GEOLOGICAL SOCIETY OF NEVADA
NEWSLETTER

Geological Society of Nevada, 2175 Raggio Parkway, Reno, NV 89512
(775) 323-3500 - Hours Monday -- Friday, 10 a.m. to 5 p.m.
Website: www.gsnv.org • E-mail: gsn@gsnv.org

MARCH 2025 ISSUE, Vol. 41, No. 3 **Published monthly except June and July**

MARCH 6, 2025 THURSDAY

GSN SOUTHERN NEVADA CHAPTER

The GSN Winnemucca Chapter meeting will be held at the **Stage-Coach Hotel and Casino, 900 US-95 North, Beatty, NV** . **SPEAKER: James Faulds, NV Bureau of Mines & Geology. TITLE: "The Walker Lane: An Incipient Plate Boundary Dissecting the American West and Potential Heir to the San Andreas Fault". SPONSOR: RANGEFRONT MINING SERVICES.** For more information, please contact Chapter President: Liz McDonald, liz_macdonald@outlook.com. Details on page 6.

MARCH 13, 2025 THURSDAY

GSN WINNEMUCCA CHAPTER

The GSN Winnemucca Chapter meeting will be held at the Martin Hotel, 94 W. Railroad St. **SPEAKER: Heather Hoffman, SSR Mining. TITLE: "Yay! You've Found the Gold but Can I Process It?". SPONSOR: JUST REFINERS (USA), INC.** For more information, please contact Chapter President, Kris Alvarez at: kalvarez@i80gold.com. Details on page 7.

MARCH 20, 2025 THURSDAY

GSN ELKO CHAPTER

The GSN Elko Chapter will hold their meeting at the Western Folklife Center, 501 Railroad St. Elko. **SPEAKER: Paul Fix, AngloGold Ashanti. TITLE: "Geology and Exploration of the Merlin Epithermal Gold Deposit, Nevada, USA". SPONSOR: CAPITAL LIMITED.** Please contact Elko President, Ajeet Milliard Ajeet@megllc.net for more information. Details on page 8.

MARCH 21, 2025 FRIDAY

GSN REGULAR MEMBERSHIP MEETING

The GSN meeting will be held at the Atlantis Hotel & Casino, Reno, NV. **SPEAKER: Sally Goodman, Head of Global Discovery, Newmont. TITLE: "Does mining having a golden future?". SPONSOR: ALFORD DRILLING.** Dinner cost is $60. Please register for dinner online or RSVP at this link: **RSVP/DINNER** Details on pg. 3. **PLEASE RSVP BY 5 PM ON MONDAY, MARCH 17th.**

GSN MARCH 2025 RENO MEETING SPONSOR

ALFORD DRILLING
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FROM THE PRESIDENT—MARCH 2025
Patty Capistrant
GSN President June 1, 2024-May 31, 2025

Nevada has long been recognized as a global leader in mining and a favorable jurisdiction for mineral exploration. This success is complimented by the collaborative efforts between industry, government, and academia. Over the next two months, we will highlight the important role that our research institutions play in driving Nevada's economic success.

In March, we will co-host our regular membership meeting in Reno alongside the Ralph J. Roberts Center for Research in Economic Geology (CREG), part of the University of Nevada, Reno. CREG students and donors will attend our monthly meeting, which will feature a keynote presentation by Dr. Sally Goodman, Head of Global Discovery for Newmont. This collaboration between students and industry professionals perfectly aligns with GSN's mission to support and promote geological education.

In April, the GSN will host a Student Poster Night at our regular membership meeting in Reno. This important event not only allows students to showcase their cutting-edge research to society members, but also encourages valuable interactions between season professionals and the next generation of geoscientists who will soon join the workforce.

The GSN also committed to supporting students through the GSN Foundation, which provides scholarship opportunities to students throughout the Great Basin. Additionally, students are encouraged to attend meetings through complimentary dinners, made possible through our Student Dinner Fund. GSN's bi-annual field trips are also offered free to students, funded through generous member donations to the Student Field Trip Fund. A sincere thank you to all of our members who contribute to these funds!

We hope you will join us this month as we celebrate GSN's academic partnerships. Working together, we can ensure Nevada remains at the forefront of geological excellence!

-Patty

Photo of myself and Rachel Micander (formerly Wearne) as students at field camp visiting Capitol Reef, UT.

2010 photo from field camp featuring (left to right) Brooke Keegan, Patty Capistrant, Molly Richardson, and Rachel Micander, as we enjoy sodas at the end of a long day.

2010 photo of Patty Capistrant from field camp mapping Quaternary landforms along the Owyhee River.

GSN MEETING in RENO—FRIDAY, MARCH 21, 2025

GUEST SPEAKER: Sally Goodman, Head, Global Discovery for Newmont

TITLE: "Does mining having a golden future?"

Sponsor: ALFORD DRILLING

TIME: Drinks @ 6:00 pm, Dinner @ 6:30 pm, Talk @ 7:30 pm

WHERE: Atlantis Hotel & Casino, 3800 S. Virginia St., Reno, NV

DINNER COST: $60. Please RSVP online by 5 PM on Monday, March 17th at: DINNER RESERVATION

Abstract:

The search for gold has occupied people's time and effort throughout history – gold has been prized for being beautiful, rare and incorruptible, which makes it an enduring source of wealth. Whether adorning the casket of the Pharaohs or stored in bars in Fort Knox, gold has been, and continues to be, unmatched as a measure of status in society and a hedge against political instability. We continue to strive for better exploration, safer mining, more efficient processing, all with the assumption that gold's place in civilization will continue to be as important in future. But is this the case? With the rise of other forms of wealth, and more "useful" rare minerals, will gold's importance in mining diminish? And what might gold mining look like in future? These are some of the topics we will investigate during this year's Ralph J. Robert Lecture.

Speaker Bio: Sally Goodman

Sally Goodman is Head, Global Discovery for Newmont, spearheading the drive to discovery across the company's global portfolio of early-stage exploration projects. She leads a team of technical specialists, providing support to the company's Exploration function around the world, including evaluation of new opportunities. Sally has held management positions with Newmont, Goldcorp and Atlantic Gold, and travelled globally as a consultant in structural geology with SRK Consulting. Prior to that she held various lecturing and research posts in universities in Canada and the UK. She has a PhD in Economic Geology and MSc in Mineral Exploration from the Royal School of Mines, London (UK), and BSc Geological Sciences from Leeds University (UK).

"FACES OF GSN"

Randy Vance, Boise, Idaho

After more than 45 years of work in exploration and mining, I am contemplating when to start retirement. Financial planners talk about the accumulation phase of one's life (working, saving, and investing) and then transitioning to retirement and into the distribution phase (spending, giving, and RMDs). I am in the transition period. GSN is my favorite professional organization. Here is my story.

As a teenager growing up in eastern Idaho, my first jobs were on potato and grain farms laboring in the fields moving sprinkler pipe. After my friends and I earned enough money to buy our first 4WDs, we ventured out to explore the desert on the eastern Snake River Plain, where we found lava tubes. I have been a caver ever since. Trips to the Craters of the Moon National Monument kindled my interest in volcanic geomorphology. The USGS was mapping 7.5 minute quads in eastern Idaho, and we visited their field office, where they taught us to use stereo pairs of air photos. Geology was cool! I had only one high school class (freshman Earth Science), but I decided by 15 I wanted to become a geologist. My first-choice school was the University of Arizona, but I was faced with the exorbitant costs of $2800 per year (LOL), which I did not have. So, I stayed in-state and attended the University of Idaho College of Mines (at that time) for registration fees of $165 for my freshman fall semester. My favorite geology classes were structural geology, petrography, igneous and metamorphic petrology, and ore deposits.

Off to Alaska! My first industry job at age 20 was as a "Geologist's Assistant" (core splitter) in a bush camp in SE Alaska exploring for molybdenum (Quartz Hill moly). I also worked chores in camp including tracking the rain gauge. Towards the end of the summer, I got to assist field geologists in field mapping and sampling. Rare sunny days on the ridgetops exposed me to a most beautiful part of Alaska. After my junior year at college, I attended field camp in northern Idaho and southwest Montana. Upon graduation, I took a summer job with U.S. Borax on the north side of the Alaska Range, exploring a VMS prospect, collecting regional stream sediments, and packing a Ruger 44 for bear protection. Although the pistol seemed powerful at the shooting range, it seemed totally inadequate with our first bear encounter in which a sow with two cubs stood on her hind legs with nose pointed straight up in the air! All escaped safely! We lived in a small helicopter-supported bush camp, staying in small tent cabins. With the end of summer in mid-August, occluded fronts brought very strong winds down the flanks of the mountains. One evening the wind blew the tent cabin over while I was resting inside, rolling the tent down the hill. Fortunately, no injuries occurred!

I entered graduate school at the U of Idaho in January. My first summer job was with Exxon, exploring shale-hosted massive sulfides in the Proterozoic Belt Supergroup in MT and ID. The next year I mapped the same rocks near Wallace for my Master's thesis. The field work started slowly with the dusting of volcanic ash from Mt. St. Helens in the brushy forest. Fortunately, heavy rains across two weeks washed much of the ash away. The summer field work was intense, and I ended the summer in the best hiking shape of my life, just prior to my wedding in late August to my fiancé Lora Dillon. After my last two semesters in grad school (mostly writing my thesis), I took my first job with Phelps Dodge in Salt Lake City, exploring a variety of commodities and deposit types. It was here that I learned how to combine geology, geochemistry, petrography, and geophysics to explore metallic deposits. It was also where I suffered my first lay-off when the price of copper fell from 62 cents to 58 cents and exploration budgets were cut. A better opportunity arose with Callahan Mining and I moved to Hayden Lake, ID to work in generative exploration in the Pacific Northwest and the Silver Valley. To escape the cold winters of the north, I was sent to Nevada to work out of Callahan's Reno office. It was at this time when I attended my first GSN meeting where I was exposed to dozens of skilled and smart geologists seeking new discoveries in the Great Basin. There were many exploration companies with fat budgets and the exploration world was abuzz with activity. Indeed, there were many gold discoveries during this period, including Sleeper, Paradise Peak, Bullfrog, Fortitude, Lone Tree and Mule Canyon. Later came Midas, Cortez Hills, and Goldrush. Word travelled more slowly in this pre-Internet era, via the George Cross Newsletter, Old One-Eye Explorationist columns in Skillings, and of course the monthly GSN meetings' cocktail hour. The GSN field trips were always a way to see new deposits, commiserate with exploration colleagues and friends, and meet new people in the business. Volunteering to GSN was important to me, and I served as Treasurer of the Winnemucca Chapter for seven years and served one term on the GSN Board of Directors.

With a fall in the silver price in the mid-80s, I met Mr. Layoff a second time from Callahan, with Lora 6 months pregnant with our first child. I thought to myself, "I need to find a company that doesn't lay off so quickly". After (cont. on page 5)

“FACES OF GSN”

Randy Vance, Faces of GSN (cont. from page 4)

asking around, I found myself in Helena, Montana, starting a temporary job with Newmont Exploration Ltd., trying to get my foot in the door. This was a robust time to be in gold exploration, with spin-offs and start-ups left and right (Freeport, Newmont Gold, etc.). Newmont survived a takeover attempt by T. Boone Pickens in the late 1980s, or my career would have looked very different. This was the beginning of computers in geology. We first had a Compaq with a small phosphorous green screen, then a Compaq “luggable” which was a heavy boxy unit with an orange screen (either a 386s or 486 processor). Within a few years exploration projects were managed with spreadsheets, then advanced to Access databases. PowerPoint presentations took over for overhead acetates and wall maps.

My long tenure with Newmont witnessed at least four different exploration management teams over this time; I relocated multiple times. In 1993 I was transferred from Helena to the Carlin Trend (Elko) to learn mine geology. I worked on the high-grade Capstone oxide deposit in the Bootstrap subdistrict, amongst other tasks.

Eventually I slipped away from the mine environment and returned to the northern Boreal forests on a grass-roots IOCG target in the remote and beautiful Wernecke Hills of the Yukon. This was in a bush camp exploring giant linear specularite-magnetite breccias in Proterozoic sedimentary rocks. The project was a helicopter- and fixed-wing assisted camp that lasted three seasons, drilling several dozen widely spaced core holes from surface. Before the start of the third season I transferred over to the True North project northwest of the Fort Knox gold mine. Eventually the decision was made to transfer two of us to Fairbanks, so I relocated once again and built a nice south-facing house in stunted fir and birch forest. The -40˚F cold and darkness in the Fairbanks winter was an interesting experience for sure. Before we had even painted the house the next spring, Newmont bought Santa Fe Pacific Gold and I was transferred back to Winnemucca to manage the exploration program at the Rosebud mine. I pointed out that my oldest son had been in four elementary schools in five years, so I needed to stay put for a while. Moving to the Winnemucca region, with so many gold deposits, exploration projects, and Santa Fe checkerboard lands, I figured there would be plenty of new opportunities in the future.

By then Lora and I had two boys and a girl. After the kids were off to college Lora returned to school and became an R.N. working at the Winnemucca hospital. But she was stuck on night shifts for too long, so we agreed to move to Boise. She eventually landed in the V.A. serving veterans, before retiring in 2021. We’ve lived in Boise for 12 years. Our three children followed their Mother into medicine--we have a Doctor, a dental student, and a Nurse Practitioner! And we are proud grandparents to three beautiful granddaughters!

The future opportunities did indeed arrive in northern Nevada. After Rosebud, I was fortunate to work on Goldbanks, Copper Canyon (Phoenix mine), Lone Tree halo exploration, and LS epithermal deposits at Midas, Sandman, and Hog Ranch. My career took a change when I left Newmont, and I established a consulting business at a good time ($1700 gold price). I had several clients on various projects and enjoyed the lack of bureaucracy in the corporate world. One of the clients was Klondex Mines, mentoring the exploration team at Midas, and working on Fire Creek, Hollister, and Aurora. I joined Klondex after a year and transitioned to Hecla Nevada after Hecla bought Klondex. After commuting from Boise to Winnemucca for seven years (and surviving COVID), I decided to go back to consulting based out of Boise. I’ve primarily worked for Headwater Gold on epithermal systems (OR-ID-NV) and for Rex Minerals at Hog Ranch. Most recently I have been working at the Eldorado project in Oregon for Provenance Gold.

The industry changes during my career have been remarkable, with the onset of computers, advancement of modern geochemical and geophysical techniques, hyperspectral surveys, improved drilling, smart phones, and mapping tablets. It seems like yesterday when the DoD removed the algorithm that had degraded GPS signals in the 1990s. Geologists were like kids in a candy store getting outfitted with Garmin 2+ hand-held GPS devices. I suspect accurately locating oneself manually on a USGS topo quad has become a lost art for many geologists!

The future demand for metals in the USA and world seems bright, and exploration will be needed to discover new deposits. But I have concerns about the increasingly smaller parcels of public lands available in the western U.S., as “multiple purpose” lands are becoming reduced by military withdrawals, new parks and monuments, and the preferences given to wildlife (especially sage-grouse habitat). Ore deposits are where they are. When major deposits such as Pebble, Resolution, and Rosemont are delayed or banned, U.S. society will eventually suffer along with local economies. Perhaps the movement to prioritize critical minerals will help swing the pendulum back towards the middle?

My bio would not be complete without acknowledging the dozen or more mentors that taught me how to become an explorationist. There are too many to name individually but several mentors from each company in my early days guided me how to do things correctly and with improving skill! Thanks to them! It is important for all of us to mentor whenever the opportunity arises!

GSN SOUTHERN NEVADA CHAPTER NEWS

We in the Southern Nevada Chapter are excited to announce our next meeting! Going forward, we will be hosting our monthly talks in Beatty on the first Thursday of every month.

Speaker: James Faulds, Nevada Bureau of Mines and Geology, University of Nevada, Reno, NV 89557; jfaulds@unr.edu

Title: The Walker Lane: An Incipient Plate Boundary Dissecting the American West and Potential Heir to the San Andreas Fault

When: Thursday, March 6, 2025

Time: Drinks and appetizers at 6 PM, talk at 7 PM

Where: StageCoach Hotel and Casino
900 US-95 North, Beatty, NV 89003

SPONSOR:

RANGEFRONT
MINING SERVICES

We look forward to seeing you at our chapter meeting! Reach out to liz_macdonald@outlook.com with any questions.

Talk abstract:
The 2019 M7.1 Ridgecrest, CA, and 2020 M6.5 Monte Cristo Range, NV, earthquakes were reminders that the Walker Lane (WL) is a fundamental part of the North American-Pacific plate boundary. Since ~30 Ma, western North America has evolved from an Andean-type margin to a dextral transform marked by arc retreat, orogenic collapse, and inland steps of the San Andreas fault system. By early to middle Miocene time, the San Andreas fault was fully developing and lengthening in southern California, with some of the plate boundary motion being transferred inland to an incipient WL in southern Nevada by the late Miocene, when the Las Vegas Valley shear zone developed and accommodated ~60 km of dextral offset from ~12-6 Ma. In the late Miocene, however, a change in relative plate motions, east shift of the southern part of the transform to the Gulf of California, and development of the Big Bend of the San Andreas induced an overall westward shift of the WL to the western Great Basin. Dextral shear was favored in a NNW-trending belt in the western Great Basin that ultimately developed into the modern-day WL, because it paralleled new plate motion, aligned with the Gulf of California, and bypassed both the convergent bottleneck of the Big Bend and rigid Sierra Nevada block that was anchored by Mesozoic batholiths.

The WL currently accommodates ~20-25% of the dextral plate motion (~10 mm/yr). In contrast to the continuous 1,100-km-long San Andreas, the WL has shorter discontinuous faults. Progressive NW-younging in the onset of deformation (~11 to <4 Ma) in conjunction with a decrease in length of and offset on dextral faults indicate NW propagation of the WL. The WL ends near the south end of the Cascade arc directly inboard of the Mendocino triple junction. Continued northward migration of the triple junction and NW-propagation of the WL suggest that they will intersect off southern Oregon in ~7-8 m.y. The primary plate boundary may then step inland to the WL, similar to the late Miocene shift of its southern reaches to the Gulf of California. Thus, the WL provides a superb natural laboratory for analyzing initiation and progressive development of a major transform fault. Integrated analyses of the late Miocene to recent evolution, Quaternary faults, seismicity, and geodetic data are critical for deciphering the progressive development, earthquake hazards, and future evolution of this incipient plate boundary.

Please join us for the

Winnemucca GSN March Meeting

Thursday, March 13, 2025

The Martin, 94 W. Railroad St., Winnemucca, NV

Food and Drinks at 6 pm; Talk at 7 pm

Speaker: Heather Hoffman, SSR Mining

Title: Yay! You've Found the Gold, but Can I Process It?

FOOD & BEER SPONSOR: JUST REFINERS (USA), INC.

Just Refiners (USA) Inc.

Abstract: A brief introduction to the common gold metallurgical processes and how each process has unique considerations that connect to exploration geology.

Bio: Heather Hoffman graduated from Colorado School of Mines with a Bachelor of Metallurgical and Materials Engineering. She has worked for SSR Mining at Marigold Mine for four years between an internship and full-time as a metallurgist. Within that time, she has worked on a variety of projects including plant automation, process optimization of the heap leach, CICs, and Zadra circuit, and a foray into geometallurgy.

If you have any questions, contact Kris Alvarez at kalvarez@i80gold.com or 775-621-6195

Please join us for the Elko GSN March Meeting

Thursday, March 20, 2025

Western Folklife Center, 501 Railroad St., Elko, NV

Drinks and Appetizers at 6 pm; Talk at 7 pm

Speaker: Paul Fix, Geologist at AngloGold Ashanti

Title: Geology and Exploration of the Merlin Epithermal Gold Deposit, Nevada, USA

FOOD & DRINKS SPONSOR: CAPITAL

Abstract:
The Merlin deposit is located within the southern extension of the Walker Lane mineral belt and sits within the southwestern Nevada volcanic field. This volcanic field consists of an overlapping complex of Miocene-age calderas with the largest being the Timber Mountain Caldera Complex. Mineralization occurred during several hydrothermal events between approximately 13 and 11.6 Ma. Cross-cutting relationships show stratigraphically controlled early adularia-quartz-pyrite 'disseminated' mineralization predates a later hydrothermal breccia and vein event. High-grade gold is linked to low-sulfidation epithermal veins, vein stockworks (e.g., Lynnda Vein), and manganese oxide-coated fractures and pumice sites. The primary host rocks are Crater Flat Group volcanic tuffs. The deposit is oxidized to depths >500m from the surface. AGA's 2024 Inferred Mineral Resource increased the Merlin resource from 9.05 Moz to 12.10 Moz Au.

Speaker Bio:
Paul Fix is a geologist at AngloGold Ashanti (AGA) focused on exploration in the Beatty District, Southern Nevada. He earned a B.S. from the University of Wisconsin-Stevens Point and an M.S. from the University of Minnesota-Duluth. Paul looks forward to sharing the unique characteristics of the Merlin deposit and the key exploration methods that led to its discovery at the GSN Elko Chapter meeting.

ANGLOGOLDASHANTI

The Elko Chapter would like to graciously thank **Capital Limited** for sponsoring our March meeting fun.

If you have any questions, please contact GSN Elko Chapter President, Ajeet Milliard, ajeet@megllc.net

Thomas Ryan Kilbey

April 24, 1961 – January 17, 2025

In the care of Wisconsin Memorial Park Inc.

Thomas R. Kilbey of Reno, Nevada passed away on the 17th of January, 2025 at 63 years of age. Tom grew up in Milwaukee, graduating from Marshal High School where he played baseball as well as football. After High School, he played Fantasy Club Baseball. He also later attended UWM where he completed a degree in geology. Following the completion of his Undergraduate studies, he moved to Reno, Nevada. There, he attended Nevada State University, pursuing his master's degree. Upon completion of his master's degree, he began employment under a mining company. He later used his education and experience to found his own geological company, allowing him to assume the role of advisor to various third parties. His work allowed him the opportunity to travel the world and seek new experiences both inside The United States (North Carolina), as well as around the globe (most notably in Canada, Peru, Mexico, Australia, and Greece).

He is survived by his parents, Patricia Kilbey and Warner Kilbey; sisters Susan Ziegler and Christine Deuker; brother, Michael Kilbey; and many other loving friends and relatives.

His service will be taking place at Wisconsin Memorial Park in Brookfield, WI on Saturday, the 22nd of March, 2025. The service will be held in the Family Center building located at 13037 West Capitol Drive, Brookfield, WI 53005. Visitation will be held at 1:00PM with the memorial service beginning at 2:30PM.

Spring Field Trip!

GSN 2025 Spring Field Trip

Mark your calendars and save the dates of Friday, May 30th through Sunday, June 1st for the GSN Spring Field Trip! We plan to depart from Reno on Friday, May 30th for a full-day tour of the Atlanta gold-silver district on Saturday, May 31st. Trip stops and tour route on the return to Reno on June 1st still to be decided. Look for the announcement for trip registration and further details in the April Newsletter!

OTHER UPCOMING EVENTS

March 2-5, 2025: PDAC Annual Convention, Toronto, ON Canada. Information and registration: https://pdac.ca/convention-2025. Visit GSN in the NEVADA booth 7017 in the NORTH Exhibit Hall!

March 4, 2025 Arizona Geological Society Speaker Series 2025 in person or online. Speaker: Chad Kwiatkowski, Arizona Geological Survey. Title: "Revisiting the Arizona Red: The Lower to Middle Triassic Moenkopi Formation". Streaming live: TeamsMeeting. Click here for more information: AGS_March4

March 6, 2025: Nevada Petroleum & Geothermal Society meeting. Speaker & Topic: Nevada Prospect Presentation by Randy Henkle, AND Using Ultra-High State Count Superhot Capable Sliding Sleeve Stimulation Technologies to Improve Next-Gen EGS Performance by Blake Wood of 400C. Visit their events page to register: **NPGS**

March 6, 2025: GSN So. Nevada Chapter Meeting will be held at the StageCoach Hotel and Casino, 900 US-95 North, Beatty, NV. (See page 6 for details)

March 13, 2025: GSN Winnemucca Chapter Meeting. The Martin Hotel, Winnemucca, NV. (See page 7 for details)

March 17, 2025: Northern NV SME Meeting, Circus Circus Hotel, Mandalay Room, Reno, NV. Speaker: Danielle C. Felling, M.A., RPA, WestLand. Topic: *Cultural Resource Management in Practice: Demystifying the Section 106 Process in Nevada*. **RSVP**

March 20, 2025: GSN Elko Chapter Meeting. Western Folklife Center, Elko, NV. (See page 8 for details)

March 20, 2025: Denver Region Exploration Geologist' Society (DREGS) monthly meeting. CSM, BE241, Berthoud Hall (Be), Golden, CO. Speaker: Jeff Hedenquist. Title: "Exploration implications of multiple formation environments of advanced argillic minerals". Social hour: 5:00 p.m. Talk: 5:30 p.m.. More information here: **DREGS_March20**

PAID ADVERTISEMENTS

Mining Activity Update

JANUARY 2025, Mike Brady
LMBrady@aol.com

NEVADA

Pacific Ridge Exploration Ltd. announced that it acquired an option to acquire the Ripsey West (Arizona), the Royston (Nevada), Red Star (Utah) and the Mineral Hill (Wyoming) properties from EMX Royalty Corp. for $960,000 cash, 5,500,000 shares and $10,000,000 in exploration expenditures over 5 years. *Press Release:* January 8

SSR Mining Inc. announced that the Marigold Mine has now produced 5,000,000 ounces of gold since the inception of mining over 35 years ago. (reserve = 185,703,000 tonnes @ 0.48 gpt Au proven+probable) *Press Release:* December 31

Ioneer Ltd. announced that it closed on a $996,000,000 loan from the U.S. Department of Energy for its Rhyolite Ridge Project. This is a $268,000,000 increase in the loan from the original loan commitment in January 2023. (reserve = 60,200,000 tonnes @ 0.387% Li2O, 1.54% B proven+probable) *Press Release:* January 20

K2 Gold Corp. acquired the Si2 Property from Orogen Royalties Inc. for $250,000 in cash or shares. *Press Release:* January 16

Western Exploration Inc. announced that recent drill results at the Aura/Gravel Creek Project include 645.27-647.25 meters @ 4.98 gpt Au, 206.6 gpt Ag (WGC458); 543.89-544.9 meters @ 51.50 gpt Au, 1,430.0 gpt Ag (WGC459); 313.03-314.07 meters @ 12.34 gpt Au, 372.2 gpt Ag (WGC460) and 521.3-522.43 meters @ 8.24 gpt Au, 318.9 gpt Ag (WGC462). (resource = 1,315,000 tonnes @ 4.73 gpt Au, 75 gpt Ag indicated) *Press Release:* January 8

Tolsa USA Inc. announced that it terminated its interest in the Sepiolite Property of Sunrise Resources plc. *Press Release:* December 27

I-80 Gold Corp. announced that it would delay the gold prepay delivery schedule to Orion Mine Finance Corp. to March 31, 2025 (was for December 31,2024). I-80 was to deliver 3,210 ounces of gold and 400,000 ounces of silver. *Press Release:* December 31

Lithium Americas Corp.(62%) announced that based on recent studies at the Thacker Pass Project, resources aggregate 3,786,000,000 tonnes @ 0.480% Li2O measured+indicated and 1,981,000,000 tonnes @ 0.446% Li2O inferred. (was1,457,200,000 tonnes @ 0.446% Li2O measured+indicated and 297,200,000 tonnes @ 0.403% Li2O inferred) *Press Release:* January 7

Lincoln Gold Mining Inc. announced that it completed the acquisition of the Bell Mountain Property from Eros Resources Corp. for 4,500,000 shares. Eros will also retain a 7.5% NSR. (resource = 2,662,000 tonnes @ 0.61 gpt Au, 15.9 gpt Ag measured+indicated) *Press Release:* January 6

Hycroft Mining Holdings Corp. announced that recent drill results at the Hycroft Project include 73.8-91.4 meters @ 23.7 gpt Ag, 0.49 gpt Au (H24D-6018) and 306.6-324.7 meters @ 2,359.7 gpt Ag, 0.38 gpt Au (H24D-6018). (reserve = 669,680,000 tonnes @ 0.34 gpt Au, 14 gpt Ag proven+probable) *Press Release:* January 14

Sun Silver Ltd. announced that recent drill results at the Maverick Springs Project include 181.36-313.95 meters @ 37.4 gpt Ag, 0.18 gpt Au (MR24-208). (resource = 195,735,000 tonnes @ 40.2 gpt Ag, 0.32 gpt Au inferred) *Press Release:* January 21

Blackrock Silver Corp. announced that recent drill results at the Tonopah West Project include 137.56 -138.84 meters @ 687.2 gpt Ag, 6.66 gpt Au (TXC24-101); 232.26-233.78 meters @ 134.0 gpt Ag, 1.67 gpt Au (TXC24-103); 209.09-209.7 meters @ 107.0 gpt Ag, 0.82 gpt Au (TXC24-116) and 261.21-263.23 meters @ 1,141.0 gpt Ag, 7.14 gpt Au (TXC24-117). (resource = 6,119,000 tonnes @ 2.9 gpt Au, 242.6 gpt Ag inferred) *Press Release:* January 16

Summa Silver Corp. announced that based on recent drill results at the Hughes Project, resources aggregate 982,000 tonnes @ 188 gpt Ag, 1.59 gpt Au indicated and 2,485,000 tonnes @ 202.7 gpt Ag, 2.38 gpt Au inferred. (no previous estimate) *Press Release:* January 16

GSN Student Poster Competition

GEOLOGICAL SOCIETY OF NEVADA
2175 Raggio Parkway • Reno, Nevada 89512
Phone: (775)323-3500 • Fax: (775) 323-3599
Email: gsn@gsnv.org • Website: www.gsnv.org

The Geological Society of Nevada announces their annual ***Student Poster Competition*** will be held on **Friday, April 18, 2025,** during the GSN Membership Meeting **at the Atlantis Hotel and Casino, 3800 South Virginia Street, Reno, NV 89502, USA.**

There will be a first-place prize of $500, second place prize of $300 and third place prize of $200. This year the GSN will also offer a prize for the best Undergraduate Poster. We invite all University of Nevada, Western Nevada Community College, and Truckee Meadows Community College geoscience and hydrology students to participate. Geoscience students at UNLV, Sonoma State, Sacramento State and Chico State are also invited and welcome to participate.

- Student membership in GSN is required (join GSN as Student Member on-line for $25 at https://www.gsnv.org/).

Posters will be judged by a panel of GSN volunteers. Poster presenters should arrive at the meeting room in the Atlantis at 5:00pm on April 18th and have their posters up by 5:30pm—judging will start at 6:00pm sharp. GSN will provide student presenters with free dinner starting at 7:00pm. Winners will be announced, and prizes awarded starting at 8:00pm, after dinner.

This will be a casual, sponsored-fun event and a good opportunity for students to showcase their work in progress and interact with the wider, Reno geoscience community.

Students must send their name and poster subject or title no later than March 31, 2025 via email to Josh Miller (cmageoscience@gmail.com).

We hope to see you at the GSN Student Poster Competition!

Thanks,

Josh Miller
Secretary, Geological Society of Nevada
cmageoscience@gmail.com

2027 GSN Symposium (27GSNS) – February 2025 Update

Symposium Event Dates: Thursday 22 April to Saturday 1 May 2027

Location: The Nugget Casino, Reno Nevada USA

Theme: Ore Deposits of the Great Basin – Key to America's Mineral Independence nominated by Jessica Bogossian.

News of the month: The second meeting of the 2025 year was held 10th February 2025 where key topics included the symposium theme logo competition, engagements with UNR, USGS and NBMG key geoscientists and advancement of the sub-committee chairs who will lead the various Symposium functions.

Regarding the **logo competition which ends Friday 28th February**, the Symposium Committee has received some fantastically talented logo submissions and are excited to be launching the digital logo voting competition in March. Logo submissions were gratefully received, so **THANK-YOU to all those that entered**. Voting will take place online via Survey Monkey and is only open to GSN members, an email will be sent to all members to cast their vote. The winning logo will receive a **$200 cash prize** generously donated by the GSN.

We **THANK** all the volunteers that have stepped up as **GEOSCIENCE LEADERS** to help prepare and deliver the **2027 GSN Symposium**.

This month the following geoscientists have agreed to assist the Symposium

Sub Committee	**Lead Chair**
Exhibitors	Tony Gesualdo & Leilani Konyshev
Publications & Editing	Dr Mike Ressel & Dr Phillip Ruprecht (UNR)
Social media & Event App	Daniel Chafetz
Name	**Session Leader**
Dr Andrew Zuza (UNR)	Geology of the Great Basin (opening session)
Dr Peter Vikre (USGS)	Copper - porphyry, CRD, vein
Dr Chris Henry (NBMG)	Lithium - claystone, brine, pegmatite
Dr James Faulds (NBMG – UNR)	Geothermal - Steam Boat, field trip(s)

IN-KIND ASSISTANCE requested and received

srk consulting

1. **SRK has generously volunteered** to provide a monthly meeting room for the Symposium in return for advertising. The Committee is grateful and thanks **SRK** for their support.
2. An event bookkeeper is also being sort in return for advertising.

The next meeting is 10th March 2025 4-5pm PT additional volunteers and interested parties, kindly contact Regina Molloy to receive the meeting details.

The Symposium Committee wishes to thank Christine Ballard for her work and support to date as the Symposium Secretary and looks forward to Christine assisting the event as a subcommittee member. The role of Symposium Secretary is now currently vacant.

All the best with your endeavours this month, we hope it's a good one.

From the 27GSNS Symposium Steering Committee
Regina Molloy (Reno) – Chairperson - chairperson@gsnsymposium.org
Mark Travis (Elko) - Deputy Chairperson - depchairperson@gsnsymposium.org
Vacant – Secretary - secretary@gsnsymposium.org
Christina Ricks – Treasurer – treasurer@gsnsymposium.org

Deceptively Critical Sphalerite, by Mark Frenzel & Samuel T. Thiele

(reprinted from Nature Geoscience, Dec. 6, 2024)

Sphalerite is a trickster with the ability to incorporate a range of elements. Max Frenzel and Sam Thiele explain how sphalerite's tricks can be used to explore ore-forming environments.

Sphalerite is a common zinc (Zn) and iron (Fe) sulfide with the idealized chemical formula (Zn,Fe)S and the diamond structure. It occurs in a wide variety of geological settings, including organic-rich sediments, (magmatic–)hydrothermal systems, and meteorites.

Despite its abundance in many precious and base-metal ores, sphalerite was only properly described and named as an independent mineral in 1847, later than other common sulfides. This is because of its variable appearance (Fig. 1), often mimicking the lead sulfide mineral galena — a behaviour that has anecdotally tricked students and professional geologists alike. Variability also provided inspiration for its name: 'sphalerós' in ancient Greek means deceiving or treacherous.

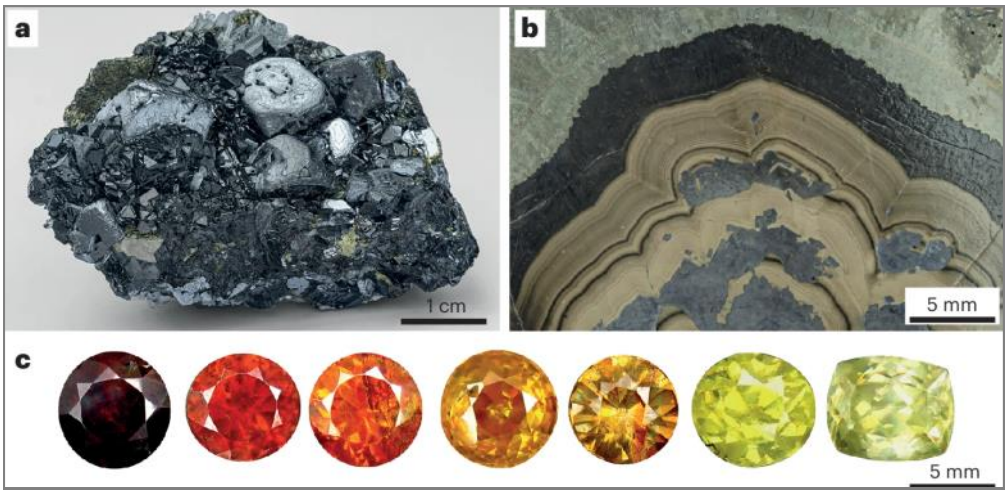

Fig. 1: The many faces of sphalerite. ***a****, Lustrous black sphalerite with etched galena crystals from Madan, Bulgaria.* ***b****, Colloform banded, tan to dark brown sphalerite with grey marcasite (FeS_2) and galena from Olkusz, Poland.* ***c****, Sphalerite gemstones from Picos de Europa, Spain, illustrating the wide variation in possible colours.*

Despite this trickery, sphalerite's relative ubiquity in hydrothermal systems and its ability to incorporate a wide variety of trace elements[1] have made it an important tool to study ore-forming processes. For instance, concentrations of the elements gallium (Ga) and germanium (Ge) decrease with increasing formation temperature, while iron (Fe), manganese (Mn), and indium (In) increase[2]. In addition, Fe concentrations in sphalerite can record information on hydrothermal sulfur fugacity[3]. Understanding temperature and sulfur fugacity provides vital information on ore deposit formation. Temperature gradients across a deposit can be recorded in sphalerite chemistry, helping pinpoint fluid pathways, while temporal fluctuations in both temperature and sulfur fugacity may identify distinct episodes of fluid input. The ability to use sphalerite compositions to derive such information with relatively simple microanalytical techniques opens up new possibilities compared to traditional, labour-intensive fluid inclusion-based methods.

Moreover, sphalerite can incorporate substantial amounts of the halogens chlorine (Cl) and bromine (Br) in its crystal structure[4]. In some cases, Cl and Br are also present in nanoscale (fluid) inclusions. This discovery of halogen incorporation into a major sulfide mineral is exciting news, since halogens can act as tracers for the origin of salinity in hydrothermal fluids. Seawater, evaporated seawater, and dissolved evaporites each have distinct Cl/Br ratios and sphalerite appears to faithfully record these, providing a promising tool to determine the origin of the ore-forming fluids and their pathways.

In addition to its usefulness for research on hydrothermal ore deposits, sphalerite is the major source of the world's Zn and a crucial source of the critical elements Ge and In. The element In was first identified in sphalerite in 1863, and both elements are now widely used in communications and renewable energy technologies. Despite advances in sphalerite geochemistry, there is a lack of experimental data on the partitioning behaviour of trace elements such as Ge and In between sphalerite and hydrothermal fluids. If such data were available, sphalerite chemistry could be used to reconstruct Ge and In abundances in the fluids, enabling a better understanding of the sourcing and transport of these elements in hydrothermal ore-forming systems.

Since Ge and In are by-products from the production of Zn and other raw materials, concerns have been raised about their future availability[5], resulting in their classification as "critical" raw materials[6] that are both economically important and at risk of supply shortfalls. Fortunately, concerns about their availability are largely unfounded[7]. Both are abundantly available from the world's mine production of sphalerite — in much greater quantities than are currently needed or extracted. Sphalerite deceived us yet again!

Frenzel, M., Thiele, S.T. Deceptively critical sphalerite. *Nat. Geosci.* **17**, 1199 (2024). https://doi.org/10.1038/s41561-024-01587-y

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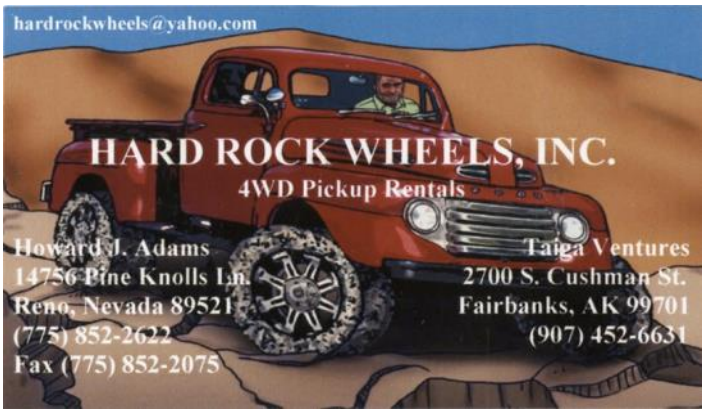

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GSN TRAVELLING BACKPACK PICTURES (Submit your photo to gsn@gsnv.org!)

A 2015 GSN backpack appeared at the check-in table at the Winnemucca Chapter meeting on Feb. 13, 2025!