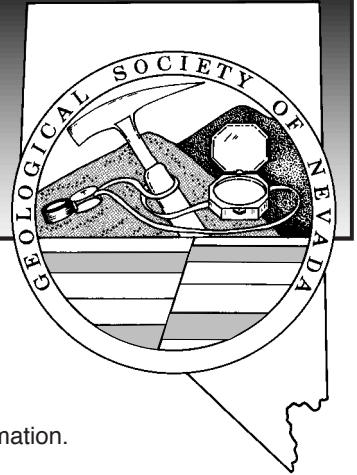


# GSN NEWSLETTER



October 1999, Vol. 13, No. 8

## PRESIDENT

**Joseph Anthony Kizis, Jr.**  
Fairmile Gold Corp  
jkizis@aci.net

## VICE PRESIDENT

**Ken Cunningham**  
Nevada North USA  
kdc-miner@juno.com

## SECRETARY

**Clay E. Postlethwaite**  
Pittston Nevada Gold Co.  
cpost@pngc-usa.com

## TREASURER

**Terri Garside**  
Nevada Bureau of Mines and Geology  
tgarside@unr.edu

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**Greg MCN French**  
Consulting Geologist  
GMcNFrench@aol.com

## PUBLICATION CHAIR

**Steven M. Green**  
Consulting Geologist  
sgreen@green.sparks.nv.us

## EXECUTIVE MANAGER

**Deana (De) Banovich**  
gsn@mines.unr.edu

## CALENDAR OF EVENTS

- Oct 9-17** Earth Science Week. See page 7 for more information.
- Oct 12** GSN SOUTHERN NEVADA CHAPTER (SNC) JOINT MEETING with AEG; Gold Coast, Las Vegas, NV. Topic - USGS, Las Vegas. Call K. Goebel, 702/263-7600, or Jean Cline, 775/895-1091 for information.
- Oct 15** **GSN MEMBERSHIP MEETING:** At Elks Club, Reno, NV; Speaker - Larry Kennedy, Battle Mountain Gold, Geology of the Phoenix Deposits, Battle Mountain Complex, NV. Meeting details, page 3.
- Oct 15** SYMPOSIUM 2000: Organizational meeting at 12:00 noon - Watts Room, University Inn, UNR. Cheri Reimann, 775/358-4336.
- Oct 16-17** GSN FALL FIELD TRIP to North Peak, Trenton Canyon, Buffalo Valley Mine and Marigold.
- Oct 21** GSN ELKO CHAPTER: At the High Desert Inn, Elko, NV; Speaker - Richard Sillitoe, The Future of Successful Exploration, What Will it Look Like?. Social-6:30, talk-7:00. Reservations not required. Call Jeff Pontius at 775/778-9280 for information.
- Nov 19** GSN MEMBERSHIP MEETING: At Elks Club, Reno, NV; The Business of Gold. Details in November Newsletter.

Check out the GSN web site:

[www.gsnv.org](http://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**

## PRESIDENT'S MESSAGE

Joseph Anthony Kizis, Jr., GSN President 1999-2000

The GSN Newsletter is now available via email... Sign up now and help us reduce expenses! We are emailing the Newsletter to those of you who have signed up for this service beginning this month. Contact De at the GSN office or check the appropriate box on your membership renewal form to sign up. We will also physically mail a Newsletter to each of our email recipients during October, as insurance. Please contact De if you signed up for email delivery, but did not receive an email copy. We must have your correct email address for this to work, so let us know if you change it. See Mario's instructions on page 2 for more information.

October will be a busy month for the GSN. The GSN Picnic is on Saturday, October 2nd, and the first general meeting is on Friday, October 15th. Larry Kennedy will be our first

speaker of the season. His topic is Battle Mountain Gold's Phoenix project, where they recently announced an increase in their reserve to 4.9 million ounces of gold. The following Saturday and Sunday, October 16th and 17th, the GSN's Fall Field Trip will visit the nearby Buffalo Valley region.

In addition, the GSN is co-sponsoring Earth Science Week activities including field trips. Earth Science Week is the week of October 11th, and field trips that are open to the general public are planned for weekends at each end of this week. Last year my son's second grade class attended one of the field trips, and they and their parents had great fun. I encourage you to participate. There will be no shortage of questions, so we will need lots of members available to answer them.



## News and Announcements

### NEWSLETTER TIPS (downloading)

Mario Desilets, GSN Webmaster

As many of you already know, GSN is starting the new membership year by sending the Newsletter via e-mail to those members who have selected that option on their membership renewal form. To enable members to receive the Newsletter via e-mail and maintain the high quality we all have come to expect, the Executive Committee has chosen to send the Newsletter as an attachment to e-mail in PDF format. To read a file in PDF format members will need Adobe Acrobat or Adobe Reader. Fortunately Adobe Reader is available for free over the world wide web at the URL:

<http://www.adobe.com/prodindex/acrobat/readstep.html>

To download Adobe Reader open your web browser (Netscape, Internet Explorer, etc.) And type in the URL address into the URL location bar exactly as it appears. The URL bar is generally located near the top of your web browser software main window. After the address has been entered, press Enter (or Return) on your computer and the browser should open to this site. If your browser does not open to the Adobe Reader site, check to make sure you have typed in the address exactly as it appears above and try again. Once you are at the Adobe Reader site just follow the instructions to download the version of Reader that is appropriate for your operating system (Windows 95, Windows 98, Mac, etc.). It is important to note where the Adobe Reader software is downloaded to on your computer.

The next step is to load the software onto your computer. The Adobe web page has detailed instructions on how to do this.

