

PICK&PACK

THE BULLETIN OF THE COLORADO SPRINGS MINERALOGICAL SOCIETY Published Since 1960

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PICK&PACK
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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.

Proud Members of:

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

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

Colorado Federation of Gem & Mineral Societies (CFGMS)



Junior Rockhounds and Crystal Study Group go to Leadville in search of ORTHOCLASE and PYRITE crystals.

On a short notice field trip members of the Jr. rockhounds and crystal study group went to an area just outside of Leadville, CO to dig orthoclase and pyrite crystals. We met at the Rock Hut in Leadville and then preceded up Mosquito Pass a couple of miles to an area on Prospect Mtn. We were joined by a former treasurer Dave Pihl who has recently retired and needs to get back into rockhounding. All diggers were rewarded with single and twin orthoclase crystals. A little after noon we moved to a lower location where we collected pyrite crystals. The weather was perfect and the scenery was spectacular, a good time was had by all.

Hi All: Jack Null writes:

Sharon, good morning. Here is the info on our October speaker:

Donna Ware // 303-898-4019 / Self-A-Ware Minerals / donnasdigitalscopes@hotmail.com

Talk will be about the latest digital microscopes which project directly onto computer screens or through digital projectors.

She asks that our members **bring specimens** for viewing under magnification which she will project upon our large screen. She has lots of cool gadgets and equipment to

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The Board

gets to provide the goodies... I think the Board needs extra help for all. What do you think? Goodies or No goodies. I vote for goodies.. May even bake.



October 2012 CSMS Calendar	
<p>Tue., Oct 2—Fossil Group, 7 p.m., Senior Center. Mike Nelson, Leader, csrock-guy@yahoo.com</p>	<p>Thurs., Oct 4—Board Meeting, 7 p.m., Senior Center.</p>
<p>Tues., Oct 9—Micromounts, 7 p.m., Senior Center. Dave Olsen, Leader, 719.495.8720</p>	<p>Thurs., Oct 18—General Assembly, 5:15 p.m. to 6:00 p.m. / Pebble Pups & Juniors. Steven Veatch, Leader, 719.748.5010 7:00 –p.m., Senior Center See Page 1 for program</p>
<p>Sat., Oct 20-22—FieldTrip, YELLOW CAT/CISCO, UTAH & GRAND JUNCTION MINERAL SHOW FIELD TRIP, Contact Marge Regel (719) 650-8148</p> <p>Sat., Oct 20—Sedila Copper Mine. Sun., Oct 21—Calumet Iron Mine. Contact Don Bray-Don_Bray@copper.net</p>	<p>Thurs., Oct 25—Crystal Group, 7 p.m., Senior Center. – Program TBD, Kerry Burroughs, Leader, 719.210-6389</p> <p>Faceting Group, 7 p.m., Senior Center. Paul Berry, Leader, 719.578.5466</p>
<p>Sat., Oct—Lapidary—RSVP please. If you would like to cut stones, call Sharon Holte at 217.5683 for an appointment.</p>	<p>Oct, Jewelry Group, By appointment only. Please call, Bill Arnson, Leader, 719.749.2328 to schedule a mutually agreeable time. 15610 Alta Plaza Cir., Peyton.</p>
<p>Project Group—TBD—contact Ron “Yam” Yamiolkoski, yamofthewest@gmail.com</p>	<p>Camera Club is looking for a leader and meeting place, date and time. Interested? Contact Roger Pittman.</p>
<p>For more information on any of the sub-groups, meetings, and other CSMS valuable information, go to our website, csms.us</p>	<p>The Senior Center is located at 1514 North Hancock in Colorado Springs.</p>

