

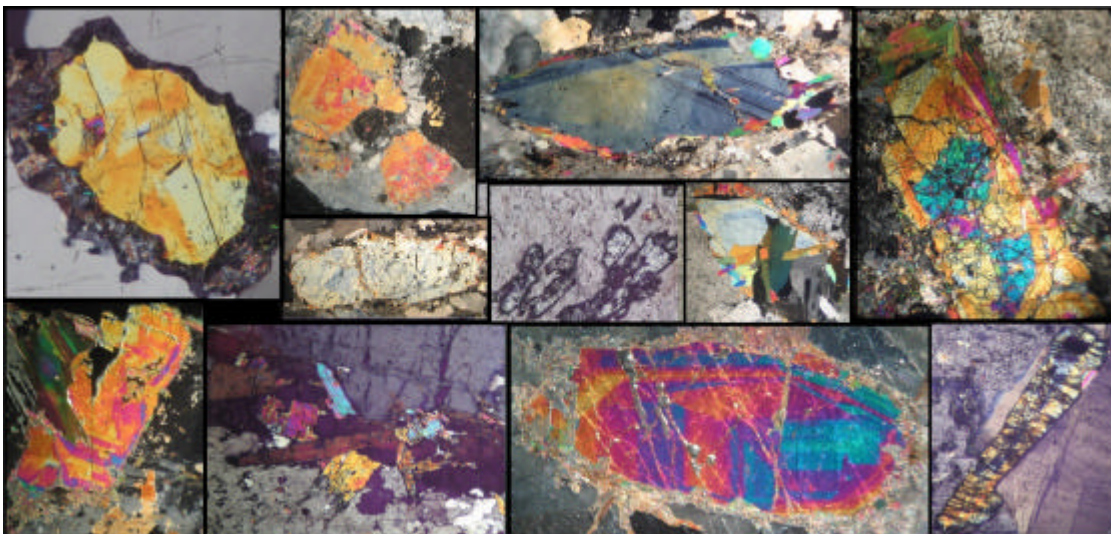
## Friends of Mineralogy, Colorado Chapter Newsletter – May/June 2014

**May Meeting – Thursday, May 15, 7:30 pm** (Board meeting 6:00-7:30)  
**Denver Museum of Nature and Science – V.I.P. Room.** *Enter through the single door Security/Staff entrance to the left of the main entrance. The V.I.P. room is to the left through the cafeteria area.*

### May Program:

## Magmatic Epidote Populations within Pegmatitic Trondjhemites from the North Cascade Mountains, Washington

**Ian Merkel,  
Denver, CO**



Various epidote crystals from the Wenatchee Ridge dikes in cross-polarized light.

## **Presentation Abstract:**

Two weakly deformed Cretaceous pegmatitic tonalite dikes, representing part of the high-pressure magmatic plumbing of the North Western U.S. paleo-volcanic arc system, occur in the North Cascade Mountains, Washington. These dikes contain quartz, plagioclase, muscovite, epidote and rare garnet and apatite. Significantly, the epidote occurs in more than seven texturally and chemically distinct populations with individual crystals in excess of 13 cm. Trace element (TE) analyses have been carried out on the epidote populations to test hypotheses of magmatic processes associated with an evolving tonalite magma system (magma recharge, country rock assimilation, differentiation, phase-reaction evolution), as well as to constrain the relative chronology of these populations.

Geochemical interpretations indicate that two of the hypothesized magmatic processes were dominant in the early evolution of this system; first, magmatic differentiation resulting from fractionated high temperature/pressure magmatic phases led to decreasing TE concentrations and second, the breakdown of a heavy rare earth element (HREE) phase significantly adjusted the HREE geochemical patterns of subsequent epidote populations. It has also been determined that TE variations of these epidotes can be used to construct the relative chronology of the epidote populations. These results are important because they demonstrate the ability to use distinct populations of trace minerals to acquire insight into early magmatic processes and geochemical evolution. Early magmatic processes, which often lack constraints due to evolutionary late crystallization processes dominating the geochemical signature of the final rocks, are important in reconstructions of tectonic regimes; in particular the deep plumbing systems of continental volcanic arcs.

## **Speaker Ian Merkel's background:**



Ian Merkel attended the State University of New York at New Paltz, located midway between New York city and Albany, starting in 1997. He had graduated from High School on Long Island where he spent his childhood. It was in New Paltz that he quickly realized that he was much more comfortable in the mountains than the beaches and more importantly, that he spoke the language of geology with ease. Collecting became an inspiration for his academic efforts, which furthermore drove his collecting efforts. Ian graduated in 2004 with a BS in Geology and about 100 collecting localities under his belt.

