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Friends of Mineralogy, Colorado Chapter Newsletter - September 2016

September Meeting - Thursday, Sept. 15, 2016, 6:00- 8:00 pm

Meeting at Denver Museum of Nature and Science, 2001 Colorado Blvd, City Park, Denver - VIP Room (1st floor). Enter the museum on the north side, through the security/staff entrance to the left of the main entrance.

There will be no FMCC board meeting on Thursday. Note: This meeting is on the third Thursday in the month.

Museum Tour and meet the Curators

This unique meeting features a “behind the displays” guided tour of the Geology Department, Denver Museum of Nature and Science, led by the curator, Dr. James Hagadorn. The meeting will start at 6 PM in the VIP meeting room, just east of the T. Rex cafeteria in the Denver Museum of Nature and Science, City Park, 2001 Colorado Blvd., Denver, CO. The tour will last till 8 PM. If you are an out-of-state member and attending the Denver Gem and Mineral Show, this is a special opportunity to attend the meeting without extra travel. The other addition to the meeting is that the museum curators who are attending the Denver show with a special exhibit from their museum are also attending. Thus regular FMCC members and museumophiles will have the opportunity to meet and greet, and to see some new and old spaces at the museum. The event will commence in the museum’s VIP room.

To get there, once you arrive at the museum, please enter via the staff/volunteer entrance (to the left of the main visitor entrance) and tell the security guards that you’re there for the Friends of Mineralogy meeting. They will direct you into the museum, where you’ll make your first left and head for the VIP room (it is in the NE-most corner of the museum, on the first floor). Hope to see you there.

If you plan to attend, please email the FMCC president prior to Monday, September 12th so we can obtain an estimate of attendance numbers for the museum

Contents of this issue:

A brief history of the evolution of the International Pegmatite Symposiums	2
Topaz on Pikes Peak	4
Notes from the President.....	7
The 2 nd Eugene E. Foord pegmatite symposium.....	7
The Peter Modreski's Event Calender	8

A brief history of the evolution of the International Pegmatite Symposiums

Mark Ivan Jacobson

Interest in pegmatites have led to pegmatite symposia being organized by different organizations at numerous worldwide geographic locations. During the last two decades, a group of researchers have created a tradition of holding international pegmatite symposia with field trips every two years at different worldwide locations. Since this group is informal and purely voluntary, the history of these migrating meetings is not particularly obvious. The history that follows attempts to document the evolution of this tradition and the availability of the proceedings from these meetings for other researchers.

A group of researchers from Canada, Czech Republic, and Austria, many of whom had known each other as colleagues researching pegmatites and related igneous rocks, planned and held a symposium on June 20-25, 2003 at Nové Město na Moravě, (northwest of Brno) Czech Republic. The symposium was entitled LERM 2003 meaning "Light Elements in Rock Forming Minerals." This international symposium focused on the minerals and rock bodies containing lithium, beryllium, boron, fluorine, carbon, nitrogen, oxygen, and hydrogen. Many presentations focused on tourmaline group minerals as well as pegmatites. There were 42 technical presentations. Jan Cempirek, compiler and Milan Novak, editor, created the abstract book of the meeting's proceedings. Some of the presentations were published as a special issue: Light elements in rock-forming minerals in *Mineralogy and Petrology*, v. 81, no. 3, May 2004. A field trip was held with this meeting: LERM 2003: Field Trip guidebook: International symposium on Light Elements in Rock-forming Minerals. editors Ackerman, Lukáš and Milan Novák. Brno, Masaryk University, Moravian Museum, 100 p. These two books are not easily available. The meeting was successful and generated sufficient interest that some of the scientists decided to plan another similar meeting be held two years later.

This second meeting was organized by a group of pegmatite oriented scientists – Federico Pezzotta, Adrea Dini, Skip Simmons, and Frank Hawthorne. The international meeting on pegmatites was held May 23 - 29, 2005 at the Baia Imperiale Beach Hotel, Cavolia Village, on the island of Elba, Italy. This meeting was named "Crystallization processes in Granitic Pegmatites." It had a technical session with 27 oral presentations and 36 participants. The abstracts from this meeting are available at: http://www.minsocam.org/msa/special/Pig/PIG_articles/Elba_Abstracts_list.html. A post-meeting field trip was held May 26-29, visiting the thin, shallow depth, LCT family miarolitic pegmatites on Elba.