November 2012 CSMS Calendar	
<p>Thurs., Nov 1—Board Meeting, 7 p.m., Senior Center.</p>	<p>Tue., Nov 6—Fossil Group, 7 p.m., Senior Center. Mike Nelson, Leader, csrock-guy@yahoo.com</p>
<p>Tues., Nov 13—Micromounts, 7 p.m., Senior Center. Dave Olsen, Leader, 719.495.8720</p>	<p>Thurs., Nov 15—General Assembly, TBD 7 p.m., Senior Center. 6:30 p.m. to 7:15 p.m. Pebble Pups & Juniors. Steven Veatch, Leader, 719.748.5010</p>
<p>Thurs., Nov 22—Crystal Group, Thanksgiving No Meeting Kerry Burroughs, Leader, 719.210-6389 Faceting Group, Thanksgiving No Meeting Paul Berry, Leader, 719.578.5466</p>	<p>Nov, Jewelry Group, By appointment only. Please call, Bill Arnson, Leader, 719.749.2328 to schedule a mutually agreeable time.</p>
<p>Sat., Nov—Lapidary—RSVP please. If you would like to cut stones, call Sharon Holte at 217.5683 for an appointment.</p>	
<p>Project Group—TBD—contact Ron “Yam” Yamiolkoski, yamofthewest@gmail.com</p>	<p>Camera Club is looking for a leader and meeting place, date and time. Interested? Contact Roger Pittman.</p>
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July 7th 2012 Peridot Field Trip Report. By: Roger Pittman

On the seventh of July six adults and two Pebble Pups met in Salida, Colorado. After a quick break we then traveled another twenty miles to the CSMS peridot claims. Along the way we stopped to check out the locations of the Calumet Iron Mine – one of General Palmer’s mines that supplied the Colorado Fuel and Town Company with iron ore to make railroad tracks. From the same location we were able to see one of the three quarries that supplied granite for the Colorado State capitol building. Some of the remaining granite pieces still bear the hand drill marks made by the quarry men who drilled; then broke the granite into pieces small enough to be loaded onto wagons and then trains to Denver.

We finally got to the claims at eleven o’clock and immediately began collecting our peridot samples. Reed and Gavin appeared to have the best eyes of the group and filled their collecting bottles just before Mother Nature demanded that we head for home with a huge clap of thunder right overhead. Pat, Roger and Jean showed less common sense and instead of going home, headed to several other locations at the other parts of the plateau. Well the thunderstorm stayed near the CSMS claim and left us alone so we were able to collect peridot both in matrix and individually, obsidian rivulets on basalt and agate. Jean then took us back to Salida for pizza and talk. Around eight-thirty Pat and I decided we’d better head off to find our campsite before it got dark and took off for the four wheel drive road that goes to Missouri hill. A couple of miles up we discovered that a party of at least fifty people had already claimed our chosen campsite. Another two or so miles up we found a nice secluded place and set up our camper. On Sunday Pat and I traveled past Leadville, CO to check out a possible location for a Pebble Pup trip. This location failed my requirements as a Pebble Pup trip location for several reasons, including safety of the participants, quality and quantity of specimens available. It did however offer a great view of a nearby waterfall.

SECRETARY'S SPOT

by Jean Miller, CSMS

COLORADO SPRINGS MINERALOGICAL SOCIETY

President Roger Pittman called the meeting to order at approximately 7:00 pm with the Pledge of Allegiance.

Announcements: Pebble Pups leader Steven Veatch announced the 2012 Pebble Pup / Jr. Rockhound Awards from the American Federation of Mineralogical Societies (AFMS). The competition featured scholarly writings for juniors, ages 12 – 17.

Victor Gordillo won 1st Place for his paper entitled "A Petrified Cone from the Cretaceous."

Kurt Lahmer, 5th place: "A Closer Look at a Jurassic Dinosaur Bone from the Morrison Formation Colorado: A Dinosaur Primer.

Jacob Murphy, 5th Place: "My Interest in Gemology," in the under 12 years category.

Jacob Shimon received an Honorable Mention award for his article "A Fossil Hunter trip to the Glen Rose Formation."

Andy Weinzapfel received a Certificate of Appreciation for Adult Articles Advanced

Ellie Rosenberg received a Certificate of Appreciation for Adult Articles

Program: Tonight's program was "Utah Adventures," presented by Dr. Mike Nelson.

Dr. Mike Nelson, once affectionately referred to as the PhD. with a ponytail, shared some details of his lifelong interest in rocks and all related fields (fossils, geology, etc.), his educational background and his much envied frequent travels. Dr. Nelson presented on the geology and physiography of Utah including its 4 provinces and their particular features. Dr. Nelson showed beautiful pictures of the types of rocks that can be found at various specific localities.

Visitors and guests. Several guests introduced themselves and their particular interests. Welcome.

Notices:

The CSMS Executive Board meets the first Thursday of each month, at 7:00pm, at the Senior Center.

Field Trips: The following field trips are scheduled but not listed on the Club website: October 20–21 trip to the Sedalia and Calumet Mines near Salida, CO. Contact the leader at DonBray@copper.net.

