



THE BULLETIN OF THE COLORADO SPRINGS MINERALOGICAL SOCIETY Published Since 1960

Colorado Springs
Mineralogical Society
Founded in 1936

December 2013
PICK&PACK

Vol 53. Number 10

**CSMS General Meeting
Thurs. December 19, 2013 7PM
"Christmas Party"
And Election of CSMS Officers for 2014**

Bring Special Treats and Goodies of all kinds to share

**Bring a small mineral, beautifully wrapped, well labeled to participate in
the Gift Exchange**

There will be a Silent Auction

**We have some nice specimens already but we can always use more
Please bring any donations properly labeled for the Silent Auction to the
Party**

Slate of CSMS Officers for 2014

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President:	Mark Lemesany,
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Treasurer:	Ann Proctor
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Editor:	Ellie Rosenberg
Member at Large:	Frank Rosenberg
Member at Large:	Renee Swanson

Dues are Due for 2014 !!!

CSMS Calendar

December 2013

Tue., Dec 3—Fossil Group, 7 p.m., Senior Center.

Thu., Dec 5—Board Meeting, 7 p.m., Senior Center.

Sat., Dec 7—Lapidary, 10-2 p.m., Sharon Holte 217.5683.

Tue., Dec 10—Micromounts, 7 p.m., Senior Center. Dave Olsen, 719.495.8720

Thu., Dec 19—General Assembly, 7 p.m., Senior Center.

Pebble Pups & Juniors. 5:30 to 6:15 p.m., Steven Veatch, 719.748.5010

Thu., Dec 26—Crystal Group, 7 p.m., Senior Center. Kevin Witte, 719 638-7919

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

Dec, Jewelry Group, By appointment. Call, Bill Arnson, 719.337.8070. 15610 Alta Plaza Cir., Peyton
January 2014

Thu., Jan 2—Board Meeting, 7 p.m., Senior Center.

Sat., Jan 4—Lapidary, 10-2 p.m., Sharon Holte 217.5683.

Tue., Jan 7—Fossil Group, 7 p.m., Senior Center.

Tue., Jan 14—Micromounts, 7 p.m., Senior Center. Dave Olsen, 719.495.8720

Thu., Jan 16—General Assembly, 7 p.m., Senior Center.

Pebble Pups & Juniors. 5:30 to 6:15 p.m., Steven Veatch, 719.748.5010

Thu., Jan 23—Crystal Group, Senior Center, Kevin Witte, 719 638-7919

Faceting Group, Senior Center, Paul Berry, 719.578.5466

Jan, Jewelry Group, By appointment. Call, Bill Arnson, 719.337.8070. 15610 Alta Plaza Cir., Peyton

The Senior Center is located at 1514 North Hancock in Colorado Springs. For more information on any of the sub-groups, meetings, and other CSMS valuable information, go to our website, csms.us

Tues., Dec. 3, 6:30 p.m., Hale #270, CU campus, Boulder, in the lecture/discussion se-

Other Events of Interest to CSMS Members

ries, **FrackingSENSE 2.0: What We Know, What We Don't Know, and What We Hope to Learn about Oil & Gas Development;** by Robert Martin, Tribal Member, Makah Tribe, President and Owner of Tartoosh International. In our first series [last spring], we asked our speakers to offer information & expertise on various aspects of Natural Gas development. This time, we have encouraged our speakers to offer evidence-based findings that might lead to recommendations and prescriptions for the future. All our upcoming speakers will demonstrate how they weigh evidence, evaluate conflicting studies, and appraise contradictory claims." See <http://centerwest.org/> for information on the remaining two speakers in the series, Dec. 3 and 10.

Tues., Dec. 10, 6:30 p.m., Hale #270, CU campus, Boulder, in the lecture/discussion series, FrackingSENSE 2.0: Howard Boigon, Tradition and Innovation in the Oil and Gas Industry: Reflections and Observations.

Fri.-Sun., Dec. 13-15, Flatirons Mineral Club Rock & Mineral Show, taking place at the Boulder County Fairgrounds, Main Exhibits Building, Hover & Nelson Roads, Longmont, CO. Hours are 10-6 Fri., 9-5 Sat., 10-5 Sun. Admission charge. For more info see <http://bcn.boulder.co.us/community/fmc/fmcshow.htm>

Sat., Dec. 14, Dinosaur Discovery Day – Walking with Dinosaurs, 10 am - 1 pm. "Dress to stay warm for the national Walking with Dinosaurs Day promoting 20th Century Fox's new movie of the same name. Guides will be stationed at the main sites on Dinosaur Ridge. Shuttle buses will take you to the Bone Site (\$4) or you may walk for free. Visit Trek Through Time, free to kids and free to everyone if the outdoor program is cancelled. Register to win movie tickets and door prizes." At the Dinosaur Ridge Visitors Center, 16831 W. Alameda Parkway, Morrison; for more info see <http://www.dinoridge.org/> .

