



## Colorado Scientific Society

*The objective of the Society is to promote the knowledge and understanding of Earth science, and its application to human needs*

***Thursday, March 19 meeting, 7:00 p.m. (social time 6:30)***

***Shepherd of the Hills Church, 11500 W. 20<sup>th</sup> Ave., Lakewood CO***

***All are Welcome! Program:***

***A 30-minute video: the C.H. Birdseye USGS surveying expedition  
down the length of the Grand Canyon, Aug 1 – Oct. 19, 1923***

***and***

***Documenting changes in the landscape and glaciers of Glacier  
Bay National Park by recreating historical photography***

***both presented by: Don Becker***

***Video Producer & Archive Manager***

***U.S. Geological Survey, Lakewood, CO***



*Geikie Glacier,  
Alaska, 1906*



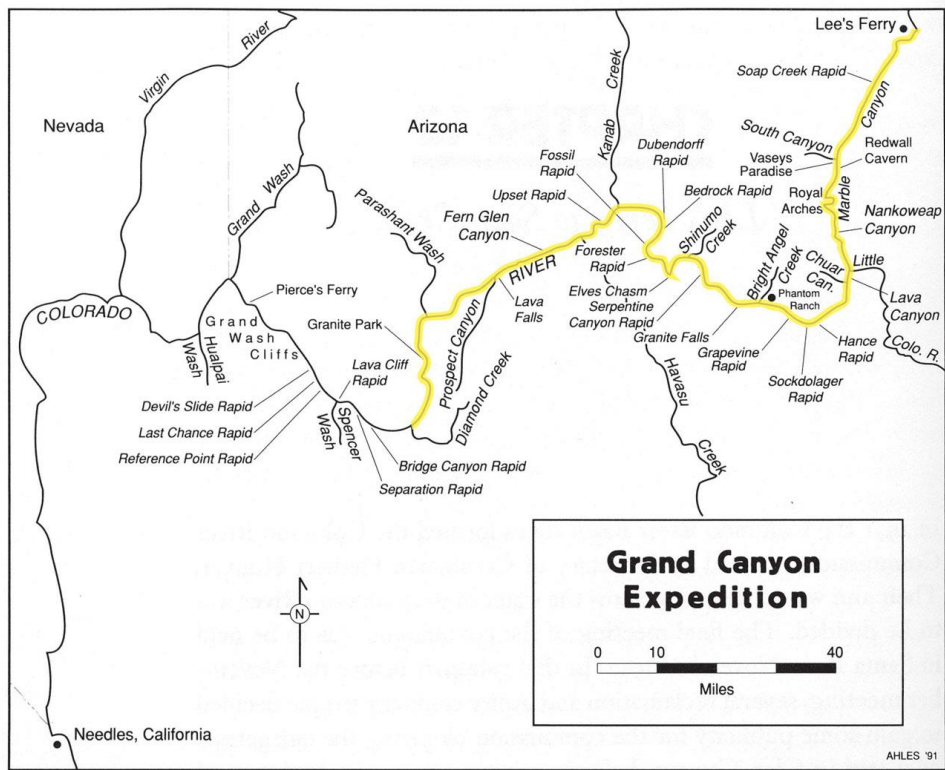
## Abstracts:

### Video: *The C.H. Birdseye USGS surveying expedition down the Grand Canyon, 1923*

From Mapping the Grand Canyon in 1923: The Birdseye Expedition

<http://nationalmap.gov/grandcanyon/index.html>

“In the summer of 1923, the USGS organized an expedition to make a new map of the Grand Canyon, which was the last stretch of the Colorado River that had not been accurately surveyed. Up until that time, only 27 men were known to have traversed the length of Marble and Grand canyons and of those, only two had any scientific knowledge (one of those two men was John Wesley Powell, the second director of the USGS, who led the first expedition down the river in 1869).



“This 251-mile stretch of the river extended from Lees Ferry to Diamond Creek. Claude Birdseye, who was the Chief Topographic Engineer of the USGS, was the expedition leader; Roland W. Burchard of the USGS was the expedition topographer; Eugene Clyde LaRue, the Chief Hydrologist for the USGS, was the expedition hydrologist and photographer; and Dr. Raymond C. Moore from the University of Kansas was the expedition geologist.

“Their party also included a cook, four boatmen (whose skill and nerve were crucial to the success of the expedition), a combination rodman/boatman, and four wooden boats.

“Birdseye was charged with making an unbroken level survey line through Marble and Grand canyons and running the survey line up side canyons. In addition, the party was to survey possible dam sites under the direction of LaRue (Westwood, 1992).

“The expedition launched from Lees Ferry on August 1, 1923. They completed the survey at Diamond Creek on October 13 and landed the boats at Needles, California on October 19, 1923.”



[The website contains much more interesting description and background about the expedition and a number of pictures, including a silent version of the 30-minute movie.]

The Grand Canyon survey party at Lees Ferry. Left to right: Leigh Lint, boatman; H.E. Blake, boatman; Frank Word, cook; C.H. Birdseye, expedition leader; R.C. Moore, geologist; R.W. Burchard, topographer; E.C. LaRue, hydraulic engineer; Lewis Freeman, boatman, and Emery Kolb, head boatman. Boatman Leigh Lint, “a beefy athlete who could tear the rowlocks off a boat...absolutely fearless,” later went to college and became an engineer for the USGS.

