

2016

GEOLOGICAL SOCIETY OF NEVADA NEWSLETTER

Geological Society of Nevada, 2175 Raggio Parkway, Room 107, Reno, NV 89512
(775) 323-3500 - Hours Tuesday -- Friday, 8 a.m. to 3 p.m. Monday by appointment.
Website: www.gsnv.org • E-mail: gsn@gsnv.org



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NO MEETING IN JANUARY

SO. NEVADA CHAPTER MEETING (1st Thursday of the month)

No meeting in Las Vegas in January due to the holidays. We will resume our meetings on February 4, 2016! Please contact Josh Bonde for more information: Joshua.bonde@unlv.edu.

Jan. 13, 2016 WEDNESDAY

WINNEMUCCA CHAPTER MEETING (2nd Wednesday of the month)

The meeting will be held at the Martin Hotel, 94 W. Railroad St., Winnemucca, NV. Drinks at 6 p.m. Appetizers at 6:30 p.m. and talk at 7:00 pm. **Speaker: Steven D. Craig, Cardno Corp.** Title: "Tigers, Bears, Poncho Villa, Murder and High Grade Silver in Mexico". **Food & Drinks Sponsored by: TBA.** For more info please contact James Carver @ jcarver@silverstandard.com. Details and abstract on page 6.

Jan. 15, 2016 FRIDAY

GSN MEMBERSHIP MEETING (3rd Friday of the month)

The GSN meeting will be held at the Reno Elks Lodge, 597 Kumle Lane, Reno, Nevada. Social hour begins at 6 pm, Dinner is at 7 pm and talk begins at 7:45 pm. **Speaker: Dr. Alan Chamberlain, Cedar Strat Corp.** Title: "Deep Stratigraphy, Structural and Petroleum Geology of the Basin and Range Monument". **Drinks Sponsored by: ENVIROTECH DRILLING.** Cost for Dinner—\$25. Please make reservations for dinner with Laura Ruud at the GSN office: gsn@gsnv.org or 775-323-3500. Details & abstract on page 3.

Jan. 21, 2015 THURSDAY

ELKO CHAPTER MEETING (3rd Thursday of the month)

The meeting will be held at the Western Folklife Center, 501 Railroad St., Elko, NV. Refreshments begin at 6 pm. Talk at 7:00 pm. **Speaker: Justin Milliard, PhD Candidate, CREG, UNR.** Title: "Preliminary Insights into Multi-Scale Fluid Pathway Controls from the Middle Miocene Northern Nevada Rift, North-Central, Nevada" **Food & Drinks Sponsored by: KLONDEX GOLD & SILVER MINES and AMERICAN DRILLING.** For more info please contact Mark Travis at: mark.william.travis@gmail.com. Details on pg. 7.



G.S.N. JANUARY MEETING SPONSOR

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FROM THE PRESIDENT
Elizabeth Zbinden, G.S.N. President 2015-2016
JANUARY 2016

Happy New Year! Where were you when the Reno earthquake swarm hit on Dec 22nd? I was standing in my living room, wrapping Christmas presents. It was not exactly Anchorage 1964, nor even Wells 2008, but it was the best quake I've felt in a while. Large enough that many of us in the Reno-Sparks-Carson metro area could feel it but small enough that damage was minor to nonexistent. A fun gift from Nevada structure to us Earth Scientists!

Those of you who are or have been members of AEMA will be familiar with Large Left Lateral Leaps. Leaps are provocative ideas, out of the mainstream and/or just being developed, and worth a listen. Our speaker for this month, Alan Chamberlain from Cedar Strat, is in the spirit of Large Left Lateral Leaps. He will tell us about "Deep stratigraphy, structural and petroleum geology of the Basin and Range Monument". I hope you will find his presentation thought-provoking and informative. Come prepared for a bit of controversy!

Our December meeting was a rousing success thanks to a great number of sponsors, donors, volunteers, and other members who participated. Our speaker David Beaty from NASA-JPL offered enough wow-factor on Mars exploration to please the dreamers among us, and enough practical thoughts about it to please experienced down-to-earth explorers. For the GSN Foundation fundraiser we had a record number of donations matched by a record amount of money spent by you, the members, to bid and purchase the donations. There were five, count 'em five, items for the live auction: Eye-candy gold specimens from Scott Werschky/ Miner's Lunchbox and from Kinross/ Round Mountain Gold; exquisite gold-in-quartz cufflinks from Richard and Linda Bedell; gold spatters to drool over from Newmont and from Pershing Gold. And by the way Pershing Gold also sponsored the bar which, if you can believe it, cost them more than the gold spatter. Thank you to Greg French who whipped up enthusiasm as auctioneer – his style was so well received that by popular demand he also auctioned his custom-decorated Christmas Auction Hat! The live auction, silent auction, and raffle together raised a record \$17,006 for the Foundation. We are grateful to all the donors and purchasers. A full list of the donors is elsewhere in this newsletter. The previous record Christmas fundraiser of \$16,082 was in 2007, just before the recession hit. Does this mean we're back to growth in exploration budgets again?

And finally a brief reminder about your assignment from last month: Participation.

Comment period has been extended for the Bi-State Distinct Population Segment Land Use Plan Amendment: Deadline is now January 15, 2016. To view the Plan and related documents, go to <http://1.usa.gov/1fccdry>.

Many of you attended scoping meetings related to proposed mineral withdrawals in Sagebrush Focal Areas. Now follow through with comments! Deadline on this issue is still January 15, 2016. For more info, go to <http://www.blm.gov/wo/st/en/prog/more/sagegrouse.html> and links therein.

Best wishes for a great 2016 to each and every GSN member!

***The Geological Society of NV wishes to thank the
SPONSOR OF OUR DECEMBER CHRISTMAS MEETING!!***


pershing gold

GSN Friday, January 15th Membership Meeting

For dinner reservations, please e-mail gsn@gsnv.org or call 775-323-3500

by 4:00 p.m. on WEDNESDAY, JANUARY 13TH!

Social Hour begins @ 6:00 pm; Dinner @ 7:00 pm;

Speaker to Follow @ 7:45 pm

Location: RENO ELKS LODGE, 597 KUMLE LANE (across from the Convention Center)

DINNER COST—\$25.00 per person (Reservation no-shows will be invoiced.)

Guest Speaker: Dr. Alan Chamberlain, Cedar Strat Corp.

**TITLE: DEEP STRATIGRAPHY, STRUCTURAL AND PETROLEUM GEOLOGY OF THE
BASIN AND RANGE MONUMENT**

ABSTRACT for GSN:

The Basin and Range Monument lies within the eastern Nevada portion of the western North American Cordillera ridge and valley fault fold belt. Magnetic data indicates that volcanic rocks flowed into Monument area Sand Spring, Coal, and White River Valleys tens of millions of years before extensional faulting was supposed to have created the basins. Strong gravity highs, typical of thrust duplexes, occur over the Worthington, Golden Gate, Seaman, Grant and Timpa-hute Ranges where exposed Paleozoic rocks are convoluted and repeated by thrust faulting. Contrasting stratigraphy between thrust sheets confirms the ridge and valley compressional geomorphology of the Monument.

Well-exposed, celestial-controlled global warming cycles, exposed in Middle Devonian Guilmette Formation, were interrupted by the Alamo impact event as evidenced by exposures of impact breccia in the Monument ranges. Restoration of the impact crater serves as another confirmation of the Late Cretaceous and Early Tertiary compressional event. Outcrops of some of the richest and thickest Mississippian Antler foreland basin oil shales are exposed within the Monument. This suggests that the economic impact of withdrawing the land from multiple-use is substantial and was done without adequate study.

BIOGRAPHY:

Alan Chamberlain attended five universities and acquired five degrees including a PhD at Colorado School of Mines. He worked for Exxon, Gulf (now Chevron), Marathon, and Placid oil companies. He was commissioned by several major oil companies to initiate the first comprehensive and consistent geological survey in 1984 and he has been working on the survey ever since as president and chief geologist of Cedar Strat Corp.

**Thank you to the WINNEMUCCA CHAPTER
Holiday Meeting SPONSORS in DECEMBER!**

**Thank you to the ELKO CHAPTER Holiday
Meeting SPONSOR in DECEMBER!**



FACES OF GSN

January 2016

Caitlin Ellis, Geologist

I accidentally signed up for a zero period Green Biology course in high school. The class started at 6:30 am with 1 hour of Santa Barbara City College horticulture in our on-campus garden and ended with an hour of Advanced Placement Biology. Despite the early mornings, it was my favorite class. Junior year I became the president of the Green Club, scheduling environmentally friendly volunteer opportunities for my fellow club mates. Senior year I took an Environmental Science class that convinced me I could heal the world. The 180° turn my life has taken since then amazes me, but it's not surprising as my interest in science is just as convoluted.



Jason & I at Agatha's Needle 2009

My first year out of high school I attended Santa Barbara City College (SBCC), where I took Oceanography from Dr. Robert Gray, one of the biggest influences in my career of hard rock geology. Dr. Gray taught a class full of lackadaisical surfers and aspiring marine biologists about turbidites, foraminiferal oozes, and continental margins with such passion that I was enthralled. The geology department held field study courses every semester to either Death Valley or the Eastern Sierras with a summer course to the Colorado Plateau. I took them all twice. I met a certain handsome geologist, my boyfriend Jason Kline, on one of these field studies. I excelled in my optical mineralogy, petrology and chemistry courses and Dr. Gray suggested I study economic geology.

During my two years in the SBCC geology program I was awarded a Brunton compass for Outstanding Geology Student of the Year and an American Petroleum Institute scholarship of excellence. I was the Vice President of AAPG's student chapter and an active member of the Coast Geologic Society. I tutored for all of the geology classes and interned at John Minch Associates for a bird fossil sensitivity study in San Bernardino, CA. Every weekend there was a different Geo excursion; we visited La Brea Tar Pits, the Nature Conservancy Side of Santa Cruz Island to study exotic terrains and natural selection, and Vandenberg Air Force Base's ophiolite sequence. During my second trip to the Eastern Sierras, GSN members Doug and Gael McGibbon led a tour of a project Doug was working on. We also visited Briggs Mine where I met Dr. Elizabeth Zbinden, who encouraged me to get out of California and finish my education in Nevada.

My last summer in Santa Barbara I took SBCC's summer field course in the Cuyama Badlands and the Ridge Basin near Gorman. Although I froze water bottles over night for the field, I drank hot water by 10 am every day in the sweltering 115 degree heat. One afternoon during a particularly difficult mapping exercise, we came back to a flash flooded camp where I found my sleeping bag and books floating in a foot of muddy water in the tent. All in all it was a rewarding experience. I learned how to use a plane table alidade, triangulate, write detailed organized notes and not care about my personal hygiene for weeks at a time.

I took Dr. Zbinden's advice and was accepted to UNR in 2010. Shortly after moving to Reno I joined the GSN and enjoyed free food and talks beyond my grasp. My first year at UNR was a breeze; SBCC over-prepared me for my first semester and I actually had time to intern at the NBMG where I became familiar with their extensive collection of quadrangle maps. When UNR did not accept my optical mineralogy, I retook the class with Dr. John McCor-



SBCC Geology Tour of Briggs Mine 2010

mick. It was a blast; there was

never a dull moment behind those scopes! My first class with Dr. Tommy Thompson shocked me. Gone were the days of sailing through exams without studying. Jason and I always competed for the top score in every class, but in Dr. Thompson's economic geology we were struggling. After long hours at the library and no social life I received an A in his class!



Kışladağ Gold Mine, Turkey 2011

During spring break 2011 I travelled to Turkey with the SEG student chapter and a handful of eccentric geologists. What an amazing trip! I visited my first (cont. on page 5)

(Ellis, Cont. from page 4)

underground mine and collected more than my fair share of rhodonite at Efemçukuru. I experienced artisanal olive oil grown on a mine tailings at a mine in Çanakkale, and drank the finest whiskey Turkey had to offer with Dave Shaddrick.

I met Dr. Earl Abbott at a spring GSN meeting and he offered me a job that summer. We travelled all over the state from Tonopah to Elko and everywhere between. He introduced me to the complex fold and thrust belts of Nevada.

The following semester I started a joint senior thesis with Jason Kline on one of Coyote Resources' projects near Cortez Hills. After meeting Bill Howald, then president of GSN, on a GSN field trip he agreed to fund our project. We conducted a micropaleobiologic study to identify biostratigraphic relationships within the Cherry Springs Chert with Dr. Paula Noble, and prepared plagioclase samples for an Ar/Ar age date under the supervision of Dr. Chris Henry. We also had a number of hand samples assayed, and Gael McGibbon taught me how to fill out my first submittal sheet. The thesis was a success due to our profoundly knowledgeable advisor Dr. Thompson and the guidance of numerous GSN contacts. I graduated on the presidents honor roll in 2012 and that summer completed my UNR Summer field study.

I landed my first full time job with Allied Nevada's exploration team. I worked at the Hycroft mine first as an ore control geologist then in exploration, all the while enjoying what I naively thought would be a long lived career with ANV. I was laid off 8 months into the job and promptly took a month long trip to Indonesia with my severance.



Using Hydrofluoric acid to dissolve chert, UNR 2012



Swimming with Manta Rays, Indonesia 2013

With the sad state of affairs in the job market, Jason and I moved to my family's off-the-grid ranch in Big Sur, CA and tried living off the land. We cultivated an orchard and took care of a flock of crotchety hens and a magnificent white rooster, Gandolf. Living at the ranch taught me a lot about the dangers of electric fences, the destructive forces of herds of wild boars and how to skin a rabbit. Jason and I went on many backpacking trips around California and I started playing music again. I've played guitar since I was 10 but picked up banjo, mandolin and resonator guitar while we lived there. Finally I found a position with a friend's environmental consulting firm, Cap Rock Geology, in Salinas, CA. A few months of inspecting asbestos ridden houses and sampling contaminated water wells near the Moss Landing power plant made me realize that environmental work was not my cup of tea. Thankfully Bill Howald saved me from that job by offering me a short term contract position sampling and mapping Rye Patch Gold's Gold Ridge project.

Two weeks turned into a year and a half, with Rye Patch offering me a full time position in April 2015. I so enjoy working at RPG because I am involved in every aspect of exploration, grassroots sampling and mapping, land status, permitting, data management, core and chip logging, geologic modeling, creating cross sections; you name it, I'll learn how to do it. Ronaldo Pinto da Silva and Dr. Radu Conelea have taught me so much. I look forward to expanding my knowledge base with such an experienced team of geologists, as there are many exciting prospects on the horizon.

My plan for the future is to get my Masters in Economic Geology, and travel for work. Perhaps study Manganese Nodules in the Cook Islands or IOCG's at Olympic Dam. My dreams depend on whether I can find the right contact, which I'm sure the members of GSN have! GSN welcomed me into this geologic community and has provided me with interesting employment opportunities ever since. Thanks for allowing me to share my story.



Serenading Gandolf, Big Sur 2014

GSN WINNEMUCCA CHAPTER MEMBERSHIP MEETING

WEDNESDAY, JANUARY 13, 2016

Location: The MARTIN HOTEL, WINNEMUCCA, NV

Time: Drinks @ 6:00 p.m., Appetizers @ 6:30 p.m., Talk begins @ 7:00 p.m.

SPEAKER: Steven D. Craig, Cardno Corporation

TITLE: “Tigers, Bears, Poncho Villa, Murder and High Grade Silver in Mexico”

Food and Drinks Sponsored by: TBA

Abstract:

This presentation should really be titled “The History, Geology and Silver Mineralization of the El Tigre Mining District in Sonora, Mexico”. It will look at the 119 year evolution of a premiere silver district in northern Mexico and touch on some of the events that shaped its future.

As for the title above, it was reported that a member of the prospecting party shot a mountain lion (el tigre) at the discovery area, then a bear later killed that person. Poncho Villa reportedly visited the site after some of his revolutionaries shot up the place and stole some silver concentrate. And, during the mining operation, the mine manager was murdered near the mine office by a disgruntled worker who was never captured.

Essentially, the district history can be broken down into three major periods. The district's history begins in 1896 when it was found by American gold prospectors. This discovery was part of the huge prospecting effort to discover new gold and silver deposits in the western US and border areas of Mexico at the turn of the century. Mining began in 1903 and ended in 1938 with about 70 million ounces of silver being produced from diluted ore that averaged 40 opt Ag. Production came from narrow 1 to 3 foot fissure veins hosted in volcanic rocks.

The second significant push in the district was 1981 to 1984 when Anaconda Minerals conducted the first modern exploration program with mapping, sampling and drilling in an attempt to discover new high grade silver ores. Their timing into the district coincided with the first big spike in silver prices, and once the price collapsed, they departed the scene with mixed results.

Following Anaconda, there were small efforts to develop the large tailings pile that still held economically recoverable silver values. This effort became more serious when in 2009 El Tigre Silver Corporation acquired the rights to the tailings pile and all of the mineralized areas that were historically mined. They conducted drilling and metallurgical work on the tailings and also drilled core holes exploring for both high grade silver veins and low grade gold in a dispersion halo adjacent to the veins. The highest grade silver intercept ever returned was at 252 opt over 1 foot. The NI 43-101 compliant resources from that work are:

Vein System Indicated Material

Base Case Cut-off Grade of 50 gpt AgEq (50 to 1 Ag to Au)
9,875,000 tonnes at 77.8 gpt AgEq (or 1.30 gpt AuEq)
Contained Metal: 24,713,000 oz AgEq (12,614,000 oz Ag and 200,000 oz Au)

Vein System Inferred Material

7,042,000 tonnes at 71.0 gpt AgEq (or 1.18 gpt AuEq)
Contained Metal: 16,075,000 oz AgEq (8,173,000 oz Ag and 133,000 oz Au)

Tailings M+I Material

1,294,000 tonnes at 99.7 gpt AgEq (cutoff at 40 gpt)
Contained Metal: 4,150,000 oz AgEq, (or 3,454,000 oz Ag and 11,600 oz Au)

El Tigre Silver no longer exists as it became a “Zombie” company due to current market conditions. In November 2015, Oceanus Resources bought all of El Tigre's shares and now controls the project.

GSN ELKO CHAPTER MEMBERSHIP MEETING

THURSDAY, JANUARY 21, 2016

Location: The WESTERN FOLKLIFE CENTER, ELKO, NEVADA

Time: Refreshments/Appetizers @ 6:00 p.m., Talk @ 7:00 p.m.

SPEAKER: Justin Milliard, PhD Candidate, Mackay School, Univ. of NV, Reno

TITLE: Preliminary Insights into Multi-Scale Fluid Pathway Controls from the Middle Miocene Northern Nevada Rift, North-Central, Nevada

Food and Drinks Sponsored by: KLONDEX GOLD & SILVER MINING CORP. and AMERICAN DRILLING CORP.



ABSTRACT:

Justin B. Milliard

Ralph J. Roberts Center for Research in Economic Geology, University of Nevada Reno, 1664 N. Virginia St., Reno, NV USA 89557; jmilliard@nevada.unr.edu; CREG Director, John Muntean: munteanj@unr.edu

This recently initiated research project being conducted at UNR through the CREG program is designed to answer specific questions regarding a genetically related series of low-sulfidation epithermal deposits, including: 1) Are there consistent themes controlling the deposit locations within a rift setting? 2) Is deposit formation affected by magmatic and/or seismic activity? 3) Do preferred geometric linkages of faults serve as channels for hydrothermal fluids? 4) Does basin geometry directly influence subterranean aquifers and have an affect on epithermal systems? In a rapidly evolving tectono-volcanic setting such as the mid-Miocene northern Nevada rift (NNR), epithermal systems are short-lived and their surface expressions can quickly be buried. By answering the proposed questions, exploration geologists can narrow their targeting to specific regions and researchers will be closer to understanding the driving mechanisms for deposit location and formation.

This study hypothesizes that rift architecture dictates deposit formation and location, and is a product of transtensional stresses interacting with hypabyssal magmatism, volcanism and basin development. Also proposing that the NNR formed a regional half graben depocenter composed of numerous asymmetrically subsiding tilt-blocks forming segmented basins. Magmatism and hydrothermal fluids preferentially exploited portions of boundary fault systems. Furthermore, growth faults created isolated depocenters that eventually interlinked, serving as loci for migrating surface and subterranean waters. Collectively these mechanisms are hypothesized to be scale-independent, suggesting that relationships between faults, veins and dikes seen in the small scale are replicated on larger scales. If this is the case, a seemingly chaotic structural architecture may in fact be an orderly and predictable natural fractal. If successfully demonstrated, these mechanisms can be used to anticipate epithermal deposit location.

Observations from the NNR suggest three fundamental structural fabrics accommodated deformation. The first fabric is a boundary fault network on the rift's western margin (~340°) that links with a secondary network (~070°), which work in concert to form tilt-blocks. Miocene strata display growth geometries toward both of these fault systems. The third structural fabric (~310°) is suggested to be synthetic to the 340° fabric, chiefly serving as linkages between en echelon boundary faults. The 310° and 340° fabrics combined host the majority of low-sulfidation epithermal vein mineralization and coeval dikes. Collectively, all three fabrics can form contemporaneously under trans-tensional stress as suggested by Riedel shear models. Multi-scaled manifestations of Riedel shears have been documented as cymoids at the stope to deposit scale, and up to district scale as relay-ramps between basin bounding normal faults.

Aiming to answer the stated questions, this study will document rift architectural development and its time-space relationship to epithermal deposits at multiple scales. Structural geometries of veins, faults, and dikes will be collected through detailed geologic mapping at individual deposits and across the entire NNR. Radiometric dating and AVIRIS mapping of phyllosilicates will support geologic mapping efforts. A model for rift evolution and associated mechanisms that influence epithermal deposit formation is the proposed outcome.

Thank you to our FIVE Live Auction Gold Donors!!



Donated by Scott Werschky, Miner's Lunchbox
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12.76 grams



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Gold splatter
from Gold
Quarry

6 grams

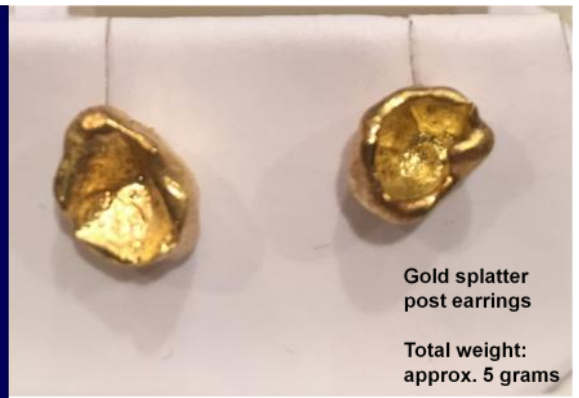


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High Bidder—Lance Taylor



Gold splatter
post earrings

Total weight:
approx. 5 grams

Donated by Newmont Mining Corporation
High Bidder—Camille Prenn

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NEWS FROM THE GSN FOUNDATION

By Roger Steininger

The Christmas meeting was a huge success for the GSN Foundation with a record \$17,006 donated. This supplies a significant portion of our FY2015-16 budget. Thank you to all that joined the festivities and contributed to the Foundation.

One of our primary programs is the K-12 grants that supply transportation for students to take earth science related field trips is very active again this year. Requests for about \$16,500 have been made from 17 schools in six Nevada communities reaching about 3,000 students. Since the program was initiated 15 years ago we have supplied about \$160,000 in field trip transportation grants.

The W.M. Keck Museum has an extensive Nevada mining and mineral collection that is not adequately cataloged in a format that easily available for researchers and students. The Foundation supplied funds recently to purchase new software to catalog the collection.

The Elko Chapter has resumed granting scholarships to graduate students doing research in Nevada. Scholarships will be awarded to six students with the Foundation portion of the funds. The students, university, and projects are listed below.



GSN ELKO SCHOLARSHIP

Meet Your Spring Semester 2016 Scholarship Awardees!

Brief Statistics: 6 graduate-level students, from 4 different universities; 3 in-state & 3 out-of-state; 3 PhD students & 3 M.Sc students; All of them studying Nevada-related geology!

PhD Students:

- 1) **Andrew Canada**, University of Idaho, "High Elevation Lake Basins in Nevada: Implications for Topographic and Hydrologic Reconstruction of the Cordilleran Hinterland"
- 2) **Elizabeth Hollingsworth**, University of Nevada Reno, "Gold Mineralization in the Rain-Railroad District, Southern Carlin Trend, Nevada: Relationship of Carlin-type and Intrusion-related Gold Deposits and the Carlin-type to Epithermal Transition"
- 3) **Justin Milliard**, University of Nevada Reno, "Structural Controls on Low-Sulfidation Epithermal Deposit Formation in an Intra-Continental Rift Setting, the Northern Nevada Rift, USA"

M.Sc Students:

- 1) **Annastacia Maynard**, Kansas State University, "Copper Isotope Compositions of Cenozoic Mafic Rocks from the Northern Great Basin and Snake River Plain, USA"
- 2) **Micah Claypoole**, University of Nevada Reno, "Timing and Nature of Shear-hosted Gold, Mineral Ridge, NV"
- 3) **Tadsuda "Jan" Taksavasu**, Auburn University, "Petrographic analysis of bonanza epithermal vein textures, Buckskin National and Fire Creek Deposits: with a comparison to Sleeper and Midas deposits, Northern Nevada"

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Thank you to our generous donors in December!

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Hans Rasmussen
Linda Sheehan
Charles Sulfrian
Mark Svoboda
David Tretbar
Donald Wagstaff
Mike Ward



G.S.N. CHRISTMAS MEETINGS WRAP UP



By Laura Ruud

Well over 300 GSN members and their guests attended the GSN's Annual Rock Raffle, Silent Auction and Christmas dinner meeting at the Nugget Casino Resort in Sparks, Nevada on December 16, 2015. There were 165+ great items that members donated for the cause. Over 4,100 raffle tickets were purchased at \$1 each to put into the individual buckets of your choice. It was hard to decide what to take a chance on because the prizes were so varied and amazing. Many members had to go back and buy more tickets because they had to try for just one more prize. In addition to the raffle, there were 60+ items donated by generous members for the Silent Auction. Bidding was competitive and at the end of the evening many members walked away with some truly good bargains on one-of-a-kind items.

The highlight of the evening was the "Live Gold Auction" masterfully auctioneered by Greg French who has a Doctorate of Christmas from Tuk U (University of Tuktoyaktuk, NT)! There were FIVE gold items donated this year. The largest was a beautiful 32+ gram gold specimen donated by Scott Werschky of Miner's Lunchbox. Round Mountain Gold Mine again provided a gold specimen and Pershing Gold donated a beautiful 6+ gram gold splatter from Gold Quarry (that I was the high bidder on—yay!). This year we also had gold splatter earrings generously donated by Newmont Mining and some gorgeous gold in quartz cufflinks donated by Richard & Linda Bedell. (See photos of these items on page 9!) The Live Auction alone netted \$6,950. This included Greg's homemade Christmas hat that went for \$100!

The dinner was fabulous and following dinner our special guest speaker, Dr. David Beaty from JPL-NASA, gave a wonderful talk on exploring for water on Mars. All in all it was a great night! The GSN wants to thank ALL of the donors and ALL of the volunteers who helped out. Without them the night would NOT happen. We want to especially thank D.D. LaPointe for all of her hard work in gathering donations all year and organizing the entire Silent Auction and Raffle. She has been in charge of this for 10 years (at least?) and her dedication to GSN and the Foundation is immeasurable. Thank you D.D. for raising so much money for the Foundation! We also want to thank: Ruth Buffa, Cami Prenn, Mario Desilets, Terri Garside, Molly Hunsaker, Brooke Mills, Lindsay Craig, Eric Ruud, Elizabeth Zbinden, Bob Thomas, Mark Stock & Brian Minkin for helping D.D. haul prizes & set up. Plus Ruth Carraher, Paul Muto and Pam Klessig for helping with raffle ticket sales. Thank you to the GSN Executive Committee Officers and the GSN Foundation Board Members for their support.

WINNEMUCCA CHAPTER & ELKO CHAPTER HOLIDAY FUND-RAISERS—BOTH BIG SUCCESSES!

The **G.S.N. Winnemucca Chapter** held its annual Silent Auction Fund-Raiser at their Holiday meeting on December 9, 2015. They had so many items this year they had to set up two extra tables! There were all kinds of items from mineral specimens to tool boxes. The most unusual item was a large whiteboard with a drawing from the Santa Fe days as Newmont was about to buy them. A lot of members names were written on that board! The evening was capped off by a wonderful talk by Nancy Wolverson on her SEG Field Trip to New Zealand! This was their biggest Silent Auction fund-raiser to date.

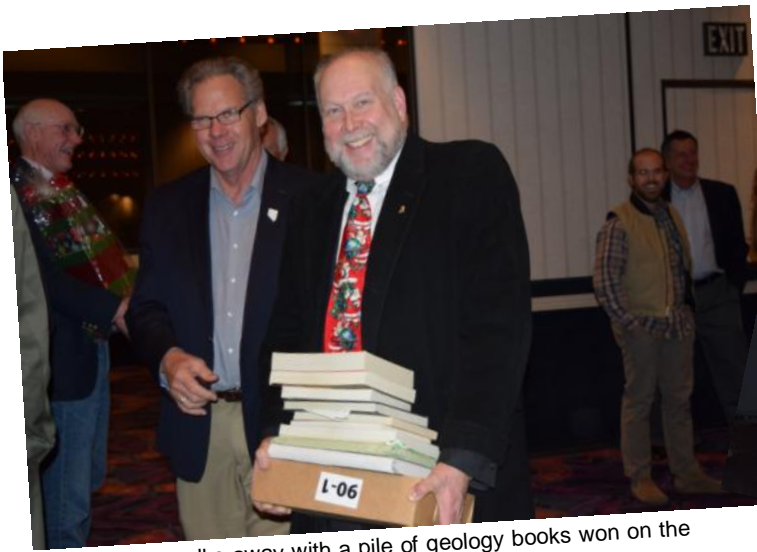
The **G.S.N. Elko Chapter** held its annual Silent Auction Fund-Raiser at their Holiday meeting on December 17, 2015. The Silent Auction tables were packed with great items to bid on. There were some one of a kind mineral specimens and ore slabs that were inciting bidding wars, plus a really cool hand made gold coin that went for top dollar. They had a very nice sit-down dinner followed by a really great talk by Franck Valli, Structural Geologist for Newmont Mining, about his work on the Tibetan Plateau.

Thank you to ALL of the people and companies who donated to the Winnemucca and Elko Chapter Silent Auctions. These would not be a success without you! Also thank you to all the Chapter officers who volunteer their precious time to keep the GSN Chapters vital, and growing organizations.





Panorama view of the Silent Auction and raffle tables in the Nugget Casino's Rose Ballroom A, Photo provided by Mario Desilets.



Rick Walker walks away with a pile of geology books won on the raffle table! Eric Ruud, Jim Leavitt (left in back) and others are all smiles at the end of the night!. Photo provided by Dawn Snell.



Graduate Student Tyler Hill and his girlfriend Jennifer Arisman enjoy the festivities. Photo provided by Dawn Snell.



Longtime GSN Members Eric & Debbie Struhsacker pose for a post-talk photo with Guest Speaker, Dr. David Beaty, NASA-JPL, and GSN President, Elizabeth Zbinden. Photo provided by Dawn Snell.



Mackay PhD Student, Sean Warren, his wife and Mackay Alumnus, Harmony Warren, and their adorable baby Lachlan pose for a family photo at the party. Is that a future GSN Member? Photo provided by Dawn Snell.



The 2016 Women's Mining Coalition dues campaign has begun! Please consider joining or renewing your WMC membership. WMC is a diverse group of women who work in mining and its affiliated industries. Benefits of being a WMC member include connecting with this accomplished network of women in advocating for mining and continuing to be informed of the issues facing the industry. WMC will keep you up to date regarding current and pending mining-related legislation, and let you know when you can make your voice heard in Washington DC and in your home state.

2016 WMC dues can be paid by visiting the website, www.wmc-usa.org, and paying through Paypal. Please consider adding a donation to your \$30 annual dues payment; these donations add up in a big way and keep WMC operating in these challenging economic times. If you would like to receive a membership form that you can complete and send in with a check, please email Lynne Volpi, WMC Coordinator, at info@wmc-usa.org.

Save the Date



Mark your calendars for the GSN's Spring 2016 Field Trip scheduled to be held on May 6, 7, 8, 2016.

The trip will take you to the Long Canyon area and a couple of other stops. This will be a trip you won't want to miss! Details will be available in the coming months.

January is Radon Month

“What is the **RADON** level in your home?”

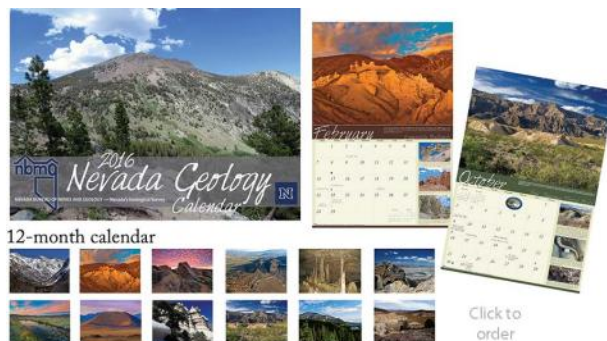
- Elevated levels of radon have been **found in 21.8% of Washoe County homes tested.**
- Learn how to test for radon.
- **Get a free radon test kit.**

Radon is the **leading cause of lung cancer** among nonsmokers and is estimated to cause 21,000 lung cancer deaths in the U.S. each year.”

University of Nevada Cooperative Extension will be **offering free presentations** on radon during the month of January. For more information, please click on the link below:

<http://www.nbmg.unr.edu/Geohazards/Radon.html>

Nevada Geology Calendar 2016 for sale!



Click here to order: <http://pubs.nbmg.unr.edu/>

You may also call the NBMG at 775-682-8766 to place an order.

Activity Update

Mike Brady, November 2015

www.activityupdate.com

NEVADA

Waterton Precious Metals Fund II announced that it acquired an option to purchase a 30% interest in the Spring Valley Property from Midway Gold Corp. for a yet to be determined price but not less than \$25,000,000. (resource = 245,500,000 tonnes @ 0.55 gpt Au measured+indicated) *Press Release: November 12*

Nexus Gold Corp. announced that recent drill results at the Walker Ridge Project include 1,016.65-1,022.11 meters @ 1.57 gpt Au (WR15-01). *Press Release: November 12*

Kinross Gold Corp. announced that it acquired an option to purchase a 100% interest in the Bald Mountain Property and a 50% interest in the Round Mountain Property from Barrick Gold Corp. for \$610,000,000. (reserve @ Bald Mountain = 60,477,000 tonnes @ 0.70 gpt Au proven+probable; @ Round Mountain = 54,598,000 tonnes @ 0.79 gpt Au proven+probable) *Press Release: November 12*

Gold Standard Ventures Corp. announced that recent drill results at the Dark Star Project include 103.7-260.7 meters @ 1.51 gpt Au (DA15-11). (resource = 23,110,000 tonnes @ 0.51 gpt Au inferred) *Press Release: November 10*

Waterton Precious Metals Find II announced that it acquired an option to purchase a 70% interest in the Spring Valley Property and a 100% interest in the Ruby Hill Property from Barrick Gold Corp. for \$110,000,000. (reserve @ Ruby Hill = 4,512,000 tonnes @ 0.95 gpt Au proven+probable) *Press Release: November 12*

Atna Resources Ltd. announced that it filed for Chapter 11 bankruptcy protection due to the low gold price. (resource @ Pinson = 2,654,000 tonnes @ 12.36 gpt Au measured+indicated) *W.S.J.: November 20*

Pilot Gold Inc.(79.1%) announced that based on recent drill results at the Kinsley Project, resources aggregate 5,529,000 tonnes @ 2.27 gpt Au indicated and 3,362,000 tonnes @ 1.13 gpt Au inferred. (no previous estimate) *Press Release: November 2*

Pershing Gold Corp. announced that recent drill results at the Relief Canyon Project include 110.11-121.0 meters @ 0.79 gpt Au (RC15-359); 174.72-184.55 meters @ 0.83 gpt Au (RC15-364); 168.64-195.47 meters @ 1.05 gpt Au (RC15-365) and 121.94-137.3 meters @ 0.65 gpt Au (RC15-366). (oxide resource = 24,270,000 tonnes @ 0.68 gpt Au measured+indicated) *Press Release: November 11*

Nevada Copper Corp. announced that recent underground drill results at the Pumpkin Hollow/East Project include 158.0-184.4 meters @ 2.79% Cu, 0.15 gpt Au (NC15U-02); 228.3-348.4 meters @ 1.21% Cu, 0.18 gpt Au (NC15U-03); 226.0-402.8 meters @ 1.01% Cu, 0.13 gpt Au (NC15U-

06) and 224.2-299.3 meters @ 1.06% Cu, 0.16 gpt Au (NC15U-08). (resource = 30,500,000 tonnes @ 1.74% Cu, 0.34 gpt Au measured+indicated) *Press Release: November 3*

Corvus Gold Inc. announced that recent drill results at the North Bullfrog/Sierra Blanca Project include 53.34-96.01 meters @ 0.45 gpt Au (NB15-268); 92.96-112.78 meters @ 1.28 gpt Au (NB15-269) and 82.3-109.73 meters @ 0.43 gpt Au (NB15-270). (resource = 15,230,000 tonnes @ 0.37 gpt Au, 44 gpt Ag indicated) *Press Release: November 3*

Nevada Zinc Corp. announced that as a result of its acquisition of the Mountain View Mine Property, it also acquired historical data for 41 core holes that were drilled in 1944-45. Most of the holes were of shallow depth but significant zinc mineralization was intersected. *Press Release: November 25*

Renaissance Gold Inc. announced that recent drill results at the Fourth of July Project include 18.29-30.48 meters @ 0.19 gpt Au (FOJR-07); 109.73-115.83 meters @ 0.28 gpt Au (FOJR-13); 9.14-19.81 meters @ 0.23 gpt Au (FOJR-18) and 3.05-25.91 meters @ 0.01 gpt Au (FOJR-19). *Press Release: November 18*

Harvest Gold Corp. announced that it sold the Rosebud Property to private interests for \$140,000 cash over 1 year (to it); \$100,000 cash/1 year (to Newmont Mining Corp.) and additional future considerations. *Press Release: November 24*

Thank You! to the wonderful GSN Members who volunteered to help out at the AEMA convention in Spokane held in early December! Special Thanks to Don Avery with MDA, who hauled an SUV full of inventory for us up to Spokane (and back again!) and to Molly & Buster Hunsaker who hauled the booth up! I couldn't do this without many hands helping!



Alan Morris and John Watson "manning" the Booth!



Couldn't resist including this photo of the women of the WMC who were right across the aisle!

OTHER UPCOMING EVENTS

5 JANUARY 2016 Arizona Geological Society, Tucson AZ. Speaker: Sarah Baxter Presents "Calc-silicate Alteration and Ore Characterization, ASARCO Mission Complex, Pima County, Arizona". Sheraton, 5151 E Grant Rd. (& Rosemont), Tucson AZ 85712. Sheraton, 5151 E Grant Rd. (& Rosemont), Tucson AZ 85712. Begins @ 6 pm. For more information go to: www.arizonageologicalsociety.org.

7 JANUARY 2016 Nevada Petroleum & Geothermal Society, Reno, Nevada monthly meeting. 6:30 PM, Ramada Reno Hotel; 1000 East 6th St., Reno NV 89512. Speakers: Rod Proseno, Petroleum Engineer, and Gene Wadleigh, Petroleum Engineer, Grant Canyon Oil & Gas, LLC. Topic: Nevada EOR Projects: Grant Canyon and Blackburn Fields. Please RSVP by Tuesday, January 5, 2016. Please make reservations by using the following link: https://docs.google.com/forms/d/1s56nLVMw3kyu6_HlqjyhvtSLGShXXMTBVIB40nG7NI8/viewform

11 JANUARY DREGS, Denver Regional Exploration Geologists' Society. Social hour: 6:00 pm, Presentation: 7:00 p.m. at CSM Berthoud Hall, Room 241, Golden, CO. Speaker: William A. Rehrig. Title: "Comparison of Structure-Tectonic Controls for Bulk-Tonnage Copper & Gold Mineralization Between SW U.S. and Peru: An Exploration Model". Contact James Piper for more information: geopros@q.com

11 JANUARY Northern Nevada Section of SME Monthly meeting. Circus-Circus Mandalay Ballroom, Reno NV. Happy Hour @ 6 pm, Dinner starting at 7 pm. Speaker and Topic to be announced. Dinner Cost \$30 per person-Members, \$35 per person-Non members. Please RSVP by Wednesday, January 6, 2016 to Brooke Miller NNevSME@gmail.com.

Call for abstracts: 2015 Rocky Mountain Section of the Geological Society of America Annual Meeting, May 2016, University of Idaho, Moscow, Idaho

The Economic Geology Session (#11) is entitled: **Mineral Deposits and Metallogeny of Western North America**

The link to the meeting announcement is: <http://www.geosociety.org/sections/rm/2016mtg/techprog.htm>

The links for abstracts which must be submitted on-line is: <https://gsa.confex.com/gsa/2016RM/cfp.epf>

GSA CORDILLERAN SECTION ANNUAL MEETING

Dear friends of Mesozoic rocks, tectonics, & ores,

I am writing to highlight a session that Claire Bucholz & Jason Price (Caltech), and I (John Dilles, OSU) are convening at the **Cordilleran Section, GSA Annual Meeting in Ontario, CA on 4-6 April, 2016:**

T4. Linking Mesozoic Arcs, Tectonics, and Mineral Deposits: *Focused interdisciplinary studies and new methods (e.g. Ar-Ar and U-Pb zircon ages) are yielding considerable new understanding of the Triassic and Jurassic sections of the Cordilleran arc. Contributions that focus on tectonics, magmatism, metamorphism, of these rocks are sought to shed light on the underlying causes on metallogeny in the Cordillera.*

If you have contributions pertaining to this topic, we encourage you to submit an abstract! Also, please feel free to pass this on to anyone who might be interested. The abstract submission deadline is **January 5, 2016.**

We also suggest looking at other sessions and the great line-up of pre- and post-meeting field trips. It should be an excellent meeting with quite a diversity in topics covered.

Sessions:

<http://www.geosociety.org/Sections/cord/2016mtg/techprog.htm>

Field trips:

<http://www.geosociety.org/Sections/cord/2016mtg/fieldTrips.htm>

You can go to the main meeting website:

(<http://www.geosociety.org/Sections/cord/2016mtg/index.htm>)

to submit an abstract and/or register for a field trip (opens in January).

Hope to see you in Ontario!

John Dilles

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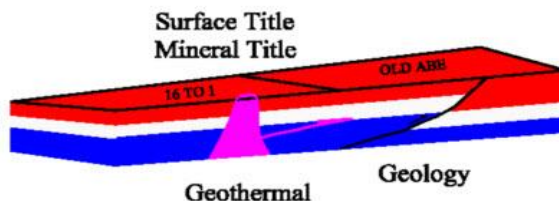
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