

GEOLOGICAL SOCIETY OF NEVADA NEWSLETTER

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



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CALENDAR OF GSN EVENTS

- March 10 Wednesday** **WINNEMUCCA CHAPTER** *(Every 2nd Wednesday of the month)*
The monthly meeting will be held at the Martin Hotel, 94 West Railroad Street. Drinks and appetizers at 6:30 PM, speaker at 7:00 PM. Drinks and appetizers sponsor for the evening will be O'Keefe Drilling (Bob Chamberlin). Speaker for the evening will be Scott Price, Consulting Geologist. His talk will be titled "Jurassic To Eocene Structural Geology In Northern Nevada: Testing The Laramide Quarantine". (see abstract on page 8). For more information contact Matt Hoffer at (775) 635-4756.
- March 18 Thursday** **ELKO CHAPTER** *(Every 3rd Thursday of the month)*
The monthly meeting will be held at the Western Folk Life Center, 501 Railroad Street. Refreshments at 6:00 PM, talk at 7:00 PM. Speaker for the evening to be announced. The sponsor for the evening to be announced. For more information contact Jim Essman at (775) 778-4374.
- March 19 Friday** **GSN MEMBERSHIP MEETING** *(Every 3rd Friday of the month, September - May)*
The monthly meeting will be held at the Reno Elks Lodge, 597 Kumle Lane, Reno, NV. Drinks at 6:00 PM, dinner at 7:00 PM, and talk at 8:00 PM. Sponsor for the evening will be AMEC Mining & Metals. Speaker for the evening will be Tom Chapin, Geologist, Barrick Gold Corporation. His talk will be titled "**Compressive Structures In The Shoshone and Cortez Ranges - Lander and Eureka Counties, Nevada**". (see abstract on page 3). Dinner reservations must be made by 1:00 PM Wednesday, March 17th. Contact Kathy Sestanovich at (775) 323-3500 or e-mail gsn@gsnv.org for reservations.
- March 25 Thursday** **SOUTHERN NEVADA CHAPTER** *(Every Last Thursday of the month)*
The monthly meeting will be held at the Lilly Fong Geoscience building at UNLV, Room 105. Social hour begins at 5:00 pm with the speaker starting at roughly 7:15 pm. For more information contact Josh Bonde at 702-468-2500 or Swapan Sahoo at 773-402-9347.

FROM THE PRESIDENT

Mike Ressel, *GSN President 2009-2010*

Odds and Ends

I have the great fortune of moving offices again. In the last ten years, I've occupied eleven offices, sometimes moving en masse with the company, and other times, just moving a few things and myself. Such is the norm for the waxes and wanes of the exploration and mining biz coupled with the nomadic nature of our work. Most geos get used to changing projects and/or moving their offices, family, and lives seemingly at times as much as normal people change their oil. Some outcomes of moves besides the change of scenery are adaptability and the ability to travel light, both useful skills in whatever we decide to do once we grow up. Adaptability is something us Nevadans overall need to re-learn and appreciate more, as the unparalleled growth and prosperity over the past twenty or more years left us hanging out to dry in these changing times.

(Continued on page 2)

GSN MARCH MEETING SPONSOR



AMEC Mining & Metals

780 Vista Blvd., Suite 100
Sparks, NV 89434

775-331-2375
Fax: 775-331-4153
www.amec.com

May 14-22, 2010 GSN Symposium, Great Basin Evolution & Metallogeny

(Continued from page 1)

As Tim Crowley noted at February's Reno meeting, the Nevada mining industry has been brought once more to the forefront of the political stage as the State of Nevada grapples with a huge budget gap created by falling revenues and increasing costs. The 26th Special Session of the Nevada Legislature, like the two preceding it in 2008, was assembled to close gaping shortfalls in projected revenues, mainly from decreased sales and gaming taxes, which were expected to contribute more than 60% of Nevada's General Fund. Most states, including Nevada, are required through their own mandates to balance their budgets on an annual basis. For Nevada, this means a further \$0.88 billion in new cuts and taxes on top of the previous \$1.5 billion in cuts already made from the approved 2009-2011 budget. In a state with a biennial General Fund of \$6.9 billion, this equates to a cumulative 35% cut from that originally proposed in early 2009. Yes, the cuts are staggering, and some lawmakers are looking enviously at mining as the only bright spot in the state's economy, and thus, a potential budget savior. Nevada mining won't be a savior as some hope. Mining's record revenues last year remain only one fifth of the revenues generated through the state's gaming and tourism industry in a seriously down year. The stance of the mining industry is simple: there are already industry-specific taxes on mining proceeds as there are on gaming, and these state taxes are in addition to taxes levied for all Nevada businesses. Mining knows all too well its boom-and-bust cycles, which operate on much shorter timelines than those of other businesses and certainly governments. Mining also knows that it won't get away scot-free, as proposals for additional claim fees, pre-taxes on production, and even gross proceeds taxes are bantered about during this session. What Nevada needs is to take a long and hard look at its long-term fiscal outlay and make broad-based and sensible changes to its "revenue streams" rather than the panicked quick fixes now proposed in the Special Session.

