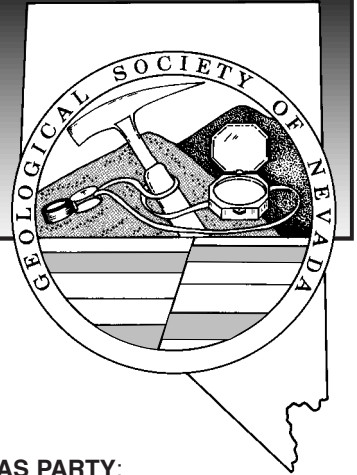


GSN NEWSLETTER



December 1999, Vol. 13, No. 10

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CALENDAR OF EVENTS

Wednesday

Dec 15

GSN MEMBERSHIP MEETING AND CHRISTMAS PARTY:

At Elks Club, Reno, NV; Speaker - J. K. Cluer, Cameco (U.S.) Inc., Is there a Carlin Trend in Central Asia? Excursions in the Khan Khentii Range, Mongolia. Meeting details, page 3.

Dec 16

GSN ELKO CHAPTER: At the High Desert Inn, Elko, NV; Speaker - Keith Bettles, Barrick Gold, Archean Gold Deposits of Australia. Social-6:30, talk-7:00. Reservations not required. Call Jeff Pontius at 775/778-9280 for information.

Dec 17

SYMPOSIUM 2000: Organizational meeting at 12:00 noon - Watts Room, University Inn, UNR. Cheri Reimann, 775/358-4336.

2000

Happy New Year

Jan 20

GSN SOUTHERN NEVADA CHAPTER; Lily Fong Geoscience Bldg, UNLV; John F. Stamm, Western State University, Gunnison, CO, Stream Restoration and the Importance of Bankfull Discharge. Call K. Goebel, 702/263-7600, or Jean Cline, 702/895-1091 for information.

May 15-18

GSN Symposium 2000, Geology and Ore Deposits 2000: The Great Basin and Beyond. Registration materials now available on our web site: www.gsnv.org

Check out the GSN web site:

www.gsnv.org

**GSN Newsletter is published monthly except June and July
Geological Society of Nevada, PO Box 12021, Reno, NV 89510-2021 USA, 775/323-3500**

WEB-SITE UPDATES - AVERY BIG PROJECT

Mario Desilets, GSN Web Committee

Over the last few years the GSN web page has evolved from a simple site with just a few pages to a large and complex web site with several layers. The web page presently contains a wealth of information and documents including GSN executive officers, chapter officers, current events, GSN symposium information, photos of current events and links. The documents available from the web page, in both PDF and HTML formats, include GSN membership information and application, publication information, publication location map, publication order form, and field trip grant information and application.

Even with all these additions, by far the most significant changes were made to the web at the beginning of

November, with the inclusion of online GSN Symposium Registration/GSN Bookstore pages. These two additions have taken the GSN web page a long way toward state-of-the-art sophistication. Both of these features were created by **Don Avery** of Mine Development Associates. Don will tell you that these pages are "no big deal, just a few lines of code." However, I can assure you that these features constitute an enormous amount of work and are of great value to GSN. The amount of volunteer work that Don did was only compounded by my overwriting his newly created files. Don took all this and other set backs in stride. I would like to thank Don for his efforts and I think the membership of GSN owes him a word of thanks as well. Great job Don!

Thanks to Bondar Clegg, Inc. for hosting the November Meeting



News and Announcements

GO FOR THE GOLD

Membership Directory Advertisers: Don't forget the deadline for advertising in the Gold Pages is December 18, 1999. The directory will be printed in January 2000 and will receive greater exposure this year because of the upcoming Symposium. Furthermore, Gold Page participation will be rewarded with a substantial discount on upcoming advertisement space on GSN's web page.

SYMPOSIUM ALUMNI EVENTS

Mario Desilets, GSN Web Committee

The Geological Society of Nevada Symposium: Geology and Ore Deposits - The Great Basin and Beyond, will be held May 15-18, 2000, in Reno/Sparks, Nevada. The Organizing Committee plans an Alumni Social Event for Tuesday, May 16, 2000. The event will be held from 6:00 pm to 9:00 pm in the plaza next to the Great Basin Brewing Company located at 846 Victorian Ave, Sparks, Nevada.