October 20 – 22 Yellow Cat/CISCO, Utah and the Grand Junction Mineral Show. Contact Marg Regal for further information.

A Crystal Group member's name was misspelled in the September Pick and Pack. The correct spelling is Kevin Witte.

The August minutes were approved as printed in the Pick and Pack.

Satellite Clubs:

Crystal Group – meets during school year @ Senior Center; next meeting is 2012.

Faceting – 4th Thursday 7:00 Senior Center

Fossil Study 1st Tuesday 7:00 Senior Center

Micromounters 2nd Tuesday 7:00 Senior Center

Lapidary – Call Sharon for appointment 217-5683; Sharon updated the many repairs and additions to the lapidary equipment.

Jewelry – by appointment 719-749-2328

Pebble Pups / Junior Rockhounds: Meets during school year.

New Business:

Roger solicited volunteers to form a Nomination Committee for the following CSMS Board positions. The Subgroup (Satellite group) leaders agreed to be the committee.

Current openings are for President, Vice President, Membership Secretary and Member at Large. Current Secretary Jean Miller has volunteered to serve as Vice-President instead of Secretary, provided a new Secretary volunteers.

All CSMS members may run for any position on the board!

Mark Lemesany will continue serving as a Member at Large.

Mr. and Ms. Bodie Packham of Woodland Park have volunteered to organize the summer rock fair. Kim has much experience with organizing large programs. Of note she has travel plans January through March, 2013. Thus she will begin organizing, delegating duties and assigning authority soon. President Roger asks that we be prepared commit to take on at least one small or large task.

Brad from the WMMI is present tonight and is graciously prepared to provide necessary help.

The meeting concluded with the always fun door prizes given to lucky winners, generously donated by Roger.

The meeting adjourned at approximately 8:45 pm.

Respectfully submitted by Jean Miller.

Most members of CSMS appreciate a good field excursion and will “jump” at the chance to collect something, anything, in the field. Some of the club trips are organized and members should check the CSMS website at www.csms.us. Others are spur-of-the-moment activities with only a small number of participants. This latter type hit me in early August when Yam of the West called and said a friend in South Park, who was also a local land owner, had volunteered to show him some petrified wood for collecting. Did I want to tag along? Well, I had big plans for that day—to mow the lawn, not an activity I really cherish. But then some words of Walt Whitman jumped into my mind: *I believe a leaf of grass is no less than the journey-work of the stars*. So, I reasoned that no person would want to destroy the work of stars and therefore a field excursion/road trip was in order! What time do we leave? Are you picking me up? Constructing a fast sandwich, grabbing a large black coffee, a donut, some water, and a field bag (always prepared) off we went for a day of mineral hunting with a “private guide”. What more could I ask for?

There are a couple of great “things” about South Park: 1) the Colorado Springs coffee is usually empty upon arriving in Hartsel and a good second cup may be found at the Bayou Salado store; and 2) the area contains some really interesting microcrystalline quartz varieties, including petrified wood and colored chalcedony. In addition to the coffee at Bayou Salado, Dave and Lark at the store might give you a hint about collecting, or sell you some of their minerals or handmade jewelry.

South Park is both a topographic and a structural basin, and along with North Park and Middle Park, owes their existence to the major mountain building event in the area, the Laramide Orogeny (late Cretaceous to Eocene). Generally termed Intermontane Basins, North, Middle and South Parks are large synclinal basins complementing the large anticlinal mountain ranges surrounding them (Fig.1).



Fig. 1. Map of South Park, Colorado—essentially Park County.

The northern part of the Park (north of US 24) has numerous mountain ranges such as the Kenosha and Tarryall Mountains where the bed rock is generally Precambrian in age. In addition, hogback ridges of Mesozoic rocks trend northward from about Hartsel. The far eastern boundary of this section is the Front Range (and its numerous subdivisions) and that demarcation is generally a large thrust fault (Elkhorn Fault). In some localities along the eastern edge of the basin the Precambrian rocks of the mountains have been thrust about seven miles over the basin rocks (McGookey, 2003).

The western boundary South Park is the Mosquito Range with a variety of Paleozoic rocks dipping to the east under the basin-fill rocks. Near the south end of the Mosquito Range are two peaks that seem quite prominent and very visible—Buffalo Peaks (Fig. 2). The rocks composing these peaks are volcanic in nature, including the Buffalo Peaks Andesite and various ignimbrites (hot churning gases and debris flowing by density from an eruptive center), and were deposited in a paleovalley during the Eocene-Oligocene. Today, because of erosion, these old valleys are now high mountains and are an example of topographic inversion.