Nevada's state budget isn't the only thing that's broke. One look at a DEM or geologic map of Nevada shows you the whole state's broke, literally. The Basin and Range province, for which Nevada figures centrally within, is rife with discontinuity. Nevada's rough-and-ready, boom-or-bust stereotype, which it heavily draws from a legacy of exploration and mining, and which it maintains to this day, strangely mimics its up and down geology and thus, geography. If a lack of continuity best characterizes Nevada's geology and its geography, both physical and cultural, then possibly the large-scale processes leading up to and following this phenomenal initial "break-up" in the early Tertiary contributed significantly to Nevada's extraordinary gold deposits. Age determinations are a geologist's best friend and the best link of what happened to when

it happened. What happened after a protracted tectonic and magmatic lull in the late Mesozoic and earliest Tertiary was fairly sudden, widespread, and voluminous andesite through rhyolite volcanism in the Eocene across an east-west swath of northeastern Nevada and northwestern Utah. The onset of magmatism coincided with deposition of large quantities of gold across the same region, manifesting itself in large Carlin-type, distal-disseminated, and gold skarn deposits. Major gold deposition in the Great Basin is therefore largely a Tertiary phenomenon. That ore deposits are closely associated with magmatism in time and space is no accident. That large volumes of intermediate magmas were able to breach the surface over a wide region is also no accident, and points to the deeply-sourced but still arc-like character of early Tertiary magmatism and to the early development of an extensional regime in the northern Great Basin. All three elements, magmatism, incipient extension, and ore deposition, are therefore, inextricably linked, as are taxes, revenue, and budget shortfalls. Watch a movie of the US Cordilleran magmatism compiled by Allen Glazner and the NAVDAT group portrayed in a series of snapshots at: <http://rocks.geosci.unc.edu/files/faculty/glazner/Movies/WUS2.mov>. In particular, pay close attention to the span between 42 and 34 Ma in the Great Basin and the well-developed outlines of the Carlin Trend and Battle Mountain-Eureka belts.

On the theme change, March's Reno meeting features Tom Chapin of Barrick, who will discuss complexities of Antler deformation and poke a little fun at layer-cake geology and the traditional assignment of "upper plate" and "lower plate". Join us Friday, March 19th for an interesting and thought-provoking lecture sponsored by AMEC Mining and Metals.

The pent-annual GSN Symposium is just around the corner. By now, you should have received the registration booklet for the meeting, which takes place at The Nugget in Sparks May 15th through 22nd. Sign-ups for field trips and short courses have been brisk, and I encourage you to sign up sooner rather than later to reserve a spot for these venues using either the on-line form at <http://www.gsnv.org/symposium/Registration/tabid/212/Default.aspx> or calling the Symposium office directly. Student volunteers are needed to help with various events and will receive free registration in exchange. Contact Cheri Reimann at the Symposium Office for more information: (775) 846-9766 or secretary@gsnv.org.

Safe travels,

Mike

**Thanks to CGS, Inc. for hosting
The Reno GSN February Meeting**

GSN March 19, 2010 Membership Meeting

Reservations Are Required - Please Cancel if You Are Unable to Attend

The reason we need reservations and also cancellations is because our caterer needs to know how many people to cook for.

GSN CAN NO LONGER GUARANTEE DINNER SEATING WITHOUT ADVANCE RESERVATIONS.
Please call 775-323-3500, Fax 775-323-3599 or e-mail gsn@gsnv.org by 1:00 PM, Wednesday, March 17, 2010.
Social Hour: 6:00 PM – Dinner: 7:00 PM – Speaker: 8:00 PM
\$17.00 per person

Location: Elks Lodge, 597 Kumle Lane, Reno, NV
Directions: across (W) from the Reno-Sparks Convention Center
(S. Virginia Street, behind the Les Schwab Tire Center)

**Prepaid dinner reservations will only be accepted for the current monthly meeting.
Cancellations must be received two days before the meeting in order for your money to be refunded.**

Download the prepayment form from the GSN website: <http://www.gsnv.org/membership.html>

COMPRESSIVE STRUCTURES IN THE SHOSHONE AND CORTEZ RANGES Lander and Eureka Counties, Nevada

Tom Chapin
Barrick Gold Corporation

ABSTRACT

This study discusses three phases of deformation in the Shoshone and Cortez ranges of northeastern Nevada. Barrick Gold Corp. has a 1,500 km³ land package that straddles the Eureka-Battle Mountain Trend, centered on the Cortez and Gold Acres mining camps. The area is underlain by four structural windows of lower plate carbonate rocks that are overthrust by at least five plates of western facies rocks. Systematic mapping and drill evidence collected during exploration of the mining camp provides the opportunity to look at a 50 km-long cross section oriented NW through the Roberts Mountain thrust belt which extends 140 km from Battle Mountain to Eureka.

