. Check out her abstract below (I say, “Wow!”).

**Project Title:** Sediment Injectites in Fault Zone Areas: An Investigation of Sedimentological Characteristics

**Individual Name:** Jenna Salvat

**School & City:** Coronado High School, Colorado Springs

**Sponsor's Name:** Christine Siddoway and Steven Veatch

**Category:** Earth & Space Sciences

**Division:** Senior, 9<sup>th</sup> grade

**Abstract**— The purpose of this experiment was to analyze how the density of igneous rock and the rate of injection of liquefied sediment would impact the sedimentary structures created in fault-bounded clastic intrusions into plutonic basement rocks. This was tested by creating desiccated gelatin-water mixtures with varying concentrations of gelatin in each mixture. By increasing the gelatin concentration, the density of the sample also increases, which decreases the permeability of the mixture. Samples of the experiment could also be aided by a replica fracture, which simulated the geologic features and characteristics that were analyzed in the field. Samples were injected with plaster-of-paris as a substitute for liquefied sediments. In samples excluding a fracture, dominant tabular bodies were present in all sample densities, and no tubular structures were created; secondary tabular bodies or fluted structures could be present, but were not as common. In fracture-aided samples, the injection followed the fracture and created complex sedimentary structures, ranging from tubular to fluted. Regardless of injection rate and density, all samples without a fracture exhibited a range of 1-4 tabular structures, 0 tubular structures, and 0-2 fluted structures; all samples with a fracture exhibit a range of 1-2 tabular structures, 1-6 tubular structures, and 1-2 fluted structures. Samples with a fracture overall exhibited more sedimentary structures, regardless of sample density. This demonstrates a high correlation of numerous, complex sedimentary structures to pre-existing fractures, that were created in response to the agitation caused by fault zone earthquake episodes.

## In Memorium

It is with great sadness to report that Paul R. Ralston, a CMS life member, passed away in March at the age of 91. Paul and Martha, his wife, joined CMS in December 1983. Our sincere condolences to Martha and their family.

If anyone has photos or CMS stories of Paul and Martha, please send them to [editor.coloradomineralsociety@gmail.com](mailto:editor.coloradomineralsociety@gmail.com)

54th Annual  
**Pikes Peak Gem, Mineral,  
and Jewelry Show**  
Featuring Pyrite  
Fri. & Sat., June 2-3, 2017, 10:00-5:00 / Sun., June 4, 2017, 10:00-4:00  
Adults \$5.00 / 3-Day Pass \$8.00 / Kids 12 & Under FREE  
MORTGAGE SOLUTIONS  
FINANCIAL EXPO CENTER  
3650 N. Nevada Avenue  
Colorado Springs, CO 80907  
(From I-25 go east on W. Garden of the Gods Rd., turn south on N. Nevada Ave., 1 mile on right)



Sponsored by: Colorado Springs Mineralogical Society [ppgmjshow@gmail.com](mailto:ppgmjshow@gmail.com)

## CMS Membership Dues Reminder!!

CMS memberships run from January 1st to December 31st. Here are ways to pay your dues:

1. Pay with cash or check at the general meetings the first Friday of each month from October through May. Look for the Membership Chairperson to obtain a receipt and membership card.
2. Send a check made out to "Colorado Mineral Society" or "CMS" to P.O. Box 280755, Lakewood, Colorado 80228-0755. Please do not send cash through the mail. Membership cards will be mailed to you.
3. Fill out a membership form and bring cash or check to a field trip to receive a temporary membership card. A new membership form is located on the CMS website at [www.coloradomineralsociety.com](http://www.coloradomineralsociety.com).

### CMS Membership Fees:

Family: \$16 per year

Single: \$14 per year

Senior 65+ (single or family): \$12 per year

Junior (<12 years old): \$12 per year

Also, due to RMFMS insurance and liability purposes, we need to know the month and year of your children's birthdays, so please provide this information when you renew your membership. The children's information will not be published. If you ordered a name badge, they will be available at the general meetings to pick up.