Thurs., Dec. 19, 7:00 p.m., Colorado Scientific Society annual Business Meeting and President's Address, Exploring Areas of Natural Acid Rock Drainage in Colorado, by Matthew Sares; all are welcome to attend; at Shepherd of the Hills Church, Lakewood.

COLLECTING DIAMONDS AND QUARTZ IN ARKANSAS

Mike Nelson csrockguy@yahoo.com

Whenever someone mentions minerals from Arkansas, two items pop into my head—diamonds and quartz. I am certain these two minerals bring more rockhounds to the state than all of the others added together. I have prospected for both, but have been successful in acquiring specimens of only one. Care to guess which mineral?

Michael Howard has a web site entitled *Rockhounding Arkansas* and I would refer readers to that site: [www. http://rockhoundingar.com/](http://www.rockhoundingar.com/). Howard notes that over 300 minerals are known from Arkansas with ten of them first identified and named from the state. The Arkansas Geological Survey has an interactive web site describing mineral collecting localities: <http://www.geology.ar.gov/geology/fieldtrips.htm>. For this small article I will only describe a few minerals that I have in my collection.

Today, most people associate Arkansas diamonds with the diggings at Crater of Diamonds State Park (southeast of Murfreesboro). Diamonds have been “mined” in this area, off and on, since their discovery in 1906. Essentially all of the commercial attempts have failed, mostly due to the production cost per carat. The most successful of the mining ventures began in 1972 when the state established the Park for the enjoyment of rockhounds. For a fee, visitors may search a ~38 acre piece of plowed ground and keep all diamonds located (average of one or two per day for the entire Park). Most finds are small specimens, less than one carat, and many are the result of these tiny stones slipping through the screens/mesh of earlier commercial ventures. However, perhaps 30k diamonds have been found in the Park since 1972, among them a 16.37 white gem. Before the creation of the state park, two diamonds of note included The Uncle Sam at 40.42 carats and the Star of Murfreesboro at 34.25 carats. My prospecting experience fell into the category of “fun; a nice one-time experience”.

The geology of the diamond finds are more interesting, at least to me, than the gems themselves. All of the diamonds are associated with a gaseous explosive event: ~106 Ma in the Cretaceous that brought up rocks from deep within the earth’s mantle. These rocks are generally preserved in structures called pipes or diatremes and in Arkansas are known as lamproite, a rare rock type similar to the better known kimberlite and peridotite. Most of the Arkansas diamonds are found in a sticky gumbo that results from weathering of the mantle rocks (lots of chlorite, olivine, and clastic fragments). Since the diamonds are essentially impervious to weathering, they were preserved and will screen out of the clay. Above history from Howard, 2007.

The famous diamond-bearing pipes of South Africa are similar in nature to the Arkansas occurrences and early promoters were hoping for a corresponding discovery. Here in the Mountain West numerous diamond-bearing kimberlite pipes have been located in the Colorado-Wyoming State Line Diamond District. It is my understanding that over 100k diamonds have been commercially produced from this district. The area is of interest to me since in 1965 I completed a field camp project near the Sloan Diatreme in the District. One of our assignments was to complete a working proposal for extraction of diatreme diamonds—what would it cost, how would you do it, would there be a profit? The assignment was prepared as a hypothetical business proposal for a mining company. Of course at that time diamonds had not been discovered in the District and the students (smart as we were) laughed and giggled at the idea! The



Fig. 1. A 3.85 carat canary diamond found in Arkansas in mid-October 2013 by a teenage prospector from Oklahoma. Photo courtesy State of Arkansas.



Fig. 2. Location map for State Line Diamond District. Map courtesy Colorado Geological Survey.

instructor had the last laugh since in 1975 diamonds were located!

Most rockhounds have not had the “luck” to locate an Arkansas diamond; however, many (including several members from the CSMS) have been able to collect magnificent, sometimes water-clear, terminated quartz crystals (Figs. 3-7). Howard (2008) has compiled a history of the area and the following information is from his work at the Arkansas Geological Survey.

