

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



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CALENDAR OF GSN EVENTS

Sept. 6, 2018 **THURSDAY**

SO. NEVADA CHAPTER MONTHLY MEETING (held 1st Thursdays)

The monthly meeting will be held at the Las Vegas Natural History Museum, 900 N. Las Vegas Blvd. Pizza & beer at 5:30 pm, Talk at 6 pm. Speaker: Emeritus Professor Gene Smith, UNLV. Title: "Did the eruption of Toba Volcano 74,000 years ago cause the near extinction of humans?". Food & Drinks sponsored by GEOSYNTEC CONSULTANTS. Contact Joshua Bonde for more information. Josh's email is: paleo@lvnhm.org. Details on page 6.

WEDNESDAY

Sept. 19, 2018 WINNEMUCCA CHAPTER MEETING (NOTE! 3rd Wed. this month!)

The Winnemucca meeting will be held at the Martin Hotel, 94 W. Railroad St., Winnemucca. Refreshments/appetizers at 6 pm. Talk at 7 pm. Speaker: Eric Saderholm, American Pacific Mining Corp. Title: "Tuscarora Gold **Project**". Food & Drinks sponsored by TBA. For more information please contact Matt Fithian at: Matthew.Fithian@ssrmining.com. Details on page 7.

THURSDAY

Sept. 20, 2018 ELKO CHAPTER MONTHLY MEETING (held 3rd Thursdays)

The Elko meeting will be held at the Western Folklife Center, 501 Railroad St., Elko. Refreshments/appetizers begin at 6 pm. Talk begins at 7 pm. Speaker: Joe Becker, Newmont Mining. Topic: Cripple Creek and Victor Mine. Food & Drinks Sponsored by REDCOR DRILLING INC. For more info, please contact Nathan Wright at:: Nathan.Wright@newmont.com. Details on page 8.

FRIDAY

Sept. 28, 2018 NOTE CHANGE!! GSN MEMBERSHIP MEETING (4th Friday this month!)

The GSN meeting will be held at the Reno Elks Lodge, 597 Kumle Lane, Reno, Nevada. Social hour begins at 6 pm, Dinner at 7 pm and talk at 7:45 pm. Speaker: Cody Stock, NDSM. Title: "Structural analysis of Fluorspar Canyon and the Northern Gold Ace Fault: Implications for structurally controlled gold mineralization, Bare Mountain, Southern Nye County, NV". Drinks sponsored by COEUR EXPLORATIONS, INC. Please send dinner RSVPs to Laura Ruud at: gsn@gsnv.org. Details on page 3.

Oct. 5-7, 2018 **GSN Fall** Field Trip

GSN FALL 2018 FIELD TRIP

Another great GSN Fall Field Trip has been planned and will take us to the Mono Lake – Mammoth Lakes area in east central California. Details can be found on page 10 and Registration form on page 11.



G.S.N. SEPTEMBER MEETING SPONSOR



FROM THE PRESIDENT Richard Bedell, GSN President 2018-2019 SEPTEMBER 2018

September will be a busy month for the many GSN members who also participate in sister organizations. The Nevada Mineral Exploration Coalition (NMEC) has their annual camp out in the Ruby Mountains the second weekend of September. If you have not been, it is a great event and I highly recommend it for individuals and families. The third week of September is the Society of Economic Geologists (SEG) once every 5 years meeting in Keystone Colorado, complete with a field trip option in Nevada on rhyolites and associated Au and Li mineralization to be led by Jon Price, Ruth Carraher and Ted Wilton. Consequently, we are having our September meeting on Friday the 28th which is the 4th Friday instead of the third.

Our speaker for the Silver Summer Series was Doug Hurst who shared some very lucid experiences in the corporate development avenue of our business. It was topical because Doug is the Chairman of Northern Empire (TSXV:NM) and the week before they announced the sale of their company to Coeur Mining (NYSE:CDE). The primary asset is the Sterling Mine in the evolving Bare Mountain gold district near Beatty Nevada. Currently they have an inferred resource of 709,000 ounces averaging 2.23 g/t. Highlights include not just respectable grade but leachable and it is already permitted.

