

GEOLOGICAL SOCIETY OF NEVADA NEWSLETTER

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**NOV. 18, 2020
WEDNESDAY
VIA ZOOM!**

ELKO CHAPTER & WINNEMUCCA CHAPTER JOINT ZOOM MEETING

The GSN Elko Chapter will be hosting their meeting via Zoom on November 18th at 7 p.m. Speaker: Bridget Ball and/or Paul Noland, Fiore Gold will be giving a talk titled, "Fiore Gold's Pan Mine, White Pine County, Nevada, 2020 Update on Production and Exploration". Please contact Elko President Justin Milliard: justin.b.milliard@gmail.com or Winnemucca President Chad Peters: cpeters@ridgelineminerals.com for more information. The abstract and Zoom meeting login credentials can be found on page 6.

**NOV. 19, 2020
THURSDAY
VIA ZOOM!**

GSN SYMPOSIUM 2021 ZOOM LECTURE SERIES

Speaker: Kiersten Briggs and Gregory Crouch

Topic: Title: "Multidisciplinary Collaboration for Exploration in Old Mining Districts: The Segregated Belcher, Gold Hill, Nevada".

Talk Date: November 19, 2020 @ 7:00 pm. Zoom Login Credentials on Page 7. Abstract on page 7 and 12.

**NOV. 20, 2020
FRIDAY
VIA ZOOM!**

GSN MEMBERSHIP ZOOM MEETING

The GSN's November meeting will be held via Zoom on Friday, November 20th beginning at 6:45 pm for chatting. Talk begins at 7:00 pm. Speaker: William X. Chavez, New Mexico Tech. Title: "Zoning Collapse in well-developed Epithermal Environments: Vertical Extension of High-Sulfidation Alteration-Mineralization". Please contact Laura Ruud at the GSN office if you have questions: gsn@gsnv.org. See page 3 for abstract and Zoom meeting log-in information.

Date TBD

SO. NEVADA CHAPTER ZOOM MEETING

Speaker and Date To Be Announced. Please contact Chapter President, Joshua Bonde for more information:

joshua.bonde@nvscicenter.org.



FROM THE PRESIDENT
Mary Stollenwerk, GSN President 2020-2021
NOVEMBER 2020



The Monthly Membership Meetings continued in October with an interesting talk from Fred Holabird on off-shore mining in Nome, AK and will continue in November with a talk from Dr. William X. Chavez from New Mexico Tech. It is our hope that GSN members from all over Nevada and beyond will be able participate. I want to keep things lively and encourage the good pre- and post-chat sessions, as well as encourage questions and interaction with the speaker.

- The 2020 Symposium Zoom talk series will be on the third Thursday this month, Nov. 19th. See page 7.
- See page 6 for the Winnemucca - Elko joint Zoom meeting on Nov. 18th.
- and page 7 for the Southern Chapter activities.
- Covid-19 cases are on the rise in most parts of Nevada, especially Reno. Please stay safe and keep others safe – distance and mask are what the CDC asks. By the way – you can buy a GSN face mask on the website now! \$10 each (+\$3 to ship in the U.S.) <https://www.gsnv.org/shop/gsn-mask/>
- The Fall Field Trip was a success – see page 8 for a write up.

I wanted to share a post field trip story with you all. I was making my way back home to Reno in Derreck's truck and our little camper, with a border collie riding shotgun. I stopped for gas in Fallon, as one does. This truck has a license plate that gives us away as GEO's and a gentleman-cowboy feller fueling his truck on the other side of the pump asked if I was on my way out to the field. I responded that I was on my way home from a Field Trip of the Geological Society of Nevada. "oh!", he exclaims, "I heard about you guys! I own the bar and hotel in Gabbs. The Park Ranger came in and told me "I sure have a rowdy bunch in the canyon tonight!"."

Mission Accomplished, my friends! Happy Trails.



The view across the valley from the campground at Berlin-Ichthyosaur State Park, Oct. 10, 2020

GSN Virtual Talk: Friday, November 20, 2020

Zoom Opens @ 6:45 PM, Talk begins @ 7:00 PM Pacific Time

(Zoom meeting details can be found below.)

Speaker: William X. Chavez

**Title: "Zoning Collapse in Well-developed Epithermal Environments:
Vertical Extension of High-Sulfidation Alteration-Mineralization"**

Abstract:

Long-lived and geochemically mature high-sulfidation epithermal systems offer the opportunity to examine mineralogic changes that represent the vertically-directed collapse of well-developed hydrothermal systems. Minerals stable in the topographically higher and cooler epithermal domains become stable in the former higher-temperature, deeper environments as the system wanes and collapses, with depression of the near-surface assemblages to those characterizing near-porphyry environments. Such vertical collapse may extend up to +/- 1.5km from the paleosurface.

The most sensitive minerals reflecting system geochemical subsidence are volatile-rich, and may coexist with late magmatic minerals formed in the earliest stages of a waxing hydrothermal system. The progressive and sequential collapse of large hydrothermal systems may be recognized in exploration drill holes as distinct mineral overprinting indicated by paragenetic relationships and juxtaposed mineral assemblages unrelated to faulting.