In August 2004 Ian began his graduate work at Colorado State University, Fort Collins studying igneous petrology. During the ensuing graduate summers Ian was hired as an intern for Phelps Dodge at the Morenci Copper Mine in Arizona. Most weekends during those summers were spent collecting in desert localities and camping in the ponderosa forests with his dog, Rugosa. He acquired his MS in Geology in 2007 and began working as a full time exploration geologist at the Morenci Mine, now a property of Freeport McMoRan. During his years at Morenci Ian ran the drill program, managed the drill hole database and helped build the resource block models.

In 2010 an opportunity to transfer to the Henderson Mine in Empire, Colorado led Ian to expand his skills to underground mapping, building 3D interpretive models of molybdenum grade distributions, alterations and associated lithological models. He also manages the exploration and mapping databases and plays a pivotal role in the exploration drill program.

Because his love for mineral specimens can not be quenched with his daily geological duties Ian seeks out specimens in his spare time. He has collected at over 200 localities throughout North America since 1998. Currently he is a member of Spruce Ridge Collectors in Washington state and works on specimen extraction projects such as Hallelujah Junction, Nevada and California Blue Mine, Southern California. He spends 40+ days a year in the field and continues to expand his understanding of geology through research and short courses.

We are very pleased that Ian has offered to lead an underground tour, for a limited number of FM members, on May 30 to the Henderson molybdenum mine, where he works. (See further below in this newsletter)!

\* \* \* \* \*

### **Dates for upcoming FM Colorado Chapter activities:**

May 16, bimonthly meeting, at DMNS, “Magmatic Epidote from North Cascades”  
May 30, Henderson mine field trip; *attendance limited—see newsletter*  
September 5-7, San Juans Mineral Symposium, Ouray, CO  
September 12-13, Denver Gem & Mineral Show (FM Mineral Identification Booth)  
September 18(?) or October 9(?), possible FM meeting dates, TBD; info in September newsletter  
November 13, bimonthly FM meeting, at DMNS

Meetings are normally held at 7:30 p.m. on the 2<sup>nd</sup> Thursday of alternative (odd-numbered) months, at the VIP Room in the Denver Museum of Nature and Science. Any visitors are *always* welcome at our meetings!

**FMCC 2014 Officers:** President, Mark Jacobson, markivanjacobson@gmail.com , 1-337-255-0627  
Vice-President, Jim Hurlbut, jfhu@earthlink.com , 303-757-0283  
Treasurer, Lou Conti, dlconti@aol.com , 303-797-3205  
Secretary, Alan & Norma Keimig, alan.keimig@gmail.com, 303-755-9604  
Directors: Bill Chirnside (2013-14), billdozer@mho.com , 303-989-8748  
Don Bray (2014-15), don-bray@copper.net , 303-681-3646  
Larry Havens (2014-15), lghavens@aol.com , 303-757-6577  
Chairpersons: Newsletter, Pete Modreski, pmodreski@usgs.gov, 303-202-4766  
Preservation, Jeff Self and Donna Ware, selfawareminerals@gmail.com  
Liaison for DMNS, Alan Keimig  
Liaison for RMFMS, Jim Hurlbut  
Membership/Hospitality - ? (open!)

### ***Important notes about FM this month:***

**Dues paid?** Almost all of our existing members have now paid their dues, \$13.00, for 2014. If you are still uncertain if you have renewed your membership, or if you wish to join as a new member, please pay at our meeting, or send your dues payment to: FM-Colorado Chapter, P.O. Box 254, Littleton CO, 80160-0254.

### **March Colorado Chapter meeting:**

At our March 13 meeting, Dr. John Lufkin gave an fine presentation on “Geology and Pegmatites of the Black Hills, South Dakota”. There was a spirited discussion about the Black Hills

pegmatites, and pegmatites in general, after the presentation. John even distributed several mineral specimens as door prizes (the specimens—much appreciated--were zeolite minerals from India, not from pegmatites).