Previous to the second meeting, during a field trip to pegmatites on the Iberian Peninsula (Portugal and Spain), researchers from the Porto and Bilbao university groups discussed having a symposium with field trips that focused on pegmatites of the Iberian Peninsula. This was agreed and a plan implemented that led to the meeting held May 6-12, 2007 sponsored by the Department of Geology, University of Porto, Porto, Portugal. Other pegmatite researchers, many who had participated in the LERM 2003 meeting were also interested in participating and submitted abstracts for presentation and posters. The meeting and field

trip was named “Granitic pegmatites: The state of the art” but was informally called PEG2007. Seventy-four participants attended the meeting. The technical sessions were held May 7- 9 with 24 oral presentations and 19 posters. The abstracts were published as a separate book (Martins T, Vieira R (eds) Granitic Pegmatites: the state of the Art - International Symposium, Book of Abstracts. Univ. Porto, Facul Ciências Mem 8). The abstracts as separate pdf files are still available for free at <http://www.fc.up.pt/peg2007/>. Field trips were led to 5 pegmatites in both Spain and Portugal from May 10 to 12. The field trip guidebook was published as Memorias N. 9, Department of Geology, University of Porto, 86 p. The field trip book is still available for free at:

http://www.fc.up.pt/peg2007/files/fieldtrip_book.pdf.

These three meetings, held every two years was not a result of any official organization or long term plan. It was simply created by a group of scientists intensely interested in pegmatites and pegmatite minerals hosting a venue to share their knowledge as well as pick up new ideas. This third meeting started the evolution of an expectation for a pegmatite-focused meeting and field trip every two years. Thus, just after this meeting it was announced that the next international pegmatite meeting and field trip was to be held at Recife, Brazil with the informal name of PEG2009.

PEG2009 was held August 30 to September 2, 2009 in Recife, Brazil, with the proceedings published as a thematic journal issue, “Contributions of the 4th International Symposium on Granitic Pegmatites. *Estudos Geológicos* [download from <https://www.ufpe.br/estudosgeologicos/>], v. 19, no. 2, 367 p. This pegmatite meeting was also the first to be explicitly named the “4th International Symposium on Granitic Pegmatites. There were 72 published papers, based on 38 oral presentations and 36 posters over three full days. This was pegmatite geology-mineralogy at its most intense level. There appears to have been 184 participants registered. The pre-conference field trip (August 25-28) was attended by 31 scientists (Pedrosa-Soares, A. C.; Chaves, M.; and Scholz, R. 2009. Eastern Brazilian pegmatite province. In 4th International Symposium on Granitic Pegmatites. PEG2009, Recife, Brazil, Field Trip Guide, 28 p.). The field trip guidebook is available as a free download at:

https://www.researchgate.net/publication/234037120_Eastern_Brazilian_Pegmatite_Province. Where the next meeting is held evolved to where a group volunteers would offer to stage the next symposium to the current symposium participants. If more than one group offered a location, the audience voted their choice.

A team from Argentina offered to host the “PEG2011 ARGENTINA,” the 5th international symposium on Granitic Pegmatites in Mendoza, Argentina on February 20-27, 2011. The meeting was attended by 125 researchers from 18 countries. Fifty-nine oral presentations were made. Many of the attendees had participated in all three previous meetings. The post-symposium field trip (February 24-27) visited several pegmatites in the Pampean pegmatite province. The abstracts and extended abstracts were published in the *Asociacion Geologica Argentina, Serie D: Publication Especial No 14*, 232 p. and are also available at http://www.minsocam.org/msa/special/Pig/PIG_articles/PEG2011_Contributions.pdf. The field trips were published as Galliski and Marquez-Zavalia (2011) *The Field Trip Guidebook – Granitic pegmatites of the San Luis Ranges*. Published by Ianigla-Conicet, CCT, Mendoza, Argentina, 44 p. This field trip guidebook is also available at:

http://www.minsocam.org/msa/special/Pig/PIG_articles/PEG2011_FieldTrip_Guidebook.pdf.