Generally the crystals occur in veins that are most productive in a belt approximately 170 miles long and 30-40 miles wide extending from Hot Springs southwest to eastern Oklahoma. This belt is the core of the Ouachita Mountains and the veins and pockets are found in both Paleozoic sandstones and shales. Generally the sandstone-hosted crystals are clear while those found in the shales are milky or cloudy.

The quartz veins are associated with the orogenic folding of the rocks and the fractures (holding the crystals) generally follow the bedding of the folds. Percolating silica-rich meteoric waters deposited the SiO_2 about 245–280 Ma during the building of the Ouachita Mountains.

Howard noted that at least 11 fee-operated quartz digs were in operation, with most in the vicinity of Mt. Ida.

In addition, tens (probably hundreds) of rock and mineral shops in the state (and elsewhere) offer quartz crystals of all varieties, including some really black crystals. Although the quartz mines do produce some smoky varieties, there are several dealers who sell irradiated crystals. An honest dealer will advertise the “smoky quartz” as irradiated while other not-so-honest sellers simply call it black quartz from Arkansas.

On a field trip long ago I collected a few nice crystals from open road cuts (Figs. 3-7). However, if I visited the state again I would consider a fee-operated dig, unless a member of the local rock and mineral club volunteered to guide!

As noted above, I completed my geologist “rite of passage” in 1965 and attended summer field camp while enrolled at Colorado State



Fig. 3. Water-clear quartz crystals. Width ~2.5 cm.



Fig. 4. Quartz crystals. Width ~5.5 cm.



Fig. 5. Nicely terminated quartz crystals. Width ~6.5 cm.



Fig. 6. Terminated quartz crystals with taller crystals water-clear. Width ~6.3 cm.



Fig. 7. Group of tall slender quartz crystals. Width ~8.2 cm.



Fig. 8. Steamboat Rock exposing rocks of the Fountain Formation (I think). Stream in the foreground exposes Precambrian rocks. The unconformity between the Fountain and the Precambrian is due to the late Paleozoic mountain building event termed the Ancestral Rockies Orogeny. Paleozoic rocks older than the Fountain were eroded away during the uplift. The Fountain represents debris shed off the mountains.



Fig.9. The north end of the Never Summer Range taken from the summit of Diamond Peaks (11699'), Medicine Bow Range; looking south with Colorado 14 (unseen) in the valley between Diamond Peaks and the conifer forest. Nokhu Crags is an exposure of the Pierre Shale "cooked" to a low-grade metamorphic rock (hornfels) by igneous intrusions at Mt. Richthofen.

University. The camp consisted of 10 students and one instructor, living in tents, and group cooking for morning and evening meals; lunch was usually peanut butter and jelly on bread with fruit. I can attest to the fact that some really strange meals were prepared for the group by the "cooks" (consisting of two students rotating through the meal preparation). In my case, no one told me, a flatlander from Kansas, that certain food items required extra cooking length at high altitudes (like dried beans!). We completed three major projects: 1) mapping, by plane table and alidade, the diatrema noted above; 2) mapping sedimentary rocks exposed around Steamboat Rock north of Ft. Collins (Fig. 8); and 3) mapping complex igneous and metamorphic rocks near Cameron Pass and Mt. Richthofen west of Ft. Collins (Fig. 9).

Most geology students today are unfamiliar with the plane table and alidade as modern mapping instruments use laser beams or satellite information to plot points and elevations. However, the alidade was an ingenious instrument and senior geologists like me certainly have memories (some good, some bad) of plane tabling and we all carried around trigonometry tables in our back pocket (Fig. 10). The alidade consisted of a telescopic



Fig. 10. Plane table and alidade. The surveyor/geologist is looking toward his partner holding a measuring stick (stadia rod). Photo from sale items on EBAY.



Fig. 11. I used a Gurley alidade where the geologist looked “down” into the eyepiece rather than “straight ahead” toward the stick. Angles were measured and trigonometry tables allowed the geologist to determine elevation (plus or minus from the station) and distance. Distance to the stick was drawn along the ruler/base. Photo from sale items on EBAY.

tube with a series of cross hairs visible for reading a stadia rod--a wooden stick with measurements every tenth of a foot. In very simple form the instrument person knew the elevation of the plane table and was able to determine the elevation of the stick, and the distance to the stick (held by the rod man), by reading the angle on the calibrated alidade arc---the tube could be moved up or down---and then using the trig tables (Fig. 11). It was more complex than this explanation and old-time field books are filled with rows and columns of numbers; however, the elevations and distances were plotted on the plane table sheets and geologic contacts and topographic contours were drawn in by hand. Life for field geologists seems easier today!

The other notable event of summer 1965 was the great Denver flood (Figs. 12-13). As students we were mapping in the rain but also listening to a transistor radio (all AM stations) describing the flooding in Denver. I distinctly remember the announcer saying something like “here comes another house down the river (South Platte). Oh my God it just crashed into the bridge.”

The Denver Post (recap by Joey Bunch, Denver Post, 2005) described the situation as: *With twisters in the foothills and a blizzard of hail, the great flood of 1965 announced its arrival with Old Testament fury.*

After lunchtime on June 16 [1965] the coal-black sky delivered a rainstorm so furious that people in Douglas County said they labored to breathe.

A rancher put a washtub in his yard to measure the rain, and it quickly overflowed. The National Weather Service recorded 14 inches - a year's worth of rain for the region - in a little more than three hours near Larkspur.

The storm drove a 20-foot wall of water from Douglas County to downtown Denver that evening, taking at least 21 lives, devastating 15 counties and leaving mountains of mud and \$540 million in damage - \$3.2 billion in [2005] dollars.

In comparison, news agencies such as CNN and Business Week reported that losses in the recent Colorado floods of 2013 will exceed \$2 billion.

Despite the rain and destruction in Colorado, I received a passing grade in field camp, returned to Kansas to work and play baseball, and in the fall headed to South Dakota for graduate work. Life is good at age 22!

REFERENCES CITED

Howard, J. M., 2007, Finding Diamonds in Arkansas: Arkansas Geological Survey AGES Brochure Series 001.

Howard, J. M., 2008, Arkansas Quartz Crystals: Arkansas Geological Survey AGES Brochure Series 002.



Fig. 12. File photo from Denver Post showing damage from 1965 Denver flood.



Fig. 13. File photo from Denver Post, 1965 Denver flood.

2013 CSMS Officers

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Jean Miller, Vice President
Renee Swanson, Secretary
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Susan Freeman, Membership Secretary
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2013 CSMS Chair Persons

Kim & Bodie Packham, Annual Show Chairperson
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Ron Yamiolkoski, Science Fair Chair
Frank & Ellie Rosenberg, Librarians
Camera Club Chair is Vacant
Georgia Woodworth, Social Committee Chair
Ann Proctor, Store Keeper
Gary del Valle, Webmaster

SECRETARY'S SPOT by Renee Swanson

MINUTES OF COLORADO SPRINGS MINERALOGICAL SOCIETY GENERAL MEETING NOVEMBER 21, 2013

Called to order by Mark Lemesany at 7PM with the Pledge of Allegiance.

Pebble Pups, Earth Science Scholars and Steven Veatch presented various topics. Award winning Jack Shimon, who attends Kilmer Elementary school, gave a talk on dinosaur tracks. They are found in Earth Cache, in the Lake Travis area, near Austin TX. He completed the task of measuring and studying them with his grandfather.

Blake Reher entertained us with his slide show and presentation on the Florissant Fossil Beds. Many of the specimens shown are on display at the museum there.

Steve Veatch presented the slide show "Fossils from the Depths of the Cripple Creek Volcanic Complex", originally given by Zach Sepulveda to the GSA at the DMNS. Steve also talked about the Students at a distance program.

There was a break for "goodies"

October minutes were approved as printed in Pick & Pack.

Nominations for 2014 Officers: President Mark, Vice President Jean Miller, Secretary open, Member at Large Frank Rosenberg Member at Large Renee Swanson, Membership Ariel Dickens Frank reported that the library is now on the web-site.

Nominations were opened for a second time; no additional nominations were made.

Jean talked about the symposium at Socorro, NM.

Nominations were opened for a third time. The Slate of Candidates was accepted.

The December meeting will be a Christmas Party, gift exchange, and silent auction. Everyone should bring a treat to share.

The installation banquet will be Jan 16, at Golden Corral, 5410 E Woodmen. 5:30-9:00.

WMMI needs volunteers for Family Geology Day, Jan 11, 2014.

A door prize drawing was held. The meeting was adjourned at 8:47.

Respectfully submitted, Renee Swanson

Sub-Group Responsibilities for Refreshments for General Assembly Meetings

Feb. Crystal	Mar. Faceting	Apr. Fossil
May Jewelry	June Lapidary	July Micromount
Aug. Picnic	Sept. Board	Oct. Crystal
Nov. Faceting	Dec. Christmas Party	

PEBBLE PUPS CORNER



Pebble Pups in the News

Jack Shimon's article "Member Night at the Denver Museum of Nature and Science, Colorado with Dr Sampson" will be published in Deposits Magazine.