This event is intended to provide a venue for colleges and universities to bring together their alumni who are attending the symposium. This will be an excellent opportunity for attendees to meet and socialize with other alumni from around the country and the world.

There will be no charge for participating Universities and tables will be supplied where each participating University can disseminate information and meet alumni. A no host bar and food will be available at Great Basin Brewing Company. Scheduling information and lists of participating Universities will be included in the Program with Abstracts and be posted with scheduling information at the Nugget.

If you would like to participate in this Alumni Event please contact **Mario Desilets** at 775/784-6691x125 (desilets@unr.edu) or contact the Symposium office at 775/323-4569 (gnsymp@unr.edu) by January 1, 2000. For more information check out the Symposium web site at: www.gsnv.org

SYMPOSIUM 2000 CORE SHACK

Eric Struhsacker, GSN Symposium Committee

Openings remain for core shack and rock or mineral displays in the GSN Symposium 2000 program. Sessions featuring the Northern Nevada Rift, sediment-hosted gold deposits, and the biostratigraphy of Paleozoic in the Great Basin are being assembled. Other topics and displays supplementing oral presentations are welcome. For more information contact **Dick Hardyman**, 775/345-1570, rfh@gillis.reno.nv.us, or **Eric Struhsacker**, 775/352-3140, estruhsacker@homestake.com.

GSN MEMBERS WIN HONORS

Nevada Team Receives Top Honors for Innovative Web Site Creation in ThinkQuest Competition

A Nevada team with a focus on mining was recognized for their exceptional Web design at the ThinkQuest Awards Gala in Los Angeles on November 22, 1999. Members of the team include **Collette Craig**, science teacher at Reed High School; **Beth Price**, science teacher at O'Brien Middle School; **Lindsay Craig**, a student in the master's degree program in the College of Education at the University of Nevada, Reno; **John Fuetsch**, a Reno High School junior; and **Jon Price**, Nevada State Geologist, Director of the Nevada Bureau of Mines and Geology, and member of the Graduate Faculty in the Department of Geological Sciences at the Mackay School of Mines, University of Nevada, Reno. Collette and Lindsay have backgrounds in geology, and Beth has a background in chemistry.

Beth and Jon have been instructors in the Nevada Mining Association Teachers' Workshops, and Beth, with the help of **Dana Sue Kimbal** from Newmont Mining Corporation, has introduced mining-related activities into the Nevada version of the Operation Chemistry program of the American Chemical Society.

The team was given the first-place, Platinum Award in the ThinkQuest for Tomorrow's Teachers competition in the category of Materials for Use in Teacher Education. Their web site, titled the "Science of the Comstock" (<http://library.advanced.org/50041/>), provides content, activities, and lesson plans related to physics, chemistry, Earth science, and environmental science applied to the historically and industrially important mining on the Comstock.

The materials provided on the site can be used as a part of a traditional science course by selecting the relevant field of science, as part of an integrated science course in which a topic is chosen and the science involved is addressed, or even as a part of a multidisciplinary integrated course in which the relevance of a topic to society is studied through various academic disciplines such as science, social studies, and language arts. The team also hopes the materials on the site will be of interest to others who are curious about the natural and human history of the Comstock.

The Science of the Comstock team shared the top prize of \$75,000 in its category. Each team member received a check for \$15,000 at the awards ceremony. **Jon Price** donated \$10,000 to the University of Nevada, Reno Foundation to establish an endowment for Earth Science Outreach through the Nevada Bureau of Mines and Geology. The interest on this endowment will be used for educational outreach to teachers students, and the general public. Individuals who would like to add to this endowment may contact the UNR Foundation at 775/784-6622.

GSN December 15, 1999 Membership Meeting

Date: Wednesday, December 15
Time: Social-6:00, Dinner-7:00, Meeting-8:00
Cost: \$20.00 (dinner)
Reservations: phn 775/323-3500; fax 323-3599
or e-mail: gsn@mines.unr.edu
Deadline: Reserve by noon Monday, December 13

Location: Elks Lodge, 597 Kumle Lane, Reno, Nevada
Directions: Across (W) from the Reno-Sparks Convention Center (S Virginia St), located just behind the Les Schwab Tire Center
Speakers/topic: J. K. Cluer, Cameco (U.S.) Inc. See abstract below.

