



Colorado Scientific Society

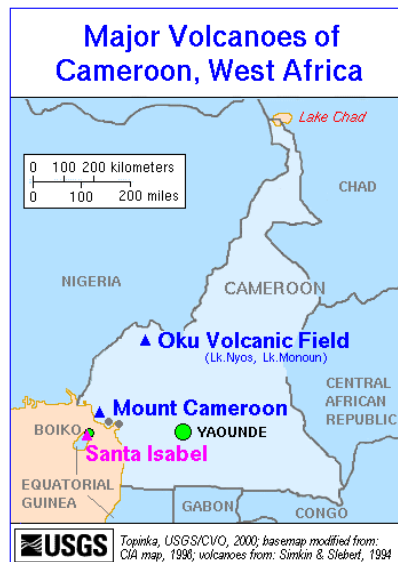
*The objective of the Society is to promote
the knowledge and understanding of Earth science,
and its application to human needs*

Presidential Address

Gas Cloud Kills Thousands at Lake Nyos, Africa: Identifying the Culprit and Saving Lives in the Future

by

*Michele Tuttle
U.S. Geological Survey
CSS 2001 President*



Thursday, December 6, 2001

Colorado Mountaineering Center
710 10th Street (NE corner with Washington)
Golden, Colorado
Social half-hour – 7:00 pm
Meeting time – 7:30 pm



Presidential Address Abstract:

In 1986, Lake Nyos, Cameroon released a cloud of CO₂ that killed 1700 people and devastated domestic herds and wildlife for many square kilometers. Was this the work of lake spirits or a geologic phenomenon previously unrecognized? This talk takes us on a tour of the mysteries surrounding Lake Nyos immediately following the disaster and shows how data collected over the next decade identified the culprit and the mitigation strategies to save lives.



A note from the President:

Again, the CSS student night was a success. Thanks to all of you who came and supported this important Society event. We had two excellent talks and the results can be found in this newsletter.

I find it hard to believe that my year as President is nearly complete. Over these past months I have enjoyed working with the Council towards completion of a number of projects. The Council met four times throughout the year. Several Council actions not discussed in previous newsletters are summarized below.

- Last February, the Society was granted eligibility as a non-profit organization to apply for Scientific and Cultural Facilities District (SCFD) funds. In January of 2002, a committee will prepare a grant application to SCFD for funds to construct road signs along the front-range to help educate the general public about the geologic landscape in which we live. See article in this newsletter by Paul Belanger.
- The Society will be sponsoring a 2002 geology Field Seminar organized by the Rocky Mountain Nature Association. The Council agreed that such sponsorship is part of our commitment to support educational outreach in the earth sciences. I want to extend a special thanks to Parker Calkin for his diligence in researching these seminars and presenting his findings to the Council.
- The Society was approached by the National Park Service to publish a book titled "Geology of Colorado's Parks and Monuments." The Council agreed that CSS is no longer in the publishing business, but would be interested in sponsoring or co-sponsoring such a publication. Discussions with RMAG about collaboration on this project are ongoing. If this project is undertaken, we will need the help of those members with expertise in the geology of these areas. Stay tuned.

I want to take this opportunity to thank the committee chairs for all their efforts this year and the speakers who enlightened us on "hot" topics ranging from snowball Earth to life on gas planets. I hope that all of you enjoyed these talks as much as I did.

See you at the December Meeting,

Michele Tuttle



A View Through the Brown Cloud

burp!! ahhhh, Thanksgiving was wonderfully non-traditional this year featuring a road-trip to Kansas City, MO, to pick up an EBAY purchase. A must see in Kansas, about 20 miles north of I-70 near Minneapolis, is Rock City! For \$3.00 you can scramble around on Fred Flintstone cross-bedded bowling balls 10 feet high! (supposedly Cretaceous seaway artifacts, but YOU decide) I love kitschy geology. Thanksgiving dinner at Stephenson's Apple Orchard was an orgy of tasty food and I highly recommend this restaurant to be found northeast of Kansas City. As this was a gal-pal shopping trip and being good Americans, we cut a swath across the heartland with heads and credit cards held high. Our patriotic reputation preceded us and an antique store in Salina stayed open after closing time just for us! Our valiant efforts to kick-start the economy gladdened many a midwestern heart.



Gemstone Deposits of Colorado and the Rocky Mountain Region September 7-10, 2002 First Announcement and Call for Papers



A symposium on the mineralogy, geology, and field occurrence of gemstones in the Rocky Mountains states. Sponsored by the Colorado Chapter of Friends of Mineralogy, Colorado School of Mines Geology Museum, Denver Museum of Nature and Science, and U.S. Geological Survey.

