



Colorado Scientific Society

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

48th Annual S.F. Emmons Lecture

Environmental and Biotic Consequences of Major Cosmic Impact Over North America 12,900 years ago

James P. Kennett

Dept of Earth Science
Univ. of California, Santa Barbara, CA

and

YDB Impact Group

Thursday, January 21, 2009

Colorado School of Mines—Green Center, Metals Hall
924 16th St. (between Illinois and Arapahoe), Golden, CO
Social half-hour—7:30 p.m. Meeting time—8:00 p.m.

2010 Colorado Scientific Society Emmons Lecture

Abstract

Environmental and Biotic Consequences of Major Cosmic Impact over North America 12,900 Years Ago

By James P. Kennett

Department of Earth Science

University of California, Santa Barbara, Calif.
and YDB Impact Group

We (YDB impact group) have discovered remarkable, widespread geological and archaeological evidence for a major extraterrestrial collision over North America 12,900 years ago. Massive energy release from this impact caused continental-wide wildfires and other severe environmental changes. The YDB extraterrestrial impact hypothesis appears to be consistent in explaining at least three major events that have long puzzled the scientific community: 1) the massive, abrupt extinction over North America of many large mammal (e.g. mammoths, camels, sloths, saber tooth cat) and bird taxa; 2) the abrupt disappearance of the Clovis Culture, the first widely distributed peoples of North America; and 3) the triggering of abrupt cooling over broad areas of Earth and associated major change in ocean circulation.



President's Message from Scott Minor



Dear Society Members,

Happy New Year everyone! I can't believe that the first decade of the 21st century is already behind us. Incredibly, the start of the new decade and year was marked by the occurrence of a full "blue" moon, which was directly overhead and beaming brightly (though not blue) as I admired it from my home in Boulder at the stroke of midnight. As is true of this rare event, I view this moment in time as a unique and significant one in the impressive, 127-year history of our organization. Heightened interest and lingering questions exist locally, nationally, and globally regarding the availability and adequacy of energy, mineral, and water resources, and the environmental consequences of their extraction and usage; climate change and the viability of CO₂ sequestration; the increased impact of earthquake, landslide, and fire hazards as the footprint of human development expands; and many other societal issues that involve earth science. Now more than ever, the global community needs unbiased scientific information, advice, and leadership. I believe that CSS has, and will continue to, help meet these needs, at least at the local level, by fostering, conveying, and disseminating unbiased earth science research to the local community and beyond. As your new president, I hope to facilitate this while also keeping the Society running day to day.

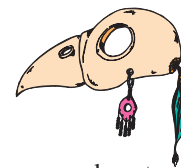
As has been recognized by many preceding CSS presidents, a major challenge that we must address is to find new, innovative ways to get young, energetic students involved in the Society, both to round out our membership base and to be a fresh voice in our leadership. If anyone out there has ideas on how to accomplish this and feels inspired to fill our vacant "Membership Chair" position, please let me or any of our councilors know.

As my first order of business, I would like to thank Don Sweetkind for the excellent job he did serving as our president in 2009! His unwavering dedication to the job while also continuing to serve (> 7 yrs.) as CSS Treasurer—a full-time job unto itself—is deserving of many accolades. Besides keeping the organization running smoothly and our finances in order, Don successfully juggled our meeting venues on several occasions, sometimes at the last minute and even while in the field in California. Thanks Don....you will be a hard act to follow!

I hope everyone will be able to attend the Emmons lecture on Jan. 21st (see announcement and abstract herein). Jim Kennett (UCSB), our 2010 Emmons lecturer, will talk on the controversial "Younger Dryas bolide extraterrestrial impact" hypothesis that he and others first proposed and continue to refine. To satisfy the proponents as well as the skeptics in the audience, Jim promises to present evidence both supporting and contradicting the theory. It should be an interesting and stimulating talk!

CSS participation in Fall 2010 GSA meeting, Denver – And Call for Field Trips!

by Lisa Fisher, CSS president-elect



As most of you know, the annual GSA meeting will be held in Denver this coming Oct. 31–Nov. 3, with pre- and post-Meeting Field Trips.

Lisa Morgan (USGS, Lakewood) is this year's field trip chair, and asked if CSS would be interested in sponsoring and/or submitting field trip proposals for the meeting. This inquiry spurred the council to action, with the decision that CSS should become involved with the fall GSA meeting. When I announced this at our December business meeting, members present agreed that we should encourage our members to submit field trip proposals to GSA. We have had numerous wonderful field trips led by our members in recent years, and surely some of you have one of these (or even a new one) in mind that could be submitted. Go look at our website for the list of recent and past field trips to refresh your memory, and encourage (even bribe or blackmail!) your favorite CSS field trip leaders to get involved. The official deadline has passed, but if you get this in to Lisa Morgan ASAP, she said she could consider them. SO, PLEASE SUBMIT YOUR FIELD TRIP RIGHT AWAY ON BEHALF OF CSS!