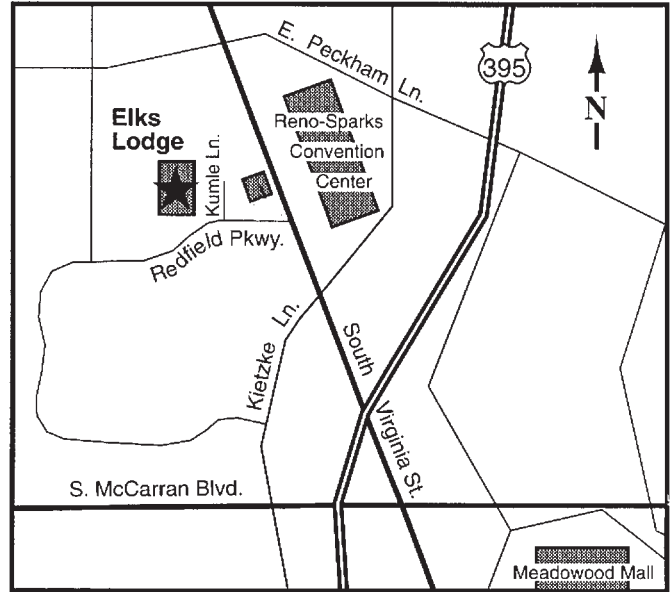
After your software is loaded and working correctly you will be ready to read your electronic Newsletter. When you receive your Newsletter, the attached file should be either highlighted or represented by a PDF file icon, depending on what e-mail software you use. Most e-mail software gives you some option to view the file. Move the cursor to either the file icon or the highlighted file path, then open the file by clicking the mouse button (on PC machines double click the left mouse button). If neither of these works, you can directly open Adobe Reader. Then open the attached file by selecting File>Open in the Adobe Reader pull down menu. At this point you can use the browse option to locate the Newsletter PDF file and open that file.

Good luck and if you have any problems or questions please call **De Banovich** at 775/323-3500 for expert technical assistance.

### MEMBERSHIP RENEWALS

Greg MCN French, GSN Membership Chair

HEAR YE, HEAR YE, HEAR YE!!!! To all that have not renewed their GSN membership. This is will be your last newsletter. RENEW NOW, and don't miss another exciting month of news, geology, events, and Ol' Three Toe.



**Location of meetings:** GSN's Monthly Membership Meetings are held at the Reno Elks Lodge on Redfield Parkway (at the corner of Kumble Ln): Located just west of the Reno-Sparks Convention Center (Virginia St), and directly behind Les Schwab Tire Center.

### CHINA FIELD TRIP

The Symposium 2000 Field Trip to China is a GO! The estimated price remains at \$3500 and slots are filling fast. Reservations must be received in October in order to finalize plans. For information contact **Steve Peters**, USGS, Reno, 775/784-5574, [speters@usgs.unr.edu](mailto:speters@usgs.unr.edu)

### SNC OFFICERS

The following lists individuals who will hold office in GSN's Southern Nevada Chapter this year: President, **Kurt Goebel**, Converse Consultants SW, Inc.; Vice President, **Paul Bowen**, R.P. Bowen Engineering Inc.; Secretary, **Joel Rotert**, UNLV; Treasurer, **Chris Riecken**, Consultant; Field Trips, **Dave Willard**, UNLV; Meeting Hostess, **Pam Willard**, SNWA Resources; Newsletter, **Joel Rotert** and **Nick Wilson**, UNLV; Speakers, **Jean Cline** and **Rick Orndorff**, UNLV.

### K-12 FIELD TRIP GRANTS

Reminder: Forms for K-12 field trip grants must be submitted by November 1st to qualify for the current school year. If you know a teacher who would like to obtain financial support to offset travel expenses for earth science education; encourage them to do so by the deadline. Contact the GSN office 775/323-3500, [gsn@mines.unr.edu](mailto:gsn@mines.unr.edu) or **D.D. LaPointe** at 775/784-1709, [dlapoint@unr.edu](mailto:dlapoint@unr.edu) for additional forms.

## *GSN October 15, 1999 Membership Meeting*

<b>Date:</b>	Friday, October 15, 1999	<b>Location:</b>	Elks Lodge, 597 Kumle Lane, Reno, Nevada
<b>Time:</b>	Social-6:00, Dinner-7:00, Meeting-8:00	<b>Directions:</b>	Across (W) from the Reno-Sparks Convention Center (S Virginia St), located just behind the Les Schwab Tire Center (see location map, p. 2)
<b>Cost:</b>	\$17.00 (dinner)	<b>Speaker/topic:</b>	Larry Kennedy, Geology of the Phoenix Deposits
<b>Reservations:</b>	phn 775/323-3500; fax 323-3599 or e-mail: gsn@mines.unr.edu		
<b>Deadline:</b>	Reserve by noon Wednesday, October 13		

### ***Bar Hosted by Eklund Drilling Co., Inc.***

## **GEOLOGY OF THE PHOENIX DEPOSITS, BATTLE MOUNTAIN COMPLEX, NV**

**Larry Kennedy, Battle Mountain Gold Co.**

The Phoenix project is located in Copper Canyon, ~12 miles southwest of Battle Mountain, NV. The Fortitude Au-Ag mine and the Reona heap-leach operation are also located on the property. Copper Canyon has produced over 2.9 Moz gold, 16 Moz silver, and 240 Mlbs copper since production began in the 1860s. With production from four open pits, Phoenix will mark the rebirth of milling operations at Copper Canyon. The Phoenix and Greater Midas pits will expand a number of existing pits and account for ~90% of the current ore reserves. Reona and Iron Canyon pits host additional ore.

At Copper Canyon, lower Paleozoic units of the Roberts Mountains Allochthon are unconformably overlain by the Pennsylvanian-Permian Antler sequence (Roberts, 1964; Theodore and Blake, 1975). These units are structurally overlain by argillite and chert of the Pennsylvanian-Permian Havallah sequence in the hanging wall of the Golconda Thrust. A series of north-trending normal faults traverse the property. The two largest of these, the Virgin and Copper Canyon faults, have respective displacements of ~900 and ~1500 ft down to the west. Most of the historic and planned Au-Ag-Cu production occurs in a mineralized corridor located between these two faults.