Topic: Bill Chavez - GSN Membership Meeting

Time: Nov 20, 2020 6:45 PM Pacific Time (US and Canada)

Join Zoom Meeting

<https://us02web.zoom.us/j/86305210990?pwd=V3NibWpSZGMxcTdZUkZEZGJ5dXY5dz09>

Meeting ID: 863 0521 0990

Passcode: 703268

One tap mobile

+12532158782,,86305210990#,,,,,0#,,703268# US (Tacoma)

Dial by your location:

+1 669 900 6833 US (San Jose)

+1 253 215 8782 US (Tacoma)

Meeting ID: 863 0521 0990

Passcode: 703268

Find your local number: <https://us02web.zoom.us/u/klU7kxXUY>

“FACES OF GSN”

Sean Derby

I’ve found that two pieces of advice are true about my experience in the minerals industry. As my mentor once said “the geologist ends up in the role they’ve earned” and “it’s very difficult to balance family and work in exploration contracting”.

My first geological observations occurred in the late 80’s after discovering a glacial erratic in the forest behind our home in northern Michigan. Assuming the subsiding ground cover was the result of an impact, I misidentified the feature as an incredibly well rounded granitic meteorite. I soon learned more about the geomorphological and paleontological offerings of the Michigan basin and developed a decent fossil, rock, and mineral collection before age 6. My collection and curiosity continued to grow, which led to choosing geology as my major at Hope College in 2002. While attending Hope, my studies focused on local Aeolian dune development and the migration and mammalian paleontology of the Morrison formation in Schell, Wyoming. Faculty guided summer research at Hope gave me the opportunity to publish and present two papers with Geological Society of America in 2005. After graduating in 2006, I decided to expand my geological portfolio and work as a contractor for a junior ex-



Camarasaur Dig Site—near Shell, Wyoming



Soil Samples near Toad Creek, B.C.

ploration company in northern BC. Working in mineral exploration greatly expanded my knowledge and awareness of geological science and exploration methodology. I had the opportunity to work with excellent career field geologists, specifically, Paul Muto. Paul inspired me to take greater pride in my work and encouraged me to consider a graduate degree at UNR. In 2010, I was accepted to UNR’s Center for Research in Economic Geology with a sponsorship from the Reaugh Group of companies based in White Rock, BC. I completed my thesis and graduated in 2012. Again I opted to return to contract exploration work which took me to eastern Turkey, throughout Canada, and the western US. My rock and mineral collection gained decent tonnage during this period. My collection of skills and knowledge base grew a little too. I returned to Reno in 2014 to work for EP Minerals. I found I was able to apply concepts from hard rock exploration and resource development to industrial minerals. I worked closely with Dave Harvey, Nick Loper, and Ryan Breshnahan to operate as the company’s worldwide exploration, mine geology, and resource geology departments. It was a unique opportunity to bring a large industrial mining company up to hard rock standards which offered an even wider range of challenges to develop my geologic skill set. Under Dave Harvey’s leadership, by 2018, we had developed all of EP’s various inexplicable deposit types (continued on page 5)



Tuprag Senior Staff Ahmet Tukac, Mehmet Device in Ardanuc, Eastern Turkey

into reserve grade assets. At this point many things began happening at once. I learned I was going to be a father and that EP was being sold to US Silica and I was being laid off! For me, the sensible move was to get in as much contract work as I could before her arrival and try to locate work as close to home as possible. The short period of time working away from my child and partner proved to be very difficult. For the last two years I've been working for the State of Nevada out of Carson City, starting as a materials engineer at NDOT and most recently joining the Division of Minerals with the abandoned mine lands program.

Working as the AML Chief at NDOM seems to fit neatly with my career path. At this point my rock collection mirrors my geological skill set pretty accurately. I'm looking forward to collecting some interesting new samples while I continue to earn my new role.



Mapping near Hazelton, B.C.



Downhole Camera Documentation with Rob Ghiglieri, Chief of Abandoned Mines Land Program, NDOM



Daughter Monroe, Wifey Alissa



GSN Elko and Winnemucca Chapters Joint Zoom Meeting

By Justin Milliard, President 2020-2021

We are excited to announce that Paul Noland and/or Bridget Ball of Fiore Gold will be giving the next joint Zoom presentation for the Winnemucca and Elko Chapters on the advancements at the Pan Mine.



Wednesday, November 18, 2020 – 7:00 PM Pacific Time (US and Canada)
Zoom Opens: 6:45 p.m.; Talk begins at 7:00 p.m.

Join Zoom Meeting:

<https://us02web.zoom.us/j/85084255732?pwd=a0VUS2RSMjNveUg5b1JnSU1tc1lxZz09>

Meeting ID: 850 8425 5732

Passcode: PAN

One tap mobile:

+16699006833,,85084255732#,,,,,0#,,870292# US (San Jose)

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Dial by your location: +1 669 900 6833 US (San Jose); +1 253 215 8782 US (Tacoma)

Meeting ID: 850 8425 5732

Passcode: 870292

Find your local number: **<https://us02web.zoom.us/u/kbOm30PJYf>**

Fiore Gold's Pan Mine, White Pine County, Nevada, 2020 Update on Production and Exploration

Paul Noland and Bridget Ball, Fiore Gold

Abstract:

Fiore Gold Ltd. (Fiore) currently owns and operates the Pan Mine through its subsidiary GRP Pan LLC. The Pan Mine, located in southwestern White Pine County, is a Carlin-type deposit with gold mineralization hosted in the Mississippian Pilot Shale and Devonian Devils Gate Limestone formations. The Branham Fault, a regional NNW, steeply dipping crustal suture, is the primary ore controlling feature, with cross cutting WNW structures and favorable stratigraphic zones playing secondary roles in gold localization.