Research sharing of ideas and work areas were successful in increasing research output and broadening successful ways of tackling the unknowns in pegmatite genesis and their related mineralization. During this meeting, this unofficial, self-chosen group supported having PEG2013, the 6th International Symposium on Granitic Pegmatites held at the Attitash Grand Summit Hotel, Bartlett, New Hampshire on May 26-31.

The 6th International Symposium on Granitic Pegmatites in 2013 attracted a large number of Canadian and United States attendees as well as the expected international researchers. The Maine Mineral and Gem Museum, Bethel, ME was a significant sponsor of the meeting, as well as 12 other individuals and organizations. The meeting was attended by 110 participants from 19 countries. The proceedings book provided 90 extended abstracts and 46 papers that covered the oral presentations and posters. The meeting abstract book is available as a free pdf download at :

http://pegmatology.uno.edu/news_files/PEG2013_Abstract_Volume.pdf. (Simmons, W. B.; Webber, K. L.; Falster, A. U.; Roda-Robles, E.; Marquez Zavalia, M. F.; and Galliski, M. A.; Editors. 2013. *PEG2013 Contributions to the 6th International Symposium on Granitic Pegmatites*. Rubellite Press, New Orleans, La, 163 p.). A subset of these papers were published as a thematic issue of the *Canadian Mineralogist* (April 2014, V 52, part 2) entitled as *Pegmatite phosphate: A tribute to François Fontan, André-Mathieu Franolet and Paul Keller*. The symposium included field trips to the Palermo pegmatite, NH; Mt. Mica pegmatite, Paris; Havey pegmatite, Poland; Bennett pegmatite, Buckfield; Emmons pegmatite, Greenwood; and the Waisenmen pegmatite, Greenwood (Falster, A. U.; Nizamoff, J. W.; Simmons, W. B.; Whitmore, R. W.; Roda-Robles, E.; Sprague, R. A. and Freeman, G. 2013. *PEG2013: 6th International Symposium on Granitic Pegmatites Fieldtrip Guidebook*. Rubellite Press, New Orleans, LA, 80 p.). Voting by participants at PEG2013 agreed that the next symposium, PEG2015 would be in southeastern Poland.

PEG2015, the 7th International Symposium on Granitic Pegmatites, was held at the Książ Castle, Wałbrzych, southeastern Poland, on June 17-22. The organizing committee had twelve people from five universities. The pre-conference field trips (June 14-17) started in Prague and ended at the castle. Post-conference field trips (June 20-21) were day trips in southern Poland. There were 26 oral presentations and 38 posters with 73 attendees. The conference proceedings were issued only as a digital pdf (Szuszkiewica, A. and Cempirek, J. editors. 2015. *Book of Abstracts, PEG2015, 7th International Symposium on Granitic pegmatites, Książ, Poland*. University of Silesia, Masaryk University and University of Wrocław. 134 p.). A digital copy of the abstracts can be downloaded free at: <http://peg2015polandczech.us.edu.pl/> The pre- and post- conference field trips had a hardcopy book issued (Novak, M., Gadas, P.; Škoda, R.; Cempirek, J.; Čopjakova, R.; Loun, J.; Kadlec, T.; Toman, J. Breiter, K.; Pieczka, A.; Szuszkiewicz, A.; Szczepanski, J.; Szeleg, E.; Janeczek, J.; and Nejbert, K. 2015. *PEG 2015 7th International Symposium on Granitic Pegmatites Fieldtrip Guidebook*. Zlín: University of Silesia, Sosnowiec, Poland, 106 p. with color pictures, ISBN 978-80-7490-063-1). A digital copy of the guidebook can be downloaded free at: <http://peg2015polandczech.us.edu.pl/>. Voting at this conference agreed that the next meeting would be held in Kristiansand, Norway.