The south boundary of the Park is perhaps the most interesting because of the large volcanic centers, including the Thirtynine Mile and Guffy volcanics (part of the Central Colorado Volcanic Field: CCVF). Eruptions from these centers blocked the south outlet of the Basin and created a large lake and finally forced an eastward flowing outlet that was superimposed across the Front Range (McGookey, 2003). Ash and other eruptive rocks from the CCVF cover an area of approximately 8500 sq. mi. including most of the

“Sawatch Range, southern Front Range, Wet Mountains, northern Sangre de Cristo Range, and the areas between. Outflow aprons extended onto the High Plains to the east, merged with the San Juan volcanic field to the southwest, and overlapped the Colorado Mineral Belt on the north and west” (McIntosh and Chapin, 2004).

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PRESIDENT'S CORNER



by

The year is drawing to a close and it's time to nominate new officers. I am finishing my second two-year term as president. Kaye Thompson was our vice president until forced to resign due to health reasons, had already scheduled all of our programs for 2012 and our 2013 installation banquet. Jack Null served the remainder of Kaye's term and is completing his appointment as vice president. Sharon Holte has been our member at large and then a fine editor for the past three years and is willing to serve as member at large next year. Roni Poteat is completing three years as membership secretary a time consuming detail oriented job. Jack Thompson is completing his term as member at large where he has provided the board with his many years of expertise with the club. Jean Miller has agreed to serve as club secretary for next year, as has Ann Proctor serving as treasurer. The club cannot function without these volunteers! They have taken care of all the day-to-day business of the club, rarely being thanked for their service. Our satellite group leaders have also volunteered many hours to further our members' educational interests in the various earth science subjects our members' study. Please!! If you are willing to serve in one of these positions let us know at the next meeting!

We are blessed to have three field trips this October, one to the Calumet iron Mine, the Sedalia Copper Mine and to Grand Junction where you can visit the Grand Junction Club's show and collect the many minerals and fossils in the area.
Roger Pittman

The End

Jewelry Tips By Brad Smith

BenchTips for the Month TEMPLATES

Whenever I have to make more than 2-3 exact copies of anything, I think of making a template. A template lets me easily draw the shape of an item. Art stores sell templates for common shapes like circles, ovals, hearts, etc, but if you need other shapes, it's easy to make your own. Simply cut the shape out of sheet plastic, copper or brass.

The brass template let's me quickly trace the design of these ginkgo leaf earrings onto silver sheet, and the nickel template makes it easy to drill the pin inlay pattern into the ironwood.

After finding a poor selection of stock templates for ovals at my local art store, I was pleased with the wide selection on Cool Tools at <http://www.cooltools.us/> If you order, be sure to look for the 10% off code each month on their Home page.

Kingsley North also has some nice templates at <http://www.kingsleynorth.com/>

DENTAL TOOLS

A ready source of free tools is your local dentist. Dental picks can be reworked into wax tools or straightened and sharpened to make a stylus for marking and layout. The steel in these tools is high quality, and the handles are designed for comfort. A special note however - don't try to bend one of the tips to a different shape - the steel will snap. To change the shape, heat the tip to red hot and bend it with pliers while it's hot.

And don't forget to ask your dentist for some of the cutting burs they throw out. These are useful for a variety of things. It's best to call a week or two before your visit and ask the dentist to put some of these tools aside for you. It's good practice also to ask that they run them through the sterilizer for you.

In addition, here's an interesting web site that might be of interest to your readers.

FAKES & FRAUDS

Unfortunately, there's a growing amount of deception and outright fraud these days at gem and mineral shows and in some of the online venues that sell these items. Often "genuine turquoise beads" turn out to be dyed magnesite, and I've been told that the majority of colored stones being sold typically have had some "enhancement" done to them.

If you're interested in what kind of fakes and frauds have been uncovered, there's a well-done page at <http://www.the-vug.com/vug/vugfakes.htm>

More BenchTips by Brad Smith can be found at [facebook.com/BenchTips](https://www.facebook.com/BenchTips) or groups.yahoo.com/group/BenchTips/



Dental Picks



Templates

The major volcanism came from at least 10 calderas or eruptive centers with dates over a 10 million year span in the late Eocene into the Oligocene (38-29 Ma); however, volcanic activity continued into the Miocene (Wallace and others, 1999). Post depositional faulting, dissection and erosion have produced the current landscape.