Both lower plate carbonates and the upper plate stratigraphic sequences exhibit well organized sequence stratigraphy. However, near the Roberts Mountain thrust, both the upper plate and lower plate formations are found to be folded to an extreme degree both perpendicular and parallel to formation boundaries while maintaining stratigraphic integrity. The intensity of the folding suggests that up to five hundred percent shortening of the strata occurred prior to the obduction of the upper plate thrust complex. It is proposed that the first phase of obduction required the dewatering, thickening and folding of the marine strata including some of the carbonate apron. The strata are folded until they are perpendicular to the strain direction much like shutting an accordion. At this point, ductile processes cease and phase two brittle deformation begins as the rocks obduct onto the continent along a decollement zone. In the Pipeline Pit the decollement zone has 50 meters of augen mylonite between the upper plate rocks and lower plate rocks. On either side of the decollement, the upper plate and lower plate rocks are ripped up and shuffled to form a shingled stack of out of sequence strata up to 600 meters thick. In the Cortez Range, the decollement mylonite is 10 to 20m thick and the imbricated zone ranges from 50 to 100m. In the Shoshone Range, two to four coherent thrust sheets are emplaced over the imbricated zone, and at least two of these sheets are identified in the Cortez Range. During the third phase of deformation, the overburden strain rate exceeds the competence of the continental margin and large-scale blind thrusts are formed. Asymmetric, eastward vergent, overturned folds with wavelengths of up to 5 km are located over the blind thrusts that cut through the RMT, but only the first, second and third thrust plates are affected. In the Shoshone Range, the Pennsylvanian and Permian rocks of the overlap sequence lie on top of the fourth and fifth plates that are not involved in this later deformation, providing evidence that the folding affecting the three earlier plates is Antler in age.

This style of deformation probably affects all the pre-Antler rocks that lie west of this study area and possibly east into the Simpson Park Range and represents at least 75% of the Roberts Mountain thrust belt. A similar style of deformation is present in the Independence Range around the Jerritt Canyon mine camp. Due to the demonstrated thickening and thinning of the thrust plates, it is unlikely that mathematical reconstructions that assume that the stratigraphic thickness of the strata is constant are realistic.



REGISTER NOW!!!
GSN 2010 SYMPOSIUM
MAY 14-22

Register Online:

www.gsnv.org/symposium

Or Use the Registration Form on the Following Page

3 days of Technical Sessions
8 Field Trips
10 Short Courses
Poster Presentations/Core Shack
Exhibit Hall

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**Bravada Gold Corp.--Connors Drilling—Fortune River Resource Corp.--Karl Frost
 Gold Summit Corp—Leslie Olmstead--Nancy Wolverson**

Join in supporting Symposium 2010: Contact: Dave Shaddrick (775) 746-2071, DSaddrick@aol.com

REGISTRATION FORM
GEOLOGICAL SOCIETY OF NEVADA 2010 SYMPOSIUM
Great Basin Evolution & Metallogeny
John Ascuaga's Nugget Hotel, Sparks, Nevada
May 14th - 22nd, 2010

Exhibits and Technical Sessions, **May 17th -19th** ; Pre- and Post-Meeting Field Trips, Short Courses

CONTACT US: GSN 2010, 2175 Raggio Parkway, Room 205, Reno, NV 89512 (775) 846-9766

SYMPOSIUM REGISTRATION (Registrants for Field Trips and Short Courses must register for Early, Regular, On-Site/Late or Student). All registrants receive a DVD of the Publication Volumes.

Early (GSN must receive the registration form by February 28th, 2010)		\$275	\$
Regular (between March 1st and April 30th, 2010)		\$325	\$
On-Site and Late (after April 30th, 2010)		\$375	\$
Student (must be able to show proof of student status)		\$150	\$
Exhibits-Only (may not attend technical sessions, allows access to Exhibit Hall for all activities)		\$50	\$
Keynote Luncheon – William R. Dickinson (limit 650)	May 17 th	\$45	\$
Keynote Luncheon – Jonathan G. Price (limit 650)	May 18 th	\$45	\$
Pre-Meeting Field Trips & Short Courses (Field Trips limited to 40, Short Course limits as indicated)			
FT-1	<i>Intro to Carlin Gold Deposits -- for Geologists</i>	May 14 th -16 th	\$325
FT-2	<i>Epithermal Deposits of Northern Nevada</i>	May 14 th -16 th	\$400
FT-3	<i>Industrial Mineral Deposits of Northern NV</i>	May 14 th -16 th	\$375
SC-1	SEG Workshop – Gold in 2010 (min. 35, limit 100)	May 15 th -16 th	\$395 Member
	<i>Symposium Registration is encouraged, but not required.</i>		\$495 Non Member
			\$95 Student Members
			\$120 Student
SC-2	Fundamentals of 43-101 (min. 25, limit 125)	May 15 th – 16 th	\$200
SC-3	Isotopes and Exploration (min. 8, limit 18)	May 15 th – 16 th	\$450
SC-4	Structural Systematics (min. 20, limit 50)	May 15 th – 16 th	\$200/\$100 Student
SC-5	Leapfrog Software (min. 8, limit 21)	May 15 th – 16 th	\$400
Post-Meeting Field Trips & Short Courses (all Field Trips limited to 40, Short Courses limits as indicated)			
FT-4	<i>Intro to Carlin Gold Deposits -- for Non-Geologists</i>	May 20 th -22 nd	\$325
FT-5	<i>Advances in Carlin Deposits of Northern Nevada</i>	May 20 th -22 nd	\$400
FT-6	<i>Epithermal Deposits of Central Nevada</i>	May 20 th -22 nd	\$325
FT-7	<i>IOCG and Porphyry-Related Deposits of Western Nevada</i>	May 20 th -21 st	\$250
FT-8	<i>Modern and Ancient Geothermal Systems</i>	May 20 th -21 st	\$100
SC-6	Remote Sensing and Spectral Geology (min. 10, limit 35)	May 20 th -21 st	\$275/\$100 Student
SC-7	Arc View for Geoscientists (min. 8, limit 15) Held at UNR	May 20 th -21 st	\$670
SC-8	Molybdenum in the New Millennium (min. 10, limit 35)	May 20 th	\$300/\$75 Student
SC-9	Formation of Gold Provinces (min. 8, limit 50)	May 21 st	\$300
SC-10	Rockfall Hazards & Mitigation Techniques (min 10, limit 25)	May 20 th	\$250
			Total \$

