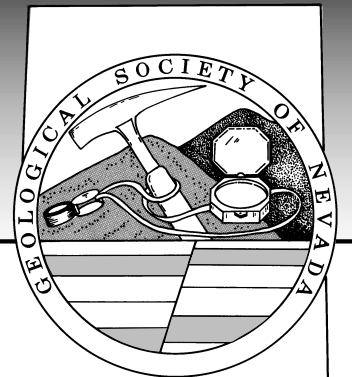


# GSN NEWSLETTER



January 2004, Vol. 18, No. 1

## CALENDAR OF EVENTS

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**Jan 14<sup>th</sup>**  
**Wednesday**

**WINNEMUCCA CHAPTER MEETING:** Humboldt Room, Red Lion Hotel and Casino, Winnemucca, NV. Speaker: Stephen B. Castor, Nevada Bureau of Mines and Geology, University of Nevada, Reno, NV, "The Tuscarora Au-Ag District: Eocene Volcanic-Hosted Epithermal Deposits in the Carlin Gold Region, NV." Refreshments start at 6:30 pm and the meeting starts at 7:00 pm. Sponsor is Conners Drilling. Contact Fred Breit 775-635-4704 (days) or Fred Holzel 775-625-4658 (evenings).

**Jan. 16<sup>th</sup>**  
**Friday**

**GSN MEMBERSHIP MEETING:** Reno Elks Lodge, Reno, NV. Speaker: Dieter Krewedl, Senior Vice President of Exploration, Coeur d'Alene Mines Corporation, "Discovery and Geology of the Cerro Bayo and Martha Low Sulfidation Epithermal Gold-Silver Deposits, Southern Chile-Argentina." Social hour at 6 pm; dinner at 7 pm, and talk at 8 pm. Please contact Shannon Fitzpatrick at 775/323-3500 or gsn@mines.unr.edu.

**TBA**

**ELKO CHAPTER MEETING:** Western Folklife Center, Elko, NV. Speaker: To be announced. Refreshments at 6:30 pm, presentation at 7:00 pm. Contact Steve Kulinski for more information, 775/778-8867.

**TBA**

**SOUTHERN NEVADA CHAPTER MEETING:** Room 102, Lily Fong Geoscience Building, UNLV, Las Vegas, NV. Speaker and topic to be announced. Social with food and drink at 5:30 pm; talk at 6:30 pm. Contact Melissa Hicks at 702/895-1162 or hicksm@unlv.nevada.edu.

**GSN Newsletter is published monthly except June and July**  
Geological Society of Nevada, PO Box 13375, Reno, NV 89507 USA, 775/323-3500, www.gsnv.org

*Happy New Year Everyone!*

## FROM THE PRESIDENT

Clancy Wendt, *GSN President 2003-2004*

Feliz Navidad y Ano Nuevo- Happy New Year and a belated Merry Christmas. The Christmas Dinner was a great success with over one hundred fifty people attending, a new record. We all enjoyed our speaker John Tyson, well-known local figure and Nevada Historian. A big thanks to **ALS Chemex**, to **Greg French**, Consulting Geologist, and to **Dave Knight** of **Carlin Trend Mining Services** for co-sponsoring the social hour.

The raffle and silent auction that preceded the dinner was an unqualified success. We raised over \$4,500, another record. We all appreciate our tireless worker, D.D. LaPointe for making the event so tremendously successful. The donors that gave the numerous prizes are also due big thanks as are the people who have donated to the foundation with their membership dues. We are heading for a record year in donations and fund raising. Thank you all for your generosity. Remember these donations are tax deductible.

The New Year appears to be heading for a boom in new hires. There are four new presidents of Canadian Juniors here in Reno. The first is Ken Cunningham with Miranda Resources; the next three have asked to remain anonymous. We will congratulate them in January. It appears that Canada appreciates people who know about gold and who have been in the exploration business for more that six months.

Oscar Margraf, longtime member of the geologic community, has died. Many people attended his funeral and he will be missed.