Bar Hosted by ALS Chemex

IS THERE A CARLIN TREND IN CENTRAL ASIA? EXCURSIONS IN THE KHAN KHENTII RANGE, MONGOLIA

J. K. Cluer, Cameco (U.S.) Inc.

This evening's talk will be a combination travel slide show introducing the landscape and culture of Mongolia and a brief discussion of the geologic setting and characteristics of a recently discovered sedimentary rock hosted gold district known as Zalaa Uul. Speculations about tectonic, magmatic and geophysical similarities with northern Nevada will be offered in direct proportion to pre-meeting beer consumption. The phrase "very similar to Carlin-type deposits" will be used not less than 20 times.

The 1998 Mongolia exploration program operated by Uranerz U.S.A., Inc., focused on two large concessions totaling nearly 2 million acres (about 0.75 Eureka Counties) in the Northeast Mongolia Mineral Belt. The concessions are located immediately south of the Siberian border in a broad range of mountains known as the Khan Khentii, and encompass the birth place of Chinggis Khan. Currently, the concessions comprise the Onon JV which consists of Uranerzbergbau GmbH as operator and the Mongolia Geological Group (MGG) as the underlying title owner.

From prior Mongolian and Russian exploration data the region was known to contain gold anomalies as free gold in panned concentrates, probably derived from "mesothermal" quartz veins in Upper Proterozoic (Riphean) greenschist basement rocks. However, there is no recorded gold production from the region. Uranerz focused on non-metamorphosed Paleozoic siliciclastic sedimentary rocks thought to have potential for large bulk tonnage "Carlin style" mineralization. Similar to the well known Carlin Trend history, several large gold-bearing occurrences were discovered that had no historic anomalies because the gold occurs as micron to sub-micron sized particles, invisible to Soviet-style exploration carried out during the 1970s and 1980s. Of these districts, Zalaa Uul rapidly rose to high priority for further exploration focus. This district is about 15 km long and 6 km wide and exhibits widespread silicified breccias (jasperoids) hosted in a Permian calc-sandstone to shale sequence, along a region-scale basalt-filled N60°E trending Early Cretaceous left-lateral strike slip/suture zone known as the Onon graben (see map), much like the Miocene Northern Nevada Rift. Portions of the district are covered by post mineral sediments of Cretaceous age.



continued on page 4

Detailed mapping and rock sampling along geological cross sections at Zalaa Uul district indicate Au grades of about 1 g/t in silicified breccias up to 100 m wide. Individual 5 m channel samples range up to ~3 g/t Au. Most mineralization is hosted in brecciated siltstone, shale and calcareous sandstone of the Permian Ulz Formation that exhibits multiple stages of silicification. Rock geochemistry indicates:

- 1) Au is strongly associated with As and Ag;
- 2) Sb, Te and Tl are present but spuriously correlated with Au;
- 3) Hg is strongly correlated with Cu, but shows no correlation with Au;
- 4) Ag: Au ratios are low (≤ 3);
- 5) base metals are present but not at substantially elevated levels.

Soil geochemistry and element zonation patterns suggest possible Cu-Au porphyry affinities where a low level Cu-(Hg-Sb, (Au-As) anomaly occurs over an hypothesized feeder breccia. The feeder breccia occupies a major NW dipping reverse-sense fault zone between dominantly greenschist-facies phyllite, schist and gneiss of the Upper Proterozoic Toshint Formation and unmetamorphosed rocks of the Ulz Formation. Ground magnetometer surveys identified a magnetic body, thought to represent part of an intrusive complex at depth, within the reverse fault zone down-plunge from the ~70° NW dipping feeder breccia outcrop. Altered rhyolite dikes crop out in the vicinity of the feeder breccia. The potentially economic gold grades at surface are 2 to 3 km outboard of the feeder breccia and may represent the laterally differentiated Au+As zone of a Cu-Au porphyry system. Alteration, structural and geophysical setting, host rocks and trace element geochemistry and disseminated nature of Au particle distribution are similar to Carlin-type Au systems in the Great Basin of western USA.