PEG2017, the 8th International Symposium on Granitic Pegmatites will be held June 13-15, 2017 at Agder University, Kristiansand, Norway. There is planned to be a pre-conference field trip to Tysfjord and Hamarøy, north Norway June 9-12 and a post-conference fieldtrip to Setesdal (Evje and Iveland) and Langesundsfjord (nepheline syenite pegmatites) June 16-19. More information about this meeting as well as registration can be found at: <http://www.nhm.uio.no/forskning/aktuelt/arrangementer/konferanser-seminarer/peg2017/>

Topaz on Pikes Peak

The brief manuscript below has a long history. Circa 1976, Curator Jack Murphy at the Denver Museum of Natural History received from John Alexander a manuscript that was entitled “Pikes Peak Topaz” written by John Alexander. In February 1977, this manuscript was submitted to the *Mineralogical Record* by Alexander with eight photographs for publication. The manuscript after full consideration was

formally rejected in May 1977. Wendell Wilson suggested that the article would be a better fit for either Lapidary Journal or Rocks & Minerals. In July, 1977 John Alexander passed away. A copy of this manuscript with the original photographs was probably given to Jack Murphy either by Alexander just before he died or Clarence Coil who had provided other mineral collecting manuscripts to Jack Murphy, which now reside in the Denver Museum of Nature and Science archives. Unfortunately, Coil passed away in January 1978.

Much later, Jack Thompson with Jack Murphy decided to make use of the manuscript and published it in the Friends of Mineralogy newsletter in 1990 (Alexander 1990). In 1996, Thompson with encouragement from Murphy and others submitted it with most of the original article photographs for publication by Rocks & Minerals in their Colorado topaz issue (Alexander 1996).

The manuscript below was a primary data source where Clarence Coil told John Alexander how topaz was first discovered at Glen Cove. This material was added to Alexander article, "Pikes Peak Topaz." Alexander's handwritten manuscript was given to Clarence. When he died it was passed onto his son, David Coil, who in turn donated it to the Pioneers Museum, 215 S. Tejon Street, Colorado Springs where it is held in their Clarence Coil file archives today. This manuscript was used as the beginning part of Alexander's "Pikes Peak Topaz" article.

Events leading up to the discovery of the first topaz on Pikes Peak as narrated to John Alexander by Clarence Coil

My old friend Luther McKnight and myself were employed by Stewart brothers photographers. I worked downtown and Luther worked at Glen Cove.

During Luther's days off, he spent hiking and taking photos of alpine flowers in and around and above Glen Cove.

Luther knowing that I was very interested in mineralogy, always kept his eyes open for crystals or pieces of the same which he always turned over to me as well as locations.

It was in 1944 that Luther turned over to me two fragments of crystals about the size of my thumbnail, one was clear and the other was slight blue. My partner the late O. [Orville] A.[Ackers] Reese said one [was] topaz and the other clear quartz. He had found them as he crossed the bottom of the north slide as indicated in the above photo. He was hiking up to the ridge to the right looking for flowers to photograph.

Late that summer, when the snow had disappeared, the late O. A. Reese and Perry Osborn and me went up the slide as indicated in the photo. As we climbed up the slide I kept a weather eye for signs of topaz and found the first one as shown in the photo. All three of us became quite excited, but didn't find any more crystals till we were high up on the slope where we found a pocket of beautiful mottled clear cut amazonstone singles. We took out quite a number of all sizes one as shown in the photo. However, there was no topaz, but some poor quartz.

While the other two men were digging in this area I tried to climb the cliff as indicated in the photo and hanging by toes and fingertips managed to get up to a horizontal crack and a flat ledge about 2 feet wide and about 18 inches deep. On that shelf was a partially covered hole about 4 inches in diameter. Struggling to hang on I drove my pick down on the side, fortunately, and pried it up bringing up a topaz out of the center all covered by a red mud. I was so excited that I lost my hold and fell down on the slope, without injury.

I cleaned it off with my thumb and the first clean cut topaz was found. It is now in the Waynesburg College [now University] mineral collection at Waynesburg, Penna.

Little did we know at the time what that find was going to develop into with the work that John Alexander and I and Edwin Over accomplished.

Richard Pearl, professor of Geology at Colo. College, Colo. Springs had an excellent article in the June 1963 issue of *Gems & Minerals*, "Topaz in Colorado."