Pre-publication order of the Symposium Volumes: (Price will be determined closer to the meeting date and all registrants will be notified. In addition, the pre-publication price will be available on site at the Symposium.)

Please make checks payable to "GSN 2010" and mail them to GSN 2010, 2175 Raggio Parkway, Room 205, Reno, NV 89512, USA. For information, see www.gsnv.org/symposium, call 775-846-9766, or e-mail secretary@gsnv.org.

Credit card payments can be made by mail, fax (775-323-3599) or on the website (www.gsnv.org/symposium).

Cancellations received by March 1st will be accepted minus 10%; from March 1st - April 30th minus 50%. No cancellations accepted after April 30th.

Guests/spouses may sign up for the exhibits-only fee, which provides access to the exhibits and to all Social Events in the Exhibit. Please complete a separate registration form for each guest. For hotel reservations at John Ascuaga's Nugget Hotel please call 1-800-648-1177 and use "Geology" as the code to get the group reservation rate. You can also go directly to the website (www.januggetsecure.com/jump/1220/) for the group reservation rate.

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FACES OF GSN

Shea Clark Smith, Geochemist

Reno, Nevada

I've taken the path of the 19th Century pioneer, slowly and somewhat deliberately emigrating to the West. My life started on the Atlantic in Marblehead, MA where sailing and lobster dominate the day. My formative years, however, were spent in St. Louis, home of the Arch and Gateway to the West. I took the metaphor literally, and moved west, first to Colorado, then to Nevada in search of the ideal laboratory to test and develop biogeochemical exploration methods.

There were a few forks along this rutted trail. I took an AB degree from Colby College in Chemistry, and used that degree to journey to Ghana with the Peace Corps. I taught chemistry at Konongo-Odumasi which is the location of the Konongo Gold Mine. At the time I was more interested in the amenities, like the 9-hole golf course, swimming pool, snooker table and bar, but later came to appreciate the cross-over career opportunities of geo-Chemistry. Donald Leever is responsible for my metamorphosis, but curiously, he retro-graded from geologist to world-renown horticulturalist with his aroma garden creations. Every life has its pivotal moments - this was mine, and that was his.

The Colorado School of Mines was my next formative step. I found myself in the company of chemists that were destined to take geochemistry in new directions. Prof. Ronald Klusman played a very important role, and I can never thank him enough. I shared classes with Paul Taufen, Robert Clark, Jeff Jaacks. These chemist-geologists developed some of the selective soil leach and soil gas methods we use today. I also worked with Harold Bloom, Hans Shacklette, Jim Erdman, and Maurice Chaffee. They helped mold my chemical-biogeochemical leanings into a geological context. But it was Sherman Marsh who put my hands on the gold pan, and guided my first field experiences in the Brooks Range, Chandalar AK.

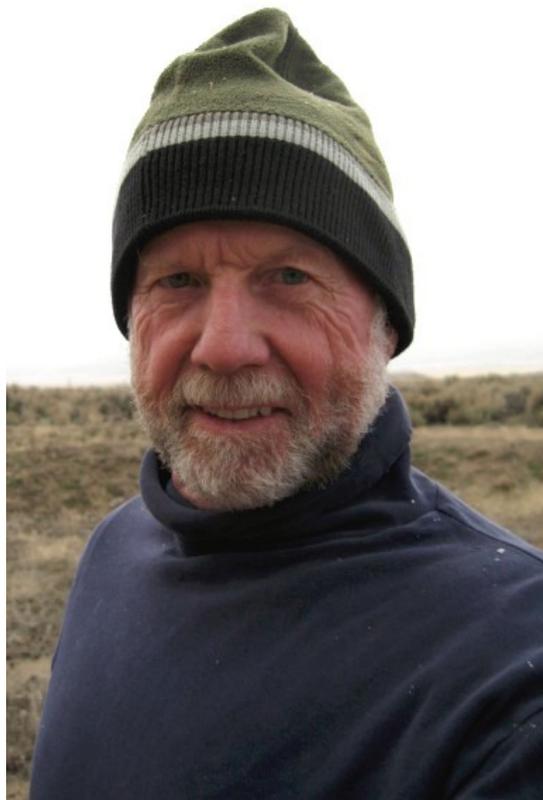
With Houston Oil and Minerals, I applied my biogeochemical thesis to every conceivable terrain in North America. There was barely a State or Province untouched by one biogeochemical application or another, since HOMC had fifty "roving" geologists, with over 200 projects in every imaginable horst and graben, and with major presence in Nevada and Alaska. I found that the best applications of biogeochemistry were in the desert, and Nevada is where I had to be to fully test the method. So, I took a job with American Selection Trust and began my work at Alligator Ridge and its satellite deposits. We found that not only could deposits be found using biogeochemistry, but they could be located through 100+ feet of overburden.

I created MEG in 1984 and worked solidly through 1992 doing only biogeochemistry. At this time, collaborations with Colin Dunn, Ken Lovstrom, and Nancy (B. cereus) Parduhn were very instructive. As the method developed and refined, my clients and I started to develop a myriad of applications beyond mineral exploration. We are now able to map bedrock lithologies, bedrock structures, mineralization, alteration, and geothermal resources. In addition, the method has been more recently applied to ground water quality studies for municipal well development, and seismic fault mapping related to commercial development.

Global Warming [*sic*] has eliminated acres of vegetated terrain in the desert Southwest and Nevada due to fire. So, MEG has developed alternative geochemical methods. These include mercury and radon soil gas methods, weak soil extraction methods (CheLeach), and ever improved biogeochemical methods.

Emphasis has always focused on the four weakest links of geochemical application: sample collection, sample preparation, quality control, and interpretation. So, MEG runs its own lab dedicated to sample prep and geochemical reference standards. I give an occasional lecture or short course on data interpretation, and generally get my knuckles dirty with QAQC issues on a consulting basis.

My work and association with Nevada and the GSN has been a fulfilling career experience. If there is ever retirement, it will culminate with a text on desert applications of biogeochemistry, with footnotes related to other methods of deep seeking geochemistry, but mostly biogeochemistry.



Upcoming Events

**March 4
Thursday** NPS Dinner Meeting: Thursday, March 4, 2010

Speaker: Dean N. Malouta, Technology Manager, Shell Oil Co., Upstream Americas, his talk is titled "**Facing Today's Energy Challenges and Preparing for the Future**"

Place: Austin's Restaurant, Reno, NV
Agenda: Cocktails : 6:30 PM; Dinner Served at 7:00 PM

NPS Members \$17
Non NPS Members \$20
Students \$10

Menu: (choose one and RSVP)
Fish & Chips ♦ Fiesta Chicken ♦ Austin's Cobb Salad ♦ Austin's Straight Hamburger

****RSVP by Tuesday, March 2**, Diane Phillips (775) 267-4663 or trailsend@pyramid.net
Reservations requested

This presentation will explore the current US and Global demands for Energy for both the Electric and Transportation Grids and will provide a realistic look at the supplies and costs of both Conventional Energy Sources (Oil, Gas and Coal) as well as Alternatives (Wind, Solar, Nuclear, and others). Currently the World consumes about 510 Quadrillion BTU's of total Energy per year. This is expected to grow at 7-10% per year to about 680 Quadrillion BTU's by 2030. We will a) explore the roles of conventional and alternative energy sources that will be needed to meet this demand, b) define and dissect some of the geopolitical issues (including climate change and supply sources) that need to be faced at home and abroad in doing so, and c) de-mystify some of the jargon around energy so that real and useful comparisons can be made.

Global petroleum consumption in 2009 edged over 80 Million Barrels a day. In the US alone, we use 25% of that global capacity or 19-20 Million Barrels of Oil per Day. 2/3 of that is imported and 80% of that total is used for the transportation grid. Demand continues to increase and we need to seek rational and meaningful alternatives.

A sensible U.S. energy policy must address Energy Affordability, Accessibility for supply and security, as well as the Accountability we have as a society to provide clean, safe energy that has a minimal footprint on the environment and a negligible impact on agriculture and the food supply.

**March 8
Monday** Northern Nevada Section SME monthly dinner meeting:

Speaker: Jon Price, State Geologist and Director, Nevada Bureau of Mines and Geology, his talk is titled "**Minerals For A Green Society**" (see abstract below)

Sponsor: AMEC Mining & Metals

SME Members \$22
Non SME Members \$25

Email neville.rhoden@gmail.com for reservation.
Location: Circus-Circus (Mandalay Room in the Convention)
Social Hour begins at 6:00PM
Dinner starts at 6.45PM
Technical Talk begins at 7:30 PM.

ABSTRACT: "Minerals for a Green Society" was the title of a symposium sponsored by the Mining and Metallurgical Society of America on 4 February 2010 in Washington, DC. The goals of the symposium were to (1) highlight facts about minerals that are critical for our changing society, including what is needed and how vulnerable the U.S. may be to disruptions in global supply, and (2) provide an opportunity for networking among individuals who are concerned about mineral-supply issues and who can take action to assure U.S. competitiveness in a green economy. Attendees included individuals from the mining and renewable energy industries, federal and state agencies, Congressional staffs, non-governmental organizations, and academia. Speakers covered issues concerning global demand and supply of mineral resources, particularly those that are critical for emerging technologies in energy efficiency and renewable energy, including rare earth elements, lithium, copper, and elements that are likely to be key in photovoltaic solar power generation. They informed the audience about progress made on recommendations of two recent reports of the National Research Council - one dealing with minerals that are critical to the U.S. economy and one dealing with materials for the 21st century military. Discussion included recent dramatic changes in geopolitics of mineral resources, geological and geographic rarity of some resources, tradeoffs and "green choices," recycling, recovery of key elements as byproducts of major metals, and implications of substitution of one element for another in key energy technologies. Copies of the program, slide presentations, major points made by the speakers, and speaker biographies are posted on the MMSA website at www.mmsa.net. The presentation at the SME meeting on March 8th will highlight some key points made at the symposium.

Upcoming Events Continued

- May 14-22** GSN 2010 Symposium
Friday - Saturday The Geological Society of Nevada invites you to attend our Sixth Symposium **Great Basin Evolution and Metallogeny.**
- 3 days of Technical Sessions
8 Field Trips
10 Short Courses
Poster Presentations/Core Shack
Exhibit Hall
Get details at the website: www.gsnv.org/symposium
- Contact: Cheri Reimann
2175 Raggio Parkway, Room 205
Reno, NV 89512
(775) 846-9766
secretary@gsnv.org
- June 25** The first ever GSN June barbeque for the general membership will be held on June 25 from 5 until 9 PM at the
Friday Peavine Pavilion in Reno's Rancho San Rafael Park.
- Details for the barbeque will be in the April Newsletter.
- June 26** GSN's Annual Golf Tournament
Saturday Details will be sent when they are finalized.
-

Honorary Membership In GSN

The GSN acknowledges members of the Society with Honorary Membership for persons who have made outstanding contributions to the advancement and/or promotion of the geological sciences in Nevada, or who have made significant contributions to the GSN. Throughout the 51 year history of the GSN, there are only 18 Honorary Members, seven of whom are deceased. The remaining Honorary Members are as follows:

Hal Bonham, Jr.
Douglas Cook
Lance Eklund
Del Flint
Peter F. Galli
Bob Horton
Larry Larson
John Livermore
David "Burt" Slemmons
John Stewart
Joe Tingley

As a reminder, any member of GSN can nominate another member for Honorary Membership. The nomination must be approved by the GSN Board of Directors and the Executive Committee. Then it needs to be confirmed by a majority vote of the GSN members at a regular monthly membership meeting.

If you know of a member that deserves the status of Honorary Membership, please submit a nomination to the GSN officers or directors for consideration. The nomination should include information on the person's background and the person's contributions to the geological sciences of Nevada and the GSN as well.

**GSN Winnemucca Chapter Meeting
March 14, 2010**

**“Jurassic To Eocene Structural Geology In Northern Nevada:
Testing The Laramide Quarantine”**

Scott Price

Consulting Geologist
Spring Creek, Nevada

Range scale exposures of moderately to deeply exhumed rocks exist as ‘structural windows’ within several northern Nevada mountain ranges. The exhumed rocks are much older than surrounding strata and typically display folds, thrust faults or metamorphic fabric. Anomalously old rocks in these windows have restricted near surface extent and occupy moderate to high elevations, implying localized, large magnitude uplift. Smaller scale structural windows such as those along the Battle Mountain – Eureka and Carlin trends are also characterized by folding, exhumation of deeper rocks and in some cases metamorphism. Extensional interpretations are assigned to many of these windows and concordant normal faulting is a common characteristic. From an isostatic perspective, purely extensional interpretations tend to be problematic.

Analogous features in the Rocky Mountains have proven moderate angle, basement involved fold-thrust origins. The basement fold-thrust structural model was controversial in the Rocky Mountains until repeatedly demonstrated by deep drilling and seismic results. Evidence of these large thrust structures is generally obscure at the earth’s surface. Spectacular normal fault scarps result from relaxation and extensional collapse of some of these moderate angle thrust faults. Flat subduction is the consensus tectonic force behind the Laramide orogeny and Nevada lies in the path of that subducted slab. Geologic literature on the Western Cordillera has often characterized basement involved fold-thrust uplifts as unique to the Laramide orogeny, an academic quarantine of sorts.

