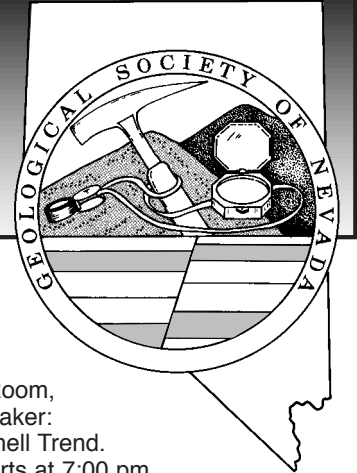


GSN NEWSLETTER



November 2002, Vol. 16, No. 9

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CALENDAR OF EVENTS

**Nov 7
Thursday**

WINNEMUCCA CHAPTER MEETING: Humboldt Room, Red Lion Hotel and Casino, Winnemucca, NV. Speaker: Robin Ten Brink. Topic: Igneous Rocks in the Getchell Trend. Refreshments start at 6:30 pm and the meeting starts at 7:00 pm. Contact Sheila Bunch, 775/623-0202, sbunch@lambdacom.com.

**Nov 11
Monday**

SOUTHERN NEVADA CHAPTER MEETING: This meeting will be in conjunction with the AEG at their venue (to be determined) in Las Vegas, NV. Speaker: Cathy Snelson, UNLV. Title: "Las Vegas Basin Seismic Response Project: Preliminary Results From Seismic Refraction Experiments, Las Vegas, NV." Contact Jean Cline, 702/895-1091, for location and time.

**Nov 15
Friday**

GSN MEMBERSHIP MEETING: Reno Elks Lodge, Reno, NV. Speaker: Jon A. Carlson, BHP Billiton Diamonds Inc. Title: "The Ekati Diamond Mine™ - Canada's New Shining Star." Call the GSN office for dinner reservations, 775/323-3500.

**Nov 21
Thursday**

ELKO CHAPTER MEETING: Western Folklife Center. Speaker and topic to be announced. Social begins at 6:30 pm and talk at 7 pm. Contact Marcus Johnston for more information, 775/778-4036.

THIS IS YOUR LAST NEWSLETTER IF YOUR ADDRESS HAS A 9/02 DATE.

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

Calendar of Student Posters

November 15, 2002, GSN Meeting

Tim Hall

"Applications of Biostratigraphy to Speculative Mineral Exploration in the Roberts Mountains Allocthon, Nevada"

Andy Ten Brink

"Active Tectonism Since 8Ma in the Sierra Nevada Basin and Range Transition Zone, Lassen County, CA"

R. Greg Vaughn, Wendy M. Calvin, and Simon J. Hook

"Thermal Infrared Surface Mineral Mapping at Steamboat Springs, NV: Comparison of Airborne and Field Spectral Measurements"



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News and Announcements

FROM THE PRESIDENT

Bob Thomas, GSN President 2002-2003

Greetings! The year is officially underway with the October kickoff dinner meeting in the books. **Bob Leonardson** of Barrick gave a truly informative presentation on the geology of Barrick's **Pascua-Lama-Veladero** gold-silver deposit. The presentation included much detailed data on the mineralogical and alteration aspects of this large hydrothermal system. Bob spent 3 years on the Pascua-Lama portion of the project leading an effort to construct a geological model, and his team's work showed in this presentation. If I remember his meter figures correctly, they translated into 31 miles of drill hole material being relogged in this effort. Great work, Bob, and thanks. As an aside, a related and pertinent article appeared in the recent August SEG bulletin, which relates geomorphology to the epithermal processes which produced the big gold (silver-copper) deposits in the El Indio-Pascua belt. I mention this because the material undoubtedly has applications to our similar geologic and climatic environment in the Great Basin.

One final thought on the October meeting - thank you again to **Eklund Drilling** and Marty Dennis for their generous sponsorship of the pre-dinner social hour.