AIPG OUTLOOK

Kel Buchanan

AIPG announces The American Institute of Professional Geologists, Nevada Section, Seventh Exploration Outlook Dinner Meeting on December 14, 1999 at 6:00 pm (bar hosted by Eklund Drilling Co., Inc.). The meeting will be held at the Eldorado Hotel, 3rd and Sierra, in the Burgundy Room, Reno, NV.

Speakers will include: Don Birak, Anglo Gold; Greg Cox, Placer Dome; Dave Groves, Newmont; Dave Mako, Barrick; Ron Parratt, Homestake; Rick Vanderhorst, Cameco; and others from BMG, Meridian, EuroNevada, etc.

Cost per member, \$30; non-member, \$35; and students, \$20.

Contact **Kel Buchanan** for reservations, 775/786-4515.

HARDROCK MINING ON FEDERAL LANDS

Denise Jones, Executive Director, CMA

The California Mining Association, in conjunction with the CA State office of the Bureau of Land Management and the Northwest Mining Association, will host an informational briefing on the National Academy of Sciences Study, Hardrock Mining on Federal Lands. The briefing will be on December 14th, 10 am - 2 pm in the Capitol Bldg in Sacramento and will focus on the results of the study, and what it means in terms of CA law. A discussion and dialogue on future actions will complete the day. This meeting is open to all interested parties and you are encouraged to attend.

Copies of the study are available from CMA, One Capitol Mall, Ste 220, Sacramento, CA 95814, 916/447-1977.

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FREE CAREERS IN THE MINERALS INDUSTRY BOOKLET AVAILABLE

Leslie Shivers, SME Education

Littleton - The Society for Mining, Metallurgy and Exploration (SME), Inc. made its new career guidance booklet, *Careers in the Minerals Industry*, available free (first copy only). One on-line publisher found the booklet so relevant and informative that a section will be included in the SIRS Discoverer® electronic databases. Articles for the databases are selected on the basis of their "enduring value and historic impact."

The booklet was designed primarily for high school students and college freshmen, teachers, guidance counselors and parents. It offers answers to students' questions about careers in the mining/minerals industry and helps them determine whether to further explore the careers described.

The top ten benefits of a career in the industry are outlined. Job satisfaction, the chance to benefit society, and challenging work are described as the most important reasons to pursue a minerals industry career.

Order your free copy from SME Customer Service at 800/763-3132, 303/973-9550, or sme@smenet.org. Or order on-line at www.smenet.org. Additional copies are 60¢ each plus shipping and handling.

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16th ANNUAL MINING AND LAND RESOURCE INSTITUTE

The Institute is co-sponsored by the American Association of Professional Landmen and the Nevada Landmen's Association, March 16-17, 2000. Two full days of timely presentations are scheduled to include topics on many current issues affecting mining and other land use resources.

Contact The American Association of Professional Landmen, 817/847-7700, or for program information online go to www.nvlandman.org/malri.html.

SYMPOSIUM ADVERTISING

Elizabeth Zbinden, GSN Symposium Committee

Program with Abstracts


This volume will be approximately 100 pages, in 8 1/2 x 11" format, and will contain the schedule of symposium activities and events, general information, and abstracts of all the papers and posters to be presented. Program with Abstracts volumes are typically kept and referenced for years by the recipients so your advertisement will be seen repeatedly. We'll need copy of your ad by 1 March 2000.

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Elizabeth Zbinden, E_Zbinden@geology.reno.nv, or contact the GSN Symposium office at 775/323-4569, gsnsymp@unr.edu.

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MISCELLANEOUS

Thanks to the **Reno Gem and Mineral Society** for agreeing to provide display cases for the GSN Symposium's Mineral Exhibit.

We would like to extend a special Christmas wish to the gentle ladies she works with at the GSN office. Besides being nice people, they are excellent workers and consistently donate countless volunteer hours above and beyond their regular work schedule. Merry Christmas!

Bring on the mistletoe and give those guys a kiss! Thanks to **Greg Vaughan, Eric Ruud, and Chris Kelson** for lending a hand at the GSN booth at GSA's Denver convention. (Okay, so maybe I've embarrassed you fellows – but aren't you glad it's NOT St Patrick's day?)