To summarize my experiences at that area, let me warn one and all that it is extremely dangerous to prospect in that area due to slide rock.

In the summer of 1945, O. A. Reese and I took our family to upper Glen Cove for a picnic. My son David was five years old at that time is the way I date the time. Reese and I went in up the slide to where I found the topaz. I had an old wicker basket which I filled with the nice amazonite xtls.

Looking around I saw a hole under a huge block of granite. Reese meanwhile was picking at a rough quartz xtal on one side of the slab. I crawled in the hole and looked around. When all of a sudden a voice seemed to shout "get out." I immediately backed out and down came the slab which was about 6 feet wide and 20 feet high as it fell I ran up a narrow ledge as far as I could go when the tip of the slab hit the back of my leg and split it down. I was a bloody mess when Reese got me down to the family. We got down to the hospital when they sewed me up.

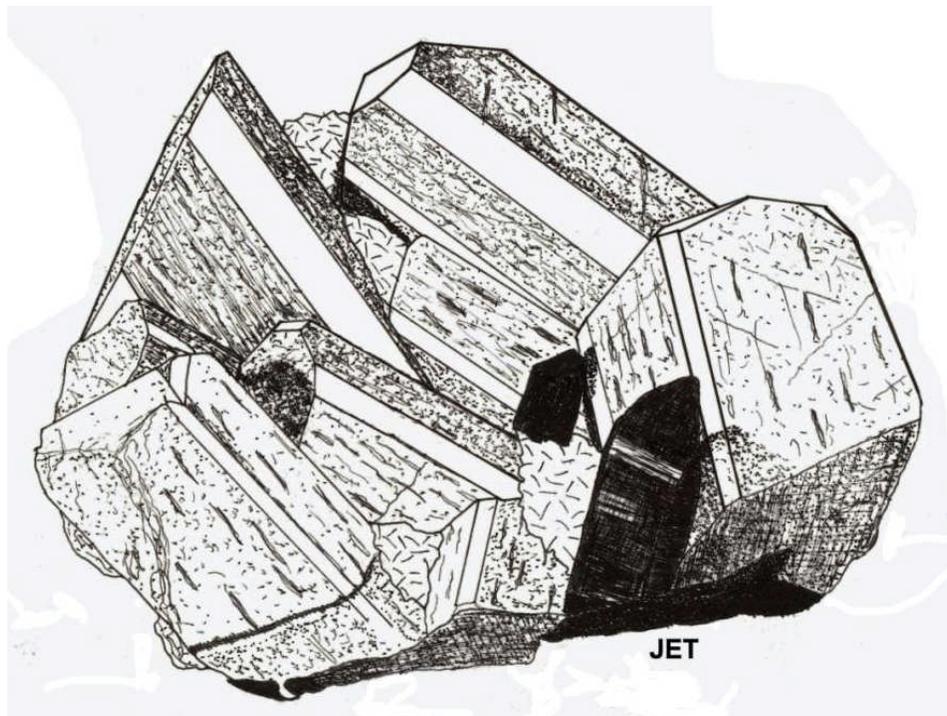
That is one reason I advise very strongly for all people to stay away from that dangerous area. You can hear the slide rock groan as it shifts.

References:

Alexander, John (1990) Pikes Peak Topaz. *Friends of Mineralogy, Colorado Chapter newsletter*, March, p. 6-8.

Alexander, John (1996) Pikes Peak Topaz. *Rocks & Minerals*, 71(5), 320-323.

Coil, Clarence (1977) Clarence Coil file, Colorado Springs Pioneer Museum, Colorado Springs, archives. Inspected June 2016.



The original artwork by Joseph Taggart of the FMCC logo specimen.

Notes from the President

This issue of the newsletter sports a slightly revised of the original artwork that created the FMCC logo specimen. The artwork as shown above was created by Joseph E. Taggart in 1983, during his tenure as Colorado Chapter president. The image is reversed to the previous logo, thus portraying the amazonite specimen correctly. The white-stripped amazonite was dug by Clarence Coil circa 1973-4 at Crystal Peak, purchased from him and later sold to the Denver Museum of Nature and Science in 1975. This specimen has been exhibited numerous times at the Denver Gem and Mineral Show and the Tucson Gem and Mineral show as well as having appeared on the cover of the Mineralogical Record and one Colorado locality book. Other specimens from this same pocket are in the Colorado School of Mines Geology Museum and other private collections.

