

Colorado Scientific Society

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

Colorado Plateau Molecules: Chemical Stories from the High Desert



by Ed Waterman

Thursday, November 15, 2012

**Shepherd of the Hills Presbyterian Church
20th Ave. at Simms St., Lakewood**

Social half-hour – 6:30–7 p.m., Meeting time – 7:00 p.m.

November Abstract

Colorado Plateau Molecules: Chemical Stories from the High Desert

by
Ed Waterman

This photo-illustrated talk poses essential questions about observable natural phenomena common to the Four Corners region. Questions such as:

- * If God is not a Broncos fan then why are sunsets orange?
- * Breaking Bad: Were the early settlers of the Colorado Plateau drug addicts?
- * Why are the rocks of canyon country little more than huge chunks of oxygen?
- * Rattlesnake venom: What is it and why are there two kinds?
- * What is desert varnish, how does it form and why so much manganese?

Most essays on natural history interpret the traditional fields such as geology, wildlife, wild flowers, insects, weather, birds, forests or ecology. Colorado Plateau Molecules interprets chemistry. That is to say, it interprets all of those disciplines because chemistry defines and refines each of the other fields.

Colorado Plateau Molecules invites the audience members to look beyond what they see into the largely hidden domain of molecules. By providing a molecular level context, common observations become imminently comprehensible and audiences gain a deeper understanding of the natural environment that embraces this amazing world of canyons and mesas.

Colorado Plateau Molecules offers information about more than molecules. It contains stories about the plants and animals, the rocks and minerals, the history and culture found in and around the national parks of the southwest, stories inspired by their unique and interesting chemistry. It explores connections between chemistry, nature, poetry, history, classic literature, popular culture, music and much more.

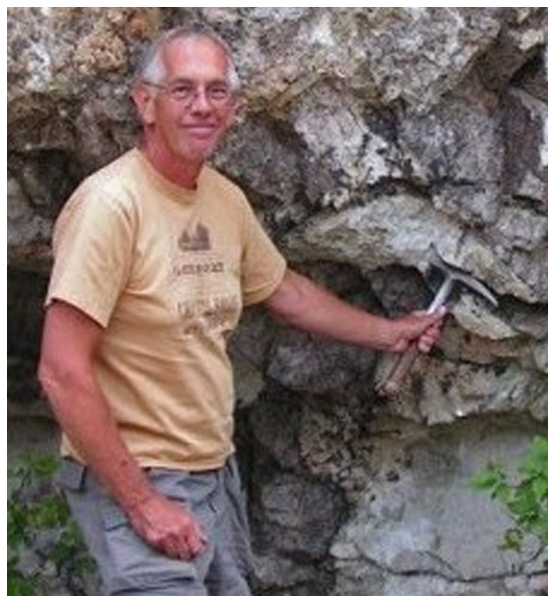


Mr. Waterman is the author or co-author of five high school chemistry textbooks. He presents photo-essay lectures about the natural history of molecules, engaging the general public in an appreciation for and an understanding of chemistry. He also conducts workshops for teachers on inquiry, differentiation, small-scale chemistry, AP Chemistry, and virtual chemistry laboratory.

Mr. Waterman's publications include Pearson Chemistry, a popular text for first-year high school chemistry and Small-Scale Chemistry Laboratory, also published by Pearson. In addition, he has published numerous professional papers in peer-reviewed journals including the Journal of the American Chemical Society, the Journal of Organic Chemistry, the Journal of Chemical Education and The Science Teacher.

Mr. Waterman holds a Bachelor of Science degree in chemistry from Montana State University and a Master of Science degree in chemistry from Colorado State University. In his free time he enjoys exploring wild places by hiking, kayaking and cross-country skiing in the Rocky Mountains and on the Colorado Plateau.

President's Message, by Pete Modreski



This Thursday's program will be, I think, an interesting one with a general, interdisciplinary flavor, combining geology, nature, and chemistry. Ed Waterman, as you've read on page 2, is a retired high school chemistry teacher, speaker, and writer. I heard him give a version of this talk last year at a science education conference, and I found it very stimulating and enjoyed it very much; I think you will, too.