After the field trip discussion, Beth Simmons and Libby Prueher proposed that not only should we become involved in the GSA field trips, but also that CSS should sponsor and hold a topical session. So, we now have a CSS committee for the GSA meeting, and have met and roughed out a plan for what is shaping up to be a great session. The basic proposed plan is to cover 4 main topics:

1. The earliest geology & paleontology in Colorado (Hayden, Lakes, Gold Rush, etc), 1859–1882;
2. The founding of CSS & contributions of members (e.g. Emmons, etc.), 1882–early 1900's;
3. The “middle years” important contributions (e.g. Tweto & others), mid 1900's-ish;
4. Recent and current research—since this could get to be a really long list (we have many members who have made very important contributions), we defined this as research based on, built on, or otherwise connected to historic contributions, such as the new work on the Lakes' Quarry(s), etc.;
5. At least one related field trip post-meeting, Matt Mossbrucker of the Morrison Natural History Museum has agreed to do a museum tour, then go out to the Lakes' quarry(s) where they are doing new excavation & research.

We will either organize by time (earliest to latest), or by topic (dinos & paleo, Front Range Phanerozoic, Front Range Proterozoic, volcanism, mining, etc.). The GSA *History of Geology Division* is very excited about our session, and will co-sponsor it. Watch for more breaking news as it develops! Contact me with any questions or suggestions.

Lisa R. Fisher

lfisher@mines.edu lisa.fisher@escalantemines.com 303-215-0480 (w) 303-478-9427 (cell)



(Note: The session below is not affiliated with the above field trips, but Matt Morgan has kindly agreed to include CSS as a sponsor.)

GSA 2010 Session Teaser:

Ancient Floodplains and Rivers: Unraveling the Mysteries of Colorado's Conglomerates

Chairs: **Matthew L. Morgan** and Peter E. Barkmann, Colorado Geological Survey

Scientific Categories: Sediments, Clastic, Stratigraphy, Paleoclimatology/Paleoceanography

Sponsor(s): Colorado Geological Survey; Colorado Scientific Society

Rationale: Currently there is heated ongoing debate regarding the origin of many mapped conglomeratic units within Colorado. Are these units purely fluvial? What are their sources? How old are they? Do they indicate a significant change in environment or tectonism? These are just a few of the many questions that we will try to resolve. This session targets field geologists to present and discuss their latest observations, research, and findings.

Description: The origins and ages of many conglomeratic units within Colorado are enigmatic. This session seeks to enlighten the fascinating topic by convening geologists with an emphasis on field-based experience to share data, observations, and insights.



Submitted by Beth Simmons, Ph.D.

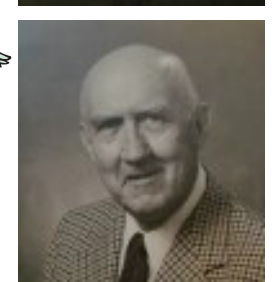
Work continues at the CSM Geology Museum to sort through all the fossils and reorganize them by phyla. In addition to CSS council member, Sue Hirschfeld, and CSS historian, Beth Simmons, a large crew from the Western Interior Paleontological Society is helping with this enormous task. Spectacular specimens emerge from the drawers regularly; part of the mission is to find the old CSS collection, if possible. This beautiful specimen of a leaf fossil came from the Green River formation according to the original label and was labeled as *Platanus* in the catalogue, a name that has surely changed. The material is almost a chert or flint, and contains numerous other leaf remains.



Fossil Specimen #5265, CSM Geology Museum

Beth Simmons works overtime:

If you have looked at our Past-President's page on our website lately (<http://www.coloscisoc.org/history/Presidents/presidents.html>), you may have noticed that **Beth Simmons** has been working her way through the list, adding information about each president. If you have information to submit regarding any of these folks, please send it to Beth (cloverknull@comcast.net). Some of you must still remember things about those who have unfortunately left us. For those Past-Presidents still kicking around with us, can you submit a short bio. for Beth to post with your birthdate, degrees, places of employment, and significant accomplishments, etc.? Thanks! We'd really rather not rely on **our** memory; we'd rather use **yours**.



Some of our past presidents...one of whom still attends CSS meetings! →

Membership Chairperson Needed!!

- Have any creative ideas for recruiting new, young members?
- Do you want to help inject some young blood into our aging organization?
- If so, please consider volunteering as the CSS Membership chairperson.
- Please contact Scott Minor if interested.
- (sminor@usgs.gov; 303-236-0303)

Did he say,
"Young blood?"