The Antler and Havallah sequences are best preserved west of the Virgin fault. The Antler sequence is a shallow-dipping package of coarse clastic to calcareous sedimentary rocks that unconformably overlies the Devonian Harmony Fm. From bottom to top, the Antler sequence consists of the Battle Fm, Antler Peak Limestone, and Edna Mountain Fm. The thickness of the Antler sequence and the formations comprising it vary considerably over the property; for example, there is no Antler Peak Limestone or Edna Mountain Fm in the Greater Midas pit. Tertiary volcanic rocks unconformably overlie the pre-Tertiary rocks.

The property is well known for its zoned distribution of metals and skarn minerals relative to the Copper Canyon stock, a 38 MA granodiorite porphyry (Theodore et al., 1973). Within two kilometers of the intrusive center, limestone and other calcareous rocks are replaced by calcsilicate hornfels or skarn, whereas siliceous clastic rocks are recrystallized to siliceous or biotite hornfels. Cu-Au-Ag mineralization is preferentially developed as skarn and replacement sulfides within the Antler sequence. Field and paragenetic relationships suggest the following sequence of mineralizing events: emplacement of the Copper Canyon stock; property-wide skarn and hornfels replacement; deposition of Fe- and Cu-sulfide minerals; deposition of gold, electrum, and Ag-Bi sulfosalts. Late-stage or subsequent quartz-sericite-pyrite and clay alteration disrupts skarn-sulfide mineralization and is also associated with gold mineralization.

Phoenix pit will expand the Fortitude and NEX pits, parts of the West and East copper pits, and will mine a high ridge known as Top of the World. Copper is more abundant in the south part of the planned pit. Cu-rich ores at West pit give way to Au-Ag ores at Fortitude (Wotruba et al., 1988). Sphalerite and galena are more abundant in the gold-rich domain, and some Pb-Zn-Ag veins occur to the north in Galena Canyon. Other ore minerals include pyrrhotite, magnetite, arsenopyrite, enargite, native bismuth, bismuthinite, and other sulfosalts. Skarn alteration consists of "garnetite" at West pit that gives way to pyroxene-dominant skarn at Fortitude (Theodore and Blake, 1975; Wotruba et al., 1988; Myers, 1994).

The Virgin fault cuts Phoenix pit in half. Up to 150 ft wide, the fault is occupied in part by an altered granodiorite dike extending from Copper Canyon stock. Antler Peak Limestone, which hosted the Fortitude Au-Ag skarn, and the middle and lower members of the Battle Fm - particularly its basal contact with the Harmony Fm - are the most receptive host rocks. The Virgin fault is also an important host to ore. Gold mineralization tends to be higher-grade within 150-200 ft of the fault and along high-angle structures subsidiary to it. North-northeasterly "link" faults (Theodore et al., 1975) constitute an en echelon series of structures footwall to the Virgin. Antithetic faults in the Virgin's hanging wall are also important mineralized structures. The intersection of "link" and antithetic faults with receptive host rocks produces thick, continuous mineralization, particularly west of the Virgin fault.

continued

## ABSTRACT (continued)

The Greater Midas (GM) pit will envelope the existing Midas, Tomboy, and Minnie pits and the Glory Hole underground workings. The deposit extends for over 7500 ft from the Copper Canyon stock, in a structural setting analogous to that at the Phoenix pit. Unlike Phoenix pit, however, the Battle Fm is the only representative of the Antler sequence in the GM pit. Mill ore is hosted by receptive units within the Battle Fm and by high-angle structures. The Glory Hole underground workings are located at the north end of GM pit where the Virgin fault constitutes a disrupted, brecciated zone 200 ft wide, immediately north of its intersection with the northeasterly Gulch fault.

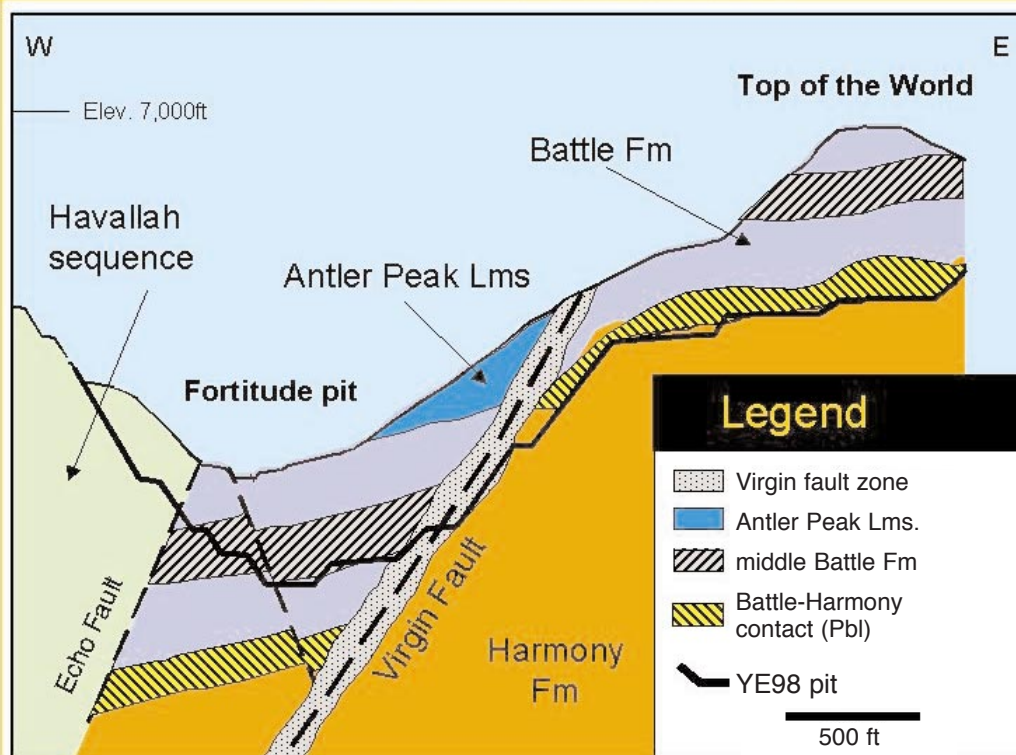
Mineralization and alteration also vary at GM pit with distance from the Copper Canyon stock. Copper and silver are more abundant in north Midas, where  $\text{Cu} > 0.2\%$ ; mineralization in the Glory Hole area averages  $\sim 0.3\%$  Cu and 0.5-0.6 opt Ag. Quartz-sulfide veinlets and molybdenite are also common in north Midas. Pyroxene and amphibole skarn and calcsilicate hornfels predominate at mid- to north Midas, whereas biotite and sericite alteration are more common in the southern third of the pit.

