

CSMS General Meeting Thurs. March 20, 2014 7PM

Tonight's program will be a Presentation by Rich Frettard

Of the "Prospectors Show"

Treats Provided by the Jewelry Group

Colorado Springs Mineralogical Society Founded in 1936

> March 2014 PICK&PACK

Vol 54..... Number 2

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RIFTING CONTINENTS, ZEOLITES, AND BREW

Mike Nelson csrockguy@yahoo.com

One of the exciting events of 2014, at least for me, was the chance to visit the Tucson "shows" in mid-February; hopefully, I can report on some of the "happenings" in next month's *Pick & Pack*. In the meantime, the Editor needs manuscript copy and I have been looking at rocks rather than writing. So, I am borrowing a couple of zeo-lite articles from my blog and trying to flow them together into a coherent story!

I have friends who grew up in Minnesota and periodically travel up to the North Shore for vacations and a little rock collecting. In Minnesota and Wisconsin the term "North Shore" affectionately refers to the north shore of Lake Superior stretching from Duluth northeast to Grand Portage on the International Border (and on into Canada). Outside of these two states the North Shore is fairly unknown to most people; however, it is one of the



Fig. 1 Cliffs of the North Shore. Photo courtesy city-data.com.

treasures of the nation (Fig.1). Route MN 61 follows the shoreline of the lake and spectacular views are available by simply pulling into an overlook or state park. The shoreline is dominated by steep cliffs intermixed with broad to narrow beaches filled with pebbles, cobbles and sand---a great place for hunting agates.

The entire North Shore is dominated by rocks associated with the Mid-Continent Rift System (MRS). This geological rift (think about the great East African Rift Zone) begin to form in the Precambrian (Proterozoic Era) perhaps ~1.1 Ga by splitting the stable part of the North American "continent" or plate (referred to by geologists as the craton). Geologists believe the rifting started when a large mantle plume (heat) developed

under the area now known as Lake Superior (Fig. 2). The Rift Continued pg. 3

CSMS Calendar

March 2014

- Sat., Mar 1—Lapidary, 10a.m.-2 p.m., Sharon Holte 217.5683.
- Tue., Mar 4—Fossil Group, 7 p.m., Senior Center.
- Thu., Mar 6—Board Meeting, 7 p.m., Senior Center.
- Tue., Mar 11—Micromounts, 7 p.m., Senior Center. Dave Olsen, 719.495.8720
- Thu., Mar 20—General Assembly, 7 p.m., Senior Center.
 - Pebble Pups & Juniors. 5:30 to 6:15 p.m., Steven Veatch, 719.748.5010
- Thu., Mar 27—Crystal Group, Senior Center, Kevin Witte, 719 638-7919

Faceting Group, Senior Center, Paul Berry, 719.578.5466

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

Tue., Apr 1—Fossil Group, 7 p.m., Senior Center.

Thu., Apr 3—Board Meeting, 7 p.m., Senior Center.

Sat., Apr 5—Lapidary, 10a.m.-2 p.m., Sharon Holte 217.5683.

Tue., Apr 8—Micromounts, 7 p.m., Senior Center. Dave Olsen, 719.495.8720

Thu., Apr 17—General Assembly, 7 p.m., Senior Center.

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

Thu., Apr 24—Crystal Group, 7 p.m., Senior Center. Kevin Witte, 719 638-7919

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

Apr, 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

Other Events of Interest to CSMS Members

Mar. 13, Pegmatites of the Black Hills, by Dr. John Lufkin; at Colorado Chapter, Friends of Mineralogy meeting, Denver Museum of Nature and Science, VIP Room

Mar. 16, 1:00 p.m., Florissant Scientific Society, "The Colorado Plateau: Sedimentology, Stratigraphy, Forces, Features and Parks", by Robert Knapp; Woodland Park Library

Mar. 28-30, Fort Collins Gem and Mineral Show, Larimer County Fair Grounds, Loveland

Fri., Apr. 11, 6:45 p.m., North Jeffco Gem & Mineral Club Silent Auction, Apex Community Recreation Center, 6842 Wadsworth Blvd., Arvada

Apr. 18-20, Book/Garage Sale at the Colorado School of Mines Geology Museum; 9 a.m. – 4 p.m. on Fri. & Sat., 1-4 p.m. on Sun.