Our December meeting will be Thursday, Dec. 13—the SECOND week of December, not the third, which was getting pretty close to Christmas—at the Shepherd of the Hills Church. The talk, the outgoing President's talk, will be by me on "Colorado Pegmatites."

(Note to CSS officers: we will hold a council meeting at 5:30 p.m. prior to the Nov. meeting.)



2012 Colorado Scientific Society Annual Student Night Results

by Pete Modreski

I'm pleased that our Student Paper Night went very well at CU in October. We didn't have as much attendance as we would have liked—I think the total present, including the four speakers, was only about 15—but it was a very congenial group, and the speakers all gave excellent presentations. The Sci Soc members present voted as to who would receive the awards, and we decided on:

- 1st place:** Capturing the "Blue Haze": Microporosity Evaluation using QEMSCAN® Technology, by Tiffany Dawn Jobe, Ph.D. candidate, Colorado School of Mines
- 2nd place:** Mining-induced arsenic contaminated floodplain deposits; characterization of long-term arsenic retention and dissolution behavior, by Anne Ji, M.S. candidate, Colorado State University
- 3rd place:** Mechanics of Gully Erosion in the Denver Basin, by Francis Rengers, Ph.D. Candidate, University of Colorado at Boulder
- 4th place:** Marine Reefs and Age Dating of Tertiary Sections, Northeastern Libya, by Belkasim Khameiss, University of Northern Colorado

The four students received checks from CSS for \$200, \$150, \$100, and \$50, respectively. Each student also received complimentary student memberships in CSS for the coming year through 2013 and an etched glass CSS mug.



It's Time to Pay Dues for 2013...

Membership dues for the coming year (2013) are now due. You will find a dues payment form in this issue of the newsletter, or you can download the form from the CSS website:

www.coloscisoc.org/membership/dues.html

Dues payments are \$20 for regular members; \$10 for corresponding members (outside the Colorado Front Range area), and \$5 for students. You may pay your dues by mailing a check to the CSS, or pay with a credit card using PayPal on the CSS website. If you are uncertain if you owe dues or of your member status, contact CSS Treasurer Don Sweetkind by phone at 303-236-1828 or by e-mail at dsweetkind@usgs.gov.

As you pay your dues, please consider making an additional contribution to one of our Memorial Funds, which support our student research grants program, or the Endowment Fund, which we use to defray operating costs. Any contributions made in calendar year 2012 (checks dated before 1 January 2013), will be credited toward the 2012 tax year.

Please remember that your entire contribution goes towards generating interest for the grants and that your contribution is 100% tax deductible because the Society is a non-profit Section 501 (c)(3) organization. Through interest income generated by our Memorial Funds, we have awarded over \$125,000 in research grant funding to more than 165 students. This year we also supported the participation of about a dozen students on our field trips through the Pillmore Fund.

PLEASE support our future scientists by generously supporting the *Colorado Scientific Society*. ***Thank you!!***



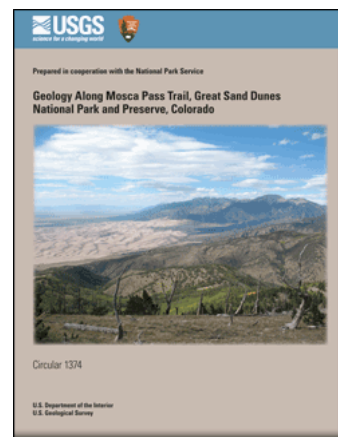
Recently released USGS publication of local interest:

Circular 1374

Geology Along Mosca Pass Trail, Great Sand Dunes National Park and Preserve, Colorado

By David A. Lindsey, Terry L. Klein, Andrew Valdez, and Robert J. Webster

<http://pubs.usgs.gov/circ/1374/>



“Wildlife” and train exiting “Rock Tunnel.” June 2012 CSS fieldtrip on the “Geology Train.”