Honorary Members **Bob Horton** and **Bill Johnston** continue to contribute to the student dinner fund on a regular basis, thus further exemplifying why they are so honored. Thank you good fellows.

Just because he looks like a fox and purrs like a kitten - doesn't make him a predator. When he's not enhancing the image of **Eklund Drilling** - he's quietly performing acts of kindness behind the scenes. Thanks **Marty D** for calling the office and offering to haul GSN's boxes of books to Spokane for the NWMC.

*Happy Holidays to all from the
 Executive Board and Staff of the GSN*

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TRIPS FOR KIDS

D.D. LaPointe, GSN Education Committee

Once again, GSN is helping to send hundreds of Nevada K-12 students to the field for a close-up look at the geology of the state during the school year. The GSN Educational Committee met in November to review 32 requests from elementary and secondary school teachers for Earth science field trip grants for the 1999-2000 school year.

Our field trip grant budget of \$5210 was enough to fully fund all but one application (that one was from a class already being funded for two other field trips). The requests approved came from schools in Washoe, Clark, Churchill, Lyon, Carson, Lincoln, and Humboldt Counties, and included 17 requests from "at risk" schools. The grants will help defray transportation costs for approximately 1318 students to participate in earth science-related field trips including visits to the Hazen and C & R Diatomite mines; Berlin-Ichthyosaur Park; Bodie; Kennecott-Rawhide Mine; Coeur-Rochester Mine; Red Rock State Park; Mono Lake; Yosemite; Pyramid Lake; Virginia City; the Mackay School of Mines Museum; UNR Seismology Lab and Planetarium; Sand Mountain and Grimes Point; the Sierra Nevada frontal fault system and Grover Hot Springs; Lone Tree Mine; Great Basin Park; and others.

Field trip grant applications were distributed to teachers throughout the year at many teacher workshops and open houses all over the state. If you know of a Nevada class that would benefit from an earth science field trip for next year, get an application from the GSN office or web site, give it to the teacher, and most importantly, volunteer YOUR time and expertise to help lead the trip and make it a great experience for all!

In Memoriam

We just received word of the passing of Joseph L. Bottaro, who died in his home (mid July) in Windsor, England. He was 45. Bottaro, a geologist, worked in Nevada, California, Colorado, Yukon Territory and Zambia. At the time of his death he was working with Halliburton Corp, drilling for oil in the Gulf of Mexico and in the North Sea off Scotland. Address information was not made available.

GSN SYMPOSIUM REGISTRATION

Registration materials now available on our web site for the Geological Society of Nevada Symposium 2000, Geology and Ore Deposits 2000: The Great Basin and Beyond, May 15-18, 2000 in Reno, NV, USA, www.gsnv.org

UP-COMING EVENTS

Dec 7 AGS Dinner Meeting at Tucson, AZ. Jim Sell, History of Arizona Geological Society. Social-6:00, dinner-7:00, talk-8:00. Res 520/770-3500

Dec 14 AIPG, The American Inst of Professional Geol, NV Sect, 7th Exploration Outlook Dinner Meeting at Reno, NV. K Buchanan, 775/786-4515

Dec 14 CMA, BLM, & NWMA, Nat'l Academy of Sci Study, Hardrock Mining on Federal Lands at Sacramento, CA. 916/447-1977

Dec 15 GSN Meeting and Christmas Party at Reno, NV. J K Cluer, Cameco (U.S.) Inc., Is there a Carlin Trend in Central Asia? Excursions in the Khan Khentii Range, Mongolia. 775/323-3500, gsn@mines.unr.edu

Dec 16 GSN Elko Chapt Meeting at Elko, NV, Keith Bettles, Barrick Gold, Archean Gold Deposits of Australia. J Pontius, 775/358-4336, jpon-tius@mail.imc-i.com

Dec 17 GSN Sym 2000 Meeting at Reno, NV. C Reimann, 775/358-4336

Jan 4 AGS Dinner Meeting at Tucson, AZ. Eric Jensen, Cripple Creek Gold District, CO. Social-6:00, dinner-7:00, talk-8:00. Res 520/770-3500