This month's sponsors will be a surprise. This is, in part, due to the fact that they are still a surprise to me. Look at the meeting board for the many good and generous people and companies who have given money to sponsor the social hour at the January meeting. Dieter Krewedl, Senior Vice President of Exploration Coeur d'Alene Mines

*continued on page 2*



FROM THE PRESIDENT *continued from page 1*

Corporation will be speaking on the "Discovery and Geology of the Cerro Bayo and Martha Low Sulfidation Epithermal Gold-Silver Deposits, Southern Chile-Argentina. Also congratulations to Dieter on his retirement from Coeur d'Alene and welcome back to Reno. Congratulations to Don Birak on his new job as Vice President of Exploration Coeur d'Alene Mines Corporation.

Thanks to Jack Frost for his donation of books to the GSN book drive for Mexico.

Additional help is needed for the 2005 Symposium, the GSN Foundation, and during the meeting at the PDAC in March in manning the GSN booth. See Clancy for more information.

**GSN FOUNDATION**

*Ann Carpenter, Chairman, GSN Foundation*

I want to extend my thanks to all who made the Christmas Raffle such a success - to all of the donors and to those who generously helped the night of the party. Also, a special thanks to DD LaPointe - with her dedication this continues to be a cornerstone of fundraising for the the Foundation, and it is fun to boot!!

The Foundation is gearing up to make this year a rousing success - outreaching to a broader range of schools and students statewide. With the generous donation of the "Echo Bay Library" and the success of the Christmas Raffle, the Foundation has raised in excess of \$16,000 this year to date. This does not include the generous donations of so many GSN members! Our goals are high this year, and the Directors and supporters of the Foundation are appreciative of the momentum that has been initiated by the generosity of many people. Thank you to all! We look forward to expanding the efforts throughout 2004 and beyond.

**The GSN Foundation wishes to thank the following donors:**

- |                   |                   |
|-------------------|-------------------|
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| Kim Roberts       | John Lee Carroll  |
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**GEOLOGICAL SOCIETY OF NEVADA  
SYMPOSIUM 2005**

The Editors are seeking experienced geoscientists willing to act as referees for full-length and short technical papers to be presented at the symposium either in plenary sessions or as poster displays. It is expected that over 70 long papers for reviewing by 2 referees and at least 60 short papers for single review will be received. Volunteers are requested to complete the following form and send it by fax to the GSN office (775 323 3599) or to the Editors (775 746 4856), or by email (gsnv@unr.edu). The short time frame for reviews will be from September 2004 to January 2005, and referees will be asked to complete their reviews quickly by annotating hard copies and returning them to the Editors rapidly. Please refer to the web site for more information about the subjects to be covered.

**Name** \_\_\_\_\_

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**Qualifications** \_\_\_\_\_

**Expertise** (Carlin-type or epithermal Au, remote sensing, geochemistry, geophysical methods, geothermal, mine geology, age dating, industrial minerals/rocks, environmental clean-up, overviews of economic geology in Africa/ Europe/Asia, in which you feel competent to review papers).

1) \_\_\_\_\_

2) \_\_\_\_\_

3) \_\_\_\_\_

**Signed** \_\_\_\_\_ **Date** \_\_\_\_\_

**Thanks to ALS Chemex for hosting the December meeting.**

# *GSN January 16, 2004 Membership Meeting*

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**Date:** Friday, January 16, 2004

**Time:** Social-6:00, Dinner-7:00, Meeting-8:00

**Reservations:** 775/323-3500; fax323-3599,  
e-mail gsn@mines.unr.edu

**Deadline:** Reserve by 11 am Thursday, January 15

**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

**Speaker/topic:** Dieter Krewedl, Coeur d'Alene Mines Corporation  
See abstract below.

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## **DISCOVERY AND GEOLOGY OF THE CERRO BAYO AND MARTHA LOW SULFIDATION EPITHERMAL GOLD-SILVER DEPOSITS, SOUTHERN CHILE-ARGENTINA**

Dieter Krewedl, Senior Vice President of Exploration, Coeur d'Alene Mines Corporation

The Cerro Bayo and Martha mines are located on the western portion of the Patagonian Massif in southern Chile and Argentina. Both are recently discovered low sulfidation epithermal gold and silver deposits hosted within Jurassic age felsic volcanics. Both deposits have similar geologic characteristics and are part of the emerging Patagonian precious metals province, which includes premier epithermal systems such as Esquel and Cerro Vanguardia.