This year's Denver Gem and Mineral show theme is Minerals of Africa. Accordingly, the show committee has assembled an impressive list of expert speakers to talk about African minerals and mineral localities. The speakers are from out-of-state, so you should not miss them. Two talks will discuss the pegmatites of Madagascar and the Erongo Mountains. During the show, there will also be an open, general meeting for all members of Friends of Mineralogy including the Colorado Chapter on Saturday, September 17th, at 11:00 AM, in room G39-41. This will be an opportunity to schmooze and discuss future FM activities and direction. In addition, our chapter is again sponsoring the mineral identification booth at the show. So please volunteer a few hours to help identify minerals. If you own identification type equipment (fluorescent lamp, radiation detector, a specific gravity balance or a hardness kit), please it along to assist in the identifications.

The 2nd Eugene E. Foord pegmatite symposium Berthoud Hall, Golden, CO July 15-19, 2016

The Foord pegmatite symposium was a great success with 131 people participating. The symposium started Friday evening with a meet and greet icebreaker at the Colorado School of Mines Geology Museum, hosted by the Director-Curator, Bruce Geller. This was followed by two days of talks on Saturday and Sunday including a banquet on Saturday evening. Five field trips each day on Monday and Tuesday went to nine different localities. Field trip sizes were kept to a maximum of 20 people, thus insuring reasonable collecting opportunities. We had international speakers and attendees from the Czech Republic, Norway, Ireland, Canada, and Spain. Within the United States, we had symposium participants and speakers from thirteen states plus Colorado.

The proceedings of the symposium (abstracts and extended abstracts) and field trip guidebook are both available free as pdf digital downloads from the FMCC website: (<http://friendsofmineralogycolorado.org/publications/>). Group photos of the speakers and participants at full resolution are available for download also on the FMCC website. During the field trips, people were successful in finding "gummite," chrysoberyl, beryl and phosphate minerals from the Crystal Mountain pegmatite field, beryl and lepidolite from the Eight Mile Park pegmatite field, beryl and rose quartz from the Devils Hole pegmatite field, euxenite from the Platt Pegmatite, Wyoming, cryolite and astrophyllite from the St. Peters Dome alkali pegmatites, and lepidolite, elbaite, stibiotantalite and monazite from the Quartz Creek pegmatite field. Many of these locales have only rarely been visited or accessible.



“Gummite” from the Storm Mountain pegmatite, Crystal Mt. pegmatite field, Larimer County, CO. Specimen collected by Thomas Henderson during the symposium field trip.

The Peter Modreski’s Event Calender

Sept. 10-18, Denver Coliseum Mineral, Fossil, and Gem Show, 10-6 daily, 4600 Humboldt St., Denver CO. Free admission. See <http://www.coliseumshow.com/> .

Sept. 11-18, Colorado Mineral and Fossil Show, 10-6 daily except 10-5 Sun. 9/18. Ramada Plaza - Denver Central, 4849 Bannock St., Denver, CO. Free admission, and free shuttle to the Denver Mart. See <http://www.mzexpos.com/denver> .

Wed. – Sat., Sept. 14-17, Denver Fine Mineral Show, at Marriott Denver West, 10-6 Wed.-Fri., 10-5 Sat., 1717 Denver West Blvd., Golden CO. Free admission. See <http://www.finemineralshow.com/> .

Wed., Sept. 14, 6:00-9:00 p.m., Open House at the Colorado School of Mines Geology Museum. All are invited; refreshments and viewing of new exhibits prepared for the coming year. A chance to meet museum curators, mineral collectors, and dealers who are in town for the Denver Gem and Mineral Show.