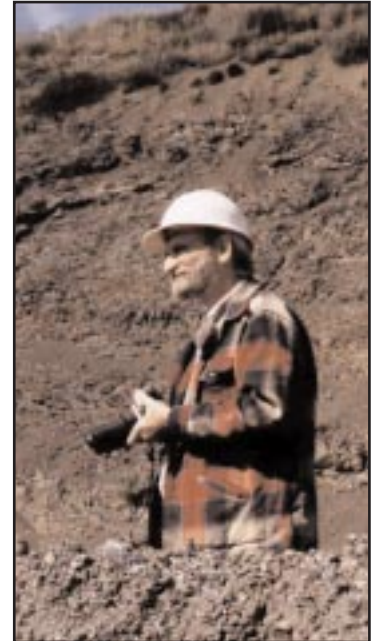
Phoenix project has changed remarkably since it was initially proposed. Whole-ore, carbon-in-leach (CIL) processing of sulfide ores and heap-leaching was initially planned; in January 1997, the project's in situ reserves totaled 1.8 Moz gold and 8.4 Moz silver. Favorable metallurgical results from gravity concentration and copper flotation tests, undertaken as an alternative to whole-ore CIL processing, opened up additional areas for the development of new ore reserves. Over the last two years, 330,000 ft of drilling has been completed in copper-rich domains and under-explored areas. This drilling, improvements in metallurgical processing, and improved economics have tripled the gold reserves and brought in considerable silver and copper. Based on 93.2 MT mill ore grading 0.045 opt Au, 0.32 opt Ag, and 0.17% Cu, and 28.8 MT leach ore grading 0.026 opt Au and 0.21 opt Ag, the current Phoenix reserve totals 4.98 Moz gold.

## REFERENCES

- Myers, G.L., 1994, Geology of the Copper Canyon-Fortitude skarn system, Battle Mountain, Nevada; unpublished Ph.D. dissertation, Washington State University, 356 p.
- Roberts, R.J., 1964, Stratigraphy and structure of the Antler Peak quadrangle, Humboldt and Lander Counties, Nevada; U.S. Geological Survey Professional Paper 459-A, 93 p.
- Theodore, T.G., and Blake, D.W., 1975, Geology and Geochemistry of the West ore body and associated skarns, Copper Canyon, Lander County, Nevada; U.S. Geological Survey Professional Paper 798-B, 86 p.
- Theodore, T.G., Silberman, M.L., and Blake, D.W., 1973, Geochemistry and potassium-argon ages of plutonic rocks of the Battle Mountain mining district, Lander County, Nevada; U.S. Geological Survey Professional Paper 798-A, 85 p.
- Wotruba, P.R., Benson, R.G., and Schmidt, K.W., 1988, Geology of the Fortitude Gold-Silver Skarn Deposit, Copper Canyon, Lander County, NV; Bulk Mineable Precious Metal Deposits of the Western United States, p. 159-172.

## Phoenix Pit - Generalized Geologic Section Favorable host rocks





**A few out-of-town Members enjoying another GSN Field Trip:**

**Clockwise:**

**Honorary Member Edmond F. Lawrence, Spanish Fort, Alabama**

**Leigh A. Readdy, Kirkland, Washington**

**Roger McPherson, Fairbanks, Alaska**

**James M. Dawson, Richmond, British Columbia**

**Randy Henkle, all the way from Carson City, Nevada**

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# NEVADA BUREAU OF MINES AND GEOLOGY INFORMATION OFFICE

David A. Davis, NBMG

The Nevada Revised Statutes that created the Nevada Bureau of Mines and Geology (NBMG) many years ago stated that one of the missions of the NBMG was to archive information on mining and mineral deposits. Today this function is handled by the NBMG Information Office, the holdings of the which include the following.

## **Mining District Files**

The Mining District Files are a collection of materials donated over the years and divided amongst the various mining districts of Nevada. These materials mostly have to do with mining, geology, and history and include a broad range of published and unpublished reports, assays, maps, drill-hole data, correspondence, newspaper clippings, environmental assessments and impact statements, and the like. Some material is site specific while some covers local or regional areas. The material covers the 1860s to the present, and we continually take new donations. The material is cataloged and separated into what can be filed in standard legal filing cabinets and what can be filed in large map filing cabinets. All of the material in the legal filing cabinets and about 10% of the large maps have been entered in a computerized database, which can be found on the NBMG website at <ftp://ftp.nbmng.unr.edu/NBMG/web/nvgeodex.txt>. This database presently contains almost 12,000 entries.