### ***Documenting changes in the landscape and glaciers of Glacier Bay National Park by recreating historical photography***

The primary purpose of this NPS – USGS demonstration research project is to DOCUMENT both long-term and short term changes in the glaciers within Glacier Bay National Park (GLBA) by comparing historical and modern photographs taken from identical locations. Approximately 190 historical photographs were obtained from several national archives. These photos dated between 1891 and 1980. Using the RV Capelin as a base of operations and for transportation around Glacier Bay, the locations of more than 60 photos were visited. This presentation will highlight a small sampling of the results of this cooperative activity, and the activities surrounding this effort.

#### ***About the speaker:***

Don Becker is a video producer for the USGS Office of Communications and Publishing for the last 35+ years and has worked on many video productions in the U.S., Canada and West Africa. He has hundreds of hours of experience filming from airplanes and helicopters, and is an accomplished cameraman and video editor as well. He has filmed along the Bering Sea in Alaska, the Colorado River in the Grand Canyon, the Everglades, and most places in between. Don worked as a video contractor to the USGS for many of his years based at the USGS EROS Data Center in Sioux Falls, SD. After becoming a USGS video producer in 2007, he transferred the video production facility and the USGS Video Archive to Denver in 2010. Don enjoys the outdoor activities that Colorado has to offer and his hobby is still photography.

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### ***President's March message – Paul Morgan, Colorado Geological Survey***



Last month I was commenting on the unusually warm weather: as we move into March, the temperature is below freezing in much of the State and February recorded record snowfall in many areas. Unfortunately February added a third avalanche fatality to the season's total for Colorado. The Avalanche Information Center has issued a warning of high avalanche risk in many areas popular for winter recreation. The snow bring much needed water, beautiful winter scenes, rapid geologic processes and potential Spring risks of mud-slides and floods as the snow melts.

A select audience attended our February meeting which was delayed by glitches in connecting to the church's new audio visual system. We have met with the church and hope to have that problem solved well in time for the next meeting.

However, in February we had a very intimate meeting gathered around two laptop screens. Our speaker, Professor Anne Sheehan from the University of Colorado at Boulder, was very patient and adapted perfectly to the less than ideal presentation arrangements. Understanding that her audience was neither experts in the plate interactions around New Zealand, nor seismologists, Anne explained the purpose and method of her studies with international collaborators very clearly. One of the highlights in the method was to drop seismometers to the bottom of the ocean in depths of up to three miles and return a year later, send a signal down to the seismometers and have them pop back up to the surface. Data were recorded are recorded with the seismometers on the ocean floor; no seismometer retrieval, no data. The experiment was successful in retrieving all but one of the seismometers. Fishermen snagged two of the seismometers in relatively shallow



water: one was returned to the experiment, the other was held for a ransom that was higher than the experiment was willing to pay.

Preliminary results from the experiment support the hypothesis that although South Island New Zealand is split lengthways by a dextral transform fault, the fault appears to penetrate only the upper crust. The data collected to date support the hypothesis that the lower crust and mantle lithosphere deform ductilely beneath the upper crust rather than along a discrete fault zone. A second exciting result presented by Anne was associated with the slow release of stress, or *slow earthquakes* in the subduction zone under the North Island New Zealand. Slow earthquakes are a relatively new discovery in which significant tectonic movements occur over a time period of one to two weeks. They can release energy equivalent to about a magnitude 6.5 earthquake, but are manifest in terms of surface deformation rather than earthquake waves. Anne gave other examples of slow earthquakes from the Pacific Northwest of North America. Although her presentation was about a study from the other side of the Pacific Ocean, the results from South Island New Zealand could be relevant to the San Andreas Fault, the results from North Island to the Pacific Northwest.

The March meeting will bring us back closer to home with a presentation on the Grand Canyon and Glacier Bay National Park, Alaska, by Don Becker. Don is the Video Producer and Archive Manager at the U. S. Geological Survey, Lakewood, CO. The Grand Canyon presentation will be a 30-minute video: “The C. H. Birsdeye USGS Surveying Expedition down the Length of the Grand Canyon, Aug 1 – Oct, 19, 1923.” From an image provided for the flyer, this expedition used wooden boats, as did Powell’s expedition, and they probably portaged these boats around the rapids. The expedition was before any dams were built that created reservoirs on the Colorado River and the river was essentially wild. The second part of the program will be “Documenting Changes in the Landscape and Glaciers of Glacier Bay National Park by Recreating Historical Photography.” The USGS has been careful to document their expeditions with photographs. Retaking the same scenes many years later (often decades) provides valuable documentation geological changes that can take place in short time periods.

Please remember to contribute to the snacks for the meetings; we do not accept credit cards for snack, but cash, gold bars, or even food are welcome.

I look forward to seeing as many of you as possible at our next meeting on March 19.