Thurs, Sept. 15, 5:45-9:00 p.m., Colorado Scientific Society, Student Presentation Night, at Arbor House, in Maple Grove Park, 14600 W. 32nd Ave., Golden (Applewood area). All are welcome to attend, no admission charge, free refreshments. A selected group of graduate students from area universities will give presentations about their geology/earth science thesis research topics, and all attending will be able to vote for “the best presentation”. For details (to be posted in the coming month) see <http://www.coloscisoc.org/>.

Sept. 16-18, 49th annual Denver Gem and Mineral Show, Denver Mart, Denver, CO. **Minerals of Africa** is the 2016 show theme. 9-6 Fri., 10-6 Sat., 10-5 Sun. See <http://www.denvermineralshow.com/> or <https://www.facebook.com/Denver-Gem-And-Mineral-Show-154290574610235/?fref=ts>

Fri., Sept. 23, 3:00 p.m., Earth Sciences Colloquium at the Denver Museum of Nature & Science, **Jurassic-Cretaceous paleogeographic evolution of the Western Interior Seaway**, by Ron Blakey, Colorado Plateau Geosystems. In Ricketson Auditorium. All are welcome, museum admission is not required.

Mon., Sept. 29, 3:00 p.m., Earth Sciences Colloquium at the Denver Museum of Nature & Science, **Deciphering the Rocky Mountains**, by Beth McMillan, University of Arkansas-Little Rock. In VIP Room. All are welcome, museum admission is not required.

Thurs., Oct. 20, 7:00 p.m., Colorado Scientific Society October meeting, Climate Change, Part I and II, by William W. Little & Thom Fisher. Shepherd of the Hills Presbyterian Church, 11500 W. 20th Ave., Lakewood CO. Social time beginning at 6:30; meeting & program at 7:00. All are welcome to attend; see www.coloscisoc.org.

Oct. 25-28, Geological Society of American Annual Meeting, Denver, CO (plus pre- and post-meeting field trips). See <http://community.geosociety.org/gsa2016/home>.

Thurs., Nov. 17, Colorado Scientific Society November meeting, Terrestrial ecosystems during the Mesozoic, by Joe Sertich, DMNS. Shepherd of the Hills Presbyterian Church, 11500 W. 20th Ave., Lakewood CO.

Nov. 12-13, 37th annual New Mexico Mineral Symposium, at New Mexico Institute of Mining & Technology, Socorro, NM; See <https://geoinfo.nmt.edu/museum/minsymp/home.cfm>

Thurs., Nov. 17, FM meeting, 7:30 p.m., Denver Museum of Nature and Science, VIP Room, Dr. Markus Raschke, CU, “Thalénite: from redefinition to new discoveries of a rare-earth element silicate mineral from Colorado”.

Nov. 18-20, Denver Area Mineral Dealers Show, Jefferson County Fairgrounds, Golden CO.

You may always refer to our Chapter website, <http://friendsofmineralogycolorado.org/> where information about all our meetings and coming events will be posted.

Special museum exhibits:

The "**Critical Materials**" exhibit continues at the Colorado School of Mines Geology Museum. It highlights critical materials and rare-earth elements - including the minerals these elements can be derived from - essential to the development of advanced technology and energy. The exhibit is a joint project of the Critical Materials Institute at the School of Mines and the Colorado School of Mines Geology Museum. The exhibit focuses on the elements Li, Y, Te, Nd, Eu, Tb, Dy, their minerals, and their uses in technology. You'll find the exhibit downstairs in the museum, which is open daily, 9-4 Mon.-Sat., 1-4 Sun., no admission charge; see http://www.mines.edu/Geology_Museum .

Unearthed: Ancient Life in the Boulder Valley, on exhibit at the University of Colorado Museum of Natural History (Henderson Building; in the Anthropology Hall), CU campus, Boulder. Featuring a collection of 80+ stone tools known as The Mahaffy Cache that was found in a Boulder backyard in 2007. The artifacts were studied by CU Boulder Professor of Archaeology Doug Bamforth, Ph.D. He dates the tools to 13,000 years ago at the end of the last ice age. The exhibit includes interactive elements and video, as well as replicas of the tools that visitors can pick up and hold." The museum is open daily, no admission charge. See <https://cumuseum.colorado.edu/> .