The Pan Mine was initially brought into production by Midway Gold in March 2015. Due to less than anticipated grades and recoveries, and a heavy debt load, Midway was forced into bankruptcy in June 2015. Midway's issues have been well documented since that time but can be described primarily as an overly optimistic resource estimate and model, inadequate metallurgical testing, and inadequate operating capital. These shortfalls resulted in lower than anticipated gold grades and lower than budgeted recoveries. In particular, the clay rich ore from South Pan did not perform as expected on the leach pad.

Principals with Fiore recognized an opportunity to blend siliceous breccias from the North Pan areas with the clay rich material from South Pan to enhance leach pad permeability and gold recovery. Based largely on this premise, Fiore purchased Midway assets out of bankruptcy in 2016. These assets included the Pan Mine, the nearby Gold Rock project, and the Golden Eagle property in Washington state. (abstract continued on page 9)



GSN SOUTHERN NEVADA CHAPTER

The GSN Southern Nevada Chapter is still lining up their speaker and details for the November Zoom meeting. Please watch for the date, speaker and topic to be announced by email.

Thank you,

Josh Bonde, GSN Southern Nevada President

joshua.bonde@nvscicenter.org.



GSN SYMPOSIUM 2021 ZOOM SERIES

Speakers: Kiersten Briggs & Gregory Crouch

Talk Date: November 19, 2020 @ 7:00 pm

Talk Title: “Multidisciplinary Collaboration for Exploration in Old Mining Districts: The Segregated Belcher, Gold Hill, Nevada”

(See abstract below)

Join Zoom Meeting:

<https://us02web.zoom.us/j/81491461143?pwd=MVV1UXczOXNSd0JLYWYwTjZlZWVnNTU09>

Meeting ID: 814 9146 1143

Passcode: Comstock

GSN SYMPOSIUM 2021 ZOOM SERIES

Multidisciplinary Collaboration for Exploration in Old Mining Districts: The Segregated Belcher, Gold Hill, Nevada

Kiersten Briggs, Mine Development Associates (a division of RESPEC); Gregory Crouch, Author, The Bonanza King

Abstract:

The Comstock Lode—discovered in 1859 beneath what is now Virginia City and Gold Hill, Nevada—is the most important nineteenth century mining strike made in the United States, and second only in historical significance to the 1848 discovery of placer gold in California. The staggering wealth extracted from the Comstock mines—equivalent to the modern impact of about \$600 billion dollars—helped stabilize the Union economy during the Civil War, establish Nevada as an independent state, and transform San Francisco from a Gold Rush seaport into the innovative financial and industrial powerhouse it still is today. The Comstock Lode gave birth to a more modern, mechanized mining industry in America, and the advancements in mining techniques, technology, and mineral processing made on the Comstock reverberate down to the present day. Every nineteenth century mining district in the American West between California's Sierra Nevada and the Black Hills of South Dakota owes some degree of debt to the Comstock Lode.

The Comstock Lode is an intermediate-sulfidation epithermal system located along the eastern flank of the Virginia Range in Storey County, Nevada. The most prominent faults in the district are the NE-striking Comstock and Occidental faults, and the NW-striking Silver City fault. Many of the district's faults and associated fractures were the sites of Miocene hydrothermal fluid flow and the deposition of quartz, calcite and gold-silver mineralization that comprise the veins or lodes. The faults generally dip from about 60 ° or more at the surface to 40-45° at depth. Ore minerals within the lodes include gold, electrum, native silver, and occasional acanthite. Andesite of the Silver City and Virginia City volcanic suites have long been considered the best-mineralized host rocks, but some ores have also been found in veins within the older ash-flow units and pre-Tertiary wall rocks. The lode widths in the northern two-thirds of the district are noteworthy, varying from about 150m to as much as 300m in the near-surface environment.

The Comstock Lode's incredible economic significance has led to a wealth of historical material documenting its events. To keep track of what was going on in the West, including in underground mines, the United States Government commissioned several surveys to map the mines—among them Clarence King's Survey of the (continued on page 12)

Geological Society of Nevada (GSN) Fall 2020 Field Trip WRAP-UP

“Berlin-Ichthyosaur State Park and Buffalo Canyon Reduced Intrusion-Related Gold Deposit”

Laura Ruud

The GSN's first ever socially-distanced and masked Fall Field Trip during a pandemic was a big success. Attendees were very respectful of the guidelines laid out by the GSN and the Berlin Park Rangers. The weather was perfect for being outside in Nevada's great outdoors. About half of the attendees camped at the state park while the others drove home Saturday evening or to various motels and other locations.