Paul

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*February's Where is this Rock* was correctly identified by CSS member Chris Morrison. It is the “Ames Monument”, located southeast of Laramie, Wyoming, about 2 miles south of I-80 near the Vedauwoo exit., and about 9 miles north of the Colorado border. To quote from Wikipedia (“Ames Monument”):

“The Ames Monument is a large pyramid in Albany County, Wyoming, designed by Henry Hobson Richardson and dedicated to brothers Oakes Ames and Oliver Ames, Jr., Union Pacific Railroad financiers. The brothers garnered credit for connecting the nation by rail upon completion of the United States' First

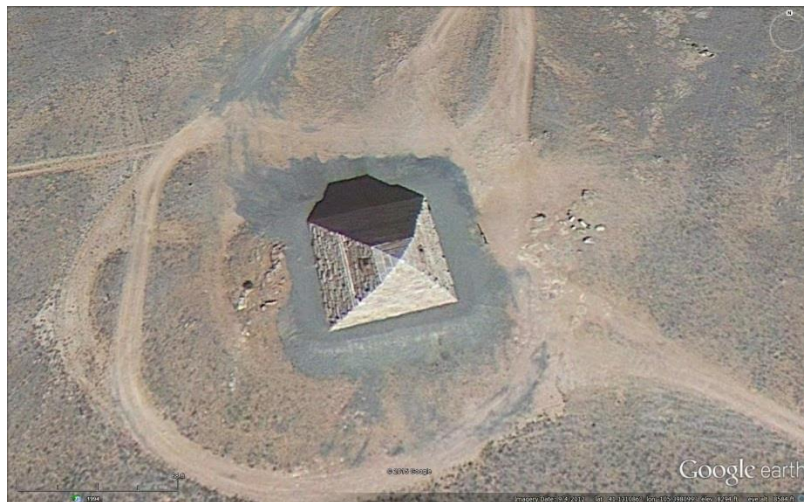
Transcontinental Railroad in 1869. Oakes, a U.S. representative to the United States Congress from Massachusetts, asserted near total control of its construction, whereas Oliver became president of the Union Pacific Railroad (1866 - 1871). In 1873 investigators implicated Oakes in fraud associated with financing of the railroad. Congress subsequently censured Oakes, who resigned in 1873. He died soon thereafter.

"The Ames Monument marked the highest point on the transcontinental railroad at 8,247 feet (2,514 m). However, Union Pacific Railroad Company twice relocated the tracks further south, causing the town of Sherman that arose near the monument to become a ghost town.

"The Ames Monument is located about 20 miles (32 km) east of Laramie, Wyoming on a wind-blown, treeless summit south of Interstate 80 at the Vedauwoo exit. The monument is a four-sided, random ashlar pyramid, 60 feet (18 m) square at the base and 60 feet (18 m) high, constructed of light-colored native granite. The pyramid features an interior passage, now sealed, alongside the perimeter of the structure's base.

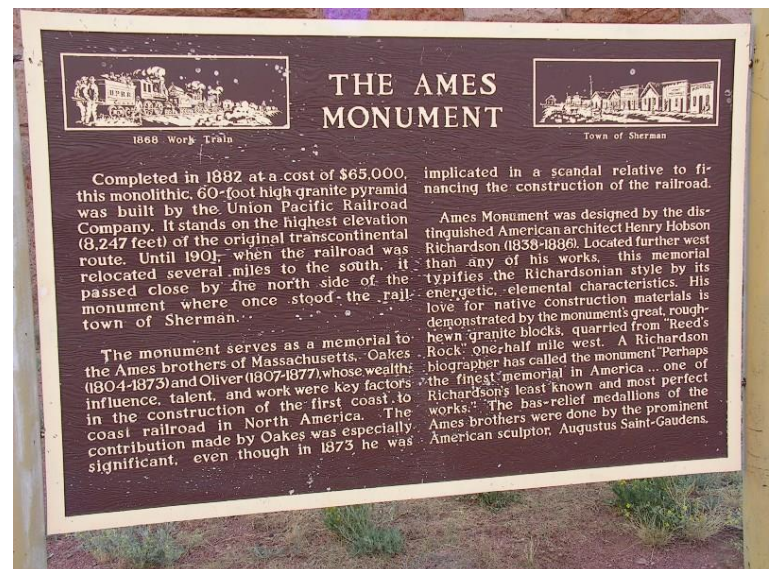
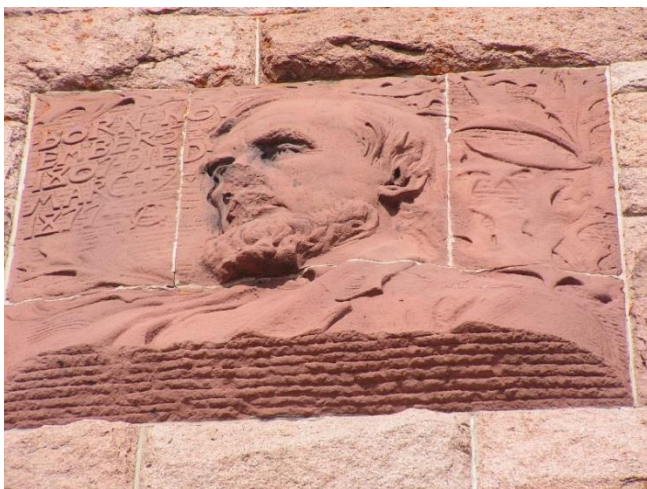
"Noted American architect H. H. Richardson designed the pyramid, which includes two 9 feet (2.7 m) tall bas-relief portraits of the Ames brothers by sculptor Augustus Saint-Gaudens on the east and west sides of the pyramid's top. Saint-Gaudens chiseled the bas-reliefs from Quincy, Massachusetts, granite. The north side, which at one time faced the railroad tracks, displays one-foot-high letters grouted in the granite noting: "In Memory of Oakes Ames and Oliver Ames". The monument is one of a half-dozen or more projects that Richardson did for the Ames family.