## **Open-file and Other Unpublished Reports**

The Information Office keeps a nearly complete set of U.S. Geological Survey and NBMG open-file and other reports on Nevada geology and water resources. The Information Office also has a large collection of open-file reports on Nevada geology from other agencies such as the Bureau of Land Management, U.S. Bureau of Mines, and Department of Energy. These open-file reports are indexed in a computerized database, which can be accessed on the NBMG website at <http://www.nbmng.unr.edu/opf.html>. The Information Office also has a set of geologic maps produced by the Southern Pacific Railroad of its Nevada land holdings in the late 1950s and early 1960s for mineral exploration, and a set of reports and maps produced as part of the MX missile study of the late 1970s and early 1980s. The MX files contain geologic and water resource data for a large portion of eastern and central Nevada. The Information Office also keeps files of documents concerning the proposed nuclear waste dump for Yucca Mountain. None of this material circulates, but can be viewed and copied in the Information Office.

## **Oil and Gas and Geothermal**

The Nevada Division of Minerals (NDOM) in Carson City permits and regulates drilling and production from oil and gas and geothermal wells. The NDOM in turn sends to the NBMG copies of their well files, which includes permitting and regulatory paperwork, logs, tests, and production data. These are indexed and archived for public viewing in the Information Office. Also, sets of well cuttings are required by the State to be turned into the NBMG for archiving. The confidentiality period is 6 months for oil and gas and 5 years for geothermal. The NDOM and the Nevada Oil and

Gas Commission prior to them have permitted and regulated oil and gas since 1953. The NDOM has permitted and regulated geothermal since 1985. Prior to that, geothermal was permitted and regulated by the Nevada Division of Water Resources. The Information Office has copies of all the NDOM records for oil and gas back to 1953 and geothermal back to 1985, and some information for older oil and gas and geothermal wells. The well files are indexed in a computerized database, which can be found at the NBMG website.

## **Core and Cuttings Collection**

As noted above, the Information Office is in charge of oil and gas and geothermal well cuttings and core. It also has a small collection of cuttings and/or core from mineral exploration projects and associated material. These are indexed and entered into a computerized database, though it needs editing and is not at present on our website. Unfortunately, a lack of storage space presently limits the amount of donations we can accept.

## **Aerial Photographs**

The Information Office has a huge collection of aerial photographs, the vast majority of which are donations. The bulk of the photos are from the U.S. Geological Survey, the Bureau of Land Management, and the Nevada Department of Transportation. However, smaller projects are from the U.S. Forest Service, the U.S. Soil Conservation Service, Air National Guard, NBMG, and private companies. Many of the projects are incomplete, however, we do have paper and microfiche indexes for all. The most complete coverage of the state is for the 1950s and 1970s at a scale of about 1 inch = 1 mile or more. Most of the remaining projects cover smaller areas. The scales are quite variable, and range between 1:80,000 down to 1:2160. The photos are available for public viewing.

## **Engineering Geology**

The Information Office has a small collection of engineering reports from around the state but more concentrated around the Reno area. These include both site studies and regional data such as that compiled for the making of some of the NBMG urban series maps. The Information Office also has a small but growing file on earthquake hazards around the state.

## **Miscellaneous**

The holdings of the Information Office also include some mining company quarterly and annual reports and brochures, FEMA flood maps, a nearly complete set of the Magma Chem Company's reports, and U.S. Bureau of Mines and U.S. Geological Survey commodity reports. The Information Office is located on the University of Nevada, Reno campus in room 311 of the west wing of the Scrumham Engineering/Mines Building. This is the wing that houses the NBMG.

Office hours are Mon., Wed.-Fri. 7:30 a.m. to 3 p.m. and Tue. 7:30 a.m. to 5 p.m. You can come by without an appointment during these hours to conduct research. We can also conduct research, but we charge \$40 an hour for this service.

The Information Office is operated by **David A. Davis**, Geologic Information Specialist. The telephone number is 775/784-6691 x133, and the e-mail is [nbmginfo@unr.edu](mailto:nbmginfo@unr.edu). The NBMG website is <http://www.nbmng.unr.edu>.

# EARTH SCIENCE WEEK ACTIVITIES October 9-17, 1999

D.D. LaPointe, GSN Education Committee

In recognition of the significant contributions that the Earth sciences make to society and to the economy and environment of Nevada and the country, Governor Kenny Guinn and the U.S. Congress have proclaimed the second full week of October to be "Earth Science Week." The schedule below lists several events to be held in conjunction with "Earth Science Week" to which the public is invited. Teachers are particularly encouraged to participate and will be given free earth science educational materials. For more information on Earth Science Week activities, please call D.D. at 775/784-6691 x134.

Saturday, October 9th and Saturday, October 16th: free geological field trips. You are invited to participate in three free geological field trips offered by the Nevada Bureau of Mines and Geology (NBMG), GSN, and other members of the Earth science community on Saturday, October 9th and Saturday, October 16th. Bring your own insured vehicle, picnic lunch, water, sturdy shoes, and a healthy curiosity to learn more about geology in Reno's own back yard. Each field trip will be guided by local geologists and will leave from UNR.

Field Trip 1, October 9th: Turbulent Times in the Truckee Meadows Discover evidence of ancient volcanoes, earthquakes, landslides, and floods in the northern Truckee Meadows and adjacent mountains. Find sparkling black hornblende crystals in a frozen lava flow. Collect beautifully faceted quartz crystals as we end our tour with a visit to Crystal Peak northwest of Verdi. A plant ecologist will also discuss interrelationships among plants, animals, soils and climate at each stop. Registration deadline is Thursday, October 7.

Field Trip 2, October 16th: What's Shaking in the Neighborhood? On Saturday October 16, join us in "finding fault with everything" as we look for evidence of major recent earthquake activity and related features from Reno south to the Genoa area. See rocks and minerals unique to a major geothermal area, straddle a monster fault scarp, and learn simple surveying skills in an area of recent faulting. Registration deadline is Thursday, October 14.

Field Trip 3, October 16th, 9 am to 3 pm: Fossils and Lakes, Ancient and Modern. Also on Saturday October 16, paleontologists will lead a field trip to a Miocene fossil leaf locality near Pyramid Lake and to examine modern and ancient shoreline features at Pyramid Lake. The trip will be capped off with a visit to the museum at the Sutcliffe Marina at Pyramid Lake. Registration deadline is Thursday, October 14. For more information on any of these field trips, or to sign up to participate, please call Terri at NBMG, 775/784-6691 x126 or D.D. at x134.

