

# PICK&PACK

THE BULLETIN OF THE COLORADO SPRINGS MINERALOGICAL SOCIETY Published Since 1960

Colorado Springs  
Mineralogical Society  
*Founded in 1936*  
Lazard Cahn  
Honorary President  
June 2017  
PICK&PACK

Vol 57.... Number #5

## CSMS General Meeting

Thursday, June 15, 7:00 PM

This month's speaker is Pete Modreski.

Topic: How to Start a Mineral Collection

**Don't Forget to Attend the Gem, Mineral and Jewelry Show**

June 2,3, & 4

**Volunteers are Still Needed!**

Refreshments provided by the Lapidary Group

**\*\*In case of inclement weather, please call the Senior**

**Center at 719 955-3400 to make sure it's open\*\***

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## How to Start a Mineral Collection

Pete Modreski, U.S. Geological Survey

What do you need to know to start a mineral collection? Pete's presentation is aimed especially at the beginning collector with an interest in minerals, but hopefully will be of interest to everyone. The more you know about minerals—and how to find them, and how to take care of them, and how to recognize what they are—the more you'll enjoy the hobby (and the science) of studying them. His presentation will touch on such things as:

What are minerals?

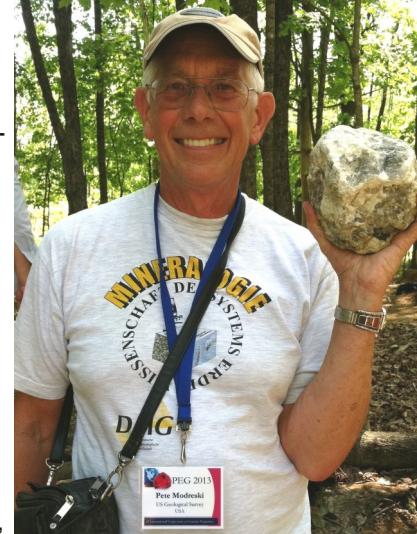
How do you recognize or identify them?

How to establish and take care of a collection.

Where to find minerals in Colorado, and what minerals is our state most noted for?

What are the most "exciting" properties or characteristics of minerals?

Dr. Peter J. Modreski has been a geochemist since 1979 with the U.S. Geological Survey, Lakewood, Colorado. He has a B.A. (chemistry) from Rutgers College and an M.S. and Ph.D. from Penn State (geochemistry). His research interests include mineralogy, gemstones, luminescence, Colorado geology, ore deposits, pegmatites, meteorites and impacts, alkaline igneous rocks, kimberlites, and volcanology. He is presently responsible for public and educational outreach at the USGS. Pete was a co-author of *Minerals of Colorado* (1997) and he is a Consulting Editor of Rocks and Minerals magazine and a Department Associate with the Earth Sciences Department, Denver Museum of Nature and Science. He is a member of Friends of Mineralogy, CSMS, and a life member of the Littleton Gem and Mineral Club. Pete has been a mineral collector since his college days.



Dr. Peter Modreski

COLORADO SPRINGS MINERALOGICAL SOCIETY PO BOX 2 COLORADO SPRINGS, COLORADO 80901-0002

# CSMS Calendar

## June & July 2017

Thu., **May 25 & July 6—Board Meeting**, 7 p.m., Senior Center

Tue., **June 6 & July TBA—Fossil Group**, 7 p.m., Senior Center. Jerry Suchan, 303 648-3410

Thu., **No meetings until Sept.—Faceting Group**, 7 p.m., Senior Center. John Massie, 719 598-5903

Thu., **No mtgs until Sept.—Pebble Pups & Jrs**, 5:30 - 6:15 p.m., Sr. Ctr. Steve Veatch, 719 748-5010

Thu., **June 15 & July 20—General Assembly**, 7 p.m., Senior Center

Thu., **No meetings until Sept.—Crystal Group**, 7 p.m., Senior Center. Kevin Witte, 719 638-7919

**Note: The Micromount Group is not meeting at this time. If you are interested in meeting, please call Dave Olsen, 719 495-8720**

**Appointment Only—Jewelry Group**, Bill Arson, 719 337-8070

**Appointment Only—Lapidary Group**, Sharon Holte, 719 217-5683

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, [csms1936.com](http://csms1936.com)

## Upcoming Events of Interest to CSMS Members

Submitted by Pete Modreski

**Fri.-Sat.-Sun., June 2-4, Pikes Peak Gem & Mineral Show**, sponsored by the Colorado Springs Mineralogical Society. At Mortgage Solutions Financial Expo Center, 3650 N. Nevada Ave., Colorado Springs. 10-5 Fri. & Sat., 10-4 Sun.

**June 8-11, Fairplay Contin-Tail** rock, gem, and mineral show, MiddleFork RV Resort, 255 Highway 285, Fairplay, CO; see [www.facebook.com/ContinTail](http://www.facebook.com/ContinTail).

**Sat.-Sun., June 10-11**, 9 am to 3 pm, **GEOdyssey's Annual Mineral & Fossil Home Sale**, 15339 West Ellsworth Drive, Golden, CO 80401 (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**

**June 16-18, Victor, CO Gem and Mineral Show**, Victor, CO; see <http://victorcolorado.com>

**Sunday, June 25, a geologic field trip through South Park**, led by Peter Barkmann, Colorado Geological Survey. A one-day field trip sponsored by the Florissant Scientific Society; all are welcome to attend. Details are still TBA. The trip will generally follow the route of a trip Peter led during the 2016 Geological Society of America annual meeting,

**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, [Rockisme@comcast.net](mailto:Rockisme@comcast.net), 303-296-8268.

**Sat.-Sun., July 15-16**, The **Florissant Scientific Society** will hold its annual multi-day event at the Bear Basin Ranch in southern Colorado, south of Canon City. "Gary Ziegler, ranch owner and international archeologist, will show us the cul-

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turally modified trees there and tell us about his work in Peru. There is a cabin where 6-8 people can bed down for the night. Campers are welcome. You can look at the Bear Basin Ranch's website to get a feel for the ranch. Other accommodations are available in Westcliffe and Florence. More information, including costs, to come later." See <http://www.fss-co.org/> for future info to be posted.

**Thurs.-Mon., July 20-24, Gold and Silver Deposits in Colorado**, a symposium cosponsored by the Friends of the Colorado School of Mines Geology Museum, the CSM Museum, DREGS (Denver Region Exploration Geologists Society), and Friends of Mineralogy, Colorado Chapter. The event will include a welcoming reception at the CSM Museum (Thursday evening), two days of talks (Sat.-Sun., July 22 - 23), a Saturday evening banquet with a speaker, and two days of field trips (Fri. July 21 and Mon. July 24) to historic Colorado gold and silver mining areas, focusing on the Front Range and the northern half of the Colorado Mineral Belt. More information about the symposium is at: <https://www.facebook.com/LikeCSMGeoMuseum/posts/1822491981371516>. Registration cost will be \$100; students, \$50; banquet, \$40; each field trip, \$40. The registration form, including the list of field trips, is now available on the Friends of Mineralogy-Colorado Chapter website, at <http://friendsofmineralogycolorado.org/gold-and-silver-deposits-in-colorado-a-symposium/>.

**Aug. 4-6, Creede Rock & Mineral Show**, at the Creede Underground Mining Museum and Community Center, Creede, Mineral County, CO. 10 a.m. – 5 p.m. daily; see <http://creederocks.com/>.

**Aug. 10-13, Contin-Tail rock & mineral show**, Buena Vista Rodeo Grounds, Buena Vista, CO; see [www.facebook.com/ContinTail](http://www.facebook.com/ContinTail)

**Aug. 17-20, Woodland Park Rock, Gem, & Jewelry Show**, Woodland Park, CO; see <https://www.facebook.com/woodlandparkrockandgemshow/>

**Aug. 18-20, Lake George Gem & Mineral Show**, sponsored by the Lake George Gem and Mineral Club, Lake George, CO. See <http://www.lggmclub.org/>

## Memories of Ray Berry

Ray Berry passed away Monday morning May 22, 2017. Ray was known across the globe as an incredible person--a number one field collector, and a great friend. He contributed greatly to the field of mineral collecting, encouraging others to collect, and in many unbelievable ways. He was my mentor field collector when I got back to Colorado in the early 80s. This is an excerpt for the introduction I did for him from his recently published book "35 Years of Mineral Collecting and Still Counting!" ISBN 978-1-365-51601-6 Lulu.com.

"I'm pleased to present Ray Berry's memoirs, **Thirty-five Years of Field Collecting and Counting**. This is not just a journey through some of Ray's greatest finds, but it is also a glimpse into Ray's and Eloise's lives. Thirty-five Years shares the story of Ray and Eloise Berry who wished to find and share an activity that would take them into the fields of Colorado. Through this love for adventure, emerges the story of Ray's commitment to others, his desire to unlock the mystery of crystals, and his sheer love of the hunt.

It was a 1970 Pikes Peak Gem and Mineral show that Ray and Eloise got their start in mineral collecting. Three years later, it was my first-ever club show, and it was Ray and Eloise Berry's first case of field collected specimens that caught my attention. Ray shared with me then his enthusiasm for collecting just as eagerly as he does to this day. When I returned to Colorado Springs in 1982, I joined the Colorado Springs Mineralogical Society and attended the Crystal Study group. Ray and Eloise graciously opened their home so many of us could gather to study minerals, swap stories, and most importantly, to view his legendary collection, which was spoken about by others with hushed reverence and which I was told that I must see. And to think, "Ray and Eloise have found each and every piece." It remains awe-inspiring and has since been a constant motivator to us all.

One of my earliest memories was one with Ray and Eloise when I was digging with them near the Lake George dump. Like he has done for many others, he selflessly shared his knowledge and tips about digging, and I found some of my first amazonite crystals. You will see throughout Thirty-five Years of Field Collecting and Counting many similar stories. Ray has given the same inspiration and selfless encouragement to club members, to collectors from all over the U.S., and to numerous visitors from throughout the world. When asked, "Whom should I contact about collecting in the Pikes Peak Batholith?" Ray's name consistently came up. This would still be so if Ray was still able to collect.

As Ray describes his discoveries, you cannot help but feel his enthusiasm and excitement as he turns over that unmistakable pegmatite chunk or the first small smoky quartz crystal that eventually leads him to the crystal pocket. His de-

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# A Small White Dot

Steven Wade Veatch

Vishwam Sankaran

"There's nothing new under the sun" goes a famous saying, and these words are very apt when trying to understand Earth's climate trends. Thanks to numerous discoveries made about Earth's ancient past, we now know that our climate has never been static. According to geological and paleontological records, climate change has affected the Earth throughout geologic time.

To understand climate change, researchers study past climates and events that affect climates such as volcanic activity, solar radiation, sunspot activity, astronomical changes, and other factors that influence climate. Once we understand the dominoes that have fallen during the past climate change events, we can understand and predict—to some degree—the kind of patterns that may follow current trends. To do this, scientists piece together clues from past climates provided by rock formations. Scientists likewise examine fossil records that yield climate signals from the past. These fossils range from prehistoric pollen to dinosaurs. Putting both geological and fossil records together reconstructs ancient climates and environments. More recent climate change is studied through climate records held in polar ice caps and ice sheets, ice cores, glaciers, isotopes of elements (like oxygen, carbon, and sulfur), soil sediments, and tree rings.

When we think of the term "ice age," the picture that immediately comes to mind is early Neanderthals or *Homo sapiens* wrapped in animal fur, hiking endlessly through snow and ice-covered plains, striking fire, hunting mammoths, and surviving in nomadic camps. This image stems from the most recent ice age (Pleistocene Epoch), and evidence reveals more severe ice ages before the last one. Scientists know of at least five major glaciation events (see table 1). And it is speculated that some of the ice ages covered the whole Earth in snow and ice.

**Table 1: Five Major Continental Glaciations.** There have been five episodes of extensive continental glaciation through geologic time. The Cryogenian Glaciation lasted the longest, producing a "Snowball Earth" (Levin, 2013).

| Glaciation   | Time Period                          |
|--|--------------------------------------|
| <b>Huronian Glaciation</b><br>(Paleoproterozoic Era)             | 2.4-2.1 billion years ago            |
| <b>Cryogenian Glaciation</b><br>(Neoproterozoic Era)             | 850-635 million years ago            |
| <b>Andean-Saharan Glaciation</b><br>(Ordovician-Silurian Period) | 460-430 million years ago            |
| <b>Karoo Glaciation</b><br>(Carboniferous-Permian Period)        | 360-260 million years ago            |
| <b>Pleistocene Glaciation</b><br>(Pleistocene Epoch)             | 2.6 million years ago to the present |

Broadly speaking, a number of scientists believe Earth's climate, throughout geologic time, can be characterized by three climate conditions. First, that of "Earth as a Greenhouse" when warm temperatures extend to the poles, eliminating the polar icecaps and all other ice sheets. The climate, in some parts of the planet, was like hell

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in a box. Secondly, that of “Earth as an Icehouse” which includes some permanent ice whose extent varies as glaciers periodically advance and retreat. And lastly, by what is termed as “Snowball Earth” where the planet’s entire surface is frozen up to hundreds of millions of years (Walker, 2003). There is credible speculation that there is a fourth state: “Slush House Earth,” where there is an ice-free zone along the equator (Cowen, 2013). Today’s climate, marked by polar ice caps, is characterized by the second condition, an “Icehouse.” Since primordial times, it has been speculated that the Earth has been cycling between these phases.

The Earth froze completely in defiance to the warmth of the sun between 2.45 and 2.22 billion years ago (BYA), resulting in Earth’s first Ice Age, known as the Huronian Glaciation (named after Lake Huron in Ontario, Canada). This deep freeze may not have happened once, but perhaps several times, during the Huronian Glaciation (Levin, 2013).

The cause of this first Snowball Earth event is not known, however several theories have been proposed, including a decrease in solar output, the Earth passing through so-called space clouds, or an extreme cooling caused by a reduction in greenhouse gases (“Oceans of Ice: The Snowball Earth Theory of Global Glaciation,” n.d.). Some scientists view a combination of these events could be a reason the Earth became frozen in ice. It seems likely that a sharp drop in carbon dioxide, a greenhouse gas, caused temperatures to plummet. An unimaginably thick, white ice sheet crept down from the poles. Snow, whipped by winds, danced on the crenelated surface of the ice while the bottom of the ice sheet plucked and ground the rock surface beneath as it crept forward.

During these frigid times sunlight, instead of warming the planet, bounced off the ever-spreading ice, in what scientists call the albedo effect, causing temperatures to fall—which created more ice—which bounced more sunlight back into the cold reaches of outer space (Melezhik, 2006). This process repeated in a positive feedback loop until the cooling became unstoppable: the ice marched on, temperatures plunged, and the blue planet became a small white dot—a snowball, surrounded by a riot of stars, orbiting the sun.

Of interest to scientists is that life came to a near biological standstill in the first Snowball Earth event, yet life survived this hyper-freeze phase. Even in an Earth almost entirely covered by ice, volcanoes punched through the ice by melting it. Against these odds and brutal mass extinctions, a handful of tiny organisms, living near volcanic vents on the sea floor, thrived. These organisms were anaerobic bacteria and called methanogens by scientists. The methanogens fed on mineral nutrients like sulfur, iron, and manganese from underwater volcanic vents and merrily expelled methane, a greenhouse gas. Oxygen was not present in the Earth’s atmosphere. The methanogens spread and continued to help gas-up an atmosphere that contained methane, nitrogen, and few other gasses in trace quantities. The microscopic methanogen’s methane trapped some of the sun’s energy and warmed the planet.

Following the Huronian Glaciation, the frozen planet thawed, marking one of the greatest periods of transition in our world’s history—The Great Oxygenation Event, one that would change forever the destiny of this planet we call home. Here is what happened.

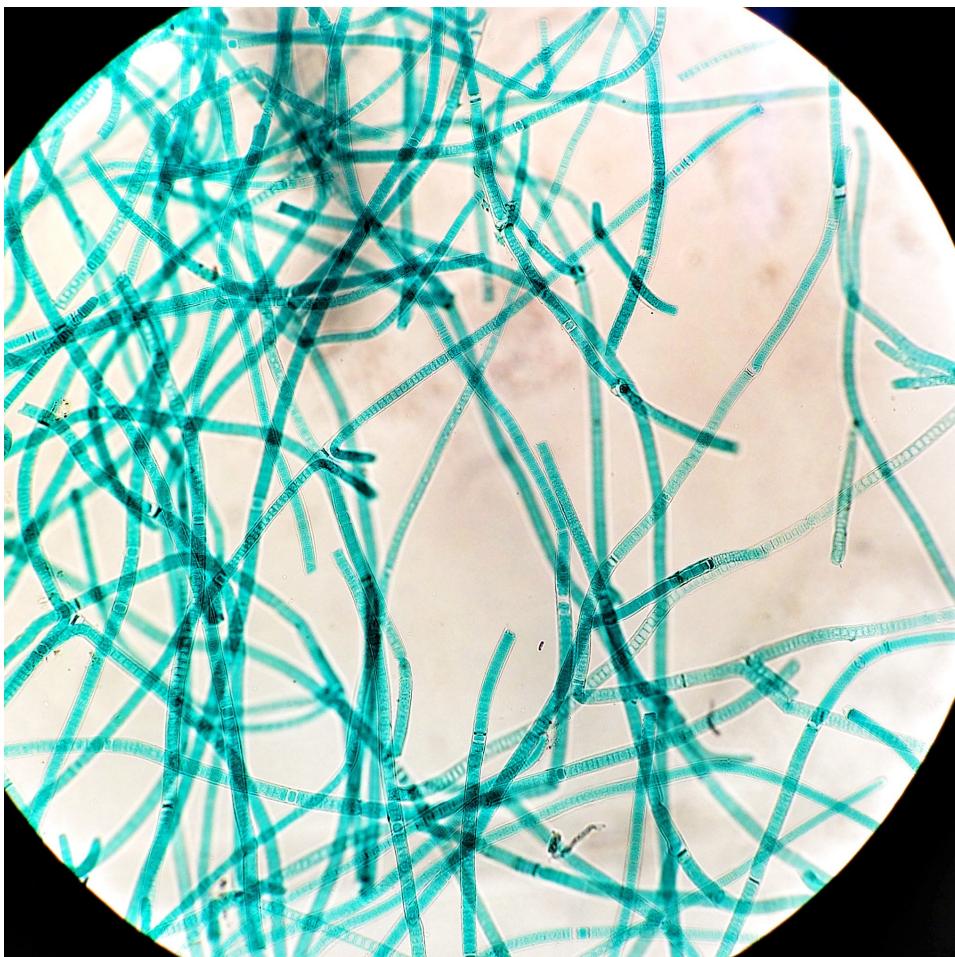
Soon after Snowball Earth melted a new kind of bacteria evolved—cyanobacteria, the planet’s first photosynthesizing organisms that made oxygen (Canfield, 2016). There was a slow and episodic enrichment of gaseous oxygen in the atmosphere that continued over millions of years, possibly due to an exponential bloom of the cyanobacteria as mats that rolled and pitched with the waves of the sea. Near the shore, cyanobacteria grew in layered structures known as stromatolites. Stromatolites were also present in some lakes and in any other shallow aquatic setting where the conditions were favorable.

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### Pikes Peak Gem, Mineral, and Jewelry Show Vendor & Member Pot Luck Dinner

Vendor & Member potluck dinner is quickly approaching. Saturday evening June 3 around 5:30pm. Roast Beef sandwiches provided by Arby's (**Thank you Brenda Perkins!!!**). The club will provide non-alcoholic drinks. All members please bring side dishes/desserts or make arrangements with Marilynn Hanlon or Doreen Schmidt to drop them off. Doreen and Marilynn are coordinating the dinner. Please email fddasx@outlook.com or call 719-577-4165 with any questions. Any other help with set up and clean up will be greatly appreciated. See you at the show.

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**FIGURE 1. A photomicrograph of Cyanobacteria, *Tolyphothrix* sp.** Cyanobacteria produce oxygen as a by-product of photosynthesis, and it is thought this process converted Earth's early, oxygen-poor, reducing atmosphere, into an oxidizing one, causing two major events: 1) the "Great Oxygenation Event" and 2) the so-called rusting of the Earth. Both events dramatically changed the nature of life forms on Earth and almost led to the extinction of anaerobic organisms. Image by Matthew Parker, used by permission under Community Commons Licence 3.0.

The rising oxygen levels brought the Great Oxygenation Event—a significant shift in the content of oxygen in the atmosphere (Crowell, 1999). As the cyanobacteria churned out more and more oxygen that bubbled through the water column, the methanogens almost went extinct—oxygen is toxic to them, those that survived lived in deep ocean water near hydrothermal vents and other places that protected them. In the meantime, due to the

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**FIGURE 2. An exposure of banded iron formations (BIFs) at the Fortescue Falls, Dales Gorge, Karijini National Park, Western Australia.** Cyanobacteria contributed oxygen to Earth's atmosphere. This oxygen, combined with iron in the ocean's water, caused chemical precipitation of iron oxides, and formed dark red bands that alternated with white bands of chert that produced the banded iron formations. Photo by Graeme Churchard, used by permission under Community Commons Licence 2.0.

higher levels of oxygen resulting from photosynthesis, iron—previously dissolved in the oceans—could no longer stay in solution, leading to an intricate alchemy that brought the “Great Oxidation Event.” This so-called “rusting” event formed rocks known as banded iron formations (BIFs). BIFs are white bands of chemically precipitated quartz, or chert, with alternating darker red bands of the iron oxide minerals hematite and magnetite. From this oxidation of iron and the formation of BIFs, we infer that oxygen began to appear in Earth’s atmosphere.

Scientists continue to speculate on the source of the iron that was dissolved in the oceans prior to the Great Oxygenation Event. One source of the iron likely weathered from iron-bearing rocks on land masses. Another, much larger source of iron spewed out in dark clouds from more active submarine volcanoes and hydrothermal vents on the seafloor.

The BIFs were deposited in a relatively brief geologic time between 2600 and 1800 million years ago, and occurred in great bodies that exceeded hundreds of meters in thickness and extended thousands of meters laterally (Macdougall, 2004). BIFs are an essential part of our modern industrial complex as they yield most of the rich iron ore mined today from the massive iron ore deposits of Minnesota, Michigan, Ukraine, Brazil, Labrador, and Australia (Levin, 2013).

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## PEBBLE PUPS CORNER



### CSMS Pebble Pups & Junior Group

The Junior Group & Pebble Pups meet at the Senior Center every third Thursday at 5:30 PM until 6:15 PM or so. We only meet during the academic year, and we include January. So, it is Sept through May.

Special announcements and field trips are noted on our blog: <http://pebblepups.blogspot.com> and through the CSMS website: <http://www.csms1936.com>

## The Mysterious Blue Orbs of K2 Granite

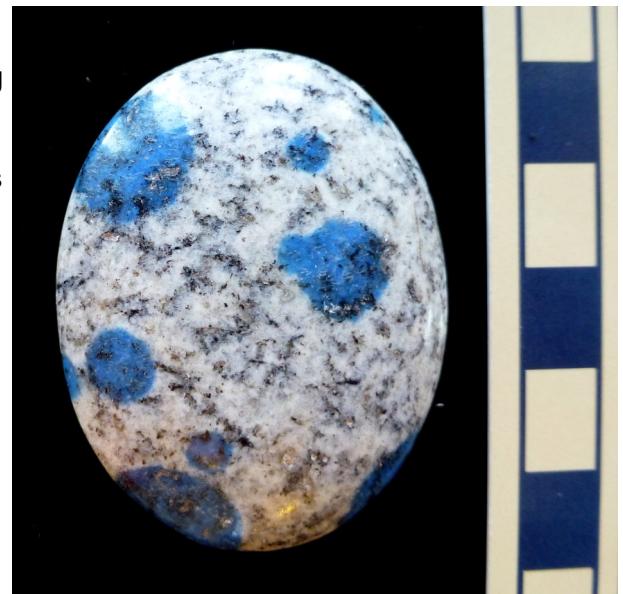
By

William Wray

K2 granite, with impressive splashes of blue circles or orbs on its surface, is a rock from a rarely visited site in the Himalayas. The blue circles are azurite inside of white K2 granite rock. The white granite is fine-grained and composed of these minerals: quartz, feldspar, muscovite, and biotite. The azurite stained parts of the granite, making blue dots, which range from a couple of millimeters to about two centimeters. Azurite has a relative hardness of 3.5-4 on the Mohs hardness scale, but assumes the hardness of the white granite because the azurite is only a stain. The azurite formed after all the other minerals in the granite had cooled and hardened. With a hand lens or microscope, azurite spheres reveal that the azurite appears along the edges of mineral grains, in tiny fractures in the granite, and in feldspar grains.

Since azurite and white granite are rarely found together, people don't think the blue orbs are azurite, and commonly think of it as simply a blue dye added to make the rock a novelty. Scientific tests have not been made, so the jury is still out on the blue orbs in this interesting rock. There is lively debate on mineral forums, including Mindat.org, about the nature of the blue orbs.

K2 granite is found near the base of K2, the mountain it is named after, in the Himalayas. K2, also called "Mount Goodwin



**An oval cabochon made from K2 Granite** found on K2, a mountain between Pakistan and China, revealing several bright blue azurite stains. The blue azurite stains formed after the granite cooled and hardened. Photo © by the author. Specimen from the William Wray collection.

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## **2017 CSMS Officers**

**Ernie Hanlon, President**

**Lisa Kinder, Vice-President**

**Mark Lemesany, Vice –President**

**Barbara Middlemist, Secretary**

**Ann Proctor, Treasurer**

**Norma Alexander, Membership Secretary**

**Larry Jones, Editor**

**Doreen Schmidt, Member-at-Large**

**Ariel Dickens, Member-at-Large**

**Jean Luce, Past President**

## **2017 CSMS Chairpersons**

**Lisa Kinder, Program Coordinator,**

**Mike Webb, Field Trip Coordinator**

**TBD, Science Fair Chair**

**Frank & Ellie Rosenberg, Librarians**

**TBD, Social Committee Chair**

**Ann Proctor, Store Keeper**

**Michael Kosc, Webmaster**

**Mike Nelson, Federation Representative**

**Ernie Hanlon, Federation Representative**

## **2017 Satellite Group Chairpersons**

**Crystal, Kevin Witte**

**Faceting, John Massie**

**Fossil, Jerry Suchan**

**Jewelry, Bill Arson**

**Lapidary, Sharon, Holte**

**Pebble Pups, Steven Veatch**

## **SECRETARY'S SPOT**

by Barbara Middlemist

**General Meeting Minutes for the Colorado Springs Mineralogical Society — May 18, 2017**

The president called the meeting to order at 7:04, followed by the pledge of allegiance.

Mike Nelson was given an award for the CSMS research grant program for undergraduate geology.

Mark Ivan Jacobson gave the night's program on The Cultural Aspects of Mineral Collecting in China.

Mr. Jacobson lived and worked in China in Chengdu, Sichuan Province, from 2008 to 2013. While living there, he walked to work and got to know the local mineral collectors and sellers. Their approach to mineral collecting had a different emphasis than that in the US. The location where the minerals were found was not considered important. It was often impossible to find where a stone had been collected. At best, a general area might be mentioned.

Stones that look like something or someone were highly valued. These were collected as natural found art.

There was no actual mineral collecting pre-1976. During the time that he was living in China the ultrawealthy would collect giant to large material. Museums and shops have pieces that are many feet tall. No worry that a visitor will carry these away. Viewing stones have value for their strange and artistic shapes or designs. The Chinese not only do not track the location of the find, they dye the stones and fabricate parts to create the desired results.

Mountains often have a slope of 35-40 degrees. Some of the gems that can be found are green beryl, spodumene, malachite, topaz, emerald in quartz, smoky quartz and elbaite crystal, making the trek up the mountain worth the effort.

The Chinese love petrified wood. Large tree trunks can be found in petrified wood parks. Shops, museums, flea markets, and outdoor corner shops display abundant quantities of petrified wood.

If you're able to go to China, remember to barter; the seller priced everything much higher than the expected selling price. Mineral markets are everywhere. You may easily find high end specimens at flea markets.

The presentation was accompanied by a dazzling number of photos of the beautiful gems and viewing stones found in abundance.

The president announced that Ray Berry is in the hospital undergoing hip replacement surgery.

Guests were asked to identify themselves and were welcomed.

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Austen" is the second highest mountain in the world, rising up at 8,611 meters (28,253 feet). K2 got its name from the British surveyor T.G. Montgomerie. The "K" comes from the Karakoram mountain range and the "2" means that it is the second tallest peak recorded.



**A view of K2, summer 2006.** At 8,611 meters (28,253 ft) this mountain is ranked second largest in the world. Note the large valley glacier flowing out of the mountain. Photo by Svy123. This image is licensed under the Creative Commons Attribution 3.0 license.

K2 granite is an excellent lapidary material. It cuts and tumbles well because of its high feldspar amount, and it can be easily shaped on a diamond wheel. K2 is durable in jewelry because the feldspar has a hardness of 6. K2 granite will scratch over time and is not suitable for bracelets or rings. K2 granite is not very pricey, and excellent specimens can be bought for about \$30 to \$40 at gem shows and other venues. K2 granite is a colorful specimen, and its bright blue azurite orbs will make it a nice addition to your collection of curiosities.

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**Meet the author:** William Wray is a fifth grader at Lake George Community Charter School. He is a prolific reader with a love of all things nature related—from rocks and fossils to animals and plants. He attends the Pikes Peak Pebble Pups in Lake George, Colorado and participates there as an Earth Science Scholar.



## For Further Reading

K2 Granite: A white granite with azurite - AKA K2 Jasper. (n.d.). Retrieved from <http://geology.com/gemstones/k2/>

Nicholas Varnay and K2 — The Practical Gemologist. (n.d.). Retrieved from <http://www.thepracticalgemologist.com/gemstones-2/2015/5/22/pick-of-the-week-nicholas-varnay-and-k2>

### Book Cliffs Field Trip Photos By Frank Rosenberg



Mike Webb  
Barite

Mike Webb  
Barite



Mike Webb  
Calcite



### **(CONTINUED FROM PAGE 9)**

The displays for the evening were a turquoise case highlighting the variations in colors that can be found in turquoise. Also, Ernie brought in a case of tektites to share.

Break was announced, we all enjoyed the assortment of goodies brought for us.

Ernie announced that the senior center would no longer be available for the club to meet. Members are asked to contact Ernie if they know of places that may be suitable.

The satellite groups were called on. The June meeting of the fossil group will have a presentation on the fossils of the Pennsylvania Formation. The crystal group will have its next meeting in Sept.

Lisa Kinder, Show Chair gave an update on the show.

Sharon Holte presented the changes being made to the club constitution. Executive committee will be changed to board of directors. There was discussion of whether to add additional board positions, and change show chairman to show coordinator. Wording was changed to eliminate an exact amount to be given for scholarships as

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Despite the frozen conditions of the first Snowball Earth, the period following it was an evolutionary triumph when oxygen became part of Earth's atmosphere and early life flourished. Oxygen formed the extensive iron ore deposits that are the foundation of modern society. Although we are building a compendium of knowledge about past and present climate change, unanswered questions about Snowball Earth remain while certain aspects of climate change remain unknown.

An army of scientists, with intellectual fire, continue their work in their search for answers. Even if we do not find some of these unknown factors affecting climate change, those factors will perhaps find us.

## References Cite

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### CSMS Members Important Notice

The following resolutions are being submitted for your consideration by Sharon Holte. There will be a vote by the CSMS Membership at the September General Assembly.

Change the name of the "Executive Board" to "Board of Directors."

The members of the Board of Directors shall be the following:

1. President
2. Vice President
3. Membership Secretary
4. Treasurer
5. Secretary
6. Editor
7. Member at Large #1
8. Member at Large #2
9. Past President

Change all mentions of the "show person" to read "Show Chair" in order to be consistent.

## (CONTINUED FROM PAGE 11)

the number of people nominated for these scholarships vary each year. It was requested that the constitution state the specific responsibilities for the club claim. The responsibilities for each office need to be updated. These changes will be presented at an upcoming general meeting, in detail, for a general membership vote on those needing a resolution.

Three door prizes were given.

Meeting adjourned at 8:55p.m.

### Book Cliffs Field Trip Photos By Frank Rosenberg



Ellie Rosenberg's Thumbnail Barite Crystals

## **CSMS 2017 Field Trips:**

**Topaz Mountain** Park Co., CO, June 10, Leaders: Krystle Dorris & Mike Webb

**Gem Mine:** Contact: mwebbstudent@yahoo.com, Topaz & Quartz

**Dotsero, Co:** Flat Top Mountains, June 17, Leaders: Ernie Hanlon & Mike Webb  
Contact: mwebbstudent@yahoo.com, Goethite after Pyrite

**Red Feather Lakes, CO:** Margrette (Rainbow) Lode Claim. July 15, Leader: Ernie Hanlon  
Contact: eehanlon@netzero.net Quartz var. Amethyst

**Smoky Hawk Mine:** Florissant, CO, July 21, Leaders: Joe Dorris & Mike Webb  
Contact: mwebbstudent@yahoo.com, Amazonite, Smoky Quartz, Fluorite, Goethite

**Hartsel, CO:** Park Co., August, 12, Leader: Mike Webb  
Contact: mwebbstudent@yahoo.com, Barite

**Montezuma, CO:** Burke & Martin Mine, August 26., Leader: Mike Webb  
Contact: mwebbstudent@yahoo.com, Silver, Gold, Sphalerite & Galena

**Delta, Utah:** Topaz Mountain, September 8,9 & 10, Leader: Mike Webb  
Contact: mwebbstudent@yahoo.com, Topaz, Red Beryl, Amethyst, & Garnet

**Submitted by:** Mike Webb, CSMS Field Trip Coordinator 2017

### **BOOK CLIFFS FIELD TRIP, MAY 2017**

Our president, Ernie Hanlon, kicked off this season with our first field trip to Book Cliffs, Grand Junction, CO, in search of Barite crystals. Our Field Trip Coordinator, Mike Webb, joined us along with Marilynn Hanlon, Andrew and Cathy Maddox, Billy and Debbie Bell, and Frank and Ellie Rosenberg

Although threatening throughout the afternoon, the rain held off until Saturday evening thereby limiting our collecting to Saturday only. Mike Webb attacked the top of a knoll which yielded several interesting Barites and of course multiple Calcite crystals. The rest of us had limited success although Ellie found a couple of nice thumbnail sized Barite crystals.