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	History	Outreach
Fund Raising	Newsletter	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>

Interesting Web Pages (thank you C. Thurner):

NASA Conducts Airborne Study of Colorado Landslide

http://www.sciencedaily.com/releases/2012/08/120811110854.htm?utm_source=feedburner&utm_medium=email&utm_campaign=Feed%3A+sciencedaily+%28ScienceDaily%3A+Latest+Science+News%29

Giant 'Balloon of Magma' Inflates Under Santorini's Volcano:

http://www.sciencedaily.com/releases/2012/09/120909150348.htm?utm_source=feedburner&utm_medium=email&utm_campaign=Feed%3A+sciencedaily+%28ScienceDaily%3A+Latest+Science+News%29

X-Rays Illuminate the Origin of Volcanic Hotspots

http://www.sciencedaily.com/releases/2012/07/120718131737.htm?utm_source=feedburner&utm_medium=email&utm_campaign=Feed%3A+sciencedaily+%28ScienceDaily%3A+Latest+Science+News%29

Northwest Earthquake Risk in U.S. Looms Large: 40% Chance of Major Earthquake Within 50 Years

http://www.sciencedaily.com/releases/2012/08/120801132717.htm?utm_source=feedburner&utm_medium=email&utm_campaign=Feed%3A+sciencedaily+%28ScienceDaily%3A+Latest+Science+News%29



New collecting rule on BLM land effective Sept. 12, 2012:
(submitted by Bruce Wahle)

New Rules for Meteorite Hunters Unveiled

<http://www.space.com/18009-meteorite-collectors-public-lands-rules.html>



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70% off over 150 publications

Colorado Geological Survey
1313 Sherman St., Room 715, Denver, 80203
303-866-2611 or online: geosurveystore.state.co.us



Earth Science Meetings and Talks

Newsletter items must be received by the 25th of each month.

Colorado Scientific Society's regular meetings are held the 3rd Thursday of the month at the Shepherd of the Hills Presbyterian Church, 11500 West 20th Ave., Lakewood, CO (unless otherwise advertised).

Social time begins at 6:30 p.m. and talks start at 7:00 p.m.

For more information, contact Pete Modreski, at 303-202-4766, pmodreski@aol.com



CO-AIPG Nov. 13 *Chester A. Wallace (Speaker; Consultant, Morrison, CO), Jon P. Thorson and David C. Jacobs*, "New concepts in exploration for stratabound mineral deposits in the Paradox Basin, Utah and Colorado." 11:30 a.m. lunch; talk at 12:30 p.m. Golden Corral Buffet & Grill, 3677 South Santa Fe Drive, Sheridan, CO 80110 (Southwest side at Santa Fe Dr. & Hampden Ave.) Price: Buffet lunch (approx. \$10) must be purchased for entry to the Golden Corral. An additional voluntary tip of \$1/person is requested for the wait staff in the meeting room. Free parking.
Reservations or more info: Contact Tom Cavanaugh, tom.cavanaugh@amec.com or 303-293-6002, by Noon on November 9.

Denver Mining Club Nov. 19 *Eric Twitty, Author and Principal, Archaeological & Historical Consulting*, "Mining Archeology." **Nov. 25** *John L. Lufkin, Adjunct Professor, Metro State University of Denver*, "Pegmatites of the Black Hills, South Dakota." The DMC meets on Mondays at the Golden Corral Buffet & Grill, 3677 South Santa Fe Dr., Sheridan, CO 80110 (Southwest side at Santa Fe Dr. & Hampden Ave.) 11:30–1:00. Purchase of lunch required. Visitors always welcome! Dick Beach, Secretary, 303-986-6535

Denver Region Exploration Geologists' Society (DREGS) meets in the Colo. School of Mines, Berthoud Hall Room 241, Golden, CO. Social 6:00–7:00 p.m. Presentation at 7:00 p.m. **Nov. 12** *Alex Paul*, "History and exploration at the Magma Mine, Superior, Arizona, and discovery of the Magma (Resolution) Porphyry." For information contact Jim Piper, (303) 932-0137, or the website <http://www.dregs.org>