Colorado Scientific Society fiscal report for 2009

Don Sweetkind, CSS Treasurer

The Colorado Scientific Society generated revenues of approximately \$5,225 versus expenses of approximately \$5,020, resulting in a net operating gain of about \$205 for the fiscal year ending December 31, 2009. It is important to note that the healthy financial status of the organization this year is due in large part to a savings of \$1,000 in not paying the Emmons honorarium to our Emmons lecturer, Colorado State employee Tom Plant, and to a substantial savings derived from moving our lectures to the Colorado School of Mines campus. The Society's income during fiscal year 2009 primarily reflected revenue from dues payments (\$3,470), interest generated by the Endowment Fund (\$900) and member contributions to the Endowment Fund (\$855). The Endowment Fund is maintained to offset the normal operating expenses of the Society. Expenses for the fiscal year were comprised primarily of meeting room rental (\$1,465), student night awards (\$900), corporate insurance (\$815), postage for newsletter and other mailings (\$650), and web site maintenance costs (\$390).



Colorado Scientific Society membership report for 2009

Don Sweetkind, CSS Treasurer

Membership in 2009 held relatively steady with respect to past years. The apparent loss in regular and student members is primarily due to a clean-up of our member database where we turned to "inactive" any member who had not paid dues since 2005. There are a few new members who have not yet been added to the database. Take a moment and walk down the hall and ask a co-worker to join the Society. Most of us probably know at least one person who ought to be a member!

Member category	Year			
	2006	2007	2008	2009
Regular	223	222	240	231
Corresponding	28	27	29	31
Student	9	14	27	18
Honorary	44	48	49	48
Total	304	311	345	328

It's Waaaaay Past Time to Pay Dues for 2010...

.....if you don't pay, we'll keep putting this annoying plea for payment in the newsletter every month!!!

Membership dues for the coming year (2010) 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 2010 (checks dated before 1 January 2011), will be credited toward the 2010 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!!



DUES & FUNDS CONTRIBUTIONS COLORADO SCIENTIFIC SOCIETY

(Last Name) (First Name) (Initial) (current email address to receive newsletter and field trip notices)

DUES: Dues are for the calendar year (January-December)

Regular Members (\$20, CO Front Range) _____

Corresponding Members (\$10) _____

Student Members (\$5, enrolled in college) _____

MEMORIAL FUNDS: These funds support earth-science research grants to graduate students throughout the nation. If your contribution is not specified, it will be distributed equally among the funds:

(A) Ogden Tweto Memorial Fund _____

(B) Steven Oriel Memorial Fund _____

(C) Edwin Eckel Memorial Fund _____

(D) Bill Pierce-Heart Mountain Fund _____

(E) George Snyder Memorial Fund _____

(F) Chuck Pillmore Memorial Fund _____

This contribution is made in the memory of: _____

ENDOWMENT FUND: This fund is used to support the Society's monthly meetings and newsletter, field trips, family night, annual Emmons Lecture, 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**



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 Colorado School of Mines in Golden (unless otherwise advertised). Social time begins at 6:30 p.m. and talks start at 7:00 p.m.

For more information, contact Don Sweetkind, at 303-236-1828, dsweetkind@usgs.gov

Café Scientifique Wynkoop Brewery, evening science talks at 6:30. Free, except for beer. <http://www.cafescolorado.org>

Colorado School of Mines, Van Tuyl Lectures Thursdays from 4–5 p.m. in Berthoud Hall room 241. <http://www.mines.edu/academic/geology>

Colorado State University, Dept of Geosciences, Rm 320 Warner College of Natural Resources Bldg., Mondays, 4:00 pm. 970-491-5661. <http://welcome.warnercnr.colostate.edu/geo-training/index.php>

DIPS (Denver Intl. Petroleum Society) Friday, Jan. 15—North Sea Reserve/Resource Uncertainty, Tambar Field, Norwegian North Sea, by *Chris Rachwal and T.B. Berge*. Wynkoop Brewing Company, 1634 18th Street, Denver. Gather at 11:30 am; Lunch served at Noon; Lunch price: \$15.00 for members and \$18 for non-members. Please e-mail Bob Zilinski, at rezilin@aol.com or call him at 303-885-0615 to make reservations before Wednesday, Noon, Jan. 13.