The meeting was just the start of a busy weekend that had approximately forty something folks participate in the fall field trip which visited precious metal mines and prospects of the Humboldt Range. Vice President Clancy Wendt organized the trip, and we benefited from excellent presentations from the geologic staffs at **Florida Canyon/Standard** and **Coeur Rochester**. We even got a chance to collect some dumortierite-andalusite decorative stone at the Lincoln Hill gold prospect west of Rochester.

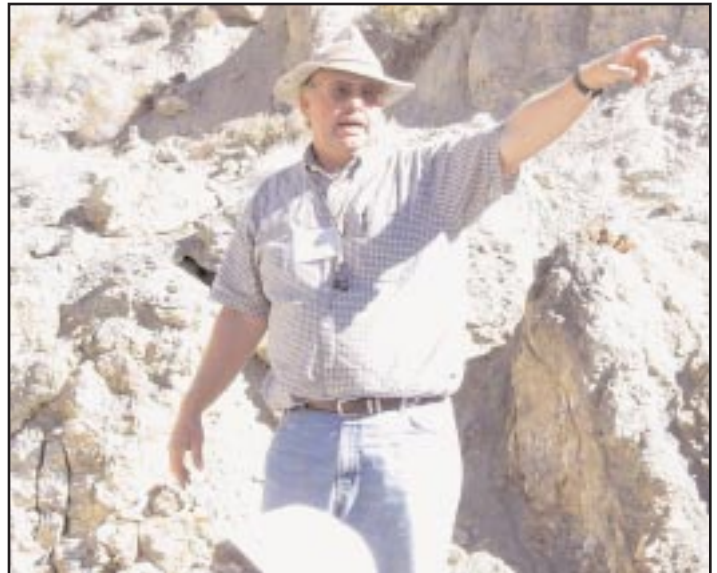
The **GSN Symposium 2005** appears to be developing steam, judging from the October organizing committee meeting. The basic structure of the 4-day program has been outlined, most, but not all of the committees have co-chairs, and we seem to be on our way. Volunteers are still needed to ensure that this event runs smoothly (see page 6 in this newsletter).

Finally, a bittersweet note. **Laura Ruud** will be leaving us as office manager on November 1 to take a full-time position with the Nevada Bureau of Mines and Geology. Fortunately for us, she has agreed to continue her role as bookkeeper, no small task for an organization with 880 plus members. Laura has set a very high standard for future office managers with her talent, dedication, enthusiasm and pleasant approach to the job. Our loss will definitely be NBMG's gain. Thanks Laura, for the wonderful job that you've done, and we wish you the best of luck! (By the time you receive this newsletter, we will hopefully have filled the office manager's job, however if anyone out there is interested in this part time position, please call GSN at 775-323-3500 or email at gsn@mines.unr.edu)

FALL FIELD TRIP – HUGE SUCCESS

Clancy Wendt, GSN Vice President

The Fall Field Trip went off with only minor mishaps. It is the first time I ever had to break into a prospect. The weather could not have been better and the geology cooperated in being very interesting. The Florida Canyon Mining Company (**Richard Larsen and Robert Thomason**) and Coeur Rochester Mine people (**David Harvey**) were very informative and helpful. They went out of their way to show us a very interesting and informative time. We want to thank **ALS Chemex** for all the refreshments during the day, and



RICHARD LARSEN

American Assay Laboratories and **Inspectorate America, Inc.** for buying the lunches. **Eklund Drilling Company** rounded off the evening with the pre and dinner libations. We are very lucky to have such good sponsors during these times. Now everyone go out and use them. We are looking for the "best" trip ever for the Spring and if anyone has suggestions please let me know.



DAVID HARVEY

Thanks to Eklund Drilling for hosting the October meeting.

GSN November 15, 2002 Membership Meeting

Date: Friday, November 15, 2002

Time: Social-6:00, Dinner-7:00 (\$17.00), Meeting-8:00

Reservations: 775/323-3500; fax 323-3599,
e-mail gsn@mines.unr.edu

Deadline: Reserve by noon Wednesday, November 13

Location: Elks Lodge, 597 Kumle Lane, Reno, NV

Directions: Across (W) from the Reno-Sparks Convention Center (S Virginia St), behind the Les Schwab Tire Center

Speakers/topic: Jon A. Carlson, BHP Billiton Diamonds Inc.
See abstract below.