## RMFMS 2018 Annual Convention - Fairplay, Colorado

RMFMS delegates voted to have the 2018 Annual Convention held in Fairplay, Colorado the weekend of June 8,9, and 10... in conjunction with the Fairplay Contin-Tail Rock Swap. The meetings/breakfast/banquet will be held at the new Riverside Inn, next to the swap grounds, along US 285. This convention will be totally different than most RMFMS events I've ever attended. We'll do the dirty work on Saturday, then adjourn to field trips on Sunday and perhaps Monday. Saturday night's speaker will be Dr. Peter Modreski and his "Colorado's Best 10 Collecting Sites." (to be followed on Sunday with trips to probably five of the sites).

This event requires that all Colorado clubs in some way be involved in the event (spread the wealth and the whole organization won't fall on one club). Denver Gem and Mineral Guild will take the lead in organizing the events in the hotel. We'd like the other clubs to offer to lead at least one field trip, provide favors for the breakfast and banquet, and help handle registration and field trip organization.

The FIRST preparatory gathering of clubs (any officers/ reps) will be held Saturday May 6, 2017 at the Pikes Peak Historical Museum in Florissant, CO at 10:00am. The building houses the nation's largest smoky quartz crystals and other fine specimens donated by the members of Lake George Gem and Mineral Club. The meeting will aim to prepare an "agenda" and organize our thoughts about the Fairplay event. Who will do what and when?

Please let me know who will be attending this meeting from YOUR club!

THANKS!

Beth Simmons, Ph.D.

RMFMS 2017 President

**Editor's Note:** Anyone interesting in attending the May 6<sup>th</sup> meeting in Florissant on behalf of CMS, please contact the editor at [editor.coloradomineralsociety@gmail.com](mailto:editor.coloradomineralsociety@gmail.com). That happens to be the date of the CMS auction, so the CMS Board will be tied up on that day. Also, if you are interested in leading a field trip or putting together a club display for the convention dates in 2018, please speak up. This is a great opportunity to attend the annual RMFMS convention so close to Denver.

# Upcoming Events, Shows, Mineral Sales

by Pete Modreski

**Thurs., Apr. 13, 4:00 p.m., Mineralogy of the Earth's Interior**, by Dr. Joseph R. Smyth, Mineralogist and Mineral Physicist, Department of Geological Sciences, University of Colorado-Boulder. **Friends of the Colorado School of Mines Geology Museum's "First Thursday" lecture series** [but this month, on the 2<sup>nd</sup> Thursday] on the CSM campus in the Ben H. Parker Student Center, Ballroom E, Maple Street, Golden. Socializing at 6:30 p.m. and the lecture will start at 7:00. Admission is free and all are welcome.

**Fri., Apr. 14, 6:45 p.m., North Jeffco Gem & Mineral Club Silent Auction.** APEX Community Center, 6842 Wadsworth Blvd., Arvada. Setup at 5:30, auction begins at 6:45. All are invited.

**Fri.-Sat.-Sun., Apr. 14-17, Colorado Mineral and Fossil Spring Show**, Crowne Plaza Hotel - Airport, 15500 E. 40th Ave. Denver, CO; 9 a.m. to 6 p.m. Fri. & Sat., 9-5 Sunday. Free admission. See <http://www.rockygems.com/colorado-mineral--fossil-spring-show-2017.html>. Saturday evening at the show, 6-9 p.m., will be the **2<sup>nd</sup> Annual Colorado School of Mines Geology Museum Fundraiser & Social**, including a silent & vocal auction.

**Sun., Apr. 23, 8 a.m., Earth Day Geology Hike on North Table Mountain**, to include seeing the Table Mountain lava flows, sedimentary rocks of the Denver Formation, and the zeolite locality in the middle lava flow at a former paving stone quarry, now part of Jefferson County Open Space. A 1.3-mile hike each way; meet at 8 a.m. at the trailhead at Easley Way & Ulysses Way, on the southeast side of North Table Mountain. To be led by USGS geologist Pete Modreski. For more info or to confirm attending, please contact (weekdays) [pmodreski@usgs.gov](mailto:pmodreski@usgs.gov), 303-202-4766, or (weekend contact info) [pmodreski@aol.com](mailto:pmodreski@aol.com), cell 720-205-2553.

**Sat., May 13, Friends of Mineralogy, Colorado Chapter, Silent Auction.** Clements Community Center, 1580 Yarrow St., Lakewood CO, 12:00-4:00 (setup begins at 10:30 a.m., auction begins at 12:00, verbal auction 1:00, all tables will close by 3:00 p.m., checkout follows). For more info see <http://friendsofmineralogycolorado.org/>.