The symposium will be held on the Colorado School of Mines campus, Golden, Colorado, Sept. 7-10. It will include 1-1/2 days of lectures (Saturday and Sunday, Sep. 7-8), followed by two days of field trips to selected Colorado gem localities (Sep. 9-10). The symposium will endeavor to bring together professionals and knowledgeable amateurs involved in mining, collecting, mineralogical and geological research on, and curation and display of gem materials from the Rocky Mountain region. Papers on all important gemstone occurrences of the region are being solicited.

The symposium will precede the 2002 Denver Gem and Mineral Show, which will be held Sept. 13-15, 2002; the theme of this show will be "Gemstones of Colorado".

Anyone interested in presenting a paper should submit a title and a 50-word summary by Jan. 1, 2002, to Pete Modreski, USGS, email pmodreski@usgs.gov, or to Friends of Mineralogy, Colorado Chapter, P.O. Box 5276, Golden CO 80401-5276. Longer abstracts for publication at the symposium will be requested later. Further information about the symposium is also available from the above addresses.

ANNUAL STUDENT NIGHT -- Results

Scott Lundstrom reports: Student Night was held on November 15, and we were engaged by two excellent talks, making the judges' task very difficult. We congratulate and thank each of these speakers.

First Place (\$125): Heather Stanton, Colorado State University:

Sheep Mountain: Back-limb tightening and sequential deformation in a classic locality in the Bighorn Basin, Wyoming.

Runner-up (\$75): Brian Romans, Colorado School of Mines:

Proximal-distal relationships of deep-water deposits, Permian Brushy Canyon Formation, west Texas.



Road Sign Project – Status:

As the new Outreach Committee Chair, I would like to introduce myself and get a couple timely things rolling. Some of you indicated interest in outreach and I'll be contacting you sometime in the future. I just moved up here from Austin during late July and I have started working for Thomasson Partner Associates as an oil/gas exploration geologist and biostratigrapher. I taught various science subjects in high school for the past 5 years with prior experience in paleoclimate research (dissertation and ODP) and 12 years of oil exploration experience (Arco/Amoco). You can find out more about me if you wish on my home page (<http://home.att.net/~p.belanger> - do not use "www").

Michelle Tuttle, Eric Nelson, Pete Modreski, Bob Fleming and I met Thursday, November 1st to start discussing the direction of outreach and restart the road-sign project – for which there is a grant deadline of February 15th that is quickly approaching. I am writing to enlist ideas and support for this sign project. RIGHT NOW, we need to solicit your ideas for potential road-sign localities, the geologic content for that road sign, designing or helping in the design of the road sign, maybe help with installation, metal working, sign making, contacts, etc., etc. With these ideas, I will be developing a grant proposal to The Science and Cultural Facilities District for a February deadline – anybody who wants to help with that or knows of other potential funding sources is also welcome to volunteer their time, skills and efforts. Eric and others have suggested the initial sign development be at Buffalo Bills; he has done some preliminary contact work and Pete and Bob have some sign development ideas in line with signs at Dinosaur Ridge. We are reviving the road sign idea to get signs made for points of geologic interest to make the common citizen more aware of the geology around them. We hope to collaborate with CO-DOT, Denver Parks, and other appropriate county, state or Federal agencies. Your help and skills are welcome. Please feel free to email me at p.belanger@att.net or call during the day at 303-436-1930 or eves at 303-980-8732.

Colorado Geo-News!! - Newsletter Changes Planned

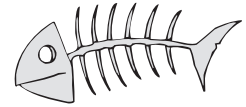
Some changes are planned for the 2002 Newsletter (maybe we should call it Colorado Geo-News for starters?!). Just prior to the Thanksgiving holiday, I assembled the old (sorry Lisa) but gorgeous (that's okay Eric) newsletter editor, Lisa Ramirez Bader, along with the new editor, Van Williams (vwilliam@usgs.gov), and the newly created editorial board to organize editorial duties for the 2002 CSS Newsletter. The concept of a newsletter editorial board in support of a chief editor came in response to not-too-subtle hints from Lisa as she steps down as editor. Lisa has done a wonderful job over the past few years, but indicated that putting together the newsletter alone was about as easy as "herding cats", and that the job description might be found on www.gates-of-hell/job-listings. Therefore we have recruited Mary-Margaret Coates (TECH edit), Vince Matthews (CGS), and Scott Minor (USGS) to serve on the editorial board. Along with Van, these three bring some exciting new talent to the newsletter, and I hope that our membership will support them by offering timely news items. The deadline for receipt of news items is the 1st of each month.

One new item to expect in 2002 is a column with interviews of geoscientists working and/or living in Colorado. We hope to offer a number of perspectives, including those from the exploration industries, environmental geology, government agencies, and geotechnical engineering, to mention only a few disciplines.