THE EKATI DIAMOND MINE™ - CANADA'S NEW SHINING STAR

Jon A. Carlson, BHP Billiton Diamonds Inc.

The 2001 global rough diamond production totaled 119 million carats valued at approximately US\$7.9 billion (Rombouts, 2002). The Ekati Diamond Mine™ provided Canada's contribution of 3.7 million carats valued at approximately US\$450 million. This equates to about 3% by weight and 5% by value of world production.

The Ekati Diamond Mine™, commenced operation in October 1998. BHP Billiton Diamonds Inc., operates the mine and is part of BHP Billiton, which is headquartered in Melbourne, Australia. The mine is located 300 km northeast of Yellowknife and 200 km south of the Arctic Circle in the Northwest Territories of Canada. The site is located in a remote tundra area of continuous permafrost, north of tree line, which is part of the Canadian Shield.

The mining area and facilities lie within 10,960 ha land leases and the total claim block covers approximately 3,400 km². As of June 2002, 146 kimberlite occurrences had been identified within the claims. Six kimberlite pipes provide the basis for the present mine plan. Total reserves as of June 2002 are 52.8 million carats from 58.2 million tonnes of kimberlite (average grade of 0.9 carats per tonne).

The largest staking rush in Canadian mining history was initiated by the discovery of diamonds in the Point Lake kimberlite pipe in late 1991. The discovery was the result of systematic heavy mineral sampling over a ten year period and covered an east-west distance of more than 1000 kilometers. The discovery of the Point Lake pipe, largely through the efforts of Canadian prospector and geologist, Chuck Fipke is now firmly established in Canadian mining lore.

In August 1990, BHP executed an agreement to join the exploration and development of diamond on tenements then held by the Blackwater Partners (Dia Met Minerals, Fipke and Blusson). Analytical work by Dr. John Gurney established that certain garnets (e.g. G10's) that were recovered in some of the early samples were indicative of strongly diamondiferous source rocks. Exploration started that fall and consisted of the collection of a large number of till and esker samples in the claim block. BHP geophysicists completed a ground based electromagnetic (EM), magnetic and gravity survey in early 1991. Their work identified a substantial conductor under Point Lake with a coincident negative gravity anomaly. On the basis of that survey a geophysical contractor was engaged to fly a limited airborne EM and magnetic survey of Point Lake and the surrounding area in late April 1991. The survey confirmed that the geophysical response under Point Lake was significant and should be drill tested. It also established the effectiveness of helicopter towed geophysical systems in kimberlite prospecting in the arctic environment.

The discovery hole at Point Lake was collared in September 1991. The ensuing announcement that diamonds had been recovered from kimberlite core sparked the historical staking rush. Within several years, nearly the entire Slave craton had been staked for diamonds. Since the discovery of the Point Lake pipe in 1991, more than 300 kimberlite occurrences have been found in the Slave Province. The majority of the occurrences are located in the Lac de Gras region of the central Slave Craton. Smaller kimberlite clusters are distributed around this central region.

The NWT kimberlites intrude the Slave Structural Province, one of several Archean cratons, that collectively constitute the nucleus around which the North American continent evolved. The Slave is a relatively small craton (180,000 km²) with an extensive and unique history. In addition to containing the earth's oldest known rocks (3.96 Ga), the Slave differs significantly from younger Archean granite-greenstone terranes in its constituent rocks and contacts with bordering Proterozoic orogenic belts.

The Slave craton is composed predominantly of granites, migmatite gneisses and metasedimentary schists in three main Archean domains: an ancient crustal domain to the west, a younger juvenile domain to the east, and a central accretionary domain. Kimberlite occurrences are concentrated in the central domain (Contwoyto terrane) which can be divided into three broad lithostratigraphic groups: metasedimentary schists, migmatites and various syn- and post-tectonic intrusive complexes. Five Proterozoic diabase dyke swarms with ages varying from 2.4-1.27 Ga intrude the Archean rocks. The diabase and gabbro dykes vary in width from 5 m to 100 m and are often continuous for hundreds of kilometers.