**Fri.-Sun., May 26-28, Fossil Fish Dig, Kemmerer, Wyoming.** Friends of Dinosaur Ridge is sponsoring a field trip to collect fossil fish at a private quarry in Kemmerer, WY. The registration fee of \$550 per person (\$525 for Friends members and volunteers) includes transportation to and from Kemmerer, 2 nights lodging, 2 breakfasts and 2 lunches, 2 speaker sessions about the fossils, and 2 days (4 hours each) digging for fossils. Registration and full payment is due by May 5. For full info and a copy of the registration form, please write to [volunteer@dinoridge.org](mailto:volunteer@dinoridge.org).

## Mineral Sales

**April 22-23, Rock/mineral collection sale (8-5 Sat., 10-3 Sun.).** "After 60+ years of rock hounding and collecting, Dan Lovitt, Littleton Club, has decided it is time to disperse most of his accumulated material. This is an eclectic collection and includes many different rocks, minerals, fossils and even some landscape/yard art material. The largest volume of rocks will be of fossil wood (petrified wood); approximately 2500 – 3000 pounds. The second largest group of material will be of agates, jaspers and various other workable stones; approximately 1600 -1900 pounds. Next will be mineral specimens; approximately 30 – 35 flats/containers. Some slabs of Wyoming nephrite jade, obsidian...". Soft drinks/water and hot dogs for all; small gifts for children under 12. 7045 W. Pineview Dr., Littleton 80125. For more description of material to be sold, please write to or [Daniellovitt@aol.com](mailto:Daniellovitt@aol.com).

**July 14-15-16, 9 a.m. – 6 p.m. daily**, there will be a "Home Rock Show (Sale)" by John Haney, 4242 Thompson Court, Denver CO. 80216 (south of I-70, east of York St. & west of Steele St.). "Rough rock, slabs, cabs, enhydros, fossils, amber, minerals, crystals, gemstone bowls & boxes, lapidary equipment & supplies; discounts for lapidary students." Contact, [Rocksisme@comcast.net](mailto:Rocksisme@comcast.net), 303-296-8268.

# Denver Gem & Mineral Show Mini Report March 2017

## 50th Anniversary Show

Wow! Historic, exceptional, spectacular, unparalleled, marvelous! There are not enough superlative words to describe how fantastic the 2017 50th Anniversary Denver Gem & Mineral Show will be! The theme is appropriately gold and silver. Remember the dates are September 15 - 17, 2017 and the venue is the usual Denver Mart, 451 E. 58th Avenue (exit 215 on I-25). The Show Chair is Lesley Sebol, 720-999-1372 or lesleysebol@gmail.com.

**GOLD AND SILVER!** Now you may be thinking boring (or not so boring) nuggets and lumps of gold and silver. Not so! Hold onto your hat! There will be exhibits of beautiful and rare crystals of gold and silver. Gold is an isometric mineral and is found in octahedral, cubic and dodecahedral crystals. Silver is likewise isometric and occurs rarely as cubic and octahedral crystals, usually displaying stepped faces. Of course, gold and silver also occur as simple or intricate wire-like forms. Think Medusa's head! Colorado has a long history of gold and silver mining and there have been many iconic specimens of gold from such places as the Ground Hog Mine, Eagle County, and Farncomb Hill, Summit County, and of silver from such places as the Mollie Gibson Mine, Pitkin County, and Creede, Mineral County.



The Show Committee is working diligently to bring spectacular exhibits to this year's show.

A 50-year retrospective is being written about the show by Mark Jacobson, well-known local geologist and writer. Much of it is written and is an engaging account. Who were these early show pioneers who were so dedicated to continue the show annually facing the challenges that occurred? And there were many challenges. Remember the show started in 1968, 50 years ago. Some of the names you would recognize but others you would not. The show moved around to different venues. In 1975 the show was a combined show of the American Federation, the Rocky Mountain Federation and the Colorado Federation of Mineralogical Societies. With the additional activities and requirements of the combined show, the show lost money! But the committed hobbyists of those years did not give up and continued to develop the show. The Internal Revenue Service even intervened at one point. You will want to acquire a copy of the historical account when it is completed. It will be available closer to the show. There will also be information about the Council and all the grants that have been made in support of the earth sciences. It is successful shows that have provided the funds for the grants. Successful only because of the efforts of all the volunteers - see next paragraph.