Jurassic to Eocene folding and thrusting in northern Nevada and Utah locally deforms autochthonous lower Paleozoic and Precambrian rocks or produces footwall synclines, suggesting a thick-skinned origin. Initial compilation reveals some tentative patterns. A Mesozoic deformation front moved eastward across Nevada and Utah merging chronologically and spatially with eastward younging Laramide uplifts in Wyoming. Folding is dually vergent among Laramide uplifts and among structural windows in Nevada. Jurassic and earlier fold axes in northern Nevada trend primarily northeast, Cretaceous folding trends more north-south and the youngest folds trend northwest. The northwest trending folds are compatible with the timing and stress ellipse of the late Cretaceous to Eocene, Laramide orogeny and are possibly a hinterland manifestation thereof. On conceptual cross-sections, Nevada structural windows are compatible with basement, fold-thrust and fold propagation thrust models overprinted by extensional collapse. Broad, internally deformed, thrust sheets produced during the Antler and Sonoma orogenies assumed positions in the Mississippian to Triassic tectonostratigraphic stack and appear to be refolded and eroded during thick-skinned Jurassic to Eocene thrusting. Multiple compressional orogenies overprinted by Basin and Range extension have produced complex and conflicting structural scenarios in Nevada. The sequence of events in some locations is difficult to unravel, but potentially critical to understanding Nevada’s prolific gold trends. A Laramide perspective on some of these events appears worthy of some consideration and testing.

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Industry Orientation Program for Mackay Geology Students

It has been proposed that GSN sponsor an Industry Orientation Program for geology students at Mackay School of Mines. The purpose of the program would be to give students firsthand experience of exploration and mining and the people involved in it. Companies with offices in the Reno area could host 1-3 students for a couple of hours, show them one or two interesting/exciting projects, tell them something about the company and let them talk with the geologic staff informally about the work and their possible careers. The students might, for instance, be guided through the stages of an exploration project from conception and geology to geochemistry, geophysics, drilling and perhaps even budgeting. The students might be given a little hands-on experience such as logging a short interval of core or operating a magnetometer. Company geologists could discuss mineralization concepts and prospecting techniques. If a good personal relationship develops, the company might arrange a field trip by selected student(s) to one of their mines or projects.

The advantages of such visits run both ways. The company would get to know a number of prospective summer interns or employees in greater depth than is provided by transcripts, resumes, and brief interviews. Currently, students and the industry are largely disconnected from each other. They move in different circles until the students graduate or finish their thesis work. After meeting company geologists, students would have some professionals to talk with at GSN dinner meetings, not just other students.

If several companies express an interest in student visits, a sign-up sheet will be posted at Mackay School of Mines. Undergraduate and graduate students will probably be in separate groups.

The contact person for this program will be Mack Taylor (775-356-9297, cerrodo17@yahoo.com – 8:00 AM to 5:00 PM). Companies can call/email him to discuss the program and arrange convenient times for visits. Taylor will stay in touch with students who sign up or contact him and coordinate visits with companies.

Here's your chance to close the age gap a little and get to know some people you'll be seeing and working with in the future. Give Mack a call.

Thank You Newmont!

Newmont makes contribution to GSN's Winnemucca Chapter

Matt Hoffer, President of the GSN Winnemucca chapter reports that the Winnemucca chapter has received a \$2500 contribution from Newmont Mining's Community Investment Committee. These funds are reserved to support coverage of guest speaker's travel expenses, educational opportunities, and as a supplement to annual field trip costs for members. Furthermore, the Winnemucca chapter is considering additional, similar sources of funding. Newmont's support of the Winnemucca chapter is greatly appreciated.

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Activity Update

Mike Brady, January 2010

Nevada

www.activityupdate.com

Royal Gold Inc. announced that it offered to acquire International Royalty Corp. for \$749,000,000 in cash and shares, topping a previous offer by Franco Nevada Corp. *N.M.*: December 28

Western Lithium Canada Corp. announced that based on the results of a scoping study for the Kings Valley Project, resources aggregate 28,347,000 tons @ 0.31% Li indicated and 23,023,000 tons @ 0.32% Li inferred. (no previous estimate) *M.J.*: January 15

Miranda Gold Corp. announced that recent drill results at the Red Canyon Project include 0-130 feet @ 0.152 opt Au (MR09-05C) and 0-60 feet @ 0.100 opt Au (MR09-06C). *Press Release*: January 26

Ramelius Resources Ltd. announced that it signed an agreement to acquire a 60% interest in the Big Blue Property from Miranda Gold Corp. for \$4,000,000 in exploration expenditures. *Press Release*: January 28

Yukon-Nevada Gold Corp. announced that a recent court ruling decided against Golden Eagle International Inc. and granted it complete control of the Jerritt Canyon Mill. *Press Release*: January 8

Victoria Gold Corp.(70%) announced that recent drill results at the Santa Fe Project include 2.9-286.8 meters @ 0.073 opt Au (BH-3). (resource = 1,718,000 tons @ 0.032 opt Au inferred) *Press Release*: January 12

Nevada Copper Corp. announced that recent drill results at the Pumpkin Hollow/East Zone Project include 486.2-492.3 meters @ 1.91% Cu, 0.012 opt Au (NC09-01) and 542.5-544 meters @ 1.06% Cu, 0.001 opt Au (NC09-02). (resource = 7,100,000 tons @ 3.35% Cu inferred) *Press Release*: January 21

Nevada Copper Corp. announced that recent drill results at the Pumpkin Hollow/South Project include 76.5-86.1 meters @ 0.36% Cu, 0.002 opt Au (NC09-04) and 36.0-86.3 meters @ 0.75% Cu, 0.003 opt Au (NC09-06). (resource = 203,000,000 tons @ 0.36% Cu inferred) *Press Release*: January 21

American Lithium Minerals Inc. announced that it acquired an unstated interest in the lithium assets of Gold Summit Corp. for \$50,000 and 500,000 shares. *Press Release*: January 7

Golden Phoenix Minerals Inc. announced that recent drill results at the Mineral Ridge Project include 3.05-6.1 meters @ 0.011 opt Au (MR09-018); 10.67-12.19 meters @ 0.024 opt Au (MR09-019); 10.67-18.29 meters @ 0.080 opt Au (MR09-020) and 25.91-36.58 meters @ 0.920 opt Au (MR09-024). (resource = 2,658,000 tons @ 0.079 opt Au indicated) *Press Release*: January 13

Fronteer Development Group Inc.(49%) announced that recent drill results at the Sandman Project include 1.01 meters @ 1.53 opt Au (NSM-147); 1.22 meters @ 0.269 opt Au (NSM-146) and 3.47 meters @ 2.633 opt Au (NSM-142). (resource = 1,710,000 tons @ 0.048 opt Au measured) *Press Release*: January 25

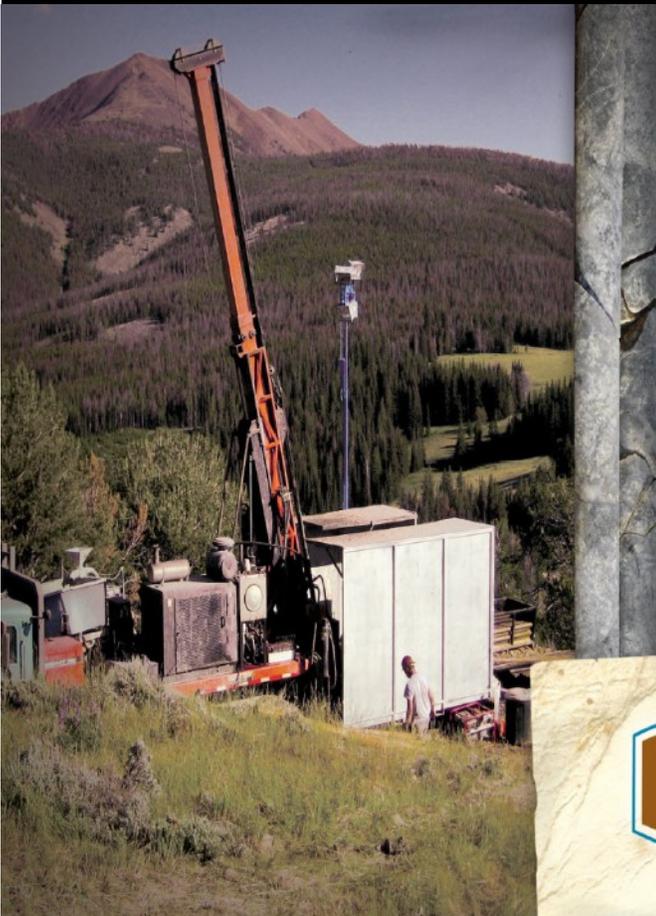
Fronteer Development Group Inc.(51%) announced that recent drill results at the Long Canyon Project include 35.1 meters @ 0.271 opt Au (LC388); 15.2 meters @ 0.071 opt Au (LC372); 22.4 meters @ 0.388 opt Au (LC377c) and 9.5 meters @ 0.169 opt Au (LC333c). (resource = 9,680,000 tons @ 0.258 opt Au inferred) *Press Release*: January 6

Allied Nevada Gold Corp. announced that recent drill results at the Hycroft Mine include 47 meters @ 0.016 opt Au, 16.93 opt Ag (09-3708) and 11.0 meters @ 0.011 opt Au, 17.11 opt Ag (09-3656). (reserve = 72,930,000 tons @ 0.016 opt Au proven+probable) *Press Release*: January 11

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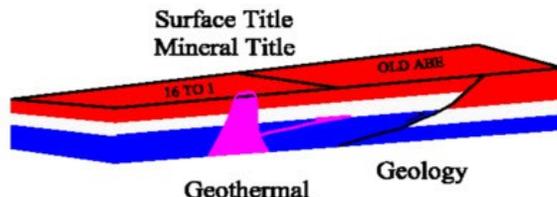
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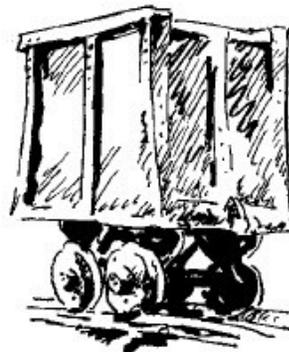


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