My interest, in various collecting trips to South Park, generally has been in the southwestern part of the Park where a gently rolling topography creates the illusion of a “flat area” (Fig. 2). This section of the Basin is what most travelers associate with South Park since upon cresting Wilkerson Pass (on U.S. 24 coming from Colorado Springs) the view to the southwest seems to go on forever.

Southern South Park, south of US 24, is usually associated with various volcanic rocks (see history above) and Scarbrough (2001) has outlined the

Fig. 2. Looking west toward Buffalo Peaks. Note subdued basin topography in foreground.

Cenozoic history as follows:

Deposition of Denver (South Park?) Formation concurrent with Laramide tectonism (compressional mountain and basin building) in the early Tertiary.

Middle Tertiary erosion, then deposition of lake beds, volcanism in the form of lavas and extensive airfall deposits, igneous intrusions, and fluvial deposits.

Pleistocene glaciation in the adjacent mountains producing outwash deposits.

Deposition associated with Holocene fluvial systems.

One of the best-known South Park volcanic-associated units is a formation usually mapped as the Florissant Lake Beds. These beds crop out near Lake George and represent deposition in a basin partially occupied by a late Oligocene Lake. Thousands of fossil plants and insects (and various other vertebrates and invertebrates) have been extracted from these beds and have produced a wonderful snapshot of life during this time period. Today, Florissant Fossil Beds National Monument preserves some of these ancient rocks and fossils.

The intrepid rock hunters on this field trip headed south from Hartsel on CO 9 and County 53 Rd and noted the Antero Formation of Oligocene age (probably equivalent to Florissant Lake Beds) cropping out. However, good exposures are somewhat rare since the rocks are highly weathered at the surface; the landscape is a gently rolling surface.

Our first stop was along a side road to examine the roadside and ditches. Voila, the area produced some very nice specimens of a light blue chalcedony, some of it in vugs, most of it bubbly, and some banded and agate-like (Figs. 3 & 4). The material was literally “all over the place” so I was able to collect half dozen choice specimens. I am not a lapidarist so there was not a need to gather specimens for cutting or polishing.

The Antero Formation is a clastic and volcanoclastic unit that contains water-laid ash, air-fall tuff, siltstone, sandstone, and algal limestone and ...contains fossil plants, insects, mollusks, and vertebrates (Epis and others, 1979; Scarbrough, 2001). A number of writers have noted the presence of petrified wood in South Park, perhaps beginning with Orvando Hollister in 1867: *This Park has salt springs, beds of gypsum, coal shales, veins of chalcedony, carnelian, and other curious stones and minerals. It has not been thoroughly explored and no one fully knows its resources or curiosities. Silicified wood abounds in its lower portion, and at one point, about*

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Fig. 3. Example of botryoidal blue chalcedony. Penny for scale.

30 miles west of Pike's Peak, there is a small patch of petrified stumps still standing, one of which is fifteen feet in diameter [now Florissant Fossil Beds National Monument].

Our next several stops were at localities on private land and all were productive in terms of petrified wood of all colors-- from the standard gray to carnelian to an opalized yellow-orange (Fig.5). Some of the smaller pieces would rival petrified wood of northeastern Arizona.

Since we had a "private guide" with access to private land, we did not have a need to identify public land where collecting would be allowed by the casual observer. However, a word of caution--the land ownership situation in South Park is a jumble of Colorado State land, BLM land, and private land. In fact, a representative from a federal agency told me that the only way for a novice

(like me) to determine land ownership was to take my GPS, get a latitude and longitude reading, and compare such with a federal data base. An easier way is probably to visit with the ranchers and request permission to prospect.

But, if prospectors do have one of the USGS topographic quads or a BLM land use map, they might be able to locate some of the larger tracts of public lands and begin "walking" with their eyes on the ground! In many places petrified wood is common, albeit in small pieces (just ripe for tumbling). And, if you don't have a map simply look in the roadside ditches at likely looking localities (which I presume is legal but....). I picked up an entire "baggie" of nice black wood from a ditch while my colleagues were out collecting choice specimens from another locality. However, I wanted to stick close to the vehicle as a storm was threatening (I thought) and I am terrified of lightning. My momma didn't raise no fools when it comes to lightning.