Now let us be clear! The show is an all-volunteer effort put on by the members of the eight local gem, mineral and fossil clubs. The Show Committee is the body of about 50 members strong who meet all year long to plan the show. Planning and operating the show is a lot of work! In addition to the 50 persons on the committee, it requires about 400 volunteers to operate the show at show time. The Show Committee depends on the clubs for these volunteers. The volunteer signup sheets are available at your club meetings. Please be generous with your time and energy to support the show. The Show Committee greatly appreciates your efforts. You will enjoy the experience as well, meeting new people and learning new things. It is always exciting and interesting!

The Committee also needs your help and is always looking for new and younger persons to join. Right now, there is a need for a Grab Bag Chair. This is not a terribly difficult job but primarily involves organizing the grab bag, pin and poster sales tables at the show. The most important part is finding additional volunteers to assist at the tables during the show. The former chair maintained a list of volunteers from prior years. It is fun to sell the bags to all the children, who are delightedly expecting that fabulous specimen in their bag. We do not want to disappoint the children.

So think about the show. It's only six months away and there will be only one 50th Anniversary Show. Let us all make the best of it! Remember we are counting on you to help us! And we know you will not disappoint.

*Respectfully submitted, Judy Knoshaug, Show Secretary*

## CMS General Meeting on March 3, 2017

John Smith, CMS President, opened the meeting with greeting all new members and visitors.

Attendance: 80 members and 4 guests

General Announcements:

John Smith indicated there are numerous CMS Board and Chairperson positions available.

Ben Geller and Rob Deschambault discussed the annual CMS May 6<sup>th</sup> auction and sent around a volunteer sheet.

Bruce Sales reported for the show committee and the need for volunteers:

Debbie Kalscheur, Education coordinator, reported that the gem identification course is scheduled to start Monday, April 3<sup>rd</sup> for 4 weeks. Slots are still available. The class is \$35 per person.

Cara Reynolds reported on new members.

Gary Rowe was not able to attend the meeting so Amber Brenzikofer gave a brief update on field trip updates and will be ready for the May meeting to rollout the 2017 field trip guide.

Door Prize Winners (donated by Christy Fischer from the Ray Frost collection):

Terry Beh	Mitzy Bacman	Don Bray	David Brown
Mike Dempsey	Rob Deschambault	Melanie Dies	Star Edwards
Ben Geller	Darlene Guild	Debbie Kalscheur	Marty Keilman
Chuck Landes	Mark Leatherman	Mark Leavitt	Mr. Lewis
Bobby Manny	Donald Parsons	Ron Pearson	Wayne Pond
Ted Randolph	David Rittinger	Jack Sliemers	John Todesco
Brenda Wray	Dan Wray		

*Thanks to Cailin Bateman for helping draw ticket numbers.*

Presentation: Pat Tucci and Zelda Bailey on their "Mineral Tour in Bulgaria"

Raffle (see Raffle news in this newsletter)

Meeting adjourned

*Notes taken by Sandra Gonzales, Secretary*

### Rocky Mountain Federation News

The Rocky Mountain Federation of Mineralogical Societies (RMFMS) is made up of 81 clubs representing 13 Western states. CMS is a member of RMFMS. The Rocky Mountain Federation News is published monthly and is located at [www.rmfmts.org](http://www.rmfmts.org).



### A.F.M.S Newsletter

The American Federation of Mineralogical Societies (A.F.M.S) serves seven regional federations, including RMFMS. The A.F.M.S Newsletter is published monthly and is located at: <http://www.amfed.org/news/default.htm>.