Exploration and development of kimberlites of the Lac de Gras field over the last decade has shown that, in several respects, these bodies do not conform to current models of kimberlite pipe emplacement and geology. At Ekati, which straddles a significant proportion of the Lac de Gras field, a total of nearly 150 kimberlites have been discovered to date.

continued

ABSTRACT continued

With few exceptions, these have been intersected by at least one diamond drill hole and, for a significant number of pipes, extensive delineation drilling and/or development has been undertaken, providing a large amount of information relating to the geological characteristics of these intrusions.

The Ekati kimberlites generally occur as relatively small (up to 16 ha, but generally less than 5 ha) steep sided pipes. In some cases pipe outlines appear to be roughly circular to elliptical in shape but, more commonly, intrusion geometries are complex and irregular, often with clearly evident fault control. Pipe walls typically taper inwards with depth at angles ranging from approximately 75 to 85 degrees but a number of kimberlites display overhanging pipe margins.

The Ekati pipes are typically occupied almost exclusively by apparent extrusive volcanoclastic kimberlite. No root zones have been intersected to date and, with one possible exception, the pipes are devoid of tuffisitic kimberlite breccia, as defined in models for southern African style kimberlites. A small number of pipes are either partially or completely occupied by magmatic kimberlite. The volcanoclastic infill material includes both primary and resedimented types that display a wide variety of internal structural features. In general, these rocks contain only minor quantities (from < 1 to 5 %) of crustal xenoliths (primarily granitoids and mudstone, less commonly biotite schist and quartz arenite) but breccias are present locally. Variably carbonized wood fragments and dark carbonaceous mudstone and siltstone material (both as discrete lithic clasts and as disaggregated matrix material) are ubiquitous and suggest incorporation of significant quantities of surficial material to considerable depths within the majority of pipes. Magmatic kimberlite commonly occurs as peripheral narrow dykes.

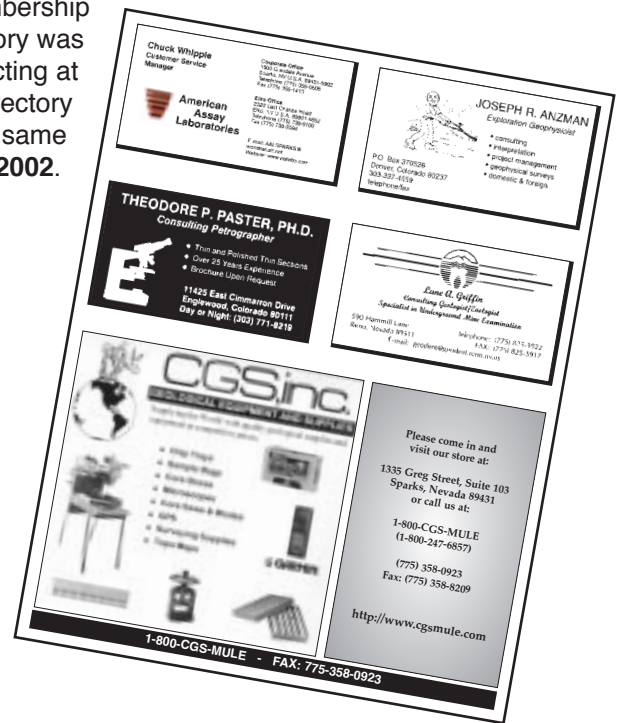
A sustained exploration effort on the Ekati property, since the approval of the mine in 1996, has increased value of the asset. Success has come through the discovery of new deposits and the re-evaluation of existing ones. Seventy-nine of the Ekati kimberlite discoveries have been made since the approval of the mine. New discoveries are the result of new exploration technology (e.g. BHP's Falcon airborne gravity gradiometer), rigorous interpretation of old data, acquisition of new data, advances in numerical modeling, and data integration.