Apr 18-20, Colorado Mineral & Fossil Show (Ramada Plaza-Denver Central)

May 3, Colorado Mineral Society Silent Auction, Holy Shepherd Lutheran Church, 920 Kipling St., Lakewood CO

May 10, FM Colorado Chapter, Silent Auction, Clements Community Center, 1580 Yarrow St., Lakewood CO

June 6-8, Pikes Peak Gem and Mineral Show (Western Museum of Mining & Industry)

Aug. 7-10, Contin-Tail Rock Show, Buena Vista Rodeo Grounds

Aug. 15-17, Lake George Gem and Mineral Show, Lake George, CO

Sep. 7-14, Colorado Mineral & Fossil Show, Ramada Plaza Hotel (formerly Holiday Inn), Denver

Sep. 12-14, Denver Gem and Mineral Show, Denver Mart (formerly the Denver Merchandise Mart)

Sep. 19-21, Ouray-Silverton San Juan Mountains Mineral Symposium, Ouray, CO; lectures, historic tours, and field trips; see http://friendsofmineralogycolorado.org/





Fig. 2. Map of Midcontinent Rift Showing Ages of Surrounding Basement Rocks. Map Courtesy Winona State University.

Fig. 3. Map (Iowa Department of Natural Resources) showing location of MRS with center horst. During the continent collisional event the crustal shortening reactivated the

is nearly 1400 miles long extending from northeast Kansas to Lake Superior with an eastern arm curving around and heading toward Ohio (part of a Triple Junction, more geology jargon). Hugh amounts of lava erupted along boundary faults while adjacent rivers from the up-lands dumped thousands of feet of sediments (later sedimentary sandstones and conglomerates) into the low lands of the Rift (the down-dropped basin of the Rift created by normal faults). In addition, some of the magma was "intruded" and crystallized as a coarse-grained gabbro (generally known as the Duluth Gabbro). For some reason, the rift "stopped splitting" (a failed rift in geological jargon), and the continent healed. The most likely culprit in keeping Duluth from being located on an ocean beach is another tectonic plate colliding with what is now the east coast of North America. This bumping probably put an end to the spreading.

Most of the rocks in the rift are buried below the surface of the earth and are only known from geophysical stud-



Fig. 4. Falls of the Baptism River, Tettegouche State Park, Minnesota. Photo courtesy of <u>www.superiortrails.com.</u>

ies and drill holes. However, in Minnesota the Rift rocks initially appear along the Kettle River north of the Twin Cites at Banning State Park. In my home state of Kansas the Midcontinent Geophysical Anomaly (MGA) delineates the subsurface rift since the concentration of magnetite in the Rift rocks creates a magnetic "high" that is picked up by geophysical instrumentation (Fig. 2). In Iowa the Rift rocks also are in the subsurface but drilling and geophysical studies have delineated a large uplift block (horst) in the center of the Rift that has shed off sediments to basins flanking the horst (Fig. 3). This horst indicates a crustal shortening event probably related to the previously noted continental accretion and collision in the east.

Some of the really interesting aspects of the North Shore geology are the many instances of rivers coming off the highlands to the north and reaching the lake and spilling over waterfalls (Fig. 4). The basalt of the Rift rocks creates the opportunity for the rapids and falls and today most are protected in state parks, places such as Gooseberry Falls State Park and Temperance River State Park. I have camped at all of these parks and they are spectacular.