Dr. Joshua Bonde, Director of the Nevada Science Center AND GSN's Southern Nevada Chapter President, gave us a great talk and tour of the Ichthyosaur fossil site. Thank you Josh! If you haven't been to Berlin-Ichthyosaur State Park you should go as it's an amazing sight to see!

After having our sack lunches and doing self-guided tours of the historical mining townsite of Berlin, the group caravanned in about 24 vehicles to the Buffalo Canyon project site just five miles from Berlin. There, Orogen Royalties geologist Dan Pace met us with his maps, core and hand samples. Dan gave a great talk about the geology of the area and the exploration work that has been accomplished.

We want to again thank our generous sponsors! **Boart Longyear, ALS Minerals and American Assay Laboratories!**

Also, thanks to Chris Henry for helping field trip leader Patsy Moran with the road logs for the guidebook, Joe Laravie for supplying the geo maps and Patrick Quillen, Dan Pace and Christian Thomas who authored a paper on Buffalo Canyon for the guidebook.



Photo Credit: Becky Hall



Trevor, Andrew & Paul - Anglo crew



Mandy, Tony and Baby Gaia plus their fur baby!



Dan Pace, Leader



Berlin Townsite:
Mechanic's Shop



Mike Power

Thank you to our generous sponsors!



NEWS FROM THE FOUNDATION

By Cami Prenn, GSN Foundation Chair

Here we are in the 2020 version of Groundhog Day – same stories every day; Covid case numbers, endless political ads and polls, beautiful sunny fall days. Wait a minute – that last item sounds lovely! There are some joyful things happening among the rest of the mess and I hope you take the opportunity to enjoy those moments. If nothing else, the price of gold is a bright spot this year!

At the GSN Foundation we've been discussing the possibility of holding some semblance of our usual Christmas party raffle/auction fundraiser for scholarships and field trips. While the current Covid guidelines would allow the Nugget to host a dinner event for us, the continued need for social distancing combined with the ban on buffet service produced a scenario that would be both higher priced than normal and less festive than even Grinch would appreciate. So we're not doing that.

Instead, we're going to have a virtual event with a very limited number of high-quality prizes. The December meeting will be hosted on Zoom with the fun part taking place before the talk. We'll announce the details as we iron them out so stay tuned for the list of prizes and details on how to participate.

Normally we would be making a plea for raffle donations but, as all things in 2020, this year is different. In order to maximize this opportunity for fundraising with respect paid to Covid conditions, we will not be asking for prizes to be donated from the general membership. This will allow us to cut down on contact with numerous folks, both in receiving and delivering prizes. We are always grateful to our donors and you can count on us to resume normal operations when this situation is resolved, but for now, we ask that you participate by attending the December Zoom event and winning fabulous prizes!

Thank you to all who donated to the Foundation when you renewed your membership! You were generous and we appreciate it! In this month of celebrating Thanksgiving, we honor you and thank you sincerely.



Elko/Winnemucca Joint Meeting Abstract (cont. from page 6)

Fiore immediately initiated a resource and model update along with more detailed metallurgical testing. This testing confirmed Fiore's belief that excellent recoveries could be achieved through blending of hard, silicified material from the North Pan pits with the clay rich ore from South Pan at a nominal blend of 60/40 hard rocky ore to clay ore. Based on these more positive outcomes, Fiore started production in March of 2017, with target production of 40,000 of gold annually.

Quarterly production increased steadily through Q2 of 2019, when over 11,500 ounces of gold were produced and the Pan Mine achieved full production. Quarterly production has met or exceeded budgeted guidance ever since, with FY 2020 ending at 46,031 ounces of Au produced. A primary crushing circuit was commissioned in July 2019 to further speed and enhance recoveries.

A limited development drilling program in early 2018 led to an enhanced resource and extended mine life to a nominal 4 to 5 years. A larger exploration and development program in 2019-2020 are expected to add additional mine life and a larger resource (these resource numbers have not yet been released to the public).

Resources for the Pan Mine at the time of the 2018 resource update stood at 27.6 million metric tonnes at an average grade of 0.49 grams per tonne (g/t) for a contained 432,000 ounces of gold.

Detailed pit mapping coupled with close examination of past blast hole values has led to new interpretation on the mineralizing controls at the Pan mine, and a new structural 'reconstruction' of the Branham Fault Zone. This newly recognized structural setting has led to additional exploration concepts and targets, which will be evaluated during a 2021 drilling program.

Fiore continues to develop the nearby Gold Rock property, with a target of start of production in 2022-23, which combined with production from the Pan Mine is anticipated to lift Fiore's annual gold production to over 100,000 ounces per year.

Key Words: Fiore, Pan Mine, Carlin-type

Topic: Elko - Winnemucca Joint Meeting - Fiore Gold's Pan Project

GSN Membership Renewal Notice!