Cerro Bayo is located in the Fachinal mining district, approximately 1,300 km south of Santiago, Chile and 15 km west of the town of Chile Chico. The district was discovered by Freeport Minerals in the mid-1980s during regional exploration. Coeur d'Alene Mines Corporation purchased the property in 1990 and mined the Laguna Verde portion of the Fachinal district from 1995 until 2000. Production from the Laguna Verde mine totaled 121,000 ounces of gold and 7,354,000 ounces of silver averaging .05 opt Au and 3.2 opt Ag. The Laguna Verde deposit is a system of veins and breccias containing relatively low grade precious and base metal mineralization possibly related to a buried porphyry molybdenum system. A limited number of higher grade, gold and silver bearing epithermal veins cross cut the main mesothermal system.

The Cerro Bayo deposit was a grass root discovery made by Coeur in 2000 during the time when the Laguna Verde mine, located 14 km to the west, was being shut down. The discovery was the result of persistent drill testing of upper level epithermal veins that are essentially barren on the surface. Mining to date has totaled 1,017,000 tons producing 129,000 oz Au and 7,575,000 oz Ag averaging 0.13 opt Au and 7.45 opt Ag. Resources presently total 1,283,000 tons containing 427,437 Au equivalent ounces using a silver/gold ratio of 70. The geologic potential is considered to be excellent since there are over 130 veins currently known throughout the property, most of which have had very limited exploration.

Cerro Bayo is a low sulfide, quartz-adularia epithermal system of veins hosted within a sequence of flat lying, Jurassic age dacitic and rhyolitic flows interbedded with water lain ash fall tuffs. A number of flow banded, dacite domes intrude the volcanic sequence. The age of mineralization is considered to be Jurassic.

The epithermal veins are located within a structural corridor that is 10 km long and 4 km wide. Three main structural patterns are dominant within this corridor, two of which control the mineralization. The most dominant structure is the north trending Mallines fault zone, which controls the emplacement of the dacite domes. The most important structures controlling mineralization are NNW trending fractures, interpreted to be tensional faults related to the main north trending Mallines fault. The majority of the high grade veins were emplaced along these NNW structures. The third structural pattern is a series of right-lateral ENE trending faults, down-dropping the mineralized zones up to 100 m to the north.

Surface values in the veins are generally low in gold and silver even directly above the ore shoots, but increase rapidly with depth. For example, grades of up to 9.5 opt Au and 260 opt Ag occur over widths of 1.5 to 5 m at depths of only 20 to 25 m below the surface. High grade, bonanza type mineralization is present in several veins, where ore shoots (>0.5 opt Au Eq) have been defined. The vertical extensions of the ore zones typically range between 120 and 165 m with remarkable strike lengths of over 1 km. Ore grade mineralization is primarily restricted within the upper dacite tuff unit.

The veins are commonly brecciated and locally exhibit banded textures. The sulfide content is less than 5% consisting primarily of pyrite. Gold and silver occur primarily as electrum and silver sulphosalt minerals either as disseminations, clusters or thin bands within the quartz. Minor amounts of sphalerite, galena, chalcopyrite, and tetrahedrite are present. Gangue minerals consist of fine grained quartz, chalcedony, adularia and fluorite with trace amounts of barite and carbonates.

Widespread alteration is generally not present, possibly because the uppermost portion of the system was eroded by recent glacial erosion. Alteration includes strong silicification and quartz-argillic assemblages located peripheral to the veins.

Epithermal veins with similar geologic characteristics to Cerro Bayo occur throughout the Patagonia Massif. One example is the high grade Martha silver mine, located 50 km northeast of the town of Gobernador Gregores in the Santa

*continued on page 4*

## ABSTRACT *continued from page 3*

Cruz Province of Argentina. The Martha mine was originally discovered by Yamana Resources in 1999 during reconnaissance exploration. Coeur acquired the property in 2002 and began mining and hauling the high grade silver ores over 600 miles to its Cerro Bayo mill in Chile.

