



GEOLOGICAL SOCIETY OF NEVADA NEWSLETTER

Geological Society of Nevada, 2175 Raggio Parkway, Room 107, Reno, NV 89512
(775) 323-3500 - Hours Tuesday -- Friday, 9 a.m. to 4 p.m. Monday by appointment.

Website: www.gsnv.org • E-mail: gsn@gsnv.org



February 2020, Vol. 36, No. 2

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Published monthly except June and July

CALENDAR OF GSN EVENTS

Feb. 6, 2020
THURSDAY

SO. NEVADA CHAPTER MEETING (1ST THURSDAYS)

The Southern Nevada Chapter meeting will be held at the Las Vegas Natural History Museum, 900 N. Las Vegas Blvd. Beer/Pizza @ 5:30 pm, Talk at 6:00 pm. **Speaker: Simon Jowitt, UNLV. Title: "The Troodos Ophiolite, Cyprus; a geological tour through the type locality for onland studies of the upper oceanic crust". Pizza & Beer Sponsored by: GEOSYNTec CONSULTANTS!** Contact President, Joshua Bonde for more information: paleo@lvnhm.org. Details on pg. 6.

Feb. 19, 2020
WEDNESDAY
(3rd Wed. this month!)

WINNEMUCCA CHAPTER MEETING—Note 3RD WED THIS MONTH!

The meeting will be held at the Martin Hotel, 94 W. Railroad St. Drinks at 6:00 pm, Appetizers at 6:30 pm, Talk at 7:00 pm. **Speaker & Topic: Rick Streiff, Consulting Geologist. Title: "Features of Modern and Fossil Sinter Deposits". Food and Drinks Sponsored by: JENTech DRILLING SUPPLY.** For more information, please contact President, Robbie Anderson at: Robbie.agau@gmail.com. Details on page 6.

Feb. 20, 2020
THURSDAY

ELKO CHAPTER MEETING (3RD THURSDAYS)

The monthly meeting will be held at the Western Folklife Center, 501 Railroad St. Drinks & Appetizers at 6:00 pm, Talk at 7:00 pm. **Speaker: Mike Ressel, NBMG. Title is: "The Great Basin is bipolar: A case for contrasting metal distribution in the mid-Tertiary and where Carlin-type deposits reside on this spectrum." Food and Drinks Sponsored by: MAJOR DRILLING.** For more info please contact President, Diane Cheung-Harris at: dianehcheung@gmail.com. Details on pg. 7.

Feb. 21, 2020
FRIDAY

GSN MEMBERSHIP MEETING (3RD FRIDAYS)

The GSN's monthly meeting will be held at Taps & Tanks, 1155 So. Rock Blvd., Reno, NV. Drinks at 6:00 pm; Dinner at 6:30 pm; Talk at 7:30pm. **Speakers: Thomas Erwin and Jeff Faillers, Partners at Erwin Thompson Faillers. Title, "Two Lawyers Walk Into a Bar..."** **Drinks Sponsored by: EM STRATEGIES!** Dinner cost is \$30 Please buy dinner online: <https://www.gsnv.org/dinner-reservations/>. **RSVP no later than Tuesday, February 18th online or by email: gsn@gsnv.org.** Details on page 3.

G.S.N. FEBRUARY MEETING SPONSOR



FROM THE PRESIDENT
Dennis Bryan, GSN President 2019-2020
FEBRUARY 2020

I have been reading something interesting of late, the Journals of Alfred Doten, a young man from Massachusetts who came to California in 1849 in search of gold, migrated to Nevada in the 1860's, and kept an almost daily diary of his experiences. It's turned out to be a fascinating narrative of everyday life during that tumultuous period out here in the west. What especially peaked my curiosity are some of his everyday experiences that apparently were common and acceptable but seem so foreign to us today, a mere 160 years later. A few examples:

They appeared to shoot anything that moved and usually ate it. A large bore shotgun was reported to have killed over a hundred waterfowl with a single shot. Geese good!

The author regales about shooting a big bird that he was told was a Condor. Had a wingspan of 9 feet one inch. Tasted handsomely!

The local vigilante committee was often the only law in remote mining camps, and they dealt with thieves and bad guys swiftly and rather harshly, like where's the nearest tree?

In more established settlements there were lawmen. They deputized and summoned citizens for juries. Trials were held soon after a criminal was caught and were swift, with hangings common (bullets cost money), unless the accused bought off the jury.

Water was crucial for placer mining and was often brought great distances by digging ditches from nearby streams. During the dry season the prospectors gathered their "dirt" for later washing when water was plentiful.

Indians in Nevada (diggers) harassed the early immigrants mostly by stealing anything they could get their hands on. Sometimes at night the Indians would shoot arrows into the horses and oxen, thereby forcing the immigrants to leave their livestock behind.

Fires were very common during the autumn in the foothills of the Sierra and along the eastern slope, as they are now. Evidently, they were not nearly as destructive as vegetation was apparently less dense. Multiple fires set by the Indians could often be seen burning at times along the immigrant trail and the western Sierra front.

They could bore a water well to several hundred feet if in favorable soils.

Typical stages carried upwards of 16 people; inside, up top, in the back, with the driver, etc. They even had lights for use after dark, which was often the case.