GSN Dues renewals were due September 30, 2020. If you haven't paid your dues yet you can still get in the Directory! Dues can be paid online by clicking this link and logging in to your account (see "My Account" under the Membership tab): <https://www.gsnv.org/my-account/>. Please note that you must click the PayPal button to pay but **you do NOT have to have a PayPal account.**

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PRICES ARE THE SAME:

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GSN Logoed Masks For Sale Now!
\$10 each + \$3 shipping



These Stormtech Performance Face Masks have 3-layer protection with anti-bacterial filter built in. Flexible nose bridge, ultra-soft elasticized & adjustable ear loops, machine washable & reusable!

Online ordering available now in the GSN Store online:

<https://www.gsnv.org/shop/gsn-mask/>

Mining Activity Update

Mike Brady, September 2020

www.activityupdate.com

NEVADA

West Vault Mining Inc. (was WK Mining) announced that it needs the gold price to increase 10-15% in order to develop the Hasbrouck Deposit. (resource = 49,259,000 tonnes @ 0.48 gpt Au, 8.9 gpt Ag measured+indicated) *Press Release:* September 18

Maverix Metals Inc. announced that it acquired a portfolio of 11 separate properties from Newmont Mining Corp. for \$15,000,000 cash and 12,000,000 shares. The royalties include a 2.0% NSR on the Camino Roja Property, a 2.0% NSR on the Ana Paula Property, a 1.0% NSR on the Cerro Blanco Property, a 1.0% NSR on the Mother Lode Property and a 1.0% NSR on the Imperial Property. (resource @ Mother Lode = 13,226,000 tonnes @ 1.72 gpt Au measured+indicated) *Press Release:* September 21

The Nevada Department of Conservation announced that it is investigating the loss of a significant swath of a rare desert wildflower at the Rhyolite Ridge Project of Ioneer Ltd. The loss could be due to a small mammal or that somebody dug them up. *W.S.J.:* September 21

Titan Mining Corp. announced that it acquired an option to earn an 80% interest in the Mineral Ridge Property from Scorpio Gold Corp. for \$35,000,000 in exploration expenditures over 5 years. (resource = 2,452,000 tonnes @ 2.01 gpt Au indicated) *Press Release:* August 31

Premier Gold Mines Ltd. announced that based on recent studies at the Getchell Project, resources aggregate 20,460,000 tonnes @ 1.95 gpt Au measured+indicated and 1,259,000 tonnes @ 1.61 gpt Au inferred open pit. Underground resources aggregate 562,000 tonnes @ 10.49 gpt Au measured+indicated and 1,520,000 tonnes @ 11.9 gpt Au inferred. *Press Release:* September 1

Premier Gold Mines Ltd.(40%) announced that recent drill results at the South Arturo/El Nino Project include 77.7-91.5 meters @ 8.52 gpt Au (SEC2003); 131.1-155.4 meters @ 5.47 gpt Au (SEC2007); 54.9-65.5 meters @ 14.83 gpt Au (SEC2017) and 80.8-120.4 meters @ 17.11 gpt Au (SEC2019). (reserve = 2,840,000 tonnes @ 3.01 gpt Au proven+probable) *Press Release:* September 21

Pathfinder Minerals LLC. announced that it acquired an option to earn a 100% interest in the Liberty Property from General Moly Inc. for \$3,000,000 cash over several years. (resource = 281,000,000 tonnes @ 0.078% Mo measured+indicated) *Press Release:* September 3

Blackrock Gold Corp. announced that recent drill results at the Tonopah West Project include 275.84-277.27 meters @ 8.68 gpt Au, 802.6 gpt Ag (TW20-06); 484.63-486.16 meters @ 2.06 gpt Au, 180.8 gpt Ag (TW20-07) and 242.32-243.84 meters @ 3.43 gpt Au, 218.6 gpt Ag (TW20-08). *Press Release:* September 1

New Placer Dome Gold Corp. announced that recent drill results at the Bolo Project include 112.78-150.88 meters @ 1.08 gpt Au, 26.3 gpt Ag (BL20-01). *Press Release:* September 16

Viva Gold Corp. announced that recent drill results at the Tonopah (was Midway) Project include 134.5-146.0 meters @ 0.4 gpt Au (TG01); 232.9-241.1 meters @ 2.7 gpt Au (TG02) and 155.8-157.4 meters @ 0.5 gpt Au (TG03). (resource = 12,830,000 tonnes @ 0.79 gpt Au measured+indicated) *Press Release:* September 15

Ridgeline Minerals Corp. (TSX-V: RDG) is pleased to report assay results from ten reverse circulation drill holes totaling 1,155 meters ("m") completed during the Phase II scout drill program at the Company's Selena Gold-Silver Project in White Pine County, Nevada. Highlight Drill Results:

- SE20-014: 29.0m @ 0.38 g/t gold ("Au"), 65.28 g/t silver ("Ag"), or 1.26 g/t gold equivalent (AuEq) – Including 9.1m @ 0.51 g/t Au, 40.83 g/t Ag or 1.06 g/t AuEq starting at 126.5m
- SE20-013: 9.1m @ 0.36 g/t Au, 78.28 g/t Ag, or 1.42 g/t AuEq starting at 118.9m
- SE20-007: 3.0m @ 0.41 g/t Au, 792.30 g/t Ag, or 11.11 g/t AuEq starting at 135.6m
- SE20-006: 21.3m @ 0.30 g/t Au, 15.58 g/t Ag, or 0.51 g/t AuEq – Including 6.1m @ 0.52 g/t Au, 35.38 g/t Ag, or 1.00 g/t AuEq starting at 91.4m
- SE20-005: 4.6m @ 1.62 g/t Au, 25.73 g/t Ag or 1.97 g/t AuEq starting at 35.1m. *Press Release:* September 15