"The pyramid is one of only two examples of Richardson's work west of the Mississippi River, the other being the Isaac H. Lionberger House house in St. Louis less than two miles from the river. Richardson's



monolithic structure employed rough-hewn granite boulders in its construction. The monument's stones at the base are five feet by eight feet and weigh thousands of pounds each. The pyramid narrows from the base to become progressively smaller towards the top at a ratio of four inches to the foot."

Here's a Google Earth picture of the site, plus a closer view of the monument and of the interpretive sign by it. A good gravel road leads to the monument, which is a remarkable thing to see! The blocks are composed of the 1.43-Ga Sherman Granite.







## ***Where is this Rock? -- March***

Here is our March picture—and it looks like I can even continue with our theme of “pyramids”. If you think you know what & where this “rock” is, please send your answer/guess to Pete Modreski, 303-202-4766 or pmodreski@aol.com.



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***A continuing request: who is willing to help us find ways to “outreach” and expand CSS membership?*** Several of our officers/committee chairs are going to get together soon to brainstorm new ideas for making CSS better known in the earth science community and getting more new members, including students. They would *love* to have some more of you join them to talk about ideas for doing this. If interested, please contact either Linda Barton Cronoble, 720-338-1237, lbarton1611@gmail.com; Lisa Fisher, lisa.fisher@escalantemines.com; or Liz Pesce, pesce.e@gmail.com. Linda is organizing a CSS booth at the Western Interior Paleontology Symposium “Fossils and Flight” symposium, Sat. & Sun., Mar. 14-15.

Thoughts: what can ***you*** do to promote the CSS, to help get us more members to better work toward our goals and projects? Have you ...

- Posted a copy of an announcement about our next meeting at your workplace?
- Told friends and colleagues about our meetings? Forwarded our newsletter to them when you think they may be interested in the program at one of our meetings?
- Encouraged those same, to join the Society?
- Taken any opportunities to mention the Society to undergraduate or graduate geology/earth science students? (Student membership is only \$5; and we have a Student Research Grant awards program, and a Best Student Paper competition in the fall.)
- Told colleagues about the great spring and fall (or sometimes, summer) one-day or weekend field trips that we sponsor?

## *Calendar of Coming Events*

**Wed., Mar. 11**, 6:30 p.m., the return of the “Fracking Sense” lecture/discussion series at CU: **Community Impacts from Hydraulic Fracturing: the Importance of Public Participation and the Distribution of Costs and Benefits**, by Dr. Jeffrey Jacquet; Old Main Chapel, CU Boulder campus. See [www.centerwest.org](http://www.centerwest.org) . All are welcome, no admission charge. Next presentations in the series will be April 8 and April 28.

**Thurs., Mar. 12**, 3:00 p.m., VIP Room, DMNS Earth Science Seminar, David Krause, SUNY Stonybrook, **"Bizarre and marvelous dinosaurs and other vertebrates of Madagascar: Insights into the southern end of the world"**. All are welcome to attend; DMNS admission not required.

**Thurs., Mar. 12**, 7:30 p.m., **Friends of Mineralogy Colorado Chapter bimonthly meeting**; Dan Kile, **“Amethyst from Thunder Bay, Ontario: A 1970s–1980s Perspective”**, by Daniel Kile. Denver Museum of Nature & Science, VIP Room, all are welcome; museum admission not required.

Also, for those in Boulder, 7:00 p.m., **Thurs., Mar. 12**, Flatirons Mineral Club, **“How You Can Have Multiple Beryllium Minerals within the Same Pocket at Mt Antero”**, by Bill Hutchinson. In the community room at the 29th Street Mall, 28th St and Arapahoe, Unit #1064N (north partition, former “Starlight Diner”); on the upper deck just west and just north of the front doors of the Cinemark Theaters at 29th Street. All are welcome.

**March 14-15, WIPS (Western Interior Paleontology Society) Symposium, “Fossils and Flight”, Green Center, CSM campus, Golden, CO.** “Flight. Insects, pterosaurs, birds, bats and even the seeds and pollen of plants all enjoyed the advantages and the perils of flight long before humans were around to envy them. Our 2015 Founders Symposium, Fossils & Flight, explores what the fossil record reveals about how life conquered the skies.” Lectures, poster session, exhibits, PaleoArt show, workshops, local field trips. **CSS will have a booth here!** See [http://westernpaleo.org/symposiums/2015\\_pages/about-2015.html](http://westernpaleo.org/symposiums/2015_pages/about-2015.html) for full information.

**Tues., Mar. 17**, 10:30 a.m., USGS Rocky Mountain Science Seminar, **Critical zone science and global societal challenges**, by Marty Goldhaber, USGS; Building 25 Auditorium, Entrance E-14; all are welcome.

**Tues., Mar 17**, 3:00 p.m., VIP Room, DMNS Earth Science Seminar, **A slice of prehistory: Histological Insights into how Iguanodontian dinosaurs grow**", by Catherine Sartin, Johns Hopkins Univ.

**Wed., Mar. 18**, 4 p.m., CU Geological Sciences Seminar, Boulder, **Climate and vegetation of the latest Cretaceous (Maastrichtian): Mechanisms of global warming during a "cool" greenhouse interval**, by Gary Upchurch, Texas State University-San Marcos. Benson Earth Sciences Building Auditorium (room 180), all are welcome; “refreshments served upstairs on 3<sup>rd</sup> floor at 3:30”.