A couple of specimens on this trip really caught my eye. One was a partial log of petrified wood that seemingly had some really strange internal structures (Fig.6). I don't know what these structures represent but could guess they might be some sort of activities related to insects. I am hoping that someone in cyber world will notice these structures and help me out!

The second interesting specimen was a piece of chalcedony displaying mammillary structures--probably the largest I have observed (Fig. 7). The ultimate source of this specimen was most likely a vug in the volcanic rocks (probably basalt) but weathering had left the piece exposed in a short-grass field. But alas, it was not my discovery and therefore not for me to take home; however, I do have the photos for remembrance!

A third interesting site produced petrified wood that appears, to my untrained eye, to have formed in some sort of a bog? The individual cobble-size pieces are composed of several different smaller fragments. The smaller fragments seem broken and "jumbled together" (Fig. 8).



Fig 4. Agate-like blue chalcedony. Penny for scale.



Fig. 5. Partial logs of petrified wood weathering from Antero Formation South park, Colorado.

And finally, CSMS members could finish up their field trip by driving further south to the club peridot claim located near County Rd. 53. The gemmy olivine comes from a rock unit Wallace and others (1999) mapped as “basalt” of Miocene age (younger than the Antero Formation). Information about collecting on the claim is on the CSMS website.

So, after missing the several storms and saved from lightning we decided to call it a day and head back to our havens at Colorado Springs. Yam of the West-



Fig. 7. A nice piece of mammillary chalcidony.

REFERENCES CITED

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Fig. 6. View of a petrified log (top) showing long tube-like structures. Are these primary structures in the wood or some sort of secondary features. I could use some help.



Fig. 8. Disarticulated “pieces” of fossilized wood.

wanted to stop and prospect some of the Morrison Formation ridges near Hartsel; however, we talked him into ice cream at Bayou Salado. At a late hour in the afternoon that choice seemed obvious to me!

The End

Keokuk Geodes by Ellie Rosenberg

They are called Keokuk Geodes in the collecting books and they can be found in Keokuk Iowa but we got ours in Missouri and Illinois. Keokuk, Iowa is known as "the geode capital of the world". Countless numbers of geodes have been collected from the Keokuk area over last 150 years. They are found in outcrops of the Lower Warsaw Formation. As many as 300 outcrops can be found within a 100 mile radius of Keokuk. Keokuk is located at the confluence of the Mississippi River and the Des Moines River. This area encompasses parts of Iowa, Illinois and Missouri.



The main exposures are found in streambeds that are tributaries of the Mississippi River. Some geodes are found loose in creek beds. These originated in the Lower Warsaw Formation, but over time weathered out of the rock and fell into the creek. Many of the geodes were then transported downstream away from their source. In some locations the Lower Warsaw Formation is right along the creek bank or even in the creek itself. A good time to collect is after a heavy rain. This causes a rise in both the creek

level and a stronger current which washes out fresh geodes.

We collected in the Fox River where it crosses highway 136 just west of highway 27 in Waylan, MO. There was actually a sign saying Geode Access. There was a family swimming in the stream as there were places where deep holes formed surrounded by gravel bars and very shallow water. You really wanted to be able to see the bottom before taking a step. In half an hour we had filled our bags with small geodes up to 3 inches in diameter. We tried to pick up the ones that seemed light for their size. We have not opened them yet so we don't know how good at guessing we were.



The next day we went to Scheffler's Rock shop in Alexandria, Missouri. This was a pay to dig site very near the rock shop. It is an outcrop of the Warsaw shale near a small creek. These geodes were found in a very hard shale layer. While it is possible to chip out the geodes with a rock hammer and chisel, larger tools such as a pick ax and full size shovels are much more efficient for removing the layers of shale to get at the geodes. Fortunately for us, another collector had been digging in the pit for several days and had the heavy duty tools which he shared with us. The cost was \$50 per person and that entitled you to fill a 5 gallon bucket each.

On the third day we drove over the bridge to Hamilton, Illinois to check out other pay to dig sites. Jacob's Geode Shop & Mine was listed online. This operation used a backhoe to dig out piles of dirt and rock from the walls of the pit. You are allowed to go through the piles of dirt to collect the geodes. These geodes are not in a hard shale layer but appear to be in a much softer sandy layer. The owner let us drive down and take a look as we did not have time to collect. The geodes were plentiful and easily collected. If we make a trip back we would give this one a try.