October 12, 4-6 p.m.: Earth Science Open House. The Mackay School of Mines invites the public to an Open House October 12, 1999. Faculty and students will give demonstrations and tours of state-of-the-art research facilities including Seismological Laboratory, Electron Microbeam Laboratory, Mass Spectrometer Laboratory, Supercomputer Laboratory, and the Mobile Engineering Education Laboratory. Free geoscience career information and earth science educational materials will be available at the Keck Museum and at the publication sales office of the NBMG in Scrugham Engineering Mines Building, Rooms 310 and 311. Sign-ups for tours will begin at 4 PM in the Keck Museum at the north end of the main quad on the UNR campus. For more information, please call Liz or Leslie at 327-2056.

October 15. The Geological Society of Nevada will be holding its first meeting of the Fall on Friday, October 15, at the Elks Club, 597 Kumle Lane. Larry Kennedy of Battle Mountain Gold Co. will speak at 8:00 p.m. on the Phoenix Gold Deposits. See page 3 of this newsletter for more information. The Geological Society of Nevada will also be conducting a 2-day field trip to several northern Nevada gold mines on October 16-17. For more information on the field trip call GSN at 775/323-3500.

Co-sponsors of Earth Science Week activities include Nevada Bureau of Mines and Geology; Geological Society of Nevada; Department of Geological Sciences and W.M. Keck Museum at the Mackay School of Mines, University of Nevada, Reno; Desert Research Institute; Nevada Division of Minerals; American Institute of Professional Geologists; Association of Engineering Geologists; Nevada Paleontological Association; Nevada Petroleum Society; Society for Mining, Metallurgy, and Exploration; U.S. Geological Survey; U.S. Bureau of Land Management; and Nevada Mining Association.

More details on events may be viewed at the NBMG website: <http://www.nbmgs.unr.edu/esweek/esw.htm>



## **GEOLOGY AND ORE DEPOSITS 2000: The Great Basin and Beyond**

### **A Geological Society of Nevada Symposium**

Reno/Sparks, Nevada, USA, May 15-18, 2000

775/323-4569, fax 775/323-3599, [gsnsymp@unr.edu](mailto:gsnsymp@unr.edu), [www.gsnv.org](http://www.gsnv.org)

**Co-sponsors:** Nevada Bureau of Mines and Geology, Society of Economic Geologists, The Association of Exploration Geochemists, and U.S. Geological Survey

## LOTTERY WINNERS

Congratulations to six lucky winners whose names were drawn for a free GSN Fall Field Trip, in a lottery sponsored by Lang Drilling and Boart Longyear, as announced in the September newsletter. The Field Trip will visit North Peak, Trenton Canyon, Buffalo Valley Mine and Marigold on Oct 16 and 17.

This is the second time **Darrell Tweidt** of Lang Drilling & **Steve Barnwell** of Boart Longyear have contributed 3 Field Trips each to this lottery targeted at geologists who do not receive company or corporate reimbursement.

## THE RIGHT THING

It was a Friday in early September, when a couple Montana fellers sauntered into the GSN office to buy some publications. The staff was off that day, but the publication sales office was wide open, presumably due to the negligence of an installation tech. So these guys did a little shopping (as far as we know, without any witnesses) and walked away with almost \$200 worth of publications. They left a little note saying they'd be sending a check and lo and behold, a few days later the remittance arrived!

Pat on the back and round of applause to **Bruce Cox** and **Fess Foster**... If ya hadn't a "fessed-up" we wouldn't a-known (at least until inventory-counting time, that is)! Thank you both for doing the right thing. Oh, and by the way, can we interest you a stylish polo shirt?

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## NEVADA PETROLEUM SOCIETY 1999 FIELD TRIP—OCT. 7-10

James Faulds, NBMG

The 1999 NPS field conference is scheduled for Oct 7-10. Cenozoic Structure and Stratigraphy of the Northern Colorado River Extensional Corridor, Southern Nevada-Northwest Arizona: Economic Implications of Extensional Segmentation Structures will address the Cenozoic structure and stratigraphy of the extensional corridor between Laughlin, Nevada, and Lake Mead. The trip will include stops in the Eldorado and Black Mts, Lake Mead and Las Vegas areas, and Searchlight and Eldorado mining districts. The trip will be led by James Faulds, Dan Feuerbach, Eric Olson, and Linda Price.

Please address questions to Faulds by phone (775/784-6691, x159) or email [jfaulds@unr.edu](mailto:jfaulds@unr.edu). For trip details, visit the NPS web site at <http://www.nbmng.unr.edu/nps/>.

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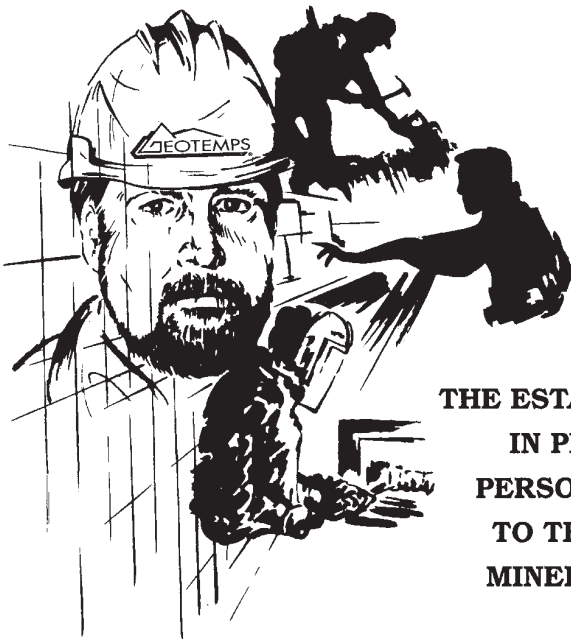
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## SYMPOSIUM EVENT SPONSORS

Thanks to the enthusiastic efforts of **Mario Desilets** and **Elizabeth Zbinden**, sponsors are lining up to provide the GSN Symposium (May 15-18, 2000) with complimentary food and beverages at various scheduled events. It's not too late to join this group and to further guaranty a successful convention and enjoyable experience for all the attendees.