Jan 10 DREGS Meeting at Golden, CO. dregs@dregs.org

Jan 20 GSN SNC Meeting at Las Vegas, NV. John F Stamm, Western State Univ, Gunnison, CO, Stream Restoration and the Importance of Bankfull Discharge. K Goebel, 702/263-7600, or J Cline, 702/895-1091

Jan 11 AEG SW Section, LV Subsection Meeting at Las Vegas, NV. Rick Orndorff, UNLV, Spatially Distributed Hydrologic Model for the Las Vegas Valley. Social-5:30, dinner-6:30, talk-7:30. Res D Blatchford, 702/251-5449

Jan 20-23 GSA Int'l Conf on Environmental Modeling & Simulation at San Diego, CA. Jin-Yi Yu, 310/206-3743, yu@atmos.ucla.edu

Jan 22-26 ExpoMasters, Inc. China & East Asia 2000 Mineral & Energy Resources Symposium at Denver, CO. M Cramer, 303/771-2000, mcramer@expomasters.com

Jan 25-28 B.C. and Yukon Chamber of Mines 17th Annual Cordilleran Geology and Exploration Roundup at Vancouver, British Columbia. 604/681-5328, www.bc-mining-house.com

Feb 23-24 OK Geological Survey Petroleum Systems of Sedimentary Basins in the Southern Midcontinent at Norman, OK. 405/325-3031 or 800/330-3996

Feb 13-16 Int'l Soc of Explosives Engineers 26th Annual Conf at Anaheim, CA. 440/349-4004, www.isee.org

Feb 28-Mar 1 SEG-SME Annual Meeting, New Frontiers in Mining at Salt Lake City, UT. 800/763-3132

Mar 5-10 PDAC Mining Millennium 2000 at Toronto, Ontario, Canada. 416/362-1969, www.miningmillennium.org

Mar 16-17 16th Annual Mining & Land Resource Inst at Reno, NV. 817/847-7700, www.nvlandman.org/malri.html

Mar 16-18 Nat'l Mining Assn Annual Meeting at Naples, FL. J Wilson, 202/463-2651

May 8-12 CMA CA Mining 2000: The Odyssey Continues at Palm Springs, CA. 916/447-1977

May 15-18 Geology & Ore Deposits 2000 - The Great Basin and Beyond, A GSN Symposium at Reno/Sparks, NV. 775/323-3500, gsn symp@unr.edu, visit our web site at: www.gsnv.org

Apr 27-29 GSA Cordilleran Section 96th Annual Meeting at Vancouver, B.C. Abstracts-303/447-2020, x161, ncarlson@geosociety.org. Technical program-B Struik, 604/666-6413, bstruik@gsc.nrcan.gc.ca, D. Allen, 604/291-3967, dallen@sfu.ca, or D Thorkelson, 604/291-5390, dthorkel@sfu.ca

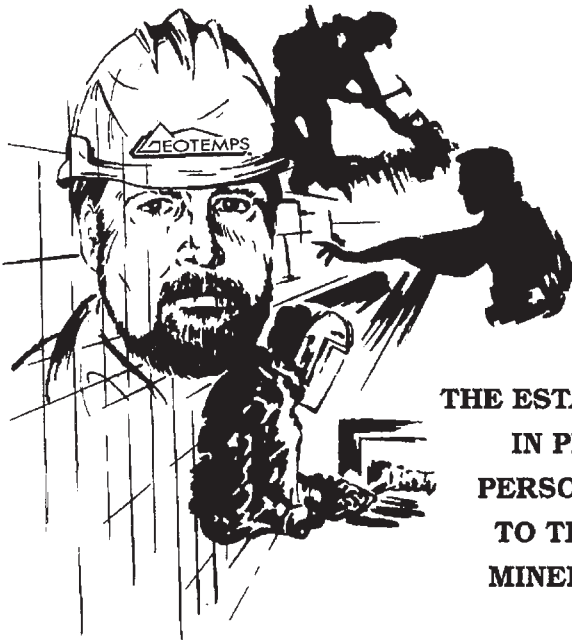
July 11-13 N American Quarry Show at Jamesville, NY. 518/673-3237, quarry@telenet.net