Other current players include Corvus, Anglo Gold, and Renaissance Gold. This district is evolving quickly in a new growth spurt. Many GSN members have been involved in the early growth and development as well as the current one. Consequently, we are having as our speaker in September Cody Stock who is just completing a structural thesis on the Sterling Mine and environs at the South Dakota School of Mines.

Bare Mountain is a geologically complex area (and therefore fun) with very deformed basement (late Proterozoic through Paleozoic) including siliciclastics and carbonates, and a large tertiary volcanic package. Individual prospects in isolation can look orogenic, intrusion related, Carlin-esque, and multiple shades of epithermal characteristics from breccias and banded veins to top of the water table, mercury-rich, opaline silica. The mineralization is now largely agreed to be low sulfidation epithermal and it is the broad range of host rocks that can create confusion on a local observation.

Age dates have focused on both alunite and adularia and mostly range from 10-12 Ma. Being a low sulfidation epithermal district the alunite is steam heated, while the adularia should have the true hypogene signature.

The famous "Turtle backs" or manifestations of core complexes going down into Death Valley are nearby and complex exhumation patterns with listric normal faults or "detachments" are inner-twinned with steeper normal faults. The deposits throughout the district are overwhelmingly structurally controlled so this talk should help provide further insight into the district.

Richard Bedell

Current GSN President

The G.S.N. wishes to thank

MDA, KCA, AND CGS for sponsoring the

GSN SILVER SUMMER SERIES

on August 10, 2018!



GSN MEMBERSHIP MEETING—SEPTEMBER 28, 2018

For dinner reservations please e-mail <u>gsn@gsnv.org</u> or call 775-323-3500 by 5:00 p.m. on Wednesday, September 28, 2018

Social Hour begins @ 6:00 p.m.; Dinner @ 7:00 p.m.

Speaker to follow at about 7:45 p.m.

SPEAKER: Cody Stock, South Dakota School of Mines & Technology Grad Student

TITLE: "Structural analysis of Fluorspar Canyon and the Northern Gold Ace Fault: Implications for structurally controlled gold mineralization, Bare Mountain,
Southern Nye County, NV"

Location: Reno Elks Lodge, 597 Kumle Lane
(across from the Convention Center)

Dinner Cost is \$25.00 per person

(You will be invoiced if you do not cancel your reservation)

Structural analysis of Fluorspar Canyon and the Northern Gold Ace Fault: Implications for structurally controlled gold mineralization, Bare Mountain, Southern Nye County, NV

Cody Stock, Zeynep Oner-Baran, Alvis Lisenbee

The Bare Mountain block lies just southeast of the town of Beatty, Nevada, within the Walker Lane deformation zone. Walker Lane deformation is characterized by regional-scale, northwest-striking, right-slip fault systems connected by east-striking, left-lateral accommodation faults, formed in response to trans-tensional stresses and regional clockwise rotation. This study examines the northern end of the range near Fluorspar Canyon using large-scale geologic mapping and stereographic fracture analysis in order to define the complex deformational history. Thirteen structural domains are recognized by similarities in bedding and fracture orientations which help in the definition of five major deformational events: 1) Tilting and folding of Neoproterozoic and Paleozoic Strata, 2) Thrust faulting resulting from a post-Mississippian aged collisional event, 3) North-south striking high-angle strike-slip or oblique-normal-slip transtensional faults, 4) Low-angle-normal faults possibly formed from reactivation of previously existing thrust faults, 5) West and Northwest directed transport along the Fluorspar Canyon fault.

The age of mineralization in the region has been previously constrained between 15 and 9 Ma and occurred contemporaneously with volcanic activity in the southwestern Nevada volcanic field as well as active deformation along the Fluorspