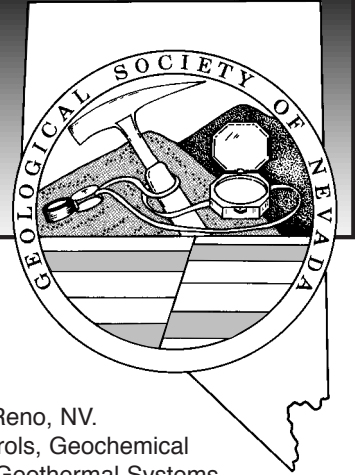


GSN NEWSLETTER



January 2003, Vol. 17, No. 1

CALENDAR OF EVENTS

**Jan 17th
Friday**

GSN MEMBERSHIP MEETING: Reno Elks Lodge, Reno, NV.
Speaker: Mark Coolbaugh, "Regional Geologic Controls, Geochemical Characteristics, and Thermal Infrared Signatures of Geothermal Systems of the Great Basin." Social hour: 6 pm, dinner: 7 pm, talk: 8 pm. Call Shannon Fitzpatrick for dinner reservations, 775/323-3500.

**Jan 30th
Thursday**

SOUTHERN NEVADA CHAPTER MEETING: Room 102, Lily Fong Geoscience Building, UNLV, Las Vegas, NV. Cathy Snelson, UNLV will be speaking about Las Vegas Basin Seismic Response Project: Preliminary Results from Seismic Studies in Las Vegas. Contact Jean Cline, 702/895-1091 for information.

ELKO CHAPTER MEETING: Contact Marcus Johnston for date, location, time and speaker. 775/778-4036.

WINNEMUCCA CHAPTER MEETING: Humboldt Room, Red Lion Hotel and Casino, Winnemucca, NV. Speaker: to be announced. Refreshments start at 6:30 pm and the meeting starts at 7:00 pm. Contact Sheila Bunch for date, 775/623-0202, sbunch@lambdacom.com.

**GSN Newsletter is published monthly except June and July
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FROM THE PRESIDENT

Bob Thomas, GSN President 2002-2003

Happy New Year! I'm writing this the day after our very successful Christmas Dinner Meeting. We had 126 dinner reservations, almost twice our normal figure. Thanks to **ALS Chemex** and **Stretch's Exploration** for co-sponsoring the social hour, and for going above and beyond in sustaining the increased attendance. Also thanks to **Steve Castor** for his very entertaining and informative presentation entitled "Minerals in Nevada". I didn't know that wakabayashilite was a household name, but it's now in my vocabulary, thanks to Steve's unabashed plugging of this mineral species.

The raffle and silent auction that preceded the Christmas dinner was an unqualified success (see inside of newsletter). We generated slightly over \$3,000 for the GSN Foundation, almost \$1,000 more than last year. Many thanks to D.D. LaPointe for spearheading what once again was a tremendously successful event.

continued

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News and Announcements

FROM THE PRESIDENT (continued)

Joe Kizis had the pleasure of announcing a hefty shot in the arm for the GSN Foundation balance sheet. X-Cal Resources has donated \$6,000 to the Foundation, in the names of twelve people who have been instrumental in the assembly of the Sleeper Gold Project in Humboldt County, NV. X-Cal has donated \$500 to the Foundation in the name of each of the twelve honorees. Awards of Appreciation go to **John Wood, Dr. Barry Smee, Winthrop Rowe, Lee York, Keith Blair, Larry Martin, Larry Kornze, Jeffrey Phinisey, Vic Chevillon, and Terry White.** Additionally, Informal Contributors are **David Mathewson and Ken Snyder.** Shawn Kennedy, President of X-Cal, deserves the Foundation's gratitude for his generosity, and Win Rowe gets a special thanks for recommending the GSN as a worthy beneficiary. Foundation director Joe Kizis informs me that X-Cal's donation is the largest single donation made to the Foundation so far. In fact, they are the only members of the "Benefactor Level" club for those groups or individuals contributing more than \$5,000. Hopefully this is the start of a trend, and other organizations will step up to the plate!

Calendar of Student Posters

January 17, 2003, GSN Meeting

Student and title to be announced.

GOT NEWS?

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 (applicable to the geosciences) which you would like to share, please submit the material to the GSN office prior to the 20th of the month.

The Executive Officers and staff of the GSN wish a "Happy New Year" to each of our GSN members and their families.

DONATIONS FOR MEXICAN UNIVERSITY

On behalf of the GSN, Tucson Gem and Mineral Society and the Universidad Autonoma de Zacatecas, we want to thank Newmont Mining Corporation, Barrick Gold Corporation, Bill Oriol, Alan Morris, and Peter Dunn for their generous donations of books for the Mexican University. We were able to take over 300 boxes of books to Tucson where they will be palletized for shipment to the University.

Remember, there is still time to get a tax deduction for this year's taxes by donating old text books, journals, equipment, etc to Universities in Mexico. Call Clancy at 775/852-2513 for more information.

The Geological Society of Nevada wishes to thank the following donors.

Kenneth Snyder
Peter Rowley
John Prochnau
Cyrus Field
Jerry Dolence
Robert Schafer
Kent Thomson
Mark Stock
Boart Longyear

Dear Members

Thank you for the bus and for the field-trip. The fossil pit was in town of Hazen. We found a type of rock called sedimentary rock. In side it we found fish fossils. The fossils were the color orange. When we dug the sedimentary up we had to peel the layers and find the fossils. And the color of the sedimentary was white. We had to wear dirty clothes because it stuck on us.

Love, Colin

DAYTON ELEMENTARY

Thanks to ALS Chemex and Stretch's Exploration Inc. for hosting the December meeting.

GSN January 17, 2003 Membership Meeting

Date: Wednesday, January 17, 2003

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, 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

Speakers/topic: Mark Coolbaugh, Great Basin Center for Geothermal Energy, UNR. See abstract below.

REGIONAL GEOLOGIC CONTROLS, GEOCHEMICAL CHARACTERISTICS, AND THERMAL INFRARED SIGNATURES OF GEOTHERMAL SYSTEMS OF THE GREAT BASIN

Mark Coolbaugh, Great Basin Center for Geothermal Energy, University of Nevada, Reno

The Great Basin Center for Geothermal Energy, directed by Drs. James Taranik and Lisa Shevenell, is nearing the completion of its first year of diversified research. Topics include seismic studies (John Louie), structure and geophysics (Jim Faulds and others), GPS strain analysis (Geoff Blewitt and others), geochemical studies and databases (Greg Arehart, Larry Garside, Lisa Shevenell and others), web site development (Don Sawatzky and others), remote sensing (Wendy Calvin and others), and a geothermal GIS (Mark Coolbaugh and others). We provide an overview of some of this research, emphasizing geochemistry, regional GIS analysis, and remote sensing.

Two types of geothermal systems are recognized in the Great Basin: those driven by magmatic heat (magmatic systems) and those associated with high regional heat flow and active faulting (extensional systems). Magmatic-type geothermal systems (e.g., Mammoth) are currently restricted to the margins of the Great Basin where Quaternary silicic volcanic rocks are present, but extensional systems (e.g., Dixie Valley) occur throughout much of the Basin and Range province. The Great Basin is unusual in the world in that some of these extensional systems attain reservoir temperatures of $>150^{\circ}\text{C}$ and support geothermal power plants.


Characteristic fluid chemistries distinguish magmatic and extensional-type geothermal systems. Fluids from magmatic-associated systems have higher As concentrations, higher Li/Cl, B/Cl, and Cs/Cl ratios, and higher $^3\text{He}/^4\text{He}$ ratios compared to their extensional counterparts. These differences are observed in spite of the fact that pH and salinity ranges are broadly similar. Host rocks do not appear capable of explaining differences in arsenic concentrations. The possibility that magmas could be the ultimate source of some metals is supported by high metal concentrations measured in juvenile (magmatic) fluids from geothermal systems in Japan and elsewhere: however, reservoir dynamics and fluid-rock interactions are complex and direct links are difficult to establish.

Geothermal systems in the Great Basin exhibit several scale-dependent regional controls. At a basin-to-basin scale, high-temperature systems are preferentially associated with northeast-trending lineaments including the Humboldt Lineament in Nevada and the Black Rock-Alvord Desert trend in Nevada and Oregon. Superimposed on these northeast trends is a broader-scale northwest trend of geothermal systems believed related to shear-induced extension along and marginal to the Walker Lane. Interestingly, at an even broader scale (300 km), regional contouring defines a cluster of high-temperature extensional systems in the northwest portion of the Great Basin: several possible explanations for this cluster are explored, including high heat flow, crustal extension rates, thinner crust, and possible basaltic underplating.

Temperature anomalies associated with geothermal activity can be detected using thermal infrared remote sensing imagery, and towards that end, the Arthur Brant Laboratory for Exploration Geophysics (ABLE Lab) at the University of Nevada, Reno has been investigating the use of new airborne and satellite thermal sensors. Examples from Steamboat Springs and Brady's Hot Springs are used to illustrate how digital enhancements can minimize the diurnal heating effects of the sun that otherwise can obscure geothermal anomalies. Enhanced ASTER satellite imagery was used to help identify a pattern of secondary fault structures at Brady's Hot Springs that will assist ongoing structural studies of that area.

This research is being conducted in collaboration with the Nevada Bureau of Mines and Geology, the United States Geological Survey, the Desert Research Institute, and the Nevada Seismological Laboratory. Funding was provided by DOE grant DE-FG07-02ID14311 and a NASA Space Grant. Site access was provided by Caithness Power Co., Ormat, Advanced Thermal Systems, and Gilroy Foods, and helpful advice, information and/or assistance were given by David Blackwell, Dick Benoit, Eric Struhsacker, Tom Flynn, Richard Smith, John Sass, Barbara Nash, Don Fiesinger, and others.

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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 323-3599. Camera-ready ads must be received by the 20th of the month to appear in the following month's newsletter.

THANK YOU!!!!

D.D. LaPointe, Co-Chair, GSN Education Committee

The Geological Society of Nevada Foundation's fundraiser Rock Raffle and Silent Auction held at the annual Christmas Party meeting (Dec. 18) netted \$3,038 to further the educational programs supported by the GSN Foundation. This was possibly due to the combined generous donations of raffle/auction items by the donors listed below, and to the ticket purchases, auction bids, and combined volunteer efforts of many members.

THANK YOU ALL!!!

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Opal Adams and Rich DeLong
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 Laura and Eric Ruud
 Mark Stock, Global Hydrologic Resources
 Stone Age Quarry
 Rene Von Boeck
 W. M. Keck Museum, Mackay School of Mines
 Clancy Wendt
 And several "Anonymous Donors"

WINNERS OF THE RAFFLE AND SILENT AUCTION ITEMS

ID #	RAFFLE ITEM	DONOR	WINNER
FOOD & DRINK			
1	gourmet chocolate cake	Phyllis Brock, Galena Concierge catering	Sharon Lewis
2	Hill of Gold- Australian red wine	Rachel Dolbier Steve Carroll	Clancy Wendt
3	wine	Opal Adams & Rich DeLong	Dan Rovig
4	Handmade chocolates	Opal Adams & Rich DeLong	Alan Coyner
5	Gift Basket	Opal Adams & Rich DeLong	Scott Werschky
LOGO ITEMS			
6	Newmont sweatshirt plus mug	Newmont, the Gold Company	Laura Ruud
6a	Newmont denim jacket plus hat	Newmont, the Gold Company	Tom Irwin
7	Newmont denim jacket plus hat	Newmont, the Gold Company	Bob Horton
8	Newmont backpack plus mug	Newmont, the Gold Company	Eric Ruud
9	Alaska golf shirts	Laura and Eric Ruud	Don MacKerrow
10	Boart-Longyear jacket (2)	Boart-Longyear Drilling Company	Steve Castor & Tom Nimsk
11	Boart-Longyear sweatshirt (4)	Boart-Longyear Drilling Company	Julie Shinneman (2), Laura Ruud, Clay Post
12	Boart-Longyear golf shirt	Boart-Longyear Drilling Company	M. Tippett
13	Boart-Longyear belt buckle & T-shirt	Boart-Longyear Drilling Company	Larie Richardson
14	ER logo jacket	Opal Adams & Rich DeLong	Jessie Muehberg & Mike Cassidy
15	Sleeping bag	CGS	Scott Werschky
19	CAT Scale model haul truck	Dan Rovig	Debbie Struhsacker
19a	Groom Lake mug, AML mug/XL logo Tshirt package	Maureen Leshendok	Mack Taylor
20	Filson Vest	Eric Ruud	Rick Walker

WINNERS OF THE RAFFLE AND SILENT AUCTION ITEMS (continued)

ID #	RAFFLE ITEM	DONOR	WINNER
PRECIOUS METALS			
20	Seven-Million Ounces production commemorative coins (2 draws)	Round Mountain Gold Corporation	Dennis Bryan and John Pierson
21	Set of 5 one-ounce silver commemorative rounds	Coeur d'Alene Mining C.-Dieter Krewedl	Dave Miller
22	2 Nevada Mining silver rounds (2 draws)	Nevada Mining Association	Steve Castor & Greg Ekins
23	Sterling silver miner's carbide lamp	Clancy Wendt	Eric Struhsacker
HAND-CRAFTED ROCK ITEMS			
24	Nevada rock tie tack set - Wonderstone	Jon Price	Cami Prenn
25	Nevada rock tie tack set - green tuff	Jon Price and Alan Coyner	Elizabeth Zbinden
26	Rock bookends	Kennecott	#739683
27	Ammonite tree sculpture	Stone Age Quarry	Richard DeLong
28	Carved rock hummingbird & pelican (2 draws)	Miner's Lunchbox - Werschky/Day	Telia Irwin & Jan Sloan
29	Dumortierite beads, Lincoln Hill, Pershing Co., NV	Lane Griffin	Beth Price
30	Small bookends - petrified wood?	Keck Museum, Mackay School of Mines	Eric Ruud
MINERALS, ROCKS, ORES			
31	Native copper specimen, Santa Rita mine, New Mexico	Pete Hahn	Lew Gustafson
32	Diopside, Whitehall, MT	NBMG	Mike Cassidy
33	Pyrite mineral specimen	Miner's Lunchbox - Werschky & Day	Richard DeLong
34	Fluorite & quartz mineral specimen	Miner's Lunchbox - Werschky & Day	Tom Irwin
35	Sphalerite & quartz mineral specimen	Miner's Lunchbox - Werschky & Day	Gary Fechko
36	Large quartz crystal specimen	Miner's Lunchbox - Werschky & Day	Rene Von Boeck
37	Clinozoisite on quartz mineral specimen, Nightingale Mine, Churchill Co., NV	Lane Griffin	Ed Hanley
38	Quartz mineral specimen, Summit King Mine, Churchill Co., NV	Lane Griffin	Carol Callaghan
39	Pharmacosiderite, Copper Stope, Majuba Hill, Pershing Co., NV	Lane Griffin	Richard DeLong
40	Clinoclase, Copper Stope, Majuba Hill, Pershing Co., NV	Lane Griffin	Dave Emmons
41	Hemimorphite, Ruby Hill, Eureka Co., NV	Lane Griffin	Phyllis Brock
42	Endlichite on Descloizite, Chalk Mtn. Mine, Churchill Co., NV	Lane Griffin	Richard Bedell
43	Azurite specimen (Dixie Mine, UT) (2 draws)	Steve Scott, Museum Without Walls, Las Vegas, NV	Alan Coyner
44	Hanksite crystals - Searles Lake, CA	Steve Scott, Museum Without Walls, Las Vegas, NV	Dave Emmons
45	Hanksite & Sulfohalite crystals - Searles Lake, CA	Steve Scott, Museum Without Walls, Las Vegas, NV	Cami Prenn/Dennis Bryan
46	Tincalconite specimen - Searles Lake, CA	Steve Scott, Museum Without Walls, Las Vegas, NV	Julie Shinneman
47	Thenardite - (Tincalconite, Hanksite, Sulfohalite) Searles Lake, CA	Steve Scott, Museum Without Walls, Las Vegas, NV	Julie Shinneman
48	Spessartine garnet on microcline feldspar - Searchlight, NV	Steve Scott, Museum Without Walls, Las Vegas, NV	Tom Irwin
49	Triassic ammonites, Star Peak Fm, Pershing County, NV	Steve Scott, Museum Without Walls, Las Vegas, NV	Greg Ekins
50	Halite, Searles Lake, CA	Steve Scott, Museum Without Walls, Las Vegas, NV	Tom Shrake
51	Quartz on barite, Sugarbowl Pocket, Murray Mine	Geoprime Minerals	Richard Bedell
52	Lumpy Clay (anothosite) ore, Acton Mine	Larie Richardson, Nevada North Resources USA, Inc.	Opal Adams (both)
53	Barite on calcite, 1225 level, Meikle Mine, Elko Co., NV	Greg Ferdock, Great Basin Minerals	Maureen Leshendok
54	Barite, Dee mine, Elko Co., NV	Greg Ferdock, Great Basin Minerals	Kevin Conway
55	Cauliflower gypsum crystal, Gerlach, Washoe Co., NV	Greg Ferdock, Great Basin Minerals	Greg French
56	Tiger Eye, polished face, (2 draws)	Anonymous donor	Jessie Muehlberg/Tom Kilbe
57	Fluorite, Douglas Co, NV	NBMG	Eric Struhsacker
58	Fluorite - Missouri	NBMG	Al Kirkham
59	Gold in quartz	NBMG	Eric Ruud

continued

WINNERS OF THE RAFFLE AND SILENT AUCTION ITEMS (continued)

ID #	RAFFLE ITEM	DONOR	WINNER
60	Gold and sulfides, Ouray CO	NBMG	Al Kirkham
61	Topaz crystals, Mexico	NBMG	Opal Adams
62	Garnet - schist - Wrangell, AK? Calcite - China, Kernite	NBMG NBMG	Alan Coyner Buchanan, Jan Sloan
BOOKS, MAPS, PAPER MINING MEMORABILIA			
63	Mining paper memorabilia- Lot 1, Virginia City	Fred Holabird	Jess Wellman
64	Mining paper memorabilia - Lot 2, Nevada	Fred Holabird	Butch Wolfstange
65	Mining paper memorabilia - Lot 3, other states	Fred Holabird	Tom Callicrate
66	Reno-Virginia City antique post cards	Fred Holabird	Scott Werschky
67	Set of stratabound deposit books	Rene Von Boeck	Mack Taylor
68	Old Grand Canyon topo maps	Alan Coyner	Joe Polovino
69	Stearic Acid Candle box label	Lane Griffin	Greg Ferdock
70	Various NV Documents	Dan Rovig	Larry Garside
71	USGS Professional Papers (8 draws)	Kennecott	Alan Coyner, Jim Bright, Bob Thomas, Greg Ferdock, Cami Prenn, Joe Larrivee, Steve Carroll, Eric Struhsacker
72	USGS Folio Quads (4 lots)	Kennecott	Rick Walker, Dennis Bryan, Tom Callicrate, Terri Garside
SILENT AUCTION ITEMS			
2	Alaskan gold nuggets (suitable to make earrings)	Ken Cunningham	April Barber
	Specimen of barite crystals, Meikle Mine, Elko Co., NV	Geoprime Minerals	Dennis Bryan
	1876 Assaying and Metallurgy book	Fred Barnard	Dennis Bryan
	Ruby Hill USGS folio book	Rene Von Boeck	Greg Ferdock
	Phillipsburg, MT, USGS folio	Nevada North ResourcesUSA, Inc.	Dennis Bryan
	Riddle, OR, USGS folio	Nevada North ResourcesUSA, Inc.	Tom Callicrate
	Comstock (Sutro) Tunnel bond	Fred Holabird	Neil Prenn
	Mining Stocks - Ruby Hill/ Gould & Curry/ Union Mine (lot of 3)	Fred Holabird	Neil Prenn
	Seven-million ounces production commemorative coins (3 highest bidders)	Round Mountain Gold Corporation	Opal Adams, Chris Henry, Alan Coyner
	Scale model shovel	Dan Rovig	Ann Carpenter
	Spessartine garnet, quartz & feldspar mineral specimen	Miner's Lunchbox - Werschky & Day	Alan Coyner
	Chalcopyrite on manganocan calcite mineral specimen	Miner's Lunchbox - Werschky & Day	Alan Coyner
	Boulangerite, arsenopyrite, fluorite & quartz mineral specimen	Miner's Lunchbox - Werschky & Day	Richard DeLong
	Calcite crystals mineral specimen	Miner's Lunchbox - Werschky & Day	Richard DeLong
	Hanksite crystals - Searles Lake, CA	Steve Scott, Museum Without Walls, Las Vegas, NV	Jonathan Brown
	Carved rock miners' lamp	Mark Stock	Dennis Bryan
	Nevada rock tie tack set - dumortierite	Jon Price	Neil Prenn
	Nevada rock tie tack set - green tuff	Jon Price and Alan Coyner	C. Smith
	Copper ore (djurleite, covellite, and chalcocite) sample from Kennicott Mines, Alaska	Ed MacKevett	Alan Coyner
	Kennicott Mines, Alaska photo	Kennecott	Richard DeLong
	Pipeline Mine photo	Kennecott	Richard DeLong
	Horse Canyon mine photo	Kennecott	Richard DeLong
	Horse Canyon? Buckhorn? Mine photo	Kennecott	Richard DeLong



UP-COMING EVENTS

Jan 10th, Friday - SME Business Luncheon Meeting: Bonanza Casino (4720 N. Virginia St., Reno, NV) conference room, lunch at noon (\$15), program at 12:30 pm. Speaker: James S. Voorhees, VP Operations and Coo for Glamis Gold Ltd. "Glamis Gold—Building the Future." For more information contact Dan Rovig at 775/856-0252, drovig@charter.net.

Jan 14th, Tuesday - NWGS Meeting. Speaker: Liz Nesbit (Burke Museum), Eocene Sedimentary Rocks of Western Washington.

Jan 17th, Friday - GSN MEMBERSHIP MEETING: Reno Elks Lodge, Reno, NV. Speaker: Mark Coolbaugh, "Regional Geologic Controls, Geochemical Characteristics, and Thermal Infrared Signatures of Geothermal Systems of the Great Basin." Social hour: 6 pm, dinner: 7 pm, talk: 8 pm. Call Shannon Fitzpatrick for dinner reservations, 775/323-3500.

Jan 30th, Thursday - SOUTHERN NEVADA CHAPTER MEETING: Room 102, Lily Fong Geoscience Building, UNLV, Las Vegas, NV. Cathy Snelson, UNLV will be speaking about Las Vegas Basin Seismic Response Project: Preliminary Results From Seismic Studies in Las Vegas. Contact Jean Cline for information, 702/895-1091.

Jan 27th-30th - Cordilleran Round-up 2003. Westin Bayshore Hotel, Vancouver, B.C. For more information, 604/689-5271, or check our website at www.chamberofmines.bc.ca.

Feb 24-26th - SME Annual Meeting and Exhibit, Cincinnati, OH. Phone Society for Mining, Metallurgy and Exploration at 303/973-9550, or email sme@smenet.org.

GEOLOGICAL SOCIETY OF NEVADA



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