An important issue regarding the newsletter is the cost and hassle of mailing hard copies to members. As the world becomes more digital each year, we would like to encourage members with email or web accessibility to refrain from receiving a mailed hard copy of the newsletter. By printing your own newsletter or reading it online, you could help the Society save up to \$1000/year, and convert these funds into outreach, memorial fund grants, and other philanthropic causes the Society undertakes. We plan to poll the membership in order to learn how many currently receiving hard copies can be converted to electronic distribution. A bonus to those reading or printing the newsletter from the website is **COLOR!** (Hard copy readers will note the lack of color in this word!).

Eric P. Nelson, President-elect

August Field Trip Report by Sherm Marsh, Field Trip Chairman Kemmerer, Wyoming Fossil Fish Locality



The CSS August field trip to visit and collect fossil fish near Kemmerer, WY was a smashing success. Nineteen people went on the three-day trip that started from the Cold Spring park-and-ride at 6th and Union in Lakewood. After coffee and muffins we managed to leave pretty much on time in our two vans and made our way north to Laramie, WY where we headed west into the Medicine Bow Mts. on the Snowy Range Hwy (130). Thanks to the presence of Bill Atkinson and Jack Edwards, geology professors at the University of Colorado, we had expert geologic commentary throughout the trip. We continued up into the Snowy Range and took our lunch break at Mirror Lake, under spectacular cliffs of Medicine Peak Quartzite. We continued through the mountains to the historic old town of Encampment, WY. We visited a very impressive museum and restored old town site with many buildings and artifacts. Encampment was the site of a mine smelter that processed ore from the Ferris-Hagerty copper mine, 16.5 miles away in the Sierra Madre Mts. All the ore was transported to the smelter via a 16.25 mile aerial tramway over the Continental Divide! It was difficult getting everyone back into the vans for the ride through Sarasota (to visit another historical museum) to our destination for the night, Rock Springs, WY. In Rock Springs we met up with Lisa Bader and Ken Rukstales so there were 21 of us for dinner at the Bitter Creek Brewing Co.

In the morning (Sat.) Everyone was ready to go by 7:30 AM and we arrived at the Ulrich's Fossil Gallery right on schedule at 9:00 AM. We were taken in 4WD vehicles to the top of their quarry at 7200 feet. The weather was perfect and 19 people (Jane and Mike Ohl were there to take pictures and didn't want to collect) were soon furiously splitting shale and finding plenty of fossil fish! One large slab looked like an aquarium!. After several hours we returned to the gallery where we ate lunch while the staff people trimmed and packed our "treasures". Everyone really enjoyed the fish collecting but we were getting behind schedule for the rest of the days activities as we were due at the P&M coal mine at 1:30. With a lot of hustling we made it to the mine by 2:00 and were met by mine manager Gary Johnson and mine geologist Lynn Sessions. They gave us an excellent tour through the largest open-pit coal mine in the U.S. We left the mine about 3:00 and headed for Vernal, UT. We drove through Flaming Gorge and dropped down through the entire Mesozoic and Paleozoic section into the Precambrian core of the Uinta Mtns. We had reserved a campground in Dinosaur Natl. Monument for our Saturday evening cook-out but as we were running late we didn't enter the monument until almost 7:00, too late to see the dinosaur quarry. However, the campground was spectacular; right on the Green River with large cottonwood trees. Our group forgot about the dinosaurs when "horse-d-overs" of shrimp, smoked salmon, brie, pepper cheese and, of course, iced champagne were served!! This was followed by BBQ steak and chicken, potato salad (2 kinds), and cheese cake and chocolate cake. At 10:00 PM, 19 stuffed people wedged themselves into the vans to go back to Vernal for the night. (Story continued on next page...)

Dinner at the Bitter Creek Brewery.

Left side of table (some may not be visible): Ken Rukstales, Tim Marsh, Joan Rowe, Mike Ohl, Mark Neilson, Dan Miggins, Marcelle Arak, Nancy Camp, Donna Edwards, and Sherm Marsh at end. Right side of table: Lisa Bader, Dick Neilson, Jane Ohl, Bill atkinson, Carol Atkinson, Michele Tuttle, Allen Heyl, Rita Friedman, Irv Friedman, Jack Edwards, and Colleen Marsh.



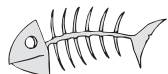
Ulrich's fossil fish quarry. From left: Ulrich staff, Nancy Camp, Ulrich staff, Joan Rowe, Tim Marsh, Irv Friedman, and Rita Friedman.