The future position of Canada as a world class producer of diamonds has been established by development of the Ekati diamond mine™.

DIRECTORY ADS – GOLD PAGES

It is time to get your advertisements in for the 2002/2003 Membership Directory. Don't miss this opportunity to reach your clients. The Directory was distributed to approximately 875 members last year and we are projecting at least the same number of members for the current fiscal year. The Directory will be put together in December 2002 and advertising rates are the same as last year. Deadline for payment and ad copy is **November 30, 2002**. Prices are as follows:

2" x 3 1/2"	Business Card – Horizontal	\$ 50.00
3 1/2" x 5"	Quarter Page – Vertical	150.00
5" x 7"	Half Page – Horizontal	200.00
3 1/2" x 10"	Half Page – Vertical	200.00
7" x 10"	Full Page – Vertical (Gold Pages)	400.00
7" x 10"	Opposite, Inside Back Cover – Vertical	550.00
7" x 10"	Inside Back Cover – Vertical	650.00
7" x 10"	Inside Front Cover – Vertical	750.00
7" x 10"	Outside Back Cover – Vertical	850.00



As in the past, the first complete payment received in the GSN office for a requested location will be assigned that location. Please contact the GSN Office, 775/323-3500, or Greg French, GSN Membership Chairman, at 775/856-2422 for more information or to obtain a form.

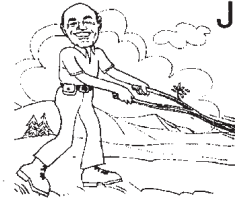
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GSN Newsletter Monthly Advertising Rates

Business card size (3 1/2 x 2")	\$ 50.00
Quarter page (3 1/2 x 4 3/4")	150.00
Half page (4 3/4 x 7 1/2")	300.00

Classified ads \$10/line
 (up to business card size)

For an advertising form, call the GSN office at 775/323-3500 or fax 775/323-3599. Camera-ready ads must be received by the 20th of the month to appear in the following month's newsletter.

DONATIONS NEEDED FOR THE 3RD ANNUAL FOUNDATION ROCK RAFFLE!

The Geological Society of Nevada Foundation will be having a Rock Raffle fundraiser at the GSN annual Christmas meeting, December 18th, 2002. We are seeking donations of any items suitable for raffle: attractive rocks, fossils, or mineral samples, wine or other spirits, logo items, geological equipment or publications, commemorative coins, books, cakes, gift baskets, or any geology or mining-related items will be gratefully accepted.

The raffle proceeds will be applied to the GSN Foundation's unrestricted fund to benefit GSN's educational projects which include grants to Nevada K-12 classes for transportation on earth science related field trips, scholarships to UNR & UNLV geology students, grants to the UNR DeLaMare Library, and grants for geologic mapping in NV.

Please send donated items to D.D. LaPointe at the following address to arrive before Dec. 17th, or drop them off at NBMG, or call to arrange pick-up of donated items if you are in the Reno-Sparks-Carson City area. Please let me know if you would like a receipt for the value of your tax-deductible donated items.

Thank you! D.D. LaPointe, GSN Educational Committee Co-Chair and GSN Foundation Trustee, NBMG/MS178, Room 314, Scrugham Engineering/Mines Bldg, UNR, Reno, NV, 784-6691, ext 134.

The GSN Foundation wishes to thank the following donors for adding a donation to their membership renewals this month. Your generosity is very much appreciated!