APRIL 14-16, 2017

## COLORADO MINERAL & FOSSIL

S P R I N G • S H O W

Crowne Plaza Hotel & Convention Center  
15500 E. 40th Ave.  
Denver, CO 80239

**Minerals  
Fossils  
Jewelry  
Retail & Wholesale  
70+ Vendors  
Kids Activities**

**FREE  
ADMISSION!**

**Doors Open Daily:  
9AM-6PM  
Sunday: 9AM-5PM**

**2nd Annual  
Colorado School of Mines  
Geology Museum  
Fundraiser & Social  
SATURDAY 8-9PM**

**MORE INFO AT  
WWW.ROCKYGEMS.COM**

**Colorado Mineral & Fossil Spring Show**  
Hosted By  
Rocky Mountain Gems & Minerals  
P.O. Box 100487  
Denver, CO 80250

## Colorado Mineral Society Board Meeting March 21, 2017

Attendance: John Smith, Bruce Sales, Sandra Gonzales (via phone), Eva Siemonsma, Debbie Kalscheur, Amber Brenzikofer, Ben Geller, Cara Reynolds, and Leslie Osgood

Call to Order – John Smith

### Old Business:

May Auction Planning Committee – Ben Geller and Rob Deschambault

March 9th meeting was held by planning committee to discuss logistics and format

Facebook event page has been set up for CMS, so we can advertise the auction through social media

Debbie has written up procedures for donations for verbal auction. She will need help at the April show to get donations.

Selection of donations by committee for verbal auction will be April 25th 7pm

Board-Appointed Positions Available for 2017:

- Secretary – Open
- Junior Rockhound Assistant - Open
- Donations Assistant: Open – Open
- Display Chairperson: Open
- Membership Chair – Open

Grab Bag Committee:

Eva wrote a draft protocol for Grab Bag procedures. Need an inventory of all donated grab bag material to date. Eva has developed boxes of materials to hand out to members to stuff in bags.

Education Funds:

Debbie update on Gemology class with Star Edwards, which starts April 3<sup>rd</sup> for 4 weeks. A motion was made and approved to hold the class and pay for a minimum number of 8 participants with a max up to 16.

Scholarship to Colorado School of Mines for a geology student – a proposal was made by Eva was approved by the Board to spend \$500 for scholarship.

Club Assets:

Eva requested an inventory of tangible assets that the club owns. Inventory should be sent to Eva by email.

Bylaws Update:

Eva sent a draft proposal for updates to the CMS bylaws. In addition, the Board will review other areas of the bylaws that may need to be updated and report back at a separate Board meeting to be scheduled this summer (August).

The revised bylaws will be placed on the CMS website and added to the October newsletter, for adoption at the October general meeting.

Auditor:

John to look for an auditor for CMS books, which needs to be annually.

Membership:

Board approved purchase of a new updated Laptop for up to \$500. Cara still researching the best deal for the lap top and software. Two Access software licenses will also be purchased.

### New Business:

Treasurer's Report – Eva Siemonsma

A copy of the treasurer's report will be available at the next general meeting.

Membership Report – Cara Reynolds

There are currently 285 member units, less than half have renewed so far. The membership cut-off date is April 7th in order to get your name in the CMS Directory.

General Meeting Presentations:

April – Pyrite – Larry Haven (will bring specimens to give away with a quiz), needs 45-60 minutes

May – Field Trip meeting (John and Cara will not be at this meeting)

Field Trips – Amber Brenzikofer reporting for Gary Rowe

Gary still working on field trip for the May meeting.

Lewis Reynolds will submit a proposal for the junior rockhound program for an educational field trip.

Denver Council Report – Bruce Sales

Joe Payne, President of the Council, nominated two members to be on a strategic planning committee.

Denver Show Committee Report – Amber Brenzikofer

Committee reviewed a proposal from Mindat to hold a silent auction on Saturday evening along with the awards ceremony and dinner.

The Committee sent out a poll on themes for upcoming shows and the results for the next five years were: 2018 Mexico, 2019 Canada, 2020 Fluorite; 2021 China, 2022 Colorado fossils.

Next scheduled CMS Board Meeting: April 18, 2017 7:00pm

*Notes taken by Amber Brenzikofer for Sandra Gonzales, Secretary*



Colorado Mineral Society  
PO Box 280755  
Lakewood, CO 80228

## FIRST CLASS MAIL



### Calendar of Events

**April 7, 2017, CMS April General Meeting** at St. Paul's Episcopal Church, Lakewood, 7:30pm

**May 5, 2017, CMS May General (Field Trip) Meeting** at St. Paul's Episcopal Church, Lakewood, 7:30pm

**May 6, 2017, CMS Annual Auction** at Holy Shepherd Lutheran Church, Lakewood, 11am-2:45pm