**Thurs., Mar. 19**, 4:00 p.m., **Van Tuyl Lecture Series** at Colorado School of Mines; **“Hydrologic Speed Bumps: Heterogeneity in Water and Nutrient Exchange between Rivers and Aquifers”**, by Audrey Sawyer, Ohio State University; Berthoud Hall Room 241. see [http://inside.mines.edu/GE\\_Lecture-Series](http://inside.mines.edu/GE_Lecture-Series) for the complete Spring Term schedule.

**Thurs., Mar. 19**, 7:00 p.m., Colorado Scientific Society monthly meeting, two presentations by Don Becker, U.S. Geological Survey: **The 1923 Surveying Expedition of the Colorado River in Arizona**, a 30 min. video presentation; and, **Documenting changes in the landscape and glaciers of Glacier Bay National Park by recreating historical photography**. Shepherd of the Hills Church, 10500 W. 20th Ave. (at Simms St.), Lakewood; all are welcome.

**Saturday, Mar. 21**, 9 a.m. – 4 p.m., a symposium/workshop on **The Colors of Minerals**, featuring Dr. George Rossman, of Caltech, widely known for his studies on spectroscopy and causes of color in minerals. Berthoud Hall, Colorado School of Mines, sponsored by the Friends of the CSM Geology Museum. Please contact the Museum or see the Friends facebook page, <https://www.facebook.com/LikeCSMGeoMuseum> , for details. Registration for this workshop will be \$50 general registration, \$40 for members of Friends of the Museum, \$25 for students.

**Sat., Mar 21**, 10:00 a.m., **the Cripple Creek & Victor Gold Mining Company (CC&V)** is proud to announce another “Mine Shots Presentation,” scheduled for Saturday, March 21, 2015, beginning at 10:00 a.m., at CC&V’s visitors’ center at 317 E. Bennett Avenue in Cripple Creek. The featured speaker will be Mrs. Kathy Reynolds, Executive Director of the Cripple Creek District Museum (CCDM), giving **an historical overview of the Cripple Creek District Museum**. Reynolds’ presentation will provide a comprehensive overview of the history of the CCDM, including historical photos and some brief comments from members of two of Cripple Creek’s pioneer families. This will be followed by descriptions of what to see on the CCDM campus - two historic cabins, the Gold Sovereign head frame, the assay office of the Colorado Trading & Transfer Company and the Midland Terminal depot. Inside the museum are geologic displays, Midland Terminal Railroad artifacts, an extensive manuscript and photographic archive, as well as a gift shop and book store. Free to the public, but seating is limited. Please register with CC&V in advance by calling 719-689-2341 or 689-4052, or by calling the Cripple Creek District Museum at 719-689-9540 or 689-2634.

**Thurs., Mar. 26**, , 4:00 p.m., Van Tuyl Lecture Series at Colorado School of Mines; **“From Volcanoes to Rivers: Co-evolution of Hydrologic and Geomorphic Processes and Landscapes in the Oregon Cascades”**, by Gordon Grant, Oregon State University. Berthoud Hall Room 241.

**March 27-29, Fort Collins Rockhounds Club Gem & Mineral Show**, at McKee 4-H Building, Larimer County Fairgrounds, I-25 exit 259. 4-8 p.m. Friday, 9-9 Saturday, 10-5 Sunday.

**Tues., Mar. 31**, 10:30 a.m., USGS Rocky Mountain Science Seminar; **Seeking subsurface biospheres sustained by water/rock interaction**, by Alexis Templeton, Univ. Colorado.

**Wed., Apr. 1**, 4:00 p.m., CU Geological Sciences Seminar, Boulder, **Expedition to the Late Cretaceous of Madagascar: spectacular vertebrate fossil preservation in a stressed terrestrial ecosystem**, by Raymond Rogers, Macalester College. Benson Earth Sciences Building Auditorium (room 180).

**Wed., Apr. 8**, 4:00 p.m., CU Geological Sciences Seminar, Boulder, **Basement-hosted sandstone injectites of Colorado: A vestige of the Neoproterozoic revealed through detrital zircon provenance analysis**, by Christine Siddoway, Colorado College. Benson Earth Sciences Building Auditorium (room 180).

**Fri., Apr. 10**, , 6:45 p.m., **North Jeffco Gem & Mineral Club Silent Auction**; Apex Community Center, 6842 Wadsworth Blvd., Arvada, CO. All welcome; a fun evening; great rocks to buy, and good refreshments!

**Tues., Apr. 14**, 10:30 a.m., USGS Rocky Mountain Science Seminar; **Magma intrusion rates and crustal degassing at Yellowstone: Insights from gas chemistry, isotopes, and emissions**, by Jake Lowenstern, USGS Menlo Park.

**Tues., Apr. 14**, 3:00 p.m., VIP Room, DMNS Earth Science Seminar, **"The life cycle of a field geologist: Time travel to the Mesozoic"**, by Mark Kirschbaum, Colorado School of Mines.



**Wed., Apr. 15**, 4:00 p.m., CU Geological Sciences Seminar, Boulder, **Alternative Earths: Explaining Persistent Inhabitation on a Dynamic Early Earth**, by Tim Lyons, UC-Riverside. Benson Earth Sciences Building Auditorium (room 180).

**Thurs., Apr. 16**, 7:00 p.m., The **CSS 2015 Emmons Lecture** will be at the American Mountaineering Center auditorium, 710 10<sup>th</sup> St., Golden, at approx. 7 p.m. The speaker will be Dr. Tom Barclay, NASA Ames Research Center and the Bay Area Environmental Research Institute; his topic will be “**The Search for Earth-like Planets**”.