"Donor" Level

Ken Ainsworth – Coarsegold, CA
William Berridge – Wickenburg, AZ
Elizabeth and Tom Crafford – Anchorage, AK
Rachel Dolbier – Reno, NV
Dieter Krewedl – Coeur d'Alene, ID
Kendall Sageser – Corrales, NM
Elizabeth Zbinden – Reno, NV
Pamela Zohar – Elko, NV

AIPG 13TH ANNUAL ROUNDUP DINNER

Please join the AIPG as they hold their "13th Annual Exploration Roundup Dinner and Symposium." Ten mining companies will review their proposed 2003 exploration budgets. The Round-up will be held at the Eldorado Hotel from 6:00 – 10:00 p.m., including dinner and hosted bar. Cost is \$35 for GSN and AIPG members. Contact Kel Buchanan, 775/786-4515, email summitcrk@aol.com, for reservations. Door prize is courtesy of **Mark Stock** and the bar will be hosted by **Eklund Drilling Company, Inc.**

GSN PICNIC – FUN FOR ALL

The Annual GSN Picnic was held Sunday, September 29th and everyone who attended had plenty of food, fun, and sun. We welcomed Steve Castor back to the Head Chef position and he came through as usual with plenty of perfectly grilled pork loin and tri-tip. Rachel Dolbier, our new Co-chair of the Education Committee, took on the task this year of organizing the whole thing and she did a fine job. Jon Price was the organizer of the games again where the competition in the adult games was fierce. Our GSN President, Bob Thomas, won first place in the gold pan toss



Glenn Marshall, ALS Chemex, and daughter.

and Jon Price came in first in the dangerous event of hammer throwing (dangerous for bystanders, that is!). Jon and the Nevada Bureau of Mines & Geology donated prizes for the top three winners of those competitions. Thank you Jon! Richard DeLong and his daughter Anna, unseated long-time champions, Alan and Chris Coyner in the Egg Toss event and Laura Ruud and her son, Alex, took top honors in the three-legged race. My favorite event to watch is the Sample Sack Race where only the bravest hop to the line and back. Joe Polovina won out over Liz Crafford in that race by just a nose. Of course we must thank **The Great Basin Brewing Company** who generously donated the beer for the event. The Education Committee is to be commended for another successful event!

NEVADA BUREAU OF MINES AND GEOLOGY NEW PUBLS

The following items are now available at the Nevada Bureau of Mines and Geology:

M132 – Geologic map of the White Horse Pass area, Elko County, Nevada - \$33.00

P-13 – Major mines of Nevada 2001 - \$3.00 or free at www.nbmgs.unr.edu/mm01.pdf

SP32 – The U.S. gold industry 2001 - \$10.00 or free at www.nbmgs.unr.edu/sp32.pdf

SP6 – Mining claim procedures for Nevada prospectors and miners, new 5th edition coming in September or free now at www.nbmgs.unr.edu/sp6

National Geographic Seamless USGS Topographic Maps on CD-ROM for Nevada

For more information, please call: NBMG Publication Sales, 775/784-6691 x2, www.nbmgs.unr.edu

UP-COMING EVENTS

Nov 7, Thursday – WINNEMUCCA CHAPTER MEETING: Humboldt Room, Red Lion Hotel and Casino, Winnemucca, NV. Speaker: Robin Ten Brink. Topic: "Igneous Rocks in the Getchell Trend." Refreshments start at 6:30 pm and the meeting starts at 7:00 pm. Sheila Bunch, 775/623-0202, sbunch@lambdacom.com.

Nov 8, Friday - Northern NV Section of SME, Monthly Meeting: Bonanza Inn, 4720 N. Virginia, Reno, NV. Speaker: Jonathan G. Price, Ph.D, Director/State Geologist, Nevada Bureau of Mines and Geology, UNR, Reno, NV. Title: "What the Nevada Bureau of Mines and Geology Does for You." The meeting commences at noon with lunch followed by the professional program at 12:30 P.M. Cost for lunch is \$15.00. all Dan Rovig for more information, 775/746-0252, drovig@charter.net.mines.unr.edu

Nov 11, Monday – SOUTHERN NEVADA CHAPTER MEETING: This meeting will be in conjunction with the AEG at their venue (to be determined) in Las Vegas, NV. Speaker: Cathy Snelson, UNLV. Title: "Las Vegas Basin Seismic Response Project: Preliminary Results From Seismic Refraction Experiments, Las Vegas, NV." Contact Jean Cline, 702/895-1091, for location and time.