## **Ouray-Silverton San Juan Mountains Mineral Symposium, September 5-7, 2014**

This Symposium, cosponsored by FMCC as well as the Friends of the Colorado School of Mines Geology Museum, will be our major special event this year. Detailed plans are in process of being made, but the symposium will be held at a location in Ouray, with a Friday evening welcoming party and speaker; lecture program and banquet with speaker on Saturday; field trip(s) on Sunday; and possible optional field trips on Monday. The program will include presentations about San Juan Mountains history, mining, geology, and mineralogy. Information will be posted as it becomes available on the Chapter website Lou Conti, dlconti@aol.com . Attendees will be responsible for making their own lodging reservations for the symposium; this is a popular weekend in Ouray/Silverton, and whether you would plan to stay in a hotel/motel or campground, it would be wise to make your reservations as far in advance as you can. Read about the symposium on our chapter website, <http://friendsofmineralogycolorado.org/> and (in even more detail) on facebook, at <https://www.facebook.com/pages/Ouray-Silverton-San-Juan-Mountains-Mineral-Symposium/224883727702374>

As of this time, confirmed presentations at the symposium include:

John Dreier--Economic Geology & Structural Controls of the San Juan Ores

Bill Jones--Liberty Bell and Shenandoah-Dives Mines--San Juan Mining 1900-1950

Bob Larson--Vein Systems of the Silverton Caldera

Jonathan Moore--Lost Gold Mines of the San Juans Don Paulson--Aerial Trams of the San Juans

David Smith--The Red Mountain Mining District

Ken Sloan--Collecting at Champion Basin/Red Mountain

Duane Smith--Mining Camps of the San Juans

Tom Walsh (a.k.a. John Stewart)--The Camp Bird Mine

A registration form, including a list of field trips, will be posted on the chapter website as soon as it is available. Basic symposium registration will be \$60; the Saturday night banquet will be approximately \$30; and there will be an additional charge as necessary for each field trip.

**Colorado Chapter website: <http://friendsofmineralogycolorado.org/>**

Mark Jacobson has been seeing that past newsletters and historical and current-events information about the Chapter are posted and kept current on our website. Take a look, and please refer to it often as a best source of info about the Chapter's meetings and special events! The complete contents of the 1986 FM Colorado Pegmatite Symposium, and the 1988 FM Symposium on Mineralogy of Precious Metal Deposits, are now posted on the chapter website.

### **Advance note: looking for a new Treasurer:**

Lou Conti, who has served as our treasurer for quite a few years, is planning to "retire" from the job as of next year. We are looking for a good candidate to volunteer to take over this important office!

Please think about it, and help us by offering suggestions of yourself, or a friend, to help FM by taking on this position.

## **Field Trip: Tour of the Henderson Molybdenum Mine, Empire, Colorado, for Friends of Mineralogy, Colorado Chapter, May 30**

Climax Molybdenum, a subsidiary of Freeport-McMoRan, has approved an underground tour of the Henderson Mine, Empire, Colorado for members of the Friends of Mineralogy Colorado Chapter. The tour for the first 12 members to register will start at 8 AM on May 30, 2014 and last till 12 noon. The tour, led by mine geologist, Ian Merkel (our May meeting speaker) will consist of visits to different underground mine operations and a presentation on the geology of the mine. Persons who wish to attend need to be 2014 paid members of Friends of Mineralogy and send an email requesting participation to Mark Jacobson at [markivanjacobson@gmail.com](mailto:markivanjacobson@gmail.com). Approved participants will receive further information regarding trip logistics after May 20<sup>th</sup>. Most places on the trip are already filled, but there is room for several more people. Contact Mark!

## **2014 FMCC Silent Auction, May 10**

Our 2014 silent auction took place on Saturday, May 10, at the Clements Community Center, 1580 Yarrow St., Lakewood, CO. The FMCC auction was a great success in raising funds for our organization. The auction raised slightly more than \$2000, less about \$300 in expenses; \$1585 of the total raised was from the donated specimens sold at the verbal auction. We owe this success to the kindness of our supporters for their donations as listed within this newsletter and to be listed by their business cards in the next newsletter also. These donations were solicited by Larry Havens and Bill Hutchinson during the April 2014 Denver Spring Show with leaflet advertising for the auction done by Jeff Self and Donna Ware. These four members are much appreciated for their help! As well as Lou Conti and others who handled the finances, our star auctioneer Bruce Geller, and all who brought refreshments to share, and specimens to sell.