Some Upcoming events for Pebble Pups

January 11, 2014 Family Geology Day, Western Museum of Mining and Industry

Feb 10, 2014 Canon City Geology Club--selected pebble pups present

Feb 22, 2014 Writing class at Western Museum of Mining & Industry 10 to 1 pm

End of Feb, 2014 Submissions for volume 2 of poetry chapbook.

Poems

Artwork (anything in nature)

Photography (has to be geological items)



Figure 1. A agate from Deming, New Mexico. Photo by Pete Modreski.



Figure 2. Note the beautiful banding of this agate. Various agates can be found in Park county and Fremont county. Photo by Pete Modreski.

Agates

By Shannon Kosman

I will tell you a few facts about agates. Agates are rarely larger than an adult's fist. Agates appear in a variety of colors: white to gray, red, reddish brown, brown to yellow, blue to purple, and have multicolored bands. Agates are at a level seven on the Mohs scale of hardness. They can be scratched by topaz. Agates are a form of quartz crystals that are too small to see. You can find agates all over the country. In the southern part of Colorado try looking along the Arkansas River. Agates are also found in the San Juan Mountains. Agates can be found to the west of Teller county in Park county. Look for see through material and bands of color. Maybe if you're lucky you can find some agates in your own backyard!

References

Green, D. (2013). *Rocks and minerals*. New York, NY: Scholastic Inc.

Lynch, D. R., & Lynch, B. (2010). *Colorado rocks & minerals: A field guide to the centennial state*. Cambridge, MN: Adventure Publications, Inc.

About the author:

Shannon Kosman is 8 years old and is a third grader at Pikes Peak School of Expeditionary Learning. She enjoys rock collecting, Girl Scouts, reading and baton twirling. She has been a member of Pebble Pups for the past year and is looking forward to writing more articles.

Classifieds



Our Staff...

Ellie Rosenberg—Editor

We encourage everyone to submit articles, photos, illustrations or observations. Share your experiences, your new finds, or simply your experience at our last field trip.

Handwrite it, type it, or email it. Format does not matter. All submissions are welcomed. The DEADLINE for items to be included in the next Pick & Pack, is the **21st of the month**

To submit an item:
For hardcopy photos or articles, mail to the address below or bring them to the General Meeting. All hardcopy photos remain the property of the submitter and will be returned. Electronic photos should be submitted at resolutions above 200 dpi in TIF, BMP, JPG, or PIC format. Articles are preferred in word. Editors will correct font

E-Mail to:
csmseditor@hotmail.com

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

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Pikes Peak Pebble Pups and Earth Science Scholars Publish First Poetry Chapbook



*Pikes Peak Pebble Pups
and
Earth Science Scholars
Poetry Chapbook*

Volume 1

The Colorado Springs Mineralogical Society and the Lake George Gem and Mineral Club both host a junior program. The first volume of their collected poems about Earth science has been published and may be purchased for \$4.00. Shipping and handling is \$1.00. These chapbooks are limited in number and if you plan on buying one you should do it soon. Each book sold will provide each club with \$4. These will be for sale at the Denver Gem and Mineral Show in September. A second volume is being planned now and will be available later this year. To order, please send \$5 to:

Steven Veatch
1823 South Mountain Estates
Road
Florissant, CO 80816

In the memo section of the check put the club you belong to so that the club will receive the \$4. Make your check payable to: Veatch GeoScience, LLC. Be sure and act quickly as these books will soon be gone. This also helps the two clubs support the work of the Pebble Pups and Earth Science Scholars. Each month Veatch GeoScience, LLC. will issue a check to each club for the sales of the chapbooks.

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CSMS

T-Shirts, Badges, and Pins
are available for sale.

If you celebrated a CSMS anniversary
in 2011 or 2012, your year pin award
See Storekeeper, Ann Proctor

Sangre de Cristo

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Time Value
Do Not
Delay



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.

Joining the Colorado Springs Mineralogical Society (CSMS)

Meetings are held the **third (3rd) Thursday of each month**, except January & August, 7:00 p.m. at the Colorado Springs Senior Center, 1514 North Hancock Ave., 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, check out the calendars on page 2 and the web site.

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 the web site.

If you are interested in joining CSMS or would like more information, we encourage you to attend our next General Meeting or visit our web site: www.csms.us.

CSMS is a Member of: the following:

American Federation of Mineralogical Societies (AFMS) www.amfed.org

Rocky Mountain Federation of Mineralogical Societies (RMFMS) www.rmfm.org