We wanted to buy some polished geodes and asked where we could find some. The owner turned to a friend who was visiting with him and said, "You know anybody who sells polished geodes?" It turned out to be Mike Shumate who indeed had many polished geodes some of which were very large containing multiple cavities. Mike led us to his house which was north of Hamilton. His property is cut by a geode bearing stream and he has access to other geode collecting locations. Mike also runs GEODE FEST. This is an annual event sponsored by the Worthen Earth Searchers of Hancock County Rockhound club and is generally held each fall. Guided tours are held to various geode collecting locations throughout the area. There are also vendors with geodes for sale as well as jewelry and other mineral specimens. The event is geared toward kids with opportunities to collect and demonstrations on cracking and polishing geodes. Geode Fest Web-site: http://geodefest.org/Home_Page.php

COMMERCIAL COLLECTING LOCATIONS

Jacob's Geode Shop and Mine
823 East County Rd 1220
Hamilton, IL 62341
(217)-551-0035 or (217)-357-5384

Dennis Stevenson Geodes
625 S. 18th St. • Hamilton, IL
(217) 847-2952 or (309) 337-3089

Evans' Property
Hamilton, Illinois
(217) 847-3509

Hill Top Mud Bog

Sheffler's Rock Shop and Geode Mine

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How did the Keokuk Geodes form?

The following explanation seemed the most complete to me. It is copied verbatim from this web-site. <http://www.isgs.uiuc.edu/maps-data-pub/publications/geobits/geobit3.shtml>

What's in a geode?

A typical geode from western Illinois has an outer shell of chalcedony, a variety of cryptocrystalline quartz composed of silicon dioxide. Once the outer shell forms, mineral-rich water still inside the shell may cause more quartz to be deposited and other minerals to form toward the center. Chalcedony, much harder than the host rock of limestone, helps to preserve the specimen during weathering. As the weaker host rock is eroded, the geodes "weather out" and remain behind. They generally are easy to see because of their shape and the texture of their outer shell.

The micro-environment inside the shell is an excellent place for crystal growth. Temperature and pressure changes, as well as evaporation, cause the mineral matter to precipitate. More solutions rich in minerals may seep into the geode later, adding to the quartz crystals or forming other minerals. In addition to the chalcedony of the outer shell, the insides of some geodes are lined with a pronounced bumpy, mammillary form of blue-gray chalcedony. Some specimens also have excellent clear quartz crystals. Ankerite, aragonite, calcite, dolomite, goethite/limonite, gypsum, and marcasite/pyrite are the other minerals most commonly found. Occasionally, dark bronze, fine, hair-like masses are found inside; these may be millerite or a filament-like form of pyrite.

Perhaps the most fascinating geodes are those that contain petroleum, which may be under enough pressure to squirt out when the geode is broken. The rock in which these unusual geodes are found north of Nauvoo, no longer contains any significant oil. So what is the source of oil in these geodes? What is the origin of the other minerals? We don't know for sure. Perhaps trace amounts of some of the elements that make up the rarer minerals were present in shale layers associated with the carbonate strata.

The most prolific zone for collecting geodes in western Illinois is in the lower part of the Warsaw Shale of the Valmeyeran Series (middle series of the Mississippian System). These sedimentary strata were deposited in shallow seas that covered what is now the midcontinent about 350 million years ago.

How geodes form

Geologists have proposed several theories to explain the conditions and processes that form geodes, but none seems to be entirely adequate to explain all geode features. In discussing the origin of the western Illinois geodes, geologist J.B. Hayes noted that any theory proposed must explain why the geodes are

- essentially confined to a specific stratigraphic interval, the lower part of the Warsaw Shale;
- usually associated with particular lithologies (clayey, shaley dolomite, and dolomitic mudstone);
- located in specific zones or beds rather than scattered randomly;
- fairly uniform in size in a particular zone and round, at least initially.

As limey sediments accumulated in shallow mid-continental seas, rounded cavities that are characteristic of geodes could not have existed at the interface or contact of water and sediments. Nor could they have existed during the earliest stages of sediment compaction and cementation. Therefore, some feature of a different texture than the host limestone had to be present. This feature either caused geodes to form or was transformed into a geode.