Mike Webb working on the knoll



L. to R: Billy Bell, Debbie Bell, Cathy Maddox, Mike Webb, & Ellie Rosenberg



L. to R.: Marilynn Hanlon, Ellie Rosenberg, Mike Webb, And Ernie Hanlon on the knoll.

All Photos courtesy Frannk Rosenberg

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**(CONTINUED FROM PAGE 3)**

scriptions are compelling, especially for those field collectors who recognize some of these areas. Ray also cites many of the important field collectors throughout his memoirs as well and some of their joint finds. You will want to put aside his memoirs and grab your pick and head out to dig.

In addition to his discoveries, Ray imparts excellent information on the nature of deposits and minerals, particularly those of the Pikes Peak Batholith. His broad appreciation for minerals, especially the rare and unusual species or habits that many persons overlook, becomes clear. Ray meticulously collected even the minor pockets with the attitude that something special or unusual will likely be found. As a result, he has recovered some uncommon as well as spectacular specimens. He has added new information on the nature of the Pikes Peak Batholith pocket formation and mineral occurrences and has provided valuable knowledge for current field collectors.

**Thirty-five Years of Field Collecting and Counting**, will give encouragement to every field collector that there are still many mineral treasures to be discovered. Ray's examples throughout this memoir are undeniable support of his advice: "I have constantly told others that they should not allow others to tell them; 'There is nothing on that hill.'" The reader will see that there is often something on that hill as well as on many other undiscovered hills in the 1,200 square-mile Pikes Peak Batholith. Ray's words and finds should be inspiration to all of us who follow in the tracks of this remarkable man."

— Joseph Dorris

I was one of Ray Berry's special projects. I recall many years ago he asked if anyone at the Crystal Club meeting would like to go crystal hunting with him the next day. I raised my hand to go before he finished asking. The next day it was my job to keep up with 78-year-old Ray straddling dead trees and climbing hills for about 2 miles to his spot. We didn't find much that day, but Ray showed me a location and gave me permission to return. That spot kept me and my digging partner Bob Germano busy for 2 years! We often stopped by Ray's house to show him our finds and he was always genuinely happy to see our successes. When Ray recognized that I was serious about crystal hunting our friendship quickly grew. On one occasion Ray invited us to dig with him on his claim. Ray was sure there was something in a certain area but we came up empty that day. I told Ray anytime he wanted us to dig him a pit toilet again to just let us know...Ray almost tumbled over with laughter. Ray took Bob and I to another spot down a road that was nearly impassable. Ray was messing with us but we didn't know it at the time. Bob was driving and I nervously suggested we are never going to get back up this hill. Ray had another way in/out that was very easy and after I mentioned our concerns to Ray he grinned and when we were done prospecting for the day he showed us the easy way out and had a good laugh. Ray helped keep the CSMS Crystal Club going, and even hosted a crystallography course free of charge at his home. Ray's knowledge was extraordinarily broad; one time I overheard a geologist at the CSMS show marvel at his knowledge base. Ray was also generous, when he got to know Bob and me. Ray gave us unfettered access to four of his claims. Ray's body began to give out on him the last few years, but his mind and enthusiasm for the hobby never waned. After two hip replacements and various cancer treatments one could still find him out in the woods discovering smoky and amazonite combination specimens. The day Ray went into surgery he had planned to recheck an area for goethite—he just didn't quit. I will miss Ray, I will miss his knowledge, his generosity, and ogling his magnificent collection, but most of all I will miss his laughter.

— Kevin Witte



Ray collecting on his Bob and Ray Claim, August 2011  
photo courtesy Frank Rosenberg



THE BULLETIN OF THE COLORADO SPRINGS MINERALOGICAL SOCIETY Published Since 1960

## Our Staff...

### Larry Jones—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 **20th 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. Editor will correct font.

### E-Mail to:

[csmseditor@hotmail.com](mailto:csmseditor@hotmail.com)

### Mail to:

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

The PICK&PACK is published ten (10) times per year (no issues in January or August). Unless otherwise marked, materials from this publication may be reprinted. Please give credit to the author and CSMS PICK&PACK.

### CSMS

#### T-Shirts, Badges, and Pins

are available for sale.

If you celebrated a CSMS anniversary in 2015 or 2016, you are eligible for your one year pin award  
Please see Storekeeper,  
Ann Proctor

## Classifieds

54th Annual

# Pikes Peak Gem, Mineral, and Jewelry Show

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### **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.csms1936.com](http://www.csms1936.com)

### **CSMS is a Member of the following organizations:**

- |  |  |
|--|--|
| American Federation of Mineralogical Societies (AFMS)        | <a href="http://www.amfed.org">www.amfed.org</a> |
| Rocky Mountain Federation of Mineralogical Societies (RMFMS) | <a href="http://www.rmfms.org">www.rmfms.org</a> |