One of the attractions for rockhounds at the North Shore is the chance to collect the famous Lake Superior Agates that erode from the Rift basalt layers. Since the Rift rocks include substantial amounts of iron, the agates have some sort of a red or orange color---oxidized iron. Most likely the agates formed post-deposition of the basalt and are the result of percolating silica-rich groundwater filling the many vugs or vesicles in the basalt.

But back to my friends the Thompsons who vacation at the North Shore. Recently they brought home a piece of thomsonite claiming this mineral was named after some long-lost, northland, Viking relative! It was a very nice little nugget and they asked me about the composition---what was it?

Well, thomsonite $[NaCa_2Al_5Si_5O_{20}-6H_2O]$ is a zeolite mineral, actually a series of silicate zeolites with the monikers thomsonite-Ca (listed above) and thomsonite-Sr with the former being the most common but in the latter



Fig. 5. Pebble of thomsonite showing internal concentric colored rings. Width ~1.4 cm.



Fig. 6. "Distant view of Golden City. View from the foothills west of the city, looking east over the broad basaltic tables, flanking Clear Creek upon either side. Jefferson County, Colorado." 1872 photo by W.H. Jackson from USGS Library.

strontium replaces the calcium.

The zeolites are an interesting "group of hydrous silicates that show close similarities in composition, association, and mode of occurrence. They are framework aluminosilicates with Na, Ca, and K and highly variable amounts of H2O in the generally large voids of the framework...When a zeolite is heated, the water in the channelways is given off easily and continuously as the temperature rises, leaving the structure intact...This dehydrated zeolite structure can be completely rehydrated when it is immersed in water...and this allows it to be used as desiccants." I find it interesting that the zeolite cations can easily exchange with "unwanted" cations in solutions such as the sodium in a zeolite replacing the calcium in "hard water." Zeolites have an amazing number of industrial uses. (above from Klein, 2002). About three million metric tons are mined each year for industrial applications, and several thousand tons of synthetic zeolites are produced for their purity. There seem to be a few over 100 named zeolite minerals listed on www.mindat.org.

Most rockhounds collect zeolites because of their well displayed crystals such as those noted in mesolite, stilbite, scolecite, heulandite and numerous others. However, about the only zeolite considered to be a semi-gemstone is thomsonite (although natrolite has been facetted for collectors). The best know specimens of thomsonite are small pebbles that erode from the Rift basalts along the North Shore and then are available for observant rockhounds on the beach. I say observant because many of the pebbles really do not look like much of a find until then are opened. The specimen that I have (see photo) is very nondescript on the outside but has nice concentric colored rings and radiating fibers on the inside (Fig. 5). Lapidaries like to collect and polish the small thomsonite pebbles that display a pinkish color on the outside.

So, if readers have travel plans for Minnesota (perhaps for my favorite winter sport--skinny skis on the trails, or for summer fishing and camping), consider the beautiful drive along the North Shore. The waterfalls are amazing and beaches are available for collecting those famous agates. However, keep your eyes open for these small, often non-descript, pebbles of thomsonite.

So, while gem-type thomsonite is best known from the MRS one of the prime places to collect crystalline thomsonite is from North Table Mountain near Golden, Colorado. Millions of people are familiar with North and South Table Mountains (Fig. 6) due to Golden's most famous export—Coors Beer. The brewery, established in



Fig. 7. "United States Geological and Geographical Survey of the Territories (Hayden Survey). Table Rock, Golden City. Colorado Territory, July 28, 1869." From USGS Library (H.W. Elliott). 1873, is located between the Mountains and has used a stylized projecting point on South Table Mountain as part of its logo. Castle Rock, as the point is known, is a large hunk of volcanic rock (Fig. 7).