Hayes hypothesized that the only features in the rocks that shared enough characteristics with geodes to serve as precursors were calcite concretions (small zones in the original sediment strongly cemented by calcite). The size and shape of these concretions, their position in the limestone, and their relation to the surrounding rocks are strikingly similar to those of geodes. In several exposures in the region, rock samples may be found that display all stages of the transition from concretion to geode. Hayes suggested that calcite concretions formed where organic materials (remains of the living tissues of plants or animals) accumulated with carbonate-rich sediments under quiet-water conditions. The organic matter decomposed, causing an oxygen-poor (anaerobic), alkaline environment (pH >7) to develop in the sediments. These conditions encouraged calcite to precipitate from solutions in the sediments.

The formation of many features seen in geodes may involve a step-by-step replacement of these concretions by quartz and other minerals. Changes in the chemical composition and acidity (pH) of water in the sediments caused chalcedony to replace the calcite at the outer margins of the concretions. This process caused the formation of a calcite-concretion core surrounded by a hard, but slightly permeable, shell of chalcedony. Further changes in



the composition and acidity (pH) of water in the sediments caused chalcedony to replace the calcite at the outer margins of the concretions. This process caused the formation of a calcite-concretion core surrounded by a hard, but slightly permeable, shell of chalcedony. Further changes in the composition and pH of the water percolating slowly through the sediment caused the core concretion inside the geode eventually to dissolve, leaving a hard, hollow cavity in which more chalcedony, quartz, or other minerals could precipitate.

References:

<http://www.mcrocks.com/images-2/KeokukGeodePage.html>

<http://www.isgs.uiuc.edu/maps-data-pub/publications/geobits/geobit3.shtml>

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The End

BABY BEAR GETS SCOLDED

Brown bear's parenting method snapped in Ukraine's Simferopol Zoo.....What the little chap had done to incur his mother's wrath remains a mystery, but the chances are that he won't do it again!

A baby bear made his mother angry. She tried to explain something to him in the corner, and then shook him by the neck. Wonderful pictures from the Zoo in Simferopol.



A word in your ear: The crestfallen cub approaches his mother. Sorry Mom!!

Cont. Pg 12



**How many times have I told you not to do that?
She pins him in the corner for a dressing down.
First, the mother glares angrily at her son as he stands a few feet away
Looking guilty and sheepish.
Within seconds he is backed into a corner with a terrified expression
As she roars her disapproval.**



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Sub-Group Responsibilities for Refreshments for General Assembly Meetings

Feb.—Crystal	Mar.—Faceting	Apr.—Fossil
May—Jewelry	September—Lapidary	September—Micromounts
Aug.—Picnic	Sept.—Projects	Oct.—Board
Nov.-TBD	Dec.-TBD	



Never mind Mommy loves you! He gets a bear-hug to show the row is over.

However, the fierce encounter at Simferopol Zoo in the Ukraine comes to a peaceful conclusion when Mummy, who weighs the best part of 550 lbs,

Gently hugs him to her chest to reassure him that all is for-

Brought to You by Mike Wheat





Our Staff...

Sharon Holte & Ellie Rosenberg—
Co-Editors
CSMS Members Reporters

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

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

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

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

DEADLINE for items to be included is the **Saturday after the Board Meeting** - first Thursday of each month

To submit an item, please use the following:

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

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

E-Mail to: preferred
SharonRocksCo@gmail.com

Mail to:
Pick & Pack Editors

CSMS Field Trips

Oct 20 / 21 [Sedaila Copper Mine](#) and [Calumet Iron Mine](#) / The meeting place is the Safeway parking lot at 3rd Street in SALIDA, Co for both Saturday and Sunday. Leader: Don Bray Don_Bray@copper.

Oct 20/22 - [Yellow Cat etc](#) Yellow Cat/CISCO, Utah & Grand Junction Mineral Show - Leader: Marg Regel



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See Store Keeper, Ann Proctor.

Hurry! Hurry!! Hurry!!

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General Assembly meetings are held the **third (3rd) Thursday of each month**, except January & August, (picnic) **beginning at 7:00 p.m.** at the Colorado Springs Senior Center, 1514 North Hancock Blvd., Colorado Springs, CO. **Visitors are always welcome.**

CSMS also offers Satellite Group meetings that allow more focused attention in specific areas of our members' interests. Our current Satellite Groups consist of the following: Crystal Study Group, Faceting Group, Fossil Group, Jewelry Group by RVSP, Lapidary Group by RVSP, 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.

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