The Martha mine is located near the western limits of the 2.5 km long Martha epithermal vein system hosted by Jurassic age felsic volcanics. The presence of the silver sulphosalt mineral, pyrargyrite, results in exceptional high grades of silver. The high grade pod at Martha is less than 200 meters along strike and 50 meters down the dip of the vein. Production from the Martha mine through the end of 2003 was 34,500 tons averaging 146 opt Ag Eq. A minimum cut off grade of 30 opt Ag Eq is needed to justify the cost of the long ore haulage.

Ongoing exploration along extensions of the Martha vein to the east is discovering additional high grade ore pods surrounded by large, lower grade envelopes. Current resources on the Martha property total 41,200 tons averaging 73 opt Ag Eq.

Numerous other epithermal veins occur throughout the Patagonian Massif. This entire area has received limited exploration and more epithermal discoveries similar to Cerro Bayo and Martha are expected to be made in the future.

## UPCOMING EVENTS

**Jan. 14<sup>th</sup>, Wed.** – WINNEMUCCA CHAPTER MEETING: Humboldt Room, Red Lion Hotel and Casino, Winnemucca, NV. Speaker: Steven B. Castor, NBMG, University of Nevada, Reno, NV, "The Tuscarora Au-Ag District: Eocene Volcanic-Hosted Epithermal Deposits in the Carlin Gold Region, NV." Refreshments start at 6:30 pm and the meeting starts at 7:00 pm. Contact Fred Breit 775-635-4704 (days) or Fred Holzel 775-625-4658 (evenings).

**TBA** – ELKO CHAPTER MEETING: Western Folklife Center, Elko, NV. Speaker: To be announced. Refreshments at 6:30 pm, presentation at 7:00 pm. Contact Steve Kulinski for more information, 775/778-8867.

**Jan. 16<sup>th</sup>, Fri.** – GSN MEMBERSHIP MEETING: Reno Elks Lodge, Reno, NV. Speaker: Dieter Krewedl, Senior Vice President of Exploration, Coeur d'Alene Mines Corp., "Discovery and Geology of the Cerro Bayo and Martha Low Sulfidation Epithermal Gold-Silver Deposits, Southern Chile-Argentina." Social hour at 6 pm, dinner at 7 pm, and talk at 8 pm. Please contact Shannon Fitzpatrick at 775/323-3500 or gsn@mines.unr.edu.

**Jan. 26<sup>th</sup>-29<sup>th</sup>** – Roundup 2004, Vancouver, British Columbia. Website is [www.chamberofmines.bc.ca](http://www.chamberofmines.bc.ca). General inquiries 604/689-4800.

## GSN ROCK FOUNDATION RAFFLE AND SILENT AUCTION

The GSN Foundation thanks all of you who contributed items, bought tickets, made bids and volunteered your time to make the 2003 holiday raffle & auction a rousing success. A grand total of \$4,213 was raised at the event. A special THANK YOU goes out to all our donors of raffle and auction items:

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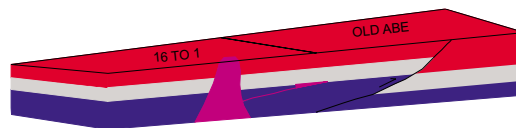
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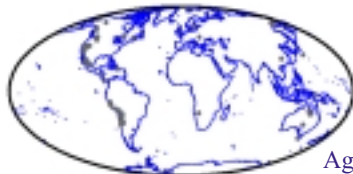
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## WILDERNESS STUDY AREAS

As this newsletter is going to press, the Subcommittee on Wilderness and Wilderness Study Areas of the Legislative Committee on Public Lands is holding a meeting in Winnemucca (Dec. 18) regarding two issues concerning public lands in Nevada:

1. A private initiative proposal for over 3.8 million acres of new designated wilderness areas in Lincoln and White Pine counties. Please view at <http://www.nevadawilderness.org/eenv-prop/areas-acres.htm> and
2. A Duckwater Tribe proposal to expand their reservation from 3,000 acres ± to 450,000 acres in White Pine/Lincoln Counties.

If you have targets or hot spots in these areas or feel the proposals are unjustifiable, please contact Jonathan Brown at the Nevada Mining Association 775/829-2121.