Denver Mining Club meets every Monday at the Littleton Country Buffet near Bowles and Wadsworth (8100 W. Crestline Ave., in the shopping center) 11:30–1:00. Purchase of lunch required. **Happy New Year.** <http://www.denverminingclub.org>

Denver Museum of Nature and Science Jan. 14, 7:00 p.m., “Four-Wheeling across Mongolia: Not Like Camping Back Home,” by Jim Downing, educator and author. Gates Planetarium; use Ricketson Evening Entrance. \$12 member, \$15 non-member. <http://www.dmnns.org/main/en/General/Education/AdultProgram/Lectures>

Denver Region Exploration Geologists' Society (DREGS) meets in the Mutual Consolidated Water Building, 12700 West 27th Avenue, Lakewood. Social 6:00–7:00 p.m. Presentation at 7:00 p.m. Meetings are normally scheduled for the first Monday of each month. For information contact Jim Piper, (303) 932-0137, or the website <http://www.dregs.org>

Denver Well Logging Society (DWLS) meets on the third Tuesday of each month, Sept. through May. Lunch and a technical talk at the Wynkoop Brewery begins at 11:30 a.m., 18th and Wynkoop Sts. in Denver. Call Sarah Voight at 720-946-1374 by prior Thursday for reservations. Web page: <http://dwls.spwla.org>

Friends of Dinosaur Ridge <http://www.dinoridge.org>. Admission is free, but donations are welcome. 16831 W. Alameda Parkway. Talks at 7:00 p.m. Visitor Center (303) 697-3466 or contact Beth Simmons at cloverknoll@comcast.net for info.

Rocky Mountain Association of Geologists (RMAG) Jan. 14 *Toni Simo, AAPG Distinguished Lecture*, “Isolated carbonate platforms and mounds (ICPM): Initiation, growth and demise.” Special Early Evening Event at 5 P.M. Reservations by recording at 303-623-5396 until 10:30 a.m., prior Wed. Luncheon \$30. Talk only (no res.)—\$5. Location: Denver Marriott City Ctr., 17th & California. **Upcoming:** 2010 RMAG Short Course by Ron Blakey, Jan. 28, 2010, 8:00 a.m., “Paleographic and Paleotectonic Maps—Use, Construction, Interpretation and Example.” <http://www.rmag.org/events>.

Rocky Mountain SEPM Jan. 26 *Erik R. Kling, EOG Resources, Inc.* “A Framework for Finer-grained Fan Fringe Facies: Stratigraphy and Sedimentology of Distal Brushy Canyon Deposits, Delaware Basin, West Texas.” Reception at 11:30, lunch at noon, speaker at 12:30. Reservations: luncheons@rmssepm.org, before noon of preceding Friday. \$20.00 lunch, \$3 talk only. Wynkoop Brewing Company, 1634 18th St., Denver. <http://www.rmssepm.org/luncheons.shtml>

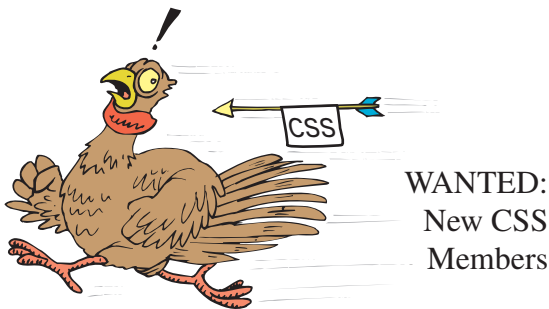
Univ. of Colorado, Boulder, Geol. Sciences Colloquium Weds., 4:00 p.m., Benson Earth Sci. Auditorium, Rm. 180. Refreshments at 3:30 p.m. on the 3rd floor. <http://www.colorado.edu/geolsci/>

Western Interior Paleontological Society

Tues., Feb. 2, 2010 *John Ghist, past president*, “The re-discovery of the lost dino quarry at Dinosaur Ridge.” 7 p.m., Ricketson Auditorium, Denver Museum of Nature & Science (all welcome, no admission charge). www.wipsppc.com

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

<http://www.coloscisoc.org>



**WANTED:
New CSS
Members**

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Treasurer: Don Sweetkind, USGS, 303-236-1828, dsweetkind@usgs.gov
Secretary: Lisa Fisher, CSM, 303-478-9427 (c), lfisher@mines.edu
Past President: Don Sweetkind, USGS, 303-236-1828, dsweetkind@usgs.gov

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2008–2011: Lee Shropshire, UNC, 970–352–8778, leeshrop@comcast.net
2008–2011: Sue Ellen Hirschfeld, eqdoc@ix.netcom.com
2009–2012: Jim Burnell, CGS, 303–866–2611, jim.burnell@state.co.us

COMMITTEE CHAIRPERSONS

Best Paper Award: Don Sweetkind, USGS, 303–236–1828, dsweetkind@usgs.gov
Database Manager: Emily Taylor, 303–236–5050, emtaylor@usgs.gov
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