July 31-Aug 3 Pacific Rocks 2000, the Fourth North American Rock Mechanics Symp at Seattle, WA. M Cramer, 303/771-2000, mcramer@expomasters.com



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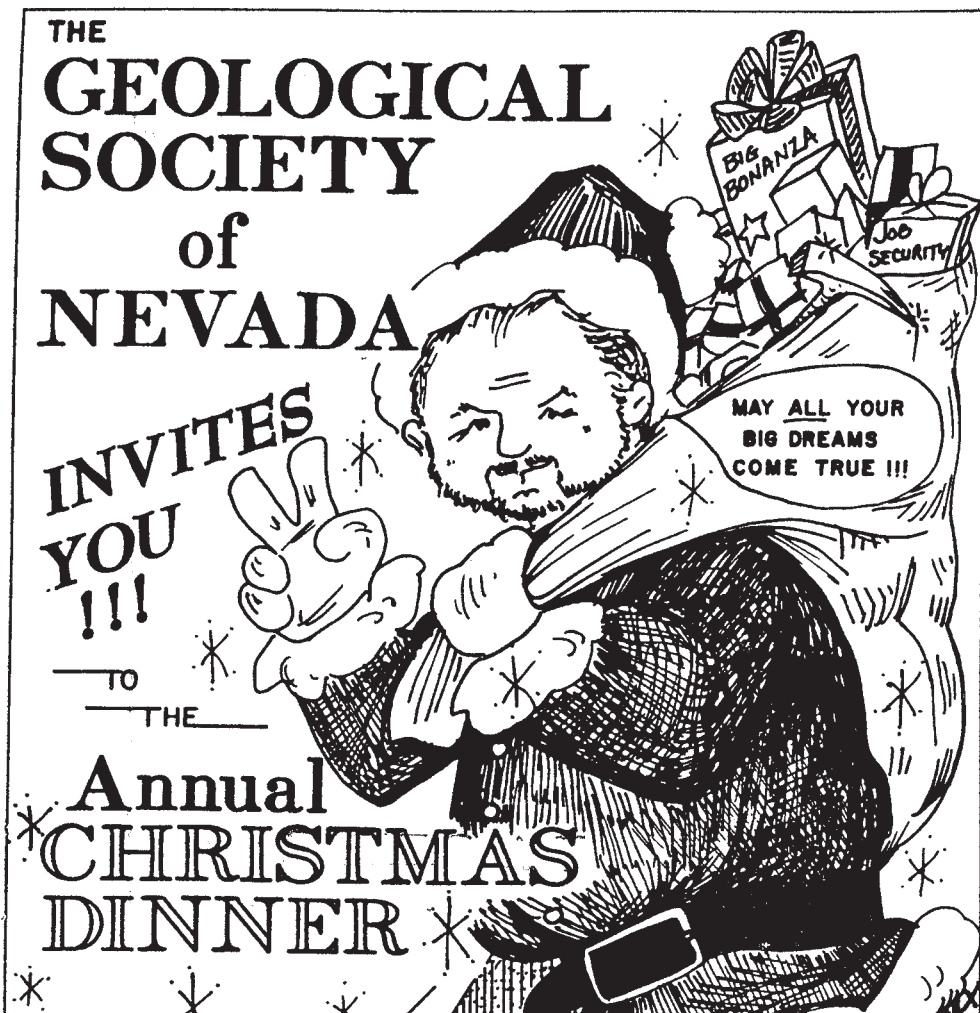


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GSN CHRISTMAS PARTY

Aye lads and lassies, this year's December Membership Meeting and Christmas Dinner will include a couple very special visitors (from far away and long ago) with a curiously delightful point of view about the early days of mining, miners, and in particular, the California Gold Rush. **Marty Dennis** of Eklund Drilling has graciously offered to sponsor this bit o' Christmas cheer. Our speaker, **Kelly Cluer**, plans an entertaining presentation, suitable for members and spouses alike. And ALS Chemex will be providing the libations.

So mark your calendars for Wednesday, December 15th, plan to bring your favorite guest, hold on to your hats, and prepare yourselves for a frolicking good time!

Above: Another in the series of Peg O'Malley's Resurrected Cartoons. How many of you GSN old-timers recognize this Santa? Come join the fun, Wednesday, Dec 15th.