## Specimen Donations for the Friends of Mineralogy May Silent Auction

Many dealers were very generous in donating specimens and other mineral related objects to our FMCC auction, held on May 10. Larry Havens and Bill Hutchinson gathered these donations. With this listing we thank our donors. They were:

**Dan's Used Rocks (Dan Unruh)** with a Fluorite from the Hansonberg Dist, NM, 6"x4",

**Prospector's Choice Minerals (Ron Anderson)**, with a Hematite from Teluca, Mexico, 3.5"x3"

**Collector's Edge Wholesale**, with a Hemimorphite from China, 3.5"x2"

**Colorado Minerals (Robert Stoufer)**, Calcite (manganoan), from the Idarado Mine, Ouray, CO, 5"x3.5"

**Dave Bunk Minerals** donated several items. These were silver, Acanthite exposed in a slab, from the Bulldog Mine, Creede, Colorado, 5"x4", Quartz, var. Amethyst, from Blue Point Mine, Ontario province, Canada, 2.5x2.5 and Beryl, var. Aquamarine with Schorl, from the Erongo mountains, Namibia, 1.5"x1

**Great Basin Minerals (Scott Kleine)**, native Silver from Batopilas, Mexico, thumbnail

**Costigan's Minerals West (Brian Costigan)**, Calcite (FL) from the Getchell Mine, Nevada, 6"x4"

**Persson Rare Minerals (Phil Persson)**, Fluocerite-Ce, from the South Platte pegmatite District, Jefferson Co., CO, 1.5"x1"

**Self-A-Ware Minerals (Jeff Self & Donna Ware)**, with a Grease Oil Lamp, a mining antique from South America

**Dennis Beals Minerals**, Quartz var. Amethyst, from Tehuilotepic, Mexico, 9"x4.5"

**Shealeene Kent (Jeff and Donna's granddaughter)**, Gypsum, var. Selenite (green), from Australia, 5"x5"

**Joe Dorris, Pinnacle 5 Minerals**, with his book, "Sheepeater" signed by the author

**Donald K. Olson & Associates**, Spessartine on Smoky Quartz from near the Tongbei village, Fujian province, China, 12"x4.5"

**Marty Zinn** donated several flats of material. These are: Gypsum Salt Flats OK; Gypsum Kennecott Mine UT; Quartz from the Coleman Mine, AR; Smoky Quartz from Lincoln Co, NM; "Coontail" variety quartz from Magnet Cove, AR; Fluorite from the De An Mine, China; five specimens of Quartz from Cong Ly, Hunan, China; Idocrase from Sierra de la Cruz, Mexico; a polished agate slice from Chihuahua Mexico; a Herkimer Diamond from the fee digging area, Ace of Diamonds Mine, Middleville NY; and a topaz from San Luis Potosi, Mexico.

**Healing Force Design Studios**, a Fossil Oyster Shell geode

**Momtaz – Mineria**, a zircon from Konav, Afghanistan

**Malachite and Gems of Africa**, malachite from Africa

**Glory Design**, a Jade carving

**Lime Regis Fossil Shop**, an echnoid from Wiltshire and an azurite from Inca de Oro, Chile.

## **Mineral Note:**

From the joint Colorado Mineral Society-Flatirons Mineral Club field trip to North Table Mountain, Saturday, April 19, 2014

Numerous people attended the field trip to the old quarry on the south end of North Table Mountain, just east of Golden to collect zeolites and related species. FMCC and CMS member, Bill Hutchinson attended with a son, Alexander, and was successful in finding many attractive specimens. His best specimen was a large, greater than one inch, analcime crystal on thomsonite. ---Mark Jacobson



**Mineral Note: An Extinct Mineral Locality, the Genesee Park Calc-Silicate Locality**

A once well known, but unfortunately no longer collectible, is the calc-silicate mineral locality along U.S. Highway 40 (now a frontage road to I-70), about 0.8 mile east of the Genesee exit on I-70. It was best known for large, red-brown grossular garnet crystals. Commonly known as the ‘Genesee dike’, there is in fact a large granite pegmatite dike here (Fig. 1), but it was not the source of the minerals of collector interest. The minerals, mostly calcium-containing silicates, occurred in calc-silicate layers, probably once impure marble and before that, impure limestone beds, within the Proterozoic (late Precambrian) metamorphic rocks traditionally known as the Idaho Springs Formation.



Fig. 1, pegmatite dike just west of the main Genesee Park locality.

Fig. 2, What used to be the central part and most productive portion of the locality. The undercut area, now mostly filled, had been extensively dug by collectors; it was the site of the most productive calc-silicate layer containing large grossular garnet crystals. [all photos, April 2014]





Fig. 3, east end of the Genesee Park locality. The slight bench area about 2/3 the way toward the top of the roadcut (with some grass and saplings growing) , excavated by collectors, once marked the eastward end of the exposed calc-silicate layer, and was a collecting site not so much for the garnet, but for some of the more unusual of the associated minerals, including titanite.