**April 24-26, Colorado (Spring) Mineral and Fossil Show**, Ramada Plaza Hotel (formerly Holiday Inn - Central Denver), 4849 Bannock St, Denver, CO; 10-6 Fri. & Sat., 10-5 Sun.; see [http://www.mzexpos.com/colorado\\_spring.html](http://www.mzexpos.com/colorado_spring.html)

**April 25-26, Mineral, Fossil, and Book Sale**, Colorado School of Mines Geology Museum, 1310 Maple St., CSM campus, Golden; 9 a.m. – 4 p.m.

**Tues., Apr. 28**, 10:30 a.m., USGS Rocky Mountain Science Seminar; **Colorado’s stratigraphy: Do all the pages fit into 8 chapters?**, by Bob Raynolds, Denver Museum of Nature and Science.

**Sat., May 2**, 11:00 a.m. – 3:00 p.m., **Colorado Mineral Society Silent Auction**; Holy Shepherd Lutheran Church, 920 Kipling St., Lakewood. All are welcome.

**Sat., May 9**, 12:00-3:00 p.m., **Friends of Mineralogy Silent Auction**, Clements Community Center, Lakewood CO (Yarrow St. just north of Colfax). All welcome.

**May 9-10, Grand Junction Gem & Mineral Club, 68<sup>th</sup> Annual Gem Mineral, & Jewelry Show**; Two Rivers Convention Center, Grand Junction.

**Tues., May 12**, 3:00 p.m., VIP Room, DMNS Earth Science Seminar, “**Early Earth vs. The origin of life**”, by Steve Mojzsis, U. of Colorado.

**May 14**, 7:00 p.m., **FM Colorado Chapter bimonthly meeting**; speaker, Mandy Hutchinson, “**Carbonatites**”. Denver Museum of Nature & Science, VIP Room.

**June 5-7, Pikes Peak Gem and Mineral Show**, at Western Museum of Mining & Industry, Colorado Springs; 9-5 Fri. & Sat., 9-4 Sun.; adult admission to show & museum is \$5.

**July 10-13, Gunnison Mining & Minerals Symposium**, sponsored by Friends of CSM Geology Museum; hosted at the Western State Colorado University campus, Gunnison CO. “Presentations on the mining history, geology, and minerals of the Gunnison Basin and surrounding mountains. Multiple guided field trips and opportunities for mineral collecting”. For more information see the Friends facebook page, <https://www.facebook.com/LikeCSMGeoMuseum> .

**July 16-18, Rocky Mountain Federation of Mineralogical Societies Convention and Mineral and Gem Show**, Cody, Wyoming.

**July 31-Aug. 2, Creede Rock & Mineral Show**; 10 a.m. – 5 p.m., free admission; at the Underground Mining Museum, Creede, CO. See [www.creederocks.com](http://www.creederocks.com) .

**Aug. 13-16, Contin-Tail Rock Swap/Gem & Mineral Show**, Buena Vista, CO

**Aug 21-23, Lake George Gem and Mineral Show** (sponsored by the Lake George Gem and Mineral Club) and the **Woodland Park Gem, Mineral, and Jewelry Show**, Aug. 20-23.

**Sep. 13-20, Colorado (Fall) Mineral and Fossil Show**, Ramada Plaza Hotel (formerly Holiday Inn - Central Denver), 4849 Bannock St, Denver, CO; see [http://www.mzexpos.com/colorado\\_fall.html](http://www.mzexpos.com/colorado_fall.html) .

**Sep. 18-20, Denver Gem and Mineral show**; theme, “Minerals of the American Southwest”

**Sept. 24**, Friends of Mineralogy Colorado Chapter bimonthly meeting; speaker TBA.

**Nov. 12**, FM Colorado Chapter bimonthly meeting; speaker, Dan Wray, **Cave Minerals in 3-D**

**Nov. 14-15, New Mexico Mineral Symposium, Socorro, NM**; see <https://geoinfo.nmt.edu/museum/minsymp/home.cfml> for details.

**Nov. 20-22, Denver Area Mineral Dealers Show**, Jefferson County Fairgrounds.

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*For lecture series during the year see:*

CU Geological Science Colloquium (Wednesdays, 4 p.m.) see <http://www.colorado.edu/geolsci/colloquium.htm>  
CSU Dept. of Geoscience Seminars (Fridays, 4 p.m.), see <http://warnercnr.colostate.edu/geo-news-and-events/departments-seminars>

Van Tuyl Lecture Series, Colorado School of Mines, (Tuesdays, 4 p.m.) see [http://inside.mines.edu/GE\\_Lecture-Series](http://inside.mines.edu/GE_Lecture-Series)

Denver Mining Club (Mondays, noon), see <http://www.denverminingclub.org/>

Denver Region Exploration Geologists Society (DREGS; 1<sup>st</sup> Monday, 7 p.m.), <http://www.dregs.org/index.html>

Western Interior Paleontology Society (WIPS; 1<sup>st</sup> Monday, 7 p.m.), <http://westernpaleo.org/>

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*Special exhibits continuing in 2015:*