The GSN Symposium Committee would like to acknowledge those companies which have already come forward to offer their support.

Company, contact person, and event:

### **Mackay School of Mines**

Connie Howard, Ice Breaker

### **Barrick Goldstrike**

Be-Be Adams, Ice Breaker

### **Kennecott Exploration**

Geoffrey Ballantyne, Monday & Tuesday Break

### **CGS, Inc.**

Troy Haggard, Exhibitor Reception

### **D.L. Banovich & Associates**

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### **Eklund Drilling Co, Inc.**

Marty Dennis, Main Social Event

### **Bondar-Clegg**

Eric Ruud, Poster Reception

### **Geotemps, Inc.**

Sue Smith, 1st Place Student Paper Award,  
Speaker's Breakfast, and Closing Social

## MISCELLANEOUS

► Members, please take note of those companies who advertise in the GSN Newsletter. Their support helps offset the cost of preparation, copying and sending it to you. We hope you'll remember their names when you need their products or services.

► They don't get much fanfare, but we do indeed appreciate the generosity of people like **Alan Wallace**, **Lisa Stillings**, **Raye Buckley** and two other guys we're not allowed to name, who have reached into their pockets to help out with the Student Dinner Fund. Gracias!

► Hope to see you at the October meeting. You'd be doing the folks at the Welcome Table a big favor if you state your LAST NAME when you check-in. It's not that we don't know you - it just gets kinda hectic and besides - we're getting older, our memories are shot, and we're more easily confused!

► Congratulations to **Laura Ruud** (GSN's Bookkeeper) who has just been hired-on as the Symposium Secretary. She will begin work immediately and can be reached at GSN's Symposium office number: 775/323-4569 to help with all your questions!

## HORSE SENSE

Submitted by Peg O'Malley

Ancient wisdom says that when you discover you are riding a dead horse, the best strategy is to dismount. However, in organizations we often try many other strategies, including the following:

- 1) Changing riders
- 2) Buying a stronger whip
- 3) Falling back on: "This is the way we've always ridden"
- 4) Appointing a committee to study the horse
- 5) Arranging a visit to other sites to see how they ride dead horses
- 6) Increasing the standards for riding dead horses
- 7) Appointing a group to revive the dead horse
- 8) Creating a training session to improve riding skills
- 9) Comparing the state of dead horses in today's environment
- 10) Changing the requirements so that the horse no longer meets the standard of dead
- 11) Hiring an external consultant to show how a dead horse can be ridden
- 12) Harnessing several dead horses together to increase speed
- 13) Increasing funding to improve the horse's performance
- 14) Declaring that no horse is too dead to beat
- 15) Doing a study to see if outsourcing will reduce the cost of riding a dead horse
- 16) Buying a computer program to enhance dead horse performance
- 17) Declaring a dead horse less costly than a live one
- 18) Forming a workgroup to find uses for dead horses
- 19) Changing performance requirements for the horse
- 20) Promoting the dead horse to a supervisory position

## WHAT'S NEW

The GSN welcomes newsworthy information that may be of interest to its members. If you have meeting and/or symposium announcements, are aware of government or legislative activities, or have general news and information which may be of interest to the GSN membership, please submit the material to the GSN office by the 20<sup>th</sup> of each month. Newsletters are published August through May each year.

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## THE GREAT BASIN EXPERIENCE\*

(\*the end of the field season is coming, now what do we do?)

By Ol' Three Toe and Club Tail  
(not your ordinary fossils)

e-mail address - dinos28297@aol.com



Club Tail:  
Have you seen the e-mails that we have been getting?

Ol' Three Toe:  
Yes, both of them were great.

Club Tail:  
I liked the suggestion that we should sponsor a function at next year's symposium.

Ol' Three Toe:  
Somebody must think that we actually work and can afford to sponsor something.

Club Tail and Ol' Three Toe:  
The other one was very good and requires distribution to our loyal readers, since many of you this winter will actually have time to read those geological articles that have been piling up. To make sure there are no repercussions we will **not** supply the author's name, also we have taken some liberties to make additions and deletions.

**Here are some phrases that might be found in geological articles, and what they really mean.**

"It has long been known" - I didn't look up the original reference.

"A definite trend is evident" - These data are practically meaningless.

"While it has not been possible to provide definite answers to the questions" - An unsuccessful experiment, but I still hope to get it published.

"Three of the samples were chosen for detailed study" - The other results didn't make any sense.

"Typical results are shown" - This is the prettiest graph.

"These results will be in a subsequent report" - I might get around to this sometime, if pushed/funded.

"In my experience" - Once.

"In case after case" - Twice.

"In a series of cases" - Thrice.

"It is believed that" - I think.

"It is generally believed that" - A couple of others think so, too.

"Correct within an order of magnitude" - Wrong.

"According to statistical analysis" - Rumor has it.

"A statistically-oriented projections of the significance of these findings" - A wild guess.

"A careful analysis of obtainable data" - Three pages of notes were obliterated when I knocked over a glass of beer.

"It is clear that much additional work will be required before a complete understanding of the phenomena occurs" - I don't understand it.

"After additional study by my colleagues" - They don't understand it either.

"Thanks are due to Joe Blotz for assistance with the experiment and to Cindy Adams for valuable discussions" - Mr. Blots did the work and Ms. Adams explained to me what it meant.

"It is hoped that this study will stimulate further investigations in this field" - I quit.

"It is on trend", or "the trend shows" - Two points make a straight line.