(continued from pg. 7)

40th Parallel, published by the US Geological Survey in 1870, and a subsequent geological study specifically of the Comstock conducted by George Becker in 1882. King and Becker mapped the Comstock's underground workings in excruciating detail and wrote descriptions of them in keeping with the geological norms of the day. The mines themselves published weekly and annual reports, many of which found their way into the archives of the University of Nevada and Nevada Historical Society. Contemporary newspapers like the *Daily Alta California*, the *San Francisco Chronicle*, and the *Mining & Scientific Press* religiously reported on mining events, and missing mine reports can usually be reconstructed from contemporary newspaper articles. Descriptive reports from journalists visiting the mines and sworn testimony provided in court cases add other important details. Although some reports are plainly promotional (they're easy to identify and discount), most of them are plain matter-of-fact reporting which we judge can be taken at face value. This extraordinary volume of data spans decades, and much of it can be corroborated through multiple eras and multiple companies, which greatly increases our confidence in reconstructing the Comstock's history. Painstaking attention to detail through many years of reports, articles, maps, and other sources has allowed us to create a complex, multi-dimensional picture of what happened in the Comstock mines.

Over the past couple of years, we've expanded our understanding of the district in many ways—we've come to better understand the metallurgy and milling, how mining costs varied with depth and mining method, how ore handling costs changed due to the complexity of the underground workings and ore body location, the costs of fuel, timber, and pumping, how mine ownership changed and why, how bonanza strikes influenced the development of mines in other parts of the lode, what factors drove development of the great third line shafts, and much, much more.

The old Comstock was divided up into about two dozen small claims, and each one of those old claims has its own particular story. To give you an example of the gritty research and analysis we've poured into understanding the district over the last several years, we're going to tell you the story of the Segregated Belcher (or, Seg. Belcher), which consisted of only 160 feet of strike length along the lode. The Seg. Belcher is located between the Belcher to the north and the Overman to the south and is just north of where the Comstock Lode splits into two south-striking branches, the Silver City and American Flat spurs.

Although the Seg. Belcher had very little historical production, the mine's modern exploration potential caught our attention early on when we discovered annual reports from the late 1880s and early 1890s that documented significant mineralized material that hung just below the threshold of nineteenth century extraction grades. Those teasers prompted us to take a deep dive into the mine's history. What we soon discovered in other archives made those 160 feet even more attractive as a modern exploration target.

For the first two and a half decades of Comstock development, three competing claimants disputed ownership of the Seg. Belcher based on the overlapping Belcher, Apple, and Mides (sometimes Midas) claims. Indeed, those disputes likely motivated the Belcher Company to fence off the disputed ground from the rest of their claim. This was done for good reason, too, because those disputes curtailed mining of that section of the Comstock Lode for the next two decades. Without clear title, none of the three claimants was willing to risk major investments in mine development. Not until 1886, when the second bonanza strike at the Consolidated California & Virginia mine sparked another mining boom, did the three Seg. Belcher claimants bury their hatchets and do the obvious—consolidate. Thus, the Seg. Belcher missed the Comstock heydays in the 1860s and 1870s. Its recorded production from 1865-1898 is 9,911 tons and \$178,433 (State of Nevada records of Net Proceeds of Mines, Couch and Carpenter, 1943). Using the fixed price of gold in the nineteenth century of \$20.67 per ounce, this calculates to an average grade of about 0.9 oz AuEq/ton.

The consolidated ownership started exploring the Seg. Belcher mine by drifting over from the adjacent 1300, 1200, 1100, and 1000 levels of the Belcher mine, which had extracted their massive, deep bonanza ores from those levels in the early and middle 1870s. From the date of the Seg Belcher's earliest 1886 explorations and moving forward in time, we tracked down every published weekly mine report we could find and plotted their progress on a series of geologic level maps created in 1911. That allowed us to both graph the exact location of each mine report on the maps and to understand the logic of their prospecting. We followed their exploration of the best quartz bodies on different levels through lateral drifts and crosscuts, raises and winzes as they strove to follow "good indications" of a potential high-grade bonanza—which they never did find. However, from a modern exploration perspective, that news is good: abundant evidence of gold-bearing vein just below the threshold of nineteenth century extraction.

As far as we can determine, everything below the 850 level of the Seg. Belcher, the level of the "Merger Tunnel" built by United Comstock Mining in the 1920s, remains unmined. Large quartz bodies on both the footwall and hanging wall of the Comstock fault are attractive exploration targets that could return grades of between 0.2 to 0.5 opt of gold based on data published in historical archives. Other "streaks" and "seams" of quartz also strike us as interesting for follow up. What still remains a mystery is the significance of the many reports of "porphyry and quartz" or "porphyry with streaks and seams of quartz." In aggregate, there was no way that material was going to make the nineteenth century cutoff grade, so those miners generally didn't bother to assay it, but it seems at least possible that those reports described zones of stockwork veins or brecciated quartz associated with porphyry that might make attractive modern mining targets.