The Genesee Park locality has been described in most collecting guides to Colorado minerals, including the various editions of Richard Pearl's Colorado Gem Trails and Mineral Guide. There, Pearl described "grossularite garnet, in fine crystals up to nearly 12 inches in diameter" (1965 revised edition, p. 203). The most recent article about the locality is "Mineralogy of a calc-silicate locality near Genesee Park, Jefferson County, Colorado", by D.E. Kile and P.J. Modreski, Rocks & Minerals, 1994, v. 69, p. 298-308, and the minerals occurring here are summarized in Minerals of Colorado (1997) and currently in Mindat.org (which notes the current no-collecting status). Minerals reported from the locality include: allanite-(Ce), anatase (confirmed by XRD as pseudomorphs after titanite), clinozoisite (not confirmed), epidote, grossular, hedenbergite, meionite (scapolite group), scheelite, titanite, and vesuvianite.

Even when collecting here was possible, access was always a bit "problematic", as the main collecting site at the central part of the roadcut was not far from the road, along a curve with a narrow shoulder. There have been stories of imprudent collectors rolling rocks down onto the highway (and leaving them there), so it has not been surprising that the Colorado Dept. of Transportation has posted the locality "No Trespassing". Long before that sign was erected, however, it had become very difficult to find much in the way of specimens; most of the richest calc-silicate layer had been mined out. For a time, even though one might not be able to find intact garnet crystals, one could see molds in the enclosing solid quartz, showing the shape of the large dodecahedral garnet crystals.

--- Pete Modreski

### Calendar of Coming Events

**Mon., May 12 and weekly till June 2, 5-8 p.m., The Rocky Mountain Map Society and The Western & Genealogy Department of the Denver Public Library present: “Map Month,” May 2014.** This is a series of free map lectures and map fairs on Monday evenings from May 5th to June 2nd. Each evening will feature a lecture on historic mapping by a prominent local historian together with a map feature where local dealers will offer a selection of original antique maps (no facsimiles). The events will take place in Conference Room B – the lecture hall downstairs in the main branch of the Denver Public Library. See <http://www.rmmaps.org/> for a detailed schedule.

**Wed., May 14, 7:00 p.m., “The Niobrara Chalk, "Nora" and Other Finds”, by Tom Nolan** at the monthly meeting of the Western Interior Paleontological Society (WIPS); Ricketson Auditorium, Denver Museum of Nature & Science; all welcome; see <http://westernpaleo.org/> .

**Thurs., May 15, 7:30 p.m., at bimonthly meeting, Friends of Mineralogy, Colorado Chapter; “Magmatic Epidote from the Cascades”** by Ian Merkel, Mine Geologist, Henderson mine; VIP Room, Denver Museum of Nature and Science. All are welcome

**Sat., May 17, 10 a.m. – 5 p.m., “Dan’s Used Rocks” Annual Open House and Mineral Sale,** at 12296 W. Mississippi Ave., Lakewood; “hundreds of specimens at 50-75% off”; for more info contact Dan Unruh, 303-986-3647 or [dansrock@comcast.net](mailto:dansrock@comcast.net).

**Sun., May 18, 2-4 p.m., monthly meeting of the Rocky Mountain Micromineral Association** will be held at the conference room opposite the entrance of the Colorado School of Mines Geology Museum (13<sup>th</sup> and Maple Streets, Golden). This meeting will feature judging of specimens in a micromineral competition. All mineral collectors interested in micromounts and minerals under the microscope are always welcome to attend; meetings are normally on the 2<sup>nd</sup> Sunday of each month. For more info and to confirm future meeting dates, please contact Joe Taggart, [j-taggart@comcast.net](mailto:j-taggart@comcast.net) , or Richard Parsons, [richard.parsons@q.com](mailto:richard.parsons@q.com) .

**Sat.-Sun., May 17-18, “Celebrate Soapstone Prairie's History and Future”**  
**“Lindenmeier: Looking Forward by Looking Back”** is two days of festive activities that kick off the 2014 celebration of the world-renowned Lindenmeier archeological site. This year marks the 80<sup>th</sup> anniversary of the Smithsonian visit to what is now a National Historic Landmark at Soapstone Prairie Natural Area. It was here, at the Lindenmeier site, that scientists discovered a Folsom point wedged into an ancient bisonbone, helping to prove the presence of humans at the location at least 10,000 years ago. The City of Fort Collins Natural Areas Department and the Fort Collins Museum of Discovery plan to celebrate the anniversary with special events now through November. Soapstone Prairie is located north of Fort Collins, adjoining the Wyoming state line. For details see, <http://www.fcgov.com/naturalareas/finder/soapstone> and <https://naturetracker.fcgov.com/Calendar>

**Sat.-Sun., May 17-18, 15<sup>th</sup> Annual Cheyenne Mineral, Fossil, Gem & Rock Show;** Archer Complex, Building M, just south of exit 370 on I-80, 6 miles east of Cheyenne; 9-6 Sat., 10-4 Sun.

**Tues., May 27, 10:30-11:30 a.m., USGS Rocky Mountain Seminar, “The lack of subduction channels and other aspects of the rock record of subduction processes; a perspective from the Franciscan Complex, California,** by John Wakabayashi, CSU Fresno. Building 25 auditorium, Denver Federal Center, Lakewood.

**June 6-8, Pikes Peak Gem and Mineral Show,** Western Museum of Mining & Industry, Colorado Springs, sponsored by the Colorado Springs Mineralogical Society; see <http://www.csms-web.org>

**June 11-15, Mining History Association, Annual Conference, Trinidad, Colorado.** “This conference, hosted at Trinidad State Junior College, will touch on many aspects of mining history: geology, mining technology, social history, etc.; Raton Basin coal is the central theme. Full details about the technical program, field trips, and social functions are posted on the MHA website:

[www.mininghistoryassociation.org/TrinidadConference.htm](http://www.mininghistoryassociation.org/TrinidadConference.htm)

**June 14, 9 am - 3 pm, GEOdyssey’s annual home mineral sale.** 15339 W. Ellsworth Drive, Golden 80401. “Help us reduce our inventory at our annual mineral and fossil "garage sale". Drinks and snacks provided. For more info and to see representative specimens, see [www.geodyssey-rocks.com](http://www.geodyssey-rocks.com) or call 303-279-5504.”

**Sun., June 22, Leadville, CO, 10 a.m. – 2 p.m., meeting of the Florissant Scientific Society, at the National Mining Hall of Fame & Museum,** with a seminar presentation by Vince Matthews on ‘**How Laramide Folds and Faults Form**’. Optional tour of the museum (\$9) and perhaps a collecting trip (feldspar crystals at Chalk Creek?) on the way back to Denver. For more info about carpooling (leave Lakewood at 7:30 a.m.) and the world-famous FSS potluck lunch at the meeting, contact Beth Simmons, [cloverknoll@comcast.net](mailto:cloverknoll@comcast.net) .

More upcoming events through the summer and fall:

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

**Aug. 14-17, Woodland Park Rock, Gem & Jewelry Show,** Woodland Park, CO

**Aug. 15-17, Lake George Gem and Mineral Show,** Lake George, CO, sponsored by the Lake George Gem & Mineral Club

**Aug. 17,** field trip, a hike to “Harmonica Arch”, unique granite natural bridge located in the Lost Creek Wilderness, north of the Goose Creek trailhead, Pike National Forest; to be led by Pete Modreski for the Florissant Scientific Society and the Colorado Scientific Society; others are welcome. A difficult hike; for details contact Pete if interested in coming, [pmodreski@usgs.gov](mailto:pmodreski@usgs.gov) .

**Sep. 5-7, San Juan Mountains Mineral Symposium,** Ouray CO; lectures and field trips; sponsored by Friends of Mineralogy and the Colorado School of Mines Geology Museum. For more information see <http://friendsofmineralogycolorado.org/> .

**Sep. 6-9, Denver Fine Mineral Show,** at the Denver Marriott West, 1717 Denver West Boulevard, Golden, Colorado; see <http://www.finemineralshow.com/>

**Sep. 6-14, Denver Coliseum Mineral, Fossil, & Gem Show**

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

**Sep. 10, Colorado School of Mines Geology Museum, Reception & Open House,** 6-9 p.m.

**Sep. 12-14, Denver Gem and Mineral Show,** Denver Mart (formerly the Denver Merchandise Mart); the theme of the 2014 show is “Agate”; see <http://www.denvermineralshow.com/> for more info.

**Sep. 18 or Oct. 9, FM September/October meeting,** date and topic TBA

**Nov. 8-9, New Mexico Mineral Symposium,** Socorro, NM

**Nov. 13, November FM meeting,** topic TBA

**Nov. 14-16, Jeffco Fairgrounds, 2014 Mineral Dealers Show**

**Dec. 12-14, Flatirons Mineral Club Show,** Boulder County Fairgrounds, Longmont, CO