Entertainment was often getting together at individual homes with a fiddle, banjo and bones and enjoying songs and dancing. They would often party late into the night and would likely stay the night with friends and sleep in the same bed, when available. Distances precluded going home all the time.

Various whiskeys were ubiquitous, beer appears to have been less available and was referred to as lager. Getting "tight" was the norm.

Duels were sometimes engaged in to settle personal affronts, often after drunken bouts. Ten paces and open fire! (unless one side cheated).

During the civil war successionists were sometimes strung up just for pushing their agenda. Nevada and California were primarily Unionists and they took politics seriously.

Mining was a hazardous profession in Virginia City. Falls down shafts and items and rocks falling down shafts took their toll. Infections from injuries often ended badly.

There were a lot of volunteer fire companies on the Comstock who actually managed to put out a lot of fires. (except for the big ones!)

Hope you enjoyed a little trivia of the mining camps wherefrom we sprang. Looking forward to seeing you all at the next GSN meeting on February 21st at Taps & Tanks. Don't miss that night's program featuring Tom Erwin and Jeff Failers, (as Laurel and Hardy I presume) explaining how to avoid some of the legal foibles common to the exploration community.

Dennis

***The G.S.N. wishes to thank
MDA a division of RESPEC
for sponsoring
the GSN's meeting in Reno on
JANUARY 17th !***



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GSN MEMBERSHIP MEETING—FEBRUARY 21, 2020



Speaker: Tom Erwin and Jeff Failers
Partners at Erwin Thompson Failers

Title: “Two Lawyers Walk into a Bar...”

Drinks @ 6:00 pm; Dinner @ 6:30 pm; Talk @ 7:15 pm

Location: Great Basin’s Taps & Tanks, 1155 So. Rock Blvd., Reno, Nevada

DINNER COST—\$30.00 per person.

(You will be invoiced \$30 if you do not cancel your reservation by Tuesday, February 18, 2020)

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

Reservations required. Please click on the link to prepay for dinner:

<https://www.gsnv.org/dinner-reservations/>

Reservations due by 5 p.m. on TUESDAY, FEBRUARY 18, 2020!!!

GREAT NEWS!! Taps & Tanks has upgraded the AV configuration and ironed out some of the issues we have had in past meetings. Thank you for your patience.

Title: Two lawyers walk into a bar....

A casual discussion of legal issues of interest to the geologist.

Abstract:

Who owns the data? A discussion of the explorer’s right to use data created and acquired in various circumstances.

Liability for professional opinions? The geologist’s potential liability for conclusions and opinions.

Traps for the unwary – overlooked and understated risks of managing your exploration business. Who is liable for actions taken and decisions made by the exploration company – corporations, joint ventures, partnerships and LLCs?

The *Rosemont Mine* decision and the *Earthworks* lawsuit – What do they mean for the explorer?

“FACES OF GSN”

Reid Yano, Reno, NV

From a very early age I knew that I wanted to be a geologist. I grew up in the Pacific Northwest in southwestern Washington, where sunny days could be few and far between. When the weather cooperated, my parents did an amazing job showing me and my siblings what the world around us had to offer. Most weekends we would spend at our cabin on the flanks of Mt. Adams, picking huckleberries or fishing in the summer, sledding and building snow forts in the winter. My brother and I could usually be found camping in the yard, playing card games and telling scary stories into the wee hours of the morning. Plus the regular camping trips around the NW, getting to experience campfires and sleeping in tents (except for my dad; car camping for him!). All this exposure to the outside world instilled in me a great curiosity to the “why” of what I could see around me. Originally, and thanks in no small part to Jurassic Park, I was interested in Paleontology. At one point I even convinced a couple neighborhood friends to dig a hole in the backyard to look for dinosaur bones, much to my parents chagrin. This continued through high school including regular summer paleontology camps outside John Day, Oregon.

I went to Washington State University for my Bachelor’s degree. Admittedly, I wasn’t the best student as the distractions of college got the better of my studies, as well as a dedication to the Marching Band Drum Line through all 4 years. It was during undergrad that I came to appreciate that, as cool as paleontology appeared, there was very little work in the field. Fortunately, WSU had a very unique program in place to assist students in exploring new avenues, as well as providing an outlet to discuss issues with professors. It was through this Alumni Advisory Board that I met one of the most influential people in my professional career: Jason Bressler. Jason was an alumnus of WSU, one of two geologists running an exploration company in Alaska, and he was willing to take a chance on me.

After completing my Bachelor’s of Science in Geology, I spent 2 months in Alaska working on a helicopter-supported drilling exploration program. There was something surreal about jumping off the skids of a helicopter with a backpack, shovel, and shotgun that really struck a vibe within me. The work was strenuous and the hours long, but I learned how far I could push myself and realized a passion for exploration. More than any other possible career path it seemed to me that exploration represented the ultimate real-world culmination of all the fields within geology: structure, mineralogy, geochemistry, hydrology, petrography, etc. And after that my path was set. I returned to Alaska for a second summer, sampling soils and

streams, mapping, assisting with logging, and of course cutting core. I was also fortunate enough to meet the girl I would (eventually) marry while on this project!



Helicopter exploration in Yukon Territories, 2008

With my decision made and the course laid out, I began studying and prepping for grad school. Ultimately I ended up at the University of Nevada, Reno under the tutelage of Tommy Thompson. Through Tommy I was introduced to another of the truly influential people in my career, and this one many of you know: Jonathan Price. Jon was the State Geologist of Nevada at the time, and he took me under his wing. He set me up with a Master’s thesis, and got me the funding to pursue my project. My project involved collaborating between the NV Bureau of Mines and Geology, the USGS at the Denver Federal Center, and a fieldwork component at Nevada Copper in Yerington, NV. Grad school was a blur of studying, lab time, writing, and of course socializing with my fellow classmates. But it was also through grad school that

Dr. Thompson encouraged all of his students to join and attend GSN, and did his best to impress upon us all the importance of networking in the mining industry. I completed my Master’s in 2012 and it was off to the races!

The next few years I worked on a number of exploration projects across Nevada and Canada. Some of them turned out great, others not so much. But I can honestly say that I learned from all of them: good, bad, and otherwise. (cont. on pg. 5)

R. Yano, Faces of GSN (cont. from pg. 4)

I also came to fully respect the cyclical nature of our industry, taking odd jobs when times were slow, even working as a Lift Operator at Squaw Valley between projects. Eventually, a contact reached out to me from my days in grad school. That person was Hank Ohlin, and he would be the most influential of the people in my professional path. Hank vouched for me and brought me on for a drill program with Nevada Copper at Pumpkin Hollow. Out in Yerington I gained a lot of experience, both in the core shed and out in the field. I also got my first taste of underground geology in both shaft and development mapping and sampling. At the time I was hoping for a full time job but it wouldn't be until years later that that particular opportunity presented itself.



SEG/UNR CREG trip to Turkey, 2012



Secant Pile Wall Construction, Oroville, CA 2017

During another of the downturns, I had the opportunity to work as a geologist outside of the mining industry. My wife was working on the Oroville Dam Recovery, and the project needed more (a lot more) geologists with rig experience. Originally I was brought out to sit a core rig and do some logging and instrument installation, but over the course of about a year I ended up in charge of managing the geologists overseeing the drilling and installation of the Secant Pile Wall. Somehow I ended up responsible for staffing 12-13 people 7 days a week for the duration of the project, as well as training, reconciling invoices from the drilling subcontractor, monitoring and resolving conflicts between overworked people, and being the primary point of contact for any of the half dozen governmental and construction inspectors on "The Wall". The project was exhausting but very educational. After almost a year (and as construction began to slow) Hank reached out to me again with more work with Nevada Copper, and it was time to make my return to the mining industry.

I returned to Yerington in early 2018 as a contractor to assist with their geotechnical drilling program prior to beginning sinking the secondary Vent Shaft. As the drilling wrapped up, and underground development began to hit full stride, Nevada Copper brought me on full time as a Project Geologist, and the rest is history. I've been pretty fortunate to be able to see, and be involved with, a project go from pure exploration in my grad school days all the way through to production.

I'm admittedly still early in my career, but believe I've seen enough to say that I have no idea what the future holds for me. If I had any advice to give, it would be to emphasize the importance of networking. And to never let anyone ever tell you that your personal life is less important than a project. I'm grateful to both Kelsey Sherrard and Patty Capistrant for asking me to share my story, and to GSN as a whole for the opportunity it represents to all of us.

GSN SOUTHERN NEVADA CHAPTER MEETING

THURSDAY, FEBRUARY 6, 2020

Location: Las Vegas Natural History Museum, 900 Las Vegas Blvd. North

Time: Pizza & Beer @ 5:30 p.m; Talk @ 6:00 p.m.

Speaker: Simon Jowitt, Ph.D., UNLV

Title: “The Troodos Ophiolite, Cyprus; a geological tour through the type locality for onland studies of the upper oceanic crust”

Food & Drinks Sponsored by: GEOSYNTEC

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ABSTRACT:

Abstract: The Late Cretaceous Troodos Ophiolite of Cyprus represents one of the best-preserved onland sections of the oceanic crust on Earth. The ophiolite records spreading ridge-type activity that is thought to have occurred in a supra-subduction zone environment and contains units from the upper mantle through a complete oceanic crustal sequence to seafloor sediments and beyond. These record the evolution and eventual uplift of the ophiolite from some 4 km beneath the ocean to its current position, where the top of the ophiolite is at an altitude of nearly 2 km. The ophiolite also contains numerous copper-zinc deposits that provided metals to civilisations from the ancient Greeks and the Roman Empire to the present day as well as preserving evidence of the hydrothermal vent fauna that are often associated with modern-day black smokers. This talk will give an overview of the entire ophiolite, detailing some of the key processes that occur during the formation and evolution of the oceanic crust.

GSN WINNEMUCCA CHAPTER MEETING

WEDNESDAY, FEBRUARY 19, 2020
(Note 3rd Wednesday again this month!)

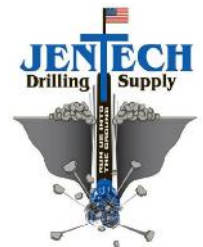
Location: The MARTIN HOTEL, 94 Railroad St., Winnemucca NV

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

Speaker: Rick Streiff, Consulting Geologist

Title: “Features of Modern and Fossil Sinter Deposits”

Food & Drinks Sponsored by: JENTECH DRILLING SUPPLY



Abstract:

Siliceous sinter is the surface manifestation of a geothermal system where the water table breaches the surface. Fossil geothermal systems, more commonly known as low sulfidation epithermal deposits, are not well understood by most geologists. Recent work by Ayrton Hamilton, a PHD student working with OceanaGold geologists in both the active Taupo Volcanic Zone and the Hauraki Goldfield on the North Island of New Zealand, has refined our understanding of the characteristics of siliceous sinter deposits and how to recognize a true sinter from other types of pseudo sinters. The study of modern systems has helped to identify additional fossil sinters throughout the Hauraki Goldfield.

Sinter is chemically precipitated silica by near-neutral geothermal fluids which are largely water but contain a very small magmatic component. These alkali chloride waters migrate laterally across the surface, evolving into different chemical and temperature zones which in turn support different microorganism communities. These microorganisms are trapped and preserved by silica deposition. Different organisms produce different textures which indicate temperature zones within the sinter. Identifying (Cont. on bottom pg. 7)

GSN ELKO CHAPTER MEETING

THURSDAY, FEBRUARY 20, 2020

Location: The WESTERN FOLKLIFE CENTER, 501 Railroad St., Elko

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

Speaker: Mike Ressel, NV Bureau of Mines & Geology

Title: "The Great Basin is bipolar: A case for contrasting metal distribution in the mid-Tertiary and where Carlin-type deposits reside on this spectrum."

Food & Drinks Sponsored by: MAJOR DRILLING



Please contact Diane Cheung-Harris for more information. dianehcheung@gmail.com.

ABSTRACT:

The Great Basin is bipolar: A case for contrasting metal distribution in the mid-Tertiary and where Carlin-type deposits reside on this spectrum

Mike Ressel, Curtis Johnson, and Philipp Ruprecht (University of Nevada, Reno)

Did you know, Eocene (~42-34 Ma) ore deposits have contributed a majority of the Great Basin's precious- and base-metal production? Eocene production includes about 6,438 tonnes Au (207 million oz), 38,879 tonnes Ag (1.25 billion oz), 21.7 Mt Cu, and 0.74 Mt Mo. Combined, these four metals would have a cumulative 2019 end-of-year value of about \$489 billion (US), about 64% of which is attributable to gold, and 28% to copper. In terms of precious metals, Eocene deposits have contributed about 75% of the 274 million ounces of total recorded Au produced in the Great Basin and about 65% of the 1.93 billion ounces of recorded Ag produced. Gold production from Eocene deposits of the Great Basin, which largely reflects the time since the Carlin mine began producing in 1965, represents one third of the total U.S. gold production since 1835 and an estimated 4% of all of the gold ever produced in the world.

Did you know, metal production from Eocene deposits is strikingly polarized, with 81% of Au production derived from mines in north-central Nevada, and 99% of Cu and 81% of Ag derived from mines in north-central Utah? Most Eocene Au production in Nevada is from three major mineral belts that host giant sedimentary rock-hosted Carlin-type Au deposits: Carlin, Battle Mountain-Eureka, and Getchell. Three major districts produced the bulk of Utah's Cu, Mo, Au, and Ag production: Oquirrh, Park City, and Tintic, with the vast majority of Cu, Mo, and Au coming from the supergiant Bingham Canyon porphyry Cu-Mo-Au mine.

Did you know, Eocene deposit types are as diverse as the metals they produce, and like metals, vary from west-to-east? Deposits that host primarily gold in Nevada's famous trends are nearly all replacement-style and are contained in Paleozoic sedimentary rocks, but deposits range from high-temperature gold skarns to low-temperature Carlin-types. In contrast, Eocene deposits in Utah, although forming at the same time as Nevada deposits, are broadly porphyry Cu-related: porphyry Cu-Mo-Au, Cu skarns, Pb-Zn-Ag carbonate replacement deposits, and yes, distal Carlinesque gold. What's happened to explain this dichotomy in metals and deposit styles across the northern Great Basin, and how might it be important for exploration? We offer one explanation for this \$489 billion question.

(Streiff, Winnemucca meeting abstract, cont.from pg. 6)

these textures can confirm a sinter and mapping these textures can sometimes lead to fossil geothermal vents. Near-vent textures include geyserite, geyserite eggs, macrobotryoidal geyserite and others. Mid-apron textures include channels, streamer fabric, stromatolites, packed fragmental, conical tufted, algal mats, network fabric, terracettes and other textures. Distal apron features include palisade and dark organic or plant-rich silicified muds. Pseudosinters include silicified rhyolites, silicified clastic rocks with various plant fossils, laminated sediments and water table silica.

Recognizing diagnostic textures is key to identifying sinter. In practice, textures can be extremely complex with overlapping and adjacent temperature zones. Sinters are rare but when found mark the paleosurface at the time of deposition. They may be located some distance from the actual epithermal system. Sinter may or may not be associated with an economic epithermal deposit.

NEWS FROM THE GSN FOUNDATION

By Cami Prenn, GSN Foundation Chair

Our next focus at the GSN Foundation is scholarships. Most immediately we will be taking applications for the UNR Field Camp – the application on the website has been updated. The deadline is March 20 to receive applications and the scholarships will be awarded at the April 17 GSN meeting. All applicants must be GSN student members.

Over the last couple of years there have been three other Scholarship funds established and these will be swinging into high gear in the 2020 academic year.

GSN-D.D. LaPointe Scholarship:

Open to undergrad and grad students at Mackay for a degree in Geological Sciences, Geological Engineering, Economic Geology and other related majors.

Main criterion will be demonstrated interest and commitment to the minerals industry.

Must be a member or student member of GSN in good standing.

Application period open from Feb. 1 through May 31, 2020 for the Fall Semester, 2020.

2020 Scholarships: Up to \$10,000 to be awarded.

GSN-Brian Morris Scholarship:

Open to undergrad and grad students at an accredited university for a degree in earth sciences and a commitment to Nevada mineral deposit exploration or research.

Must be a member or student member of GSN in good standing.

The scholarship award money to be spent on field work or analytical costs related to the degree program or research, with consideration given to students needing tuition support.

Application period open from Feb. 1 through May 31, 2020 for the Fall Semester, 2020.

Expected 2020 Scholarships: Up to \$2,000 to be awarded.

GSN-Great Basin Geology Scholarship:

Open to graduate students at UNR for a degree in the earth sciences.

Candidate's research must be focused on fundamental geologic problems in the Great Basin.

The scholarship award money will be spent on research costs including field work or analytical work, and can also be used towards travel to one meeting per year if the student is giving a presentation on the funded research.

Must be a member or student member of GSN in good standing.

Application period open from Feb. 1 through May 31, 2020 for Fall Semester, 2020.

2020 Scholarships: Up to \$7500 to be awarded.

The GSN Foundation has worked alongside the donors who established these scholarship funds and we are mindful of the trust they've placed in the GSN Foundation to administer these programs now and into the future. GSN's long history of funding scholarships for furthering education in the earth sciences dates back many years to before there was a Foundation. We think GSN's founders would be proud of the longevity and vitality of the organization and its commitment to supporting earth science in Nevada. Thanks go to all the donors who support these funds and all of the Foundation's programs!

Thank you to our food & drinks sponsor for the JANUARY 2020 Winnemucca Meeting!



Thank you to our food & drinks sponsor for the JANUARY 2020 Elko Meeting!



Thank you to our generous Foundation donors in January!

G.S.N. FOUNDATION

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REGISTER TODAY FOR THE GSN 2020 SYMPOSIUM! (see pg. 20 for Keynote Speakers)

Geological Society of Nevada SYMPOSIUM 2020

May 14 – 24th, 2020



*Some field trips
are filling up!!!*

Field Trips!

Pre-Meeting (May 14-17)

FT#1: Epithermal Deposits of Northern Nevada & Southwestern Idaho

DeLamar (Idaho), Fire Creek, Mule Canyon, Hollister, Midas (?)

FT#2: Structural Controls of Geothermal Systems

Hot Springs Mtns., Brady's Hot Springs, Desert Peak, San Emidio-Wind Mountain, Gerlach, Blue Mountain, Florida Canyon

FT#3: The Famous Comstock Gold & Silver District

Virginia City Epithermal District

FT#4: Seismic Hazards & Evolving Landscapes, Reno-Carson-Tahoe Area

*Peterson Mountain Fault along Red Rock Road
Warm Springs Valley Fault in Southern Honey Lake Basin*

Post-Meeting (May 21-24)

FT#5: Epithermal Deposits of the Walker Lane, Nevada *Secret Canyon and Daisy Pits, Motherlode, Silicon, Sterling, North Bullfrog, Isabella-Pearl, Gemfield/Goldfield*

FT#6: Introduction to Carlin Gold Deposits *Twin Creeks, Turquoise Ridge, Goldstrike, Goldrush, Fourmile, Overview Cortex Hills or Pediment*

REGISTRATION OPEN!

<https://www.gnsymposium.org/>

Geological Society of Nevada SYMPOSIUM 2020

May 14 – 24th, 2020



SHORT COURSES!

Pre-Meeting (May 14-17)

SC1: Best practices in mineral resource estimation: a two-day refresher course

SC2: Analytical data management, quality assurance, and reporting

SC3: Introduction to US Mining Law

SC4: Carlin Type Mineral Deposits

SC5: Spectral Geology: Remote Sensing to Spectral Petrology, Exploration through Life of Mine

SC6: NEPA for Mining Geologists

Post-Meeting (May 21-24)

SC7: Geologic and Resource Modeling in Leapfrog

SC8: Geometallurgy for Geologists and Metallurgists

SC9: Wilderness Advanced First Aid

SC10: Nevada Bureau of Mines and Geology Mineral Resource Database Project

SC11: Geophysical Exploration and Structural Analysis Applied to Gold and Silver Exploration in the Western and Northern Cordillera

REGISTRATION OPEN!

<https://www.gnsymposium.org/>

Geologists Find Rare Earth Element-Bearing Rocks in Mojave Desert

Reprinted from: <http://www.sci-news.com/geology/mountain-pass-rare-earth-element-bearing-deposit-07987.html>
January 7, 2020

A team of researchers from the U.S. Geological Survey has mapped a rare earth element-bearing deposit in the Mountain Pass region of the eastern Mojave Desert.

Rare earth elements (REEs) are a set of 17 chemical elements (atomic numbers 57-71) in the periodic table.

They are essential in modern civilian and military applications, health-care and medical devices, and 'green' technologies.

Although REEs have crustal abundances similar to common industrial-grade metals (e.g., chromium, nickel, copper, zinc, tin, and lead), large economically viable REE deposits are uncommon.

Carbonatite ore deposits are the primary source of REEs. The largest-known carbonatite-related REE deposit is in the Bayan Obo region of Inner Mongolia, China, and has produced around 97% of the global output of REEs.

Increased efforts to characterize geologic processes related to REE deposits in the U.S. have focused attention on the Mountain Pass deposit located approximately 60 miles southwest of Las Vegas, NV.

In the new study, Dr. Kevin Denton and his colleagues used geophysical and geological techniques to image geologic structures related to REE mineral-bearing rocks at depth.

Their results suggest REE minerals occur along a fault zone or geologic contact near the eastern edge of the Mescal Range.

"Combined geophysical and geologic investigations of the eastern Mojave Desert carbonate terrane provide new insights into the structural framework of the Mountain Pass REE deposit," the scientists said.

"This geophysical study of the eastern Mojave Desert carbonatite terrane demonstrates the effectiveness of a multi-technique approach to studying the supporting structures that host REE deposits in the Mountain Pass area."

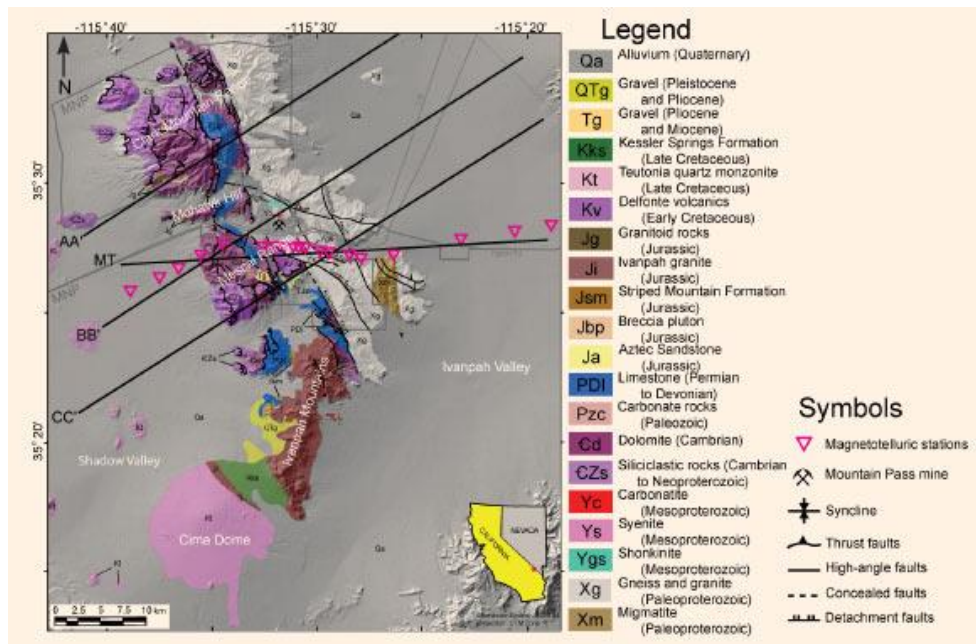
"Future studies of Mountain Pass would benefit from high-resolution airborne geophysical surveys capable of continuous data gathering over much broader regions to include coverage of rugged and otherwise inaccessible mountain ranges."

"For example, high-resolution aeromagnetic, gravity gradiometry, lidar (light detection and ranging), and radiometric data would be ideal for evaluating the region in greater detail."

"In addition, better understanding of faulting, structural analysis, and kinematics associated with 1.4-billion-year-old structures would dramatically improve the overall constraints and insights related to the REE mineralization in the Mojave Desert."

The findings were published in the journal *Geosphere*.

Kevin M. Denton et al. *Geophysical characterization of a Proterozoic REE terrane at Mountain Pass, eastern Mojave Desert, California, USA. Geosphere, published online December 19, 2019; doi: 10.1130/GES02066.1*



Mining Activity Update

Mike Brady, December 2019

www.activityupdate.com

NEVADA

Fiore Gold Ltd. announced that recent drill results at the Pan Project include 79.2-99.1 meters @ 0.39 gpt Au (PR19-021); 132.6-146.3 meters @ 0.40 gpt Au (PR19-022); 41.1-62.5 meters @ 0.63 gpt Au (PR19-024) and 109.7-129.5 meters @ 0.45 gpt Au (PR19-025). (reserve = 16,748,000 tonnes @ 0.51 gpt Au proven+probable) *Press Release: December 10*

Maverix Metals Inc. announced that it acquired a portfolio of mineral royalties from Kinross Gold Corp. for \$25,000,000 cash and 11,200,000 of its shares (9.4%). The royalties include the DeLamar Project (Idaho) and the McCoy Project (Nevada). *Press Release: December 2*

Coeur Mining Inc. announced that recent drill results at the Daisy-Secret Pass Project include 132.58-185.92 meters @ 2.6 gpt Au (D19-07); 248.41-260.6 meters @ 5.1 gpt Au (D19-011); 153.92-198.12 meters @ 2.0 gpt Au (D19-025) and 4.57-27.43 meters @ 1.7 gpt Au (SNA19-10). (resource @ Daisy = 2,556,000 tonnes @ 2.12 gpt Au inferred) *Press Release: December 17*

Silver Predator Corp. announced that it terminated its interest in the Taylor Property of Montego Resources Inc. (resource = 8,069,000 tonnes @ 64.8 gpt Ag measured+indicated) *Press Release: December 4*

Scorpio Gold Corp. announced that recent drill results at the Gold Wedge Project include 4.57-19.2 meters @ 2.18 gpt Au, 45.6 gpt Ag (KP19-01) and 1.52-7.62 meters @ 1.0 gpt Au, 4.1 gpt Ag (KP19-09). (resource = 300,000 tonnes @ 10.58 gpt Au indicated) *Press Release: December 6*

Ely Gold Royalties Inc. announced that it acquired a net profits interest (unstated) in the Regent Hill Property from Liberty Gold Corp. for \$800,000 cash and 2,000,000 shares over 2 years. *Press Release: December 18*

Fremont Gold Ltd. announced that it acquired the Griffon Property from Liberty Gold Corp. for \$325,000 cash and 2,500,000 shares. (resource = 3,509,000 tonnes @ 0.89 gpt Au inferred) *Press Release: December 18*

Six Mile Mining Co. (Quaterra Mining) an-

nounced that it acquired an option to earn a 100% interest in the Butte Valley Property from Nevada Select Royalties Inc. for \$250,000 cash over 4 years. (resource = 181,800,000 tonnes @ 0.60% Cu inferred) *Press Release: December 11*

Corvus Gold Inc. announced that recent drill results at the Mother Lode Project include 184.4-210.31 meters @ 1.42 gpt Au (ML19-119) and 195.07-222.5 meters @ 1.76 gpt Au (ML19-120). (resource = 13,226,000 tonnes @ 1.72 gpt Au measured+indicated) *Press Release: December 5*

Barrian Mining Corp. announced that it acquired an option to earn a 79.1% interest in the Kinsley Mountain Property from Liberty Gold Corp. for \$7,500,000 cash and 3,000,000 shares over 2 years. (resource = 5,530,000 tonnes @ 2.27 gpt Au indicated) *Press Release: December 2*

OBITUARIES

Elwin L. Fisk

Elwin Lee Fisk, 90, of Richland, Wash. died Dec. 31, 2019 at Trios Southridge Hospital.

He was born in Nevada City, Calif. and lived in Richland, Wash. for the past 35 years. He met the love of his life, Verleen Rafferty, at a school bus stop in Weimer, Calif. in 1948. They were married Sept. 17, 1952 in Carmichael, Calif.

The couple moved to Yuma, Ariz., where Elwin was stationed in the U.S. Army. A few years later they moved to Cordero Mine, 11 miles from McDermitt in northern Nevada. They were there for six years, except for the five months that they spent at the Wildhorse Mine in Idaho.

In 1960, they moved to Las Vegas when Elwin accepted a job at the Nevada Test Site. They spent 16 years mainly in Las Vegas, with a short stint in Carlsbad, N.M. They also lived in Idaho Falls and Chalice, Idaho, and Concord, Calif., before settling in Richland, Wash. in 1985.

Elwin was a longtime GSN member and retired geological and mining engineer at Hanford.

OTHER UPCOMING EVENTS

3 February 2020 DREGS (Denver Region Exploration Geologists), the presentation focuses on a California epithermal gold deposit, please consider rounding up, labeling and bringing related samples ... and/or any particularly interesting or problematic samples worth sharing . Social 6 p.m., Presentation 7 p.m. at Berthoud Hall, Room 241, CO School of Mines, Golden. For more info. contact James Piper at geopros@q.com

4 February 2020 Arizona Geological Society meeting & SME Joint Meeting this month. Speaker: Jose Sanchez, Hexagon. "Hexagon Integrated Portfolios". 6 to 9 p.m. at the Sheraton, 5151 E Grant Rd. (& Rosemont), Tucson, AZ For more information click here: <http://www.smetucson.org/events/>. Dinner closes on January 30, 2020.

6 February 2020 Nevada Petroleum & Geothermal Society, Reno, NV monthly meeting. Tamarack Junction , 13101 So. Virginia Street. Reno NV. *Cocktails at 6:30 PM, Dinner at 7:00 PM.* **Speaker: Kurt Kraal (UNR Great Basin Center for Geothermal Energy)** will be giving a talk titled "Linkages between hydrothermal alteration, natural fractures, and permeability: Integration of borehole data for EGS characterization at the Fallon FORGE site, Nevada, USA". Please make reservations by Tuesday, February 4, 2020. [Click here to register online](#) and reserve your seat.

10 February 2020 SME Northern Nevada Section Monthly Meeting. Circus-Circus Mandalay Room, Reno NV. Speaker and Topic To Be Announced. Happy Hour @ 6 pm, Dinner @ 7 pm. Please contact Sarah Lightner for more information at 775-746-7147 or NNevSME@gmail.com

10-13 February 2020: 2020 NWRA Annual Conference Week – Location: Tuscan Suites & Casino, 255 East Flamingo Road, Las Vegas, NV. Sessions include: Water Rights in Nevada ~ MIKE SHE Workshop ~ Dam Safety Symposium ~ Drilling Symposium ~ Well Regulations ~ Technical Sessions ~ Panel Discussions ~ SeriesSEE ~ Water Reuse Summit and much more. Go to <http://www.nwra.org/2020-annual-conference-week> to register & for hotel information. For more information call Tina Triplett at 775-473-5473 or nevadawaterresources@gmail.com.

23-26 February 2020: The 2020 SME Annual Conference and Expo in Phoenix, Arizona. Click on the link for more information or to register for the event: <https://www.smeannualconference.com/>

19-28, July 2020 Lew Kleinhans, who has led more than 10 trips through the Grand Canyon, will lead another 9 day float trip from July 19-28, 2020. If you or anyone you know is interested, please contact Lew by email or phone. Lew 720-273-9233 or lewis.oysterclub@gmail.com. (This announcement comes from our friends at DREGS.)

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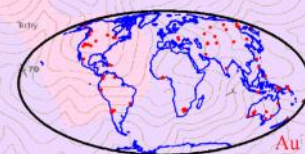
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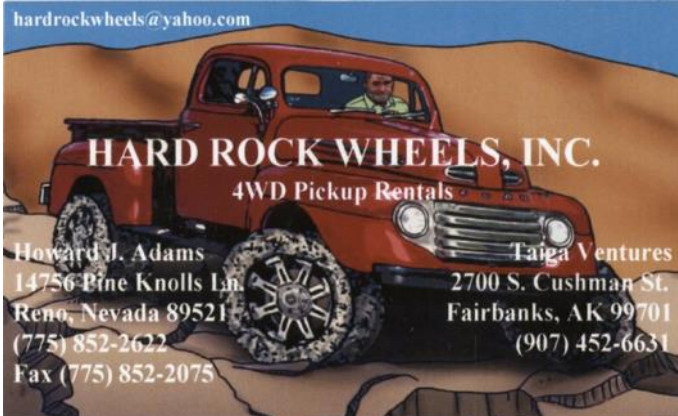
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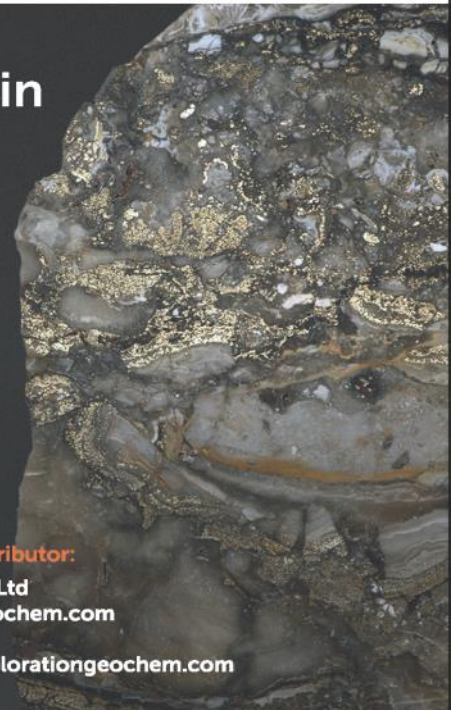
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GSN joins the NV Mineral Exploration Coalition (NMEC) in the Nevada Room at Roundup!

The GSN and Nevada were well represented in Vancouver, BC attending the AME's Annual Roundup Convention on Jan. 20-23, 2020. Thanks to Dave Shaddrick and the NMEC for allowing GSN to share space in the "Nevada Room" during the convention!

By all accounts, the Roundup was well attended and the mood was upbeat as the year 2020 gets started. It is always great to catch up with some of our Canadian GSN members in person at this show, and also see some local Nevadans that I never get to see in Reno!

Huge thanks to Dave Shaddrick, Steve Green, Molly Hunsaker, Mike Visser, Tracy Visser and Cherie Leeden for helping setup everything in the Nevada Room, working in the room during the show, tearing down and loading up Dave's truck after the show! There would be no "Nevada Room" without these volunteers! Special thanks to Dave Shaddrick for driving all of the GSN gear to Vancouver!



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The Geological Society of Nevada will host its 8th symposium May 14 – 24th, 2020, in the scenic Reno/Lake Tahoe region of northern Nevada. Symposia are held every 5 years and draw an international audience from the minerals industry, government, and universities. GSN symposia are the preeminent regional venue combining geology and exploration in the U.S. The 2020 theme, *Vision for Discovery*, emphasizes the goal of science to explore and make new discoveries in the Basin and Range province.



Check out this line up of Keynote Speakers!

Monday, May 18, 2020

Eric Sedorff—Opening Speaker
Keith Meldahl—Luncheon Speaker
Chuck Thorman—Closing Speaker

Tuesday, May 19, 2020

Elizabeth Miller—Opening Speaker
Joe Mazumdar—Luncheon Speaker

Wednesday, May 20, 2020

John Prochnau—Opening Speaker 1
Rich Goldfarb—Opening Speaker 2
Quenton Hennigh—Luncheon Speaker

Thursday, May 21, 2020

Dick Sillitoe—Opening Speaker
Moiria Smith—Closing Speaker

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