Univ. of Colorado, Boulder, Geol. Sciences Colloquium Nov. 14 *Mike Lamb, Cal Tech*, "Groundwater sapping, waterfall erosion and the formation of bedrock canyons on Earth and Mars." **Nov. 28** *Steve Parman, Brown University*, "What happened at 2.7 Ga?" Weds., 4:00 p.m., Benson Earth Sci. Auditorium, Rm. 180. Refreshments at 3:30 p.m. on the 3rd floor. <http://www.colorado.edu/geolsci/colloquium.htm>

Van Tuyl Lecture, Colorado School of Mines Berthoud Hall Room 241, Thursdays 4–5 p.m. Nov. 15 *Dr. Carl Steefel, Lawrence Berkeley National Laboratory*, "What are the time scales of carbonate mineral sequestration of CO₂ in the subsurface?" **Nov. 29** *Dr. Eve-Lyn Hinckley, National Observatory Network*, "Insights into the fate of reactive N deposition to the Colorado Front Range from 15 N tracer studies." **Dec. 6** *Dr. Jerry Boak, Research Assistant Professor, Dept. of Geology and Geological, CSM and Director of the Center for Oil Shale Technology and Research (COSTAR) and Sheven Poole, M.Sc. Candidate, Dept. of Geology and Geological Engineering, CSM*, "Stratigraphic variations in mineralogy of the Green River Formation, Piceance Creek Basin, western Colorado."

For those who love books:

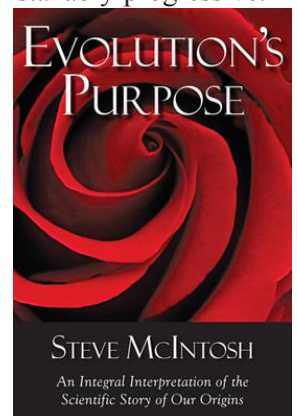
Evolution's Purpose: An Integral Interpretation of the Scientific Story of Our Origins

Does the science of evolution really prove that life, humanity, and the universe as a whole are meaningless accidents? — On the contrary, as science has shown how everything in the universe is subject to evolution, including matter, life, and human culture, these very facts reveal that the process of evolution is unmistakably progressive. And, as Steve McIntosh demonstrates, when we come to see how evolution progresses, this reveals evolution's purpose—to grow toward ever-widening realizations of beauty, truth, and goodness.

McIntosh argues that the purpose of evolution is not "intelligently designed" or otherwise externally controlled; rather, its purpose is being creatively and originally discerned through the choices of the evolutionary creatures themselves. Without relying on spiritual authorities, the author shows how the scientific story of our origins is actually a profound and sacred teaching compatible with many forms of contemporary spirituality.

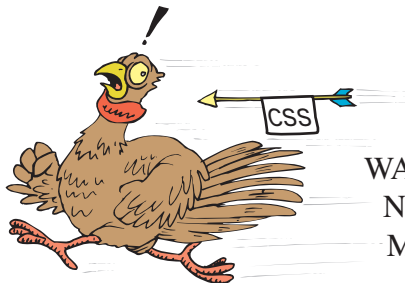
Evolution's Purpose: An Integral Interpretation of the Scientific Story of Our Origins presents a fresh and compelling view of evolutionary science and philosophy, and shows how a deeper understanding of evolution itself can lead directly to a more evolved world.

November 12, Tattered Cover Books - Colfax Ave. Store - 7:30 p.m.



Colorado Scientific Society
P.O. Box 150495
Lakewood, CO 80215-0495

<http://www.coloscisoc.org>



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New CSS
Members**

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Secretary: Libby Prueher, 720-260-0350, lprueher@umich.edu
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lisa.fisher@escalantemines.com

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2012–2014: Rebecca Flowers, CU Boulder, 303-492-5135,
rebecca.flowers@colorado.edu

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Hospitality: Ben Harrison, 303-417-9633, benjh@earthlink.net
Membership/Mentor: Mitchell Reese, 575-317-4864, mreese83@gmail.com; Liz Pesce, epesce@mines.edu
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Program: **VOLUNTEERS NEEDED! CONTACT PETE MODRESKI FOR MORE INFO.!**
Publicity:
Science Fair: Chuck Weisenberg, 303-238-8806, cweisenbrg@msn.com
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