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At 7:30 AM the next day (Sunday) a miracle happened. Everybody was ready to go! We left Vernal, UT and headed to the Piceance Basin, via Rangle, CO, to tour the American Soda Nahcolite (NaHCO_3) mine. We arrived exactly on time at 9:30 and were given an excellent tour of the mine by Max Ramey and mine staff. This is a solution mining operation where hot water is pumped down 13 wells into the nahcolite, which is dissolved and then pumped 44 miles south to Parachute, CO to the processing plant. The entire mining operation is computerized and run by 39 employees. We left the mine to travel to the Parachute facility for a tour of the processing plant, stopping at Rifle Gap State park for lunch where we consumed leftovers from the BBQ as well as our regular lunch! At 3:00 we arrived for our tour and learned EVERYTHING about soda ash (for glass manufacturing) and bi-carb of soda production. The tour ended with a question and answer session with Irv Nielsen, the discoverer of the deposit. By 4:30 we were ready to head for home via Glenwood Canyon and Vail Pass (where we stopped to , what else, help polish off the leftover food; especially the homemade peanut-butter cookies!). Our trip ended back at the park-and-ride by 7:30 PM.

All in all this was one of the most successful field trips it's been my pleasure to lead. This was primarily due to all the help I received from members on the trip, especially Bill Atkinson and Jack Edwards for the expert geology and Tim Marsh, who drove the other van and was chief cook at the bar-b-que. Also, without the help and expertise of the Ulrich's and the staffs at the P&M coal mine and the American Soda Co. we couldn't have done it. Thanks to everyone!!



Earth Science Meetings and Talks

Newsletter items must be received by the 1st of each month. This may include special events, open houses, etc...thanks!



Colorado Scientific Society's regular meetings are held the third Thursday of the month at the Colorado Mountaineering Center in Golden (unless otherwise advertised). Social time begins at 7:00 p.m. and talks start at 7:30 p.m. Upcoming (Note date): **Business meeting and Presidential Address: December 6th** "Catastrophic Gas Release From Lake Nyos, Africa: From Disaster Response to Hazard Mitigation" by Michele Tuttle. For info., contact Michele Tuttle at (303) 236-1944 or mtuttle@usgs.gov

Denver Region Exploration Geologists' Society (DREGS) meets in the Consolidated Mutual Water Company Building, 12700 West 27th Avenue, Lakewood. Social hour 6:00-7:00 p.m. Technical presentation at 7:00 p.m. Meetings are normally scheduled for every Thursday unless noted. For info. contact Jim Piper, (303) 932-0134, or the website <http://www.dregs.org>
Dec. 6: Auction of Mining Memorabilia. Come help us celebrate our 110th anniversary!
Dec. 13: *ABC NewsSpecial, "Tampering with Nature," w/ John Stossel.* (A video from SME/GEM)
Dec. 20: **Paul C. Jones, President, Sovereign Gold Co., Ltd., "Current Status of BLM Mining Regulations--Correcting Babbitt's Mischief"**

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 Elice Wickham at 303-573-2781 for reservations. Web page: <http://dwls.spwla.org>

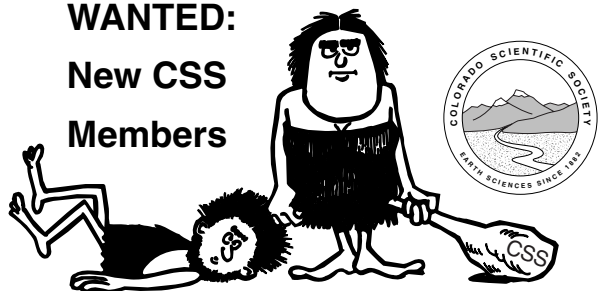
USGS Geologic Division Colloquium Thursdays, 1:30 p.m., Foord Rm., Building 20, entrance W3, Denver Federal Center. **Dec. 6: Berton Lee Lamb (USGS), *Analyzing the Public Policy Decision Process.*** For info. call Laura Strickland at 303-236-5302, or email: lstrickland@usgs.gov



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

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

**WANTED:
New CSS
Members**



Colorado Scientific Society Officers, Councilors, and Chairpersons

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Treasurer: Michael N. Machette, USGS, 303-273-8612
Secretary: Stephen F. Personius, USGS, 303-273-8611
Past President: Mark Hudson, USGS, 303-236-7446

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2000-2002: Bob Fleming, 303-279-8122
2000-2002: Scott Lundstrom, USGS, 303-236-7944
2001-2003: Graham Closs, CSM, 303-273-3856
2001-2003: Parker Calkin, CU, 303-442-2184

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Database Manager:	Cyndi Rice, USGS, 303-236-1989
Email distribution:	Randy Schumann, USGS, 303-236-1525
Field Trips:	Sherm Marsh, USGS-retired, 303-986-0939
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History:	Marjorie E. MacLachlan, USGS-retired, 303-986-7192
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