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Nov 21, Thursday – ELKO CHAPTER MEETING: Western Folklife Center. Speaker and topic to be announced. Social begins at 6:30 pm. and talk at 7 pm. Contact Marcus Johnston for more information, 775/778-4036.

Nov 4-8 – Alaska Miners' Association Annual Convention & Trade Show, Sheraton Hotel, Anchorage, Alaska. Tel: 907/563-9229. Fax: 907/563-9225. Email: ama@alaskaminers.org or Website: www.alaskaminers.org.

Nov 14-16 – Manitoba Mining & Minerals Convention 2002, Winnipeg Conv Centre, Winnipeg, Manitoba. Manitoba Industry, Trade & Mines. 204/945-8093. Fax: 204/945-8427. Email: convention@gov.mb.ca or Website: www.mineralsconvention.com.

Nov 20-21 – Workshop on Modeling Complex Systems, Reid Engineering Laboratory Conference Facility, University of Nevada, Reno. There will be 2 keynote speakers: Stuart Kauffman: "Molecular Autonomous Agents: A Possible Definition of Life, And a Possible Technological Revolution," and Stephen Wolfram: "A New Kind of Science." Lisa Stillings, USGS, Reno Field Office, 775/784-5803, <http://minerals.usgs.gov/west/seminar.shtml>.

Dec 2-6 – Northwest Mining Association 108th Annual Meeting, Doubletree Hotel, City Center, Spokane, Washington. Tel: 509/624-1158. Fax: 509/623-1241. Email: nwma@nwma.org or Website: www.nwma.org.

Dec 17 – AIPG 13th Annual Exploration Roundup Dinner and Symposium, Eldorado Hotel, 6-10 pm, \$35 for GSN and AIPG members (includes dinner and hosted bar). Kel Buchanan, 775/786-4515, summitcrk@aol.com for reservations.

Dec 18, Wednesday – GSN CHRISTMAS MEETING: Reno Elks Lodge, Reno, NV. Speaker: Steve Castor, Nevada Bureau of Mines & Geology, UNR, Reno, NV. Topic: "Minerals of Nevada." Call the GSN office for dinner reservations, 775/323-3500.

GEOLOGICAL SOCIETY OF NEVADA SYMPOSIUM 2005

WINDOW TO THE WORLD

**Sunday, May 15, to
Wednesday, May 18, 2005**

plus pre- and post-meeting field trips and
short courses

Sparks, Nevada

The theme for the symposium, Window to the World, emphasizes the worldwide nature of mineral exploration and mining. Windows through the Roberts Mountains thrust connect the theme to Nevada and its role as a leading producer of gold (from a variety of world-class ore deposits, including Carlin-type, volcanic rock-hosted epithermal, porphyry, and skarn deposits), silver, other metals, and industrial minerals. Hallmarks of previous GSN symposia have been excellent oral and poster presentations and follow-up published volumes that emphasize the descriptive aspects of ore deposits and new ideas on how they formed, why they occur where they occur, and how to find them. A day dedicated to geology, tectonics, and ore deposits of the Great Basin will be followed by two days focused on exciting aspects of exploration and development in other parts of the world, and one day on special topics.

Volunteers Are Needed!

Please contact Jon Price (jprice@unr.edu, 784-6691x126) or Eric Ruud (ericruud@reno.rmci.net, 843-3424, cell) if you would like to volunteer to help with one or more of the following activities:

- Budget and Cost Tracking
- Editing
- Exhibits
- Facilities
- Field Trips
- Fundraising and Advertising
- Posters and Core Shack
- Publications (Program with Abstracts, Symposium Proceedings, Field-Trip Guidebooks)
- Publicity
- Registration
- Short Courses
- Social Events
- Technical Program
- Web

Thank you to everyone who has already volunteered and we look forward to having more volunteers come to our next meeting on Wednesday, December 18, 2002 from Noon to 1:30 pm. at the University Inn, across Virginia St from the UNR Campus.

GEOLOGICAL SOCIETY OF NEVADA



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