Persons of my age, mostly male Baby Boomers, fondly remember Coors beer for a number of reasons, not the least of which is that only beer drinkers in the western U.S. could sample the brew-those "back east" had to settle for Hamms or Bud or Falstaff. or any number of others. However, although Budweiser was the "King of Beers", Coors was thought to be the "best" since it was brewed with fresh Rocky Mountain Spring Water, and it was off limits to those "easterners"! Later in life I took a look at the "fresh water" and noted that Clear Creek flowed through some nasty looking mining areas. However, the "big thing" about Coors was its availability only in the West (including my home state of Kansas) due to some arcane law about a lack of permits associated with alcohol distribution.

Remember the cult classic movie *Smoky and the Bandit* where Burt Reynolds (the bandit) and Jerry Reed (Cletus, his buddy) transported 400 cases of Coors from Texas to Georgia while all the time being tormented by Sherriff Buford T. Justice (Jackie Gleason)? While attending graduate school in South Dakota I hauled back cases of Coors and made a small profit selling them to fellow students (later found out this was considered bootlegging—is that a felony?). The return trip featured "Green Death," Heilemann's Premium Old Style Beer, transported back to Kansas. Again, later in life, I worked in La Crosse, Wisconsin, where Old Style was brewed and home of The World's Largest Six Pac (Fig. 8).

OK, back to zeolites and thomsonite. North and South Table Mountains are eroded remnants of the Denver Formation with capping and intercalated shoshonite lava flows (non-explosive, potash-rich basaltic rocks). The sedimentary rocks of the Denver Formation span the Cretaceous-Tertiary boundary as dinosaurs have been described in the lower part while Tertiary mammals have been found in upper beds. During the early Paleocene,



Fig. 8. The World's Largest Six Pack. Photo courtesy of The Pour Pub.



Fig. 9. Botryoidal thomsonite (T) with plates of analcime (A) situated on a bed of chabazite (C) crystals within a vug in the shoshonite matrix. Width of vug ~5.5 cm.



(Fig. 10. Photomicrograph of crystalline chabazite with plates of analcime (A). Largest analcime width ~1.5 mm.



Fig. 11. Photomicrograph of botryoidal thomsonite.

the lava was extruded from several nearby volcanic plugs (Ralston) where the only evidence that remains today is the roots of this volcano. There were at least four different flows over a 1 my. period. The zeolites that formed in vugs of the shoshonite are secondary minerals. (above information from Drewes (2008).

<u>Www.MinDat.Com</u> lists 16 different zeolite minerals known from North Table Mountain, including thomsonite-Ca. I preciously noted the calcium of thomsonite-Ca is at times replaced by strontium so the mineral becomes thomsonite-Sr. The specimen I have from North Table Mountain has light tan (stained?) botryoidal thomsonite-Ca (I presume the calcium variety) setting on nice crystals of chabazite [CaAl₂Si₄O₁₂-6H₂O] with smaller plates of analcime [Na₂(Al₂Si₄O₁₂)-2H₂O] (Figs. 9, 10, 11). At least that is my novice interpretation of the specimen!

So, thomsonite can be collected as semi-gemstones from the MRS or as crystals from many localities including North Table Mountain. As for the Thomson's long lost relative, the mineral was named for Thomas Thomson at the University of Glasgow. I threw in the Coors beer bit as a bit of nostalgia with apologies to younger readers, or also to readers who have not seen *Smoky and the Bandit:*

Cledus: Hey Bandit. Me an' Fred's (a dog) got a question.

Bandit: What you an' Fred want?

Cledus: How come we doin' this?

Bandit: Well why not?

Cledus: Well they said it couldn't be done.

Bandit: Well that's the reason, son!

Cledus: That's good with Fred.

So, that is sort of my motto--why you doin' this? Well why not?

REFERENCES CITED

Drewes, H., 2008, Table Mountain Shoshonite Porphyry Lava Flows and their Vents, Golden, Colorado: U.S. Geological Survey Scientific Investigations Report 2006–5242.

Klein, C. (after James D. Dana), 2002, The 22nd Edition of the Manual of Mineral Science: New York, John Wiley and Sons.