**Brilliant: Cartier in the 20th Century** at the Denver Art Museum, **ends March 15!** “The DAM will host the world-exclusive exhibition of Brilliant: Cartier in the 20th Century, featuring stunning jewelry, timepieces, and precious objects created between 1900 and 1975. This exhibition highlights Cartier’s rise to preeminence—and the historical events pushing the brand’s evolution—as it transformed itself into one of the world’s most prestigious names in jewelry and luxurious accessories. Organized by the DAM, the exhibition will be on view in the Anschutz and Martin and McCormick galleries on level two of the Hamilton Building.” See:

<http://www.denverartmuseum.org/exhibitions/brilliant-cartier-20th-century>. The Sunday, March 8 *Denver Post* had a nice article, with some pictures, about the jewelry in this exhibition; see [http://www.denverpost.com/Lifestyle/ci\\_27653866/Denver-Art-Museums-%22Cartier%22:-Last-chance-to-see-it-5-things-to-see](http://www.denverpost.com/Lifestyle/ci_27653866/Denver-Art-Museums-%22Cartier%22:-Last-chance-to-see-it-5-things-to-see) .

**Molybdenum and the History of the Climax Mine**, at the Western Museum of Mining & Industry, Colorado Springs, Feb. 12<sup>th</sup> through May 31st, 2015. See <http://www.wmmi.org/exhibits>

**Steps in Stone: Walking Through Time**, at the University of Colorado Museum of Natural History, CU campus, Boulder. “A new exhibition that features real fossil tracks and trackways from the University of Colorado Museum of Natural History collections”. Open 9-5 weekdays, 9-4 Saturdays, 10-4 Sundays; closed on university holidays. Exhibit runs through December 2015; see <http://cumuseum.colorado.edu/> .

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***2015 CSS Student Research Grants program:***

Included in this newsletter is the announcement about our 2015 Student Grants program, which has been sent to earth science departments at universities and colleges throughout the nation. The deadline for applications is March 21, 2015; full application information and forms are posted on the CSS website, at <http://www.coloscisoc.org/grants/grants.html> . The Student Grant program is one of the society’s major projects to support student education and research in the geological sciences. Each year we are typically able to award 15 or more such grants (we made 19 grants in 2014), in amounts ranging from about \$600 to \$1200 per grant. Please help us by forwarding the flier about the grant applications to any geology graduate (or senior undergraduate) students whom you might know, who might be interested in applying for funds for their thesis research project!

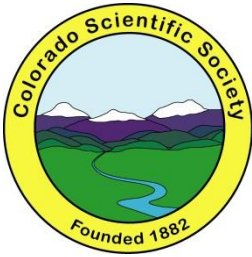
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***Emmons Lecture, April 16:*** The CSS 2015 Emmons Lecture will take place on Thursday, April 16, at the American Mountaineering Center auditorium, 710 10<sup>th</sup> St., Golden, at approx. 7 p.m. The speaker will be Dr. Tom Barclay, NASA Ames Research Center and the Bay Area Environmental Research Institute; his topic will be “**The Search for Earth-like Planets**”. Tom was recently named Director of the Kepler K2 mission, to continue the search for exoplanets using the Kepler spacecraft.

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***Our reminder again – please pay dues for 2015 if you haven’t yet!*** A dues form is in this newsletter and on our website, <http://www.coloscisoc.org/membership/dues.html>. Dues payments are \$20 for regular members, \$10 for corresponding members (outside the Colorado Front Range area) and **only** \$5 for students. You may pay dues by mailing a check to the CSS, or pay with a credit card using PayPal on the CSS website. Please contact CSS Treasurer Don Sweetkind at 303-236-1828 or [dsweetkind@usgs.gov](mailto:dsweetkind@usgs.gov) if you are uncertain of your dues and membership status. Extra payments to contribute to our Memorial Funds or Endowment Fund are always most welcome (you’ll see a list of them on the membership form).





# ***Colorado Scientific Society***

## **STUDENT RESEARCH GRANTS AVAILABLE**

The Colorado Scientific Society, a nonprofit earth-science organization, invites students enrolled at an accredited college or university to apply for research grants to be awarded in May 2015.

Grants are generally awarded to students in a Masters or Ph.D. program, however applications from undergraduates conducting senior-level research will also be considered and are encouraged.

### **General grant categories:**

- Field-oriented research on geology, geochemistry, and geophysics of the Rocky Mountain region
- Engineering geology research (with no restriction on geographic area of interest)
- Studies on the Heart Mountain fault in northwestern Wyoming or a Quaternary study with no geographic restriction

The grant amounts actually awarded may vary depending on the number of applicants, however typical amounts from past years have ranged from \$600 to \$1200.

Students can obtain application forms and grant policy and procedure information directly from the Society website at

<http://www.coloscisoc.org/grants/grants.html>

**Completed applications must be emailed or post-marked by March 21, 2015.**

***Applications should be submitted via email to:***

***csslund15@gmail.com***

Colorado Scientific Society  
C/O Scott Lundstrom

**Please Post in Earth Science Department**



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# Presents



Dr. George R. Rossman

## "The Colors of Minerals" Workshop

By Dr. George Rossman of Caltech

Saturday, March 21, 2015, 9 a.m. to 4 p.m.

Colorado School of Mines Campus – Golden, CO

Berthoud Hall (16<sup>th</sup> and Illinois), Room 241

Minerals are found in dazzling and beautiful arrays of colors. What causes these colors? This workshop will present information about the causes of colors in minerals.

In addition to the presentation by Dr. Rossman, the workshop will also feature talks by **Pete Modreski** of the U.S. Geological Survey titled "Color in Some Colorado Minerals" and **Dr. Joseph Smyth** of the University of Colorado Boulder titled "Mineral Physics - Crystal Structural Controls on Physical and Chemical Properties of Minerals as Related to the Structure and Composition of the Earth's Mantle". The workshop will conclude with a panel discussion on the causes of color that will include the previously mentioned speakers plus the distinguished USGS researchers Roger Clark and Gregg Swayze. (Panel members are subject to change. For more information on the workshop, please go to [www.facebook.com/LikeCSMGeoMuseum](http://www.facebook.com/LikeCSMGeoMuseum).)

Fee and registration process: \$25 for current Colorado School of Mines students, \$40 for current members of the CSM Museum Friends, \$50 for all other registrants. (Registrants will be responsible for providing their own lunches and snacks.) Please make checks payable to "Friends of the Colorado School of Mines Geology Museum". Send checks to the Colorado School of Mines Geology Museum, General Research Laboratory (GRL) Building, 1310 Maple St., Golden, CO 80401. Please send your payment by Monday, March 16, and include your street address and e-mail address for receipt of workshop registration confirmation.

Individuals interested in attending the workshop may choose to register and pay their fees at the registration table outside Berthoud Hall, Room 241, starting at 8:00 a.m., Saturday, March 21.



### **2015 CSS Elected Officers**

President.....Paul Morgan, 303-384-2648, morgan@mines.edu  
President Elect.....Peter Barkman, 303-384-2642, barkmann@mines.edu  
Treasurer.....Don Sweetkind, 303-236-1828, dsweetkind@usgs.gov  
Secretary.....Lisa Fisher, 303-215-0480, lisa.fisher@escalantemines.com  
Past President..... Scott Lundstrom, 303-917-2849, pslundstrom@msn.com

### **Councilors**

2013-2015: Marieke Dechesne, 303-236-1289, mariekedechesne@gmail.com  
2013-2015: Liz Pesce, pesce.e@gmail.com  
2014-2016: Celia Greenman, celia.greenman@earthlink.net  
2014-2016: (vacant position, to be filled)  
2015-2017: Bruce Geller, 303-273-3823, bgeller@mines.edu  
2015-2017 Pete Modreski, 303-202-4766, pmodreski@aol.com

### **Committee Chairpersons**

Best Student Paper Competition: Scott Lundstrom, 303-917-2849, pslundstrom@msn.com  
Database Manager: Don Sweetkind, 303-236-1828, dsweetkind@usgs.gov  
Field Trips: Cal Ruleman, 303-236-7804, cruleman@usgs.gov  
History: Beth Simmons, cloverknoll@comcast.net  
Hospitality: Jack Krajewski, gijack08@gmail.com  
Membership/Mentor: Liz Pesce, pesce.e@gmail.com  
Student Research Grants: Scott Lundstrom, 303-917-2849; csslund15@gmail.com  
Newsletter Editor: Pete Modreski, 303-202-4766, pmodreski@aol  
Outreach: Linda Barton Cronoble, 720-338-1237, lbarton1611@gmail.com  
Program: Open  
Publicity: Open  
State Science Fair: Chuck Weisenberg, 303-238-8806, cweisnbrg@msn.com  
Webmaster: Barb Warden, 303-278-2701, bwarden@tablemtn.com

**Colorado Scientific Society, P.O. Box 150495, Lakewood CO 80215-0495**  
**Our website: <http://www.coloscisoc.org>**



# Colorado Scientific Society

## Application and Membership Update Dues and Funds Contributions

Date \_\_\_\_\_

New Member \_\_\_\_\_

Renewing Member \_\_\_\_\_

\_\_\_\_\_  
(email address)

\_\_\_\_\_  
(Telephone)

\_\_\_\_\_  
(Last Name)

\_\_\_\_\_  
(First Name)

\_\_\_\_\_  
(Initial)

\_\_\_\_\_  
(Address)

The success of most Society activities depends on volunteer help. Please circle any activities for which you can provide assistance. We will pass your name on to the appropriate Committee Chairperson.

Field Trips  
Fund Raising

History  
Newsletter

Outreach  
Program/Talks

### Annual Dues (January – December)

Regular Members \$20 \_\_\_\_\_

Corresponding Members \$10 \_\_\_\_\_

Student Members \$5 \_\_\_\_\_

**Memorial Funds:** These funds support research grants to graduate students in the Earth Sciences throughout the nation. *Please note if contribution is made in the memory of an individual.*

Ogden Tweto Memorial Fund \_\_\_\_\_

Steven Oriel Memorial Fund \_\_\_\_\_

Edwin Eckel Memorial Fund \_\_\_\_\_

Bill Pierce-Heart Mountain Fund \_\_\_\_\_

George Snyder Memorial Fund \_\_\_\_\_

Chuck Pillmore Memorial Fund \_\_\_\_\_

### Endowment Fund:

This fund is used to support the Society's monthly meetings and newsletter, field trips, family night, annual Emmons Lecture, invited speaker honorarium, and special activities.

***TOTAL CONTRIBUTIONS (DUES AND FUNDS):*** \_\_\_\_\_

Please make your checks payable to the:

Colorado Scientific Society

Send this form & your check to:

Colorado Scientific Society

P.O. Box 150495

Lakewood, CO 80215-0495

Or register and pay on-line using PayPal at:

<http://www.coloscisoc.org/membership/duespaypal.htm>