Club Tail:  
In conclusion, do you know why geologists are so glum?

Ol' Three Toe:  
Because they have schisty outlooks?

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# UP-COMING EVENTS

**Oct 7-10** NPS Field Trip. 775/784-6691 x159, jfaulds@unr.edu

**Oct 8** UNR Econ Geol Lecture, Mark Conrad, Lawrence Berkeley Lab at Reno, NV. LMR Bldg, Rm 355, 3-4 pm, G Arehart, 775/784-6470, arehart@unr.edu

**Oct 9-12** MINExpo Int'l 2000 at Las Vegas, NV. 202/463-2611, www.min-expo.com

**Oct 10-13** Nat'l Mining Assn Conv '99 at St. Louis, MO. E Holmes, 202/463-2651

**Oct 10-14** Randol Int'l Ltd., Copper Hydromet Roundtable '99 & Copper '99-Cobre '99 Exhibition at Phoenix, AZ. 303/526-1626, www.randol.com

**Oct 10-16** Earth Science Week. www.earthsciweek.org

**Oct 13** Colorado Scientific Soc Meeting at Golden, CO. Social-7:00, talk-7:30. K Pierce, 303/236-1244, kpierce@usgs.gov

**Oct 15 GSN Membership Meeting** at Reno, NV. Larry Kennedy, Battle Mountain Gold. 775/323-3500, gsn@mines.unr.edu

**Oct 15 GSN Symposium 2000 Meeting** at Reno, NV. University Inn, UNR, C Reimann, 775/358-4336

**Oct 15** UNR Econ Geol Lecture, Robert Zierenberg, Univ CA Davis, Hot Rock & Heavy Metal: Results of ODP Drilling of Seafloor Massive Sulfide Deposits at Reno, NV. LMR Bldg, Rm 355, 3-4 pm, G Arehart, 775/784-6470, arehart@unr.edu

**Oct 16-17 GSN Fall Field Trip.** 775/323-3500, gsn@mines.unr.edu

**Oct 17-20** NPS Geothermal Resources Council Annual Meeting at Reno, NV. S Wells, 775/861-6573

**Oct 18-21** GSA 15th Annual Int'l Conf on Contaminated Soils & Water at Amherst, MA. D Leonard, 413/545-1239, dleonard@schoolph.umass.edu

**Oct 20-22** CSM APCOM99 - 28th Int'l Symp on Computer Appl in the Minerals Industries at Golden, CO. 303/273-3321, space@mines.edu

**Oct 20** CMA Environmental Committee Mine Tour, Homestake McLaughlin Mine, Clearlake, CA. 916/447-1977

**Oct 21 GSN Elko Chapter Meeting** at Elko, NV. Richard Sillitoe, The Future of Successful Exploration, What Will it Look Like? J Pontius, 775/778-9280

**Oct 22** UNR Econ Geol Lecture, Tom Pierson, USGS, (title to be announced) at Reno, NV. LMR Bldg, Rm 355, 3-4 pm, G Arehart, 775/784-6470, arehart@unr.edu

**Oct 25-28** GSA Annual Meeting & Expo, Crossing Divides at Denver, CO. 800/472-1988, meetings@geosociety.org, www.geosociety.org

**Nov 1** DREGS Meeting at Golden, CO. dregs@dregs.org

**Nov 1-5** AMA Conv at Anchorage, AK. 907/563-9229, www.alaskaminers.org

**Nov 2** AGS Dinner Meeting at Tucson, AZ. Bill Bull, Soil Chronosequence. Social-6:00, dinner-7:00, talk-8:00. Res 520/770-3500

**Nov 4-6** Nat'l Western Mining Conf at Colorado Springs, CO. CMA, 303/575-9199

**Nov 5** UNR Econ Geol Lecture, David Kreamer, UNLV, Are the Springs of the Grand Canyon at Risk? - Tracking Groundwater Geochemically at Reno, NV. LMR Bldg, Rm 355, 3-4 pm, G Arehart, 775/784-6470, arehart@unr.edu

**Nov 7** NPS Dinner Meeting at Reno, NV. Social-6:30, dinner-7:00, talk-8:00. Res S Wells, 775/861-6573

**Nov 10** Colorado Scientific Soc Meeting at Golden, CO. Social-7:00, talk-7:30. K Pierce, 303/236-1244, kpierce@usgs.gov

**Nov 17-18** CMA Natural Resources & Environmental Administrative Law & Procedure, Denver, CO. www.rmmf.org

**Nov 19 GSN Membership Meeting** at Reno, NV. Topic to be announced. 775/323-3500, gsn@mines.unr.edu

**Nov 18** UNR Econ Geol Lecture, Paula Noble, UNR, Arctic Adventures & Radiolarians? at Reno, NV. LMR Bldg, Rm 355, 3-4 pm, G Arehart, 775/784-6470, arehart@unr.edu

**Nov 29-Dec 3** NWMA 105th Annual Meeting & Expo at Spokane, WA. H Hoeft, 509/624-1158, www.nwma.org

**Dec 3** UNR Econ Geol Lecture, Jim O'Neil, USGS, <sup>18</sup>O/<sup>16</sup>O Variations in Biogenic Phosphate: Applications to Paleobiology & Palaeoclimatology at Reno, NV. LMR Bldg, Rm 355, 3-4 pm, G Arehart, 775/784-6470, arehart@unr.edu

—2000—

**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 28-Mar 1** SEG-SME Annual Meeting, New Frontiers in Mining at Salt Lake City, UT. 303/973-9550, smenet@aol.com

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

**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



**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

**Aug 31st** Int'l Geol Congress, Brazil 2000 at Rio De Janeiro, Brazil. 55 21 295 5847, 31gic@31gic.org.br

**Dec 3-7** NWMA Annual Meeting & Expo at Spokane, WA. H Hoeft, 509/624-1158, www.nwma.org

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