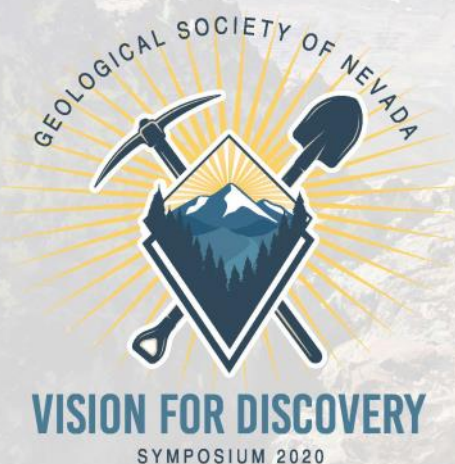
Historical mine and geological data, similar to that found for the Seg Belcher, were incorporated into a detailed 3D model that covers the Gold Hill and Middle Mines sections of the Lode. Analysis of these data in 3D as well in cross sections resulted in several prioritized exploration targets. The most promising targets are currently being drilled by Tonogold. Amazingly, this seems to be the first systematic modern exploration of the Gold Hill section of the Comstock Lode ever undertaken. Credit must be given to Tonogold's management team for being supportive of this unique approach to "de-risking" exploration—the process of conducting historical research on old mines is very time consuming and therefore expensive. However, if drilling results prove positive, this level of detailed analysis will have shown to be a powerful predictive tool for further exploration of the Comstock.

GSN Symposium 2021 Call for Papers

With the May 2020 GSN Symposium being postponed until May 2021, GSN is looking to fill open talk slots and poster presentations. We are also looking for papers for the 2021 publication. Draft abstracts are due by November 15, 2020. Guidelines and the submission portal are at:

www.gsnsymposium.org/call-for-papers-3/submit-abstracts/

If you are already a presenter, you do not need to resubmit an abstract.



To purchase the 2020 Symposium Proceedings or to learn more about the symposium, please visit our website

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Questions? Please reach out to:

Mike Ressel

mike_ressel@outlook.com

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mollymariehunsaker@gmail.com

ROCK TALK



GSN Member Dr. Tommy B. Thompson congratulated his 100th graduate advisee on 18 May 2020 on earning a Ph.D. degree in Geology from the University of Nevada Reno. Dr. Thompson was a faculty member at four universities from 1966 to 2014: Oklahoma State University (June, 1966 – July, 1973: 5 M.S.); Colorado State University (August, 1973 – June, 1995: 58 M.S. and 1 Ph.D.); University of Nevada Reno (January, 1997 – August, 2014: 30 M.S. and 5 Ph.D.); and Universidad Nacional de San Juan, Argentina (January, 2005 – June, 2005; 1 Ph.D.). He taught and conducted research at universities for 47.5 years, and has served as a consultant to more than 30 mining and exploration companies over 55 years. His graduate students worked on projects extending from Alaska to the Patagonia of Argentina. He served for 16 years as the first Director of the Ralph J. Roberts Center for Research in Economic Geology (CREG) at Mackay School of Mines (now Mackay School of

Earth Sciences & Engineering). Dr. Thompson earned his Geology degrees from the University of New Mexico (B.S., 1961 with a minor in Civil Engineering; M.S., 1963; Ph.D., 1966) and has published more than 70 peer-reviewed papers in journals and state publications. He is an Honorary Fellow (2017) of the Society of Economic Geologists where he served as their Vice President (1997), Distinguished Lecturer (1998), and Editor of their Guidebook Series (1986-2002), and was their Marsden Awardee in 2005. He is a Legion of Honor 50-Year Member and Registered Member (#3223450) of the American Institute of Mining, Metallurgy & Exploration (SME). He has been a member of the Geological Society of America (GSA) since 1964 and is a 50-Year Fellow Member. He served as President of the Denver Region Exploration Geologists (DREGS) and was their Distinguished Lecturer in 2014. He served as the Vice-President (2012-2103) and President (2013-2014) of the Geological Society of Nevada (GSN) and is a Registered CPG Member (#10875) of the American Institute of Professional Geologists (AIPG). Although he is Emeritus Faculty at both CSU and UNR, he is officially “retired” from university life and is still consulting on geological projects around the world.

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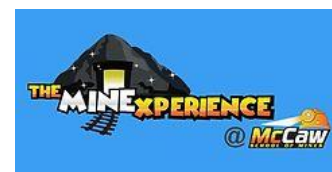
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UPCOMING EVENTS

November 2, 2020: Denver Region Exploration Geologists' Society November Zoom Meeting will be held on Monday, November 2nd at 6:30 PM Mountain Time (US and Canada). Social Chat—6:30 p.m. and Talk begins at 7:00 p.m. Speaker is **GSN Member, Dr. Franck Valli, Newmont Mining** and his talk is titled, **"The Carlin Trend: lost opportunities caused by a long lasting dogmatic approach"**

Join Zoom Meeting: <https://zoom.us/j/3688010347?pwd=TnRMV2M4U2ZqdEk2WjVaMDk3dThFUT09>

Meeting ID: 368 801 0347
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November 5, 2020: Nevada Petroleum & Geothermal Society Meeting will be held on November 5, 2020 starting at 7 PM. Because of the coronavirus, we will be holding meetings via on-line Zoom until further notice. PLEASE REGISTER BELOW.

After greetings and announcements, the talk will be by Robin Zuza of Ormat:

"Recent geothermal exploration in the West—keeping conventional low-temperature resources a strategic focus"

Here is the link to the Zoom meeting:

<https://us02web.zoom.us/j/86819405469?pwd=ZWFlOW1zWUdKSm5UV0RmajdmZ0d0QT09>

[Click here to register online](#) A suggested donation is \$10, \$5 for student members.

Location: On-Line Zoom Meeting. [Click here for event information](#)

For further information contact: Nevada Petroleum and Geothermal Society
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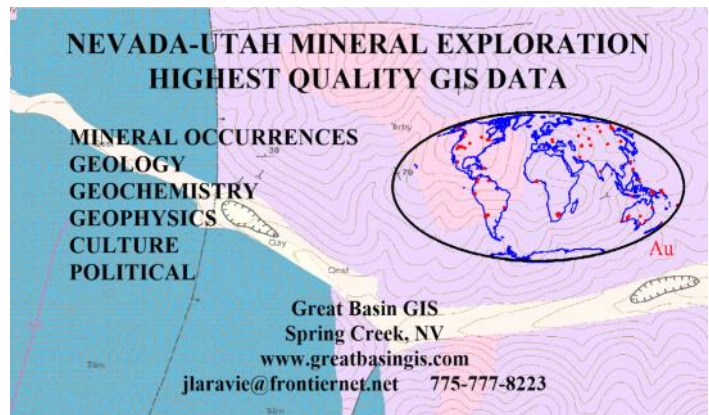
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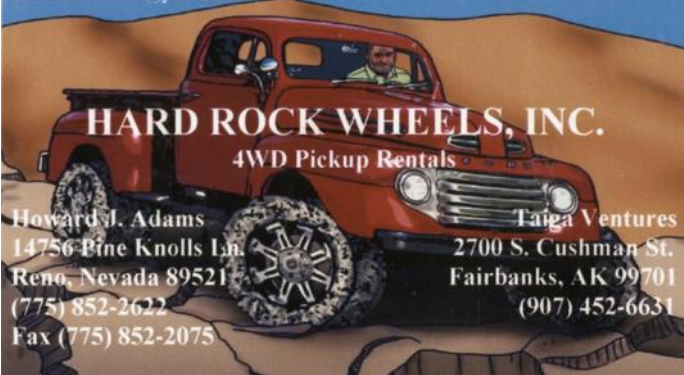
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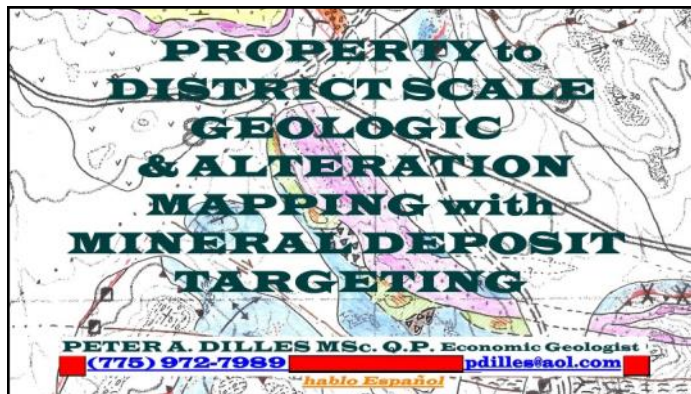
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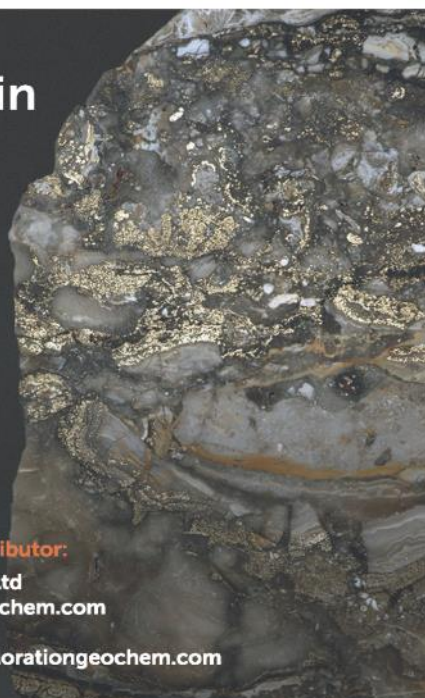
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GSN Member, Tim Bartlett took his GSN backpack to one of our favorite local non-profits in Reno called the Animal Ark. It is a wildlife sanctuary and a fun place to visit on a Fall week-end. <https://animalark.org/> (Fun fact: GSN Member, Kel Buchanan is the President of their Board, and Tommy Thompson is an Animal Ark Trustee.)

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