Miller, J. D. Jr., 2007, The Midcontinent Rift in the Lake Superior Region: Large Igneous Province of the Month, <u>http://largeigneousprovinces.org/</u>

March 2014

Pebble Pups in the News

PEBBLE PUPS CORNER



Caleb Bickel had 2 poems published in Deposits Magazine; "I used to be..." and "A meteor and the sun"

Jenna Salat, Zach Sepulveda, Caden Rothzeid, and Luke Sattler were featured in an article by Debbie Kelly in the Colorado Springs Gazette on 01/27/14.

Some Upcoming events for Pebble Pups March, 2014 Behind-the-Scenes at the DMNS

The Pikes Peak Pebble Pups will be participating at the **Colorado Alliance for Environmental Education's Teaching Outside the Box Conference** at the **University of Denver**: Thursday, March 20- Saturday, March 22, 2014.

The conference is directed towards education of informal educators, especially city, county, state, and national park rangers. The following Earth Science Schol-

ars will be presenting on Saturday: Jenna Salvat, Zach Speulveda Blake Reher.

The group of Earth Science Scholars will have a two-hour session of presenting climate change in Colorado, the destruction of Colorado forests, the meaning of the large number of fires, and drought. The three presenters will work with the rangers attending our session on activities they can take back to their parks.

Archaeopteryx A dinosaur with feathers Transition to flight

Haiku poetry about *Archaeopteryx lithographica*, the famous dinosaur with wings and feathers.

Found in the Jurassic Solnhofen Limestone of southern Germany, Archaeopteryx is a transitional fossil between dinosaurs and birds. Watercolor pencil drawing by Steven Wade Veatch



"Teacher"

By Jack Shimon, 3rd grade He who knows the most geology Let me into the club to learn About minerals and rocks He challenged me to try Opportunities Write draw learn speak Who believes In me YOU

Author bio: Jack Shimon is a member of the Colorado Springs Mineralogical Society Pebble Pups and he participates with the Pikes Peak Pebble Pups and Earth Science Scholars on projects, field trips, and community outreach projects. He is 9-years old and is in third grade at school. Jack brings his dog Comet to some of the Pebble Pup meetings. Comet is the mascot for the CSMS Pebble Pups.

Note: Jack Shimon wrote this poem to the leader of the Pikes Peak Pebble Pups. This poem is a nonet, and is not the easiest form to work with. A nonet is a nine line poem with diminishing syllables. The first line containing nine syllables, the next line has eight syllables, the next line has seven syllables. That continues until the last line (the ninth line) which has one syllable. Nonets can be written about any subject. Rhyming is not required.

March 2014

Mountains Grow So High

By Blake Reher, Colorado Springs Pikes Peak Pebble Pups Mountains grow so high Hard to believe they aren't alive Erosion brings them back to earth It's all a part of Earth's rebirth

Nothing stays in these shifting sands Tectonic plates shape our lands Coloradans admire their snowcapped peaks Glad to see them; and climbing them is a treat. *January 31, 2014*

Bio of Poet: Blake has earned his black belt in Kempo Karate , and is active in Boy Scouts. Blake's real passion is paleontology and geology. He attends both Cheyenne Mountain Junior High and the



HillSprings Learning Center. Blake's dyslexia does not dampen his goal of attending college and studying Geology. He is an active Junior Member in the Colorado Springs Mineralogical Society. He volunteers in Science Fairs, and other outreach programs. He has co -presented a program on Volcano's with Steven Veatch, his mentor. Blake has written several poems and articles that have been published in newsletters. Although writing is a challenge for Blake he really likes the accomplishment of researching topics and completing papers.

A Dinosaur Track Meet?

By Jack Shimon Photos by Julie Shimon

My "fossil Grandpa" took me to visit this neat site when I was in Texas last summer. We drove away from Austin to a small rural community where it seemed there wasn't anything to find. My Grandpa pointed me to a small trail, full of flowers that Jane stopped to admire, which eventually led down a steep trail into the river bed. This was definitely not a popular hiking trail and I doubt many people except geocachers have been to this spot. The site is an Earthcache which is a type of geocache that teaches you about a unique geoscience feature. I have been to several Earthcaches in Texas and in at least four other states (Colorado, Iowa, North Carolina and Florida) and learned some interesting lessons. Our job was to study the dinosaur tracks and answer some questions¹.

What type of dinosaur made these tracks? A theropod like velociraptor or T-rex, or maybe even the recently discovered Lythronax argestes. Some type of carnivorous predator, and to think, I was standing right where it walked so long ago! It was a little frightening to imagine one coming along and what that would be life in real life.

The first task was to measure the stride. The stride is the distance between two footprints (right- right), not the step length as shown by Jane and I (right-left). I calculated the stride length as 112 inches.

Next I had to measure the length of one footprint. I measured several and took the average to be 18 inches long.

Then I calculated the hip height, which equals five times the print length, or 5x18 inches, which is 90 inches. My hip measures only 30 inches high.

Dinosaur track.



Next I calculated the length of the dinosaur, which is ten times the print length, or 10x18 inches, which is 180 inches. I am only 52 inches long but I also don't have a tail like a theropod.

The final task was to determine if the dinosaur was walking, trotting, or running. To do this you divide stride length by hip height, which is 112/90 = 1.244. I first guessed that it was walking because the prints were so clear and there was no smudging. Was I right?

Yes, I guessed correctly! For the calculation stride length divided by hip height the following values correspond to motion: <2.0 is walking, 2.0-2.9 is trotting, and >2.9 is running.









I had a lot of fun at the Earthcache with my Grandpa and enjoyed learning how to interpret dinosaur tracks. As we were exploring some more he showed me these interesting layers. The thick hard white layers are deep water limestone deposits. The thin bedded gray layers in between are shallow water mudstones. The dinosaur tracks were found at the base of the lower mudstone layer.

References:

Track Meet? Cache GC1RZM5 by Waterweasel & Tygress

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March 2014

SECRETARY'S SPOT by Renee Swanson

MINUTES OF COLORADO SPRINGS MINERALOGICAL SOCIETY GENERAL MEETING FEBRUARY 202, 2014

Minutes not available at time of publishing.

Sub-Group Responsibilities for Refreshments for General Assembly Meetings		
Feb.	Mar.	Apr.
Fossil	Jewelry	Lapidary
May	June	July
Micromount	Board	Crystal
Aug.	Sept.	Oct.
Picnic	Faceting	Fossil
Nov.	Dec.	
Jewelry	Christmas Party	

North Jeffco Gem & Mineral Club Silent Auction

Friday, April 11th, 2014

APEX Community Recreation Center

6842 Wadsworth Blvd, Arvada, CO 80003

Setup at 5:30 PM

Seller limits on number of items to sell: Club Members – No limit Non-members – Maximum of 30 items

Auction Begins 6:45 PM

Checkout Begins Immediately After Auction





jewelry gems

minerals

bake sale

crafts

free refreshments public invited



If you need a finished piece of jewelry, rough material to fashion yourself, a specimen for your collection, or an interesting and fun evening, this is the place.

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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

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 2012 or 2013, your year pin award See Storekeeper. Ann Proctor

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

Classifieds



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.

ACKLEY'S ROCKS

Cathy / David / Shawna Owners / CDM Rocks LLC Services: Lapidary, Silversmithing, Goldsmithing, and Jewelry Repairs 3230 Stone Ave. Colorado Springs, CO 80907 719-633-1153 ackleysrocks@comcast.net

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114 Main Street, Westcliffe, Colorado 81252 (719) 783-9459 gallery@ris.net





PICK & PACK

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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. <u>Visitors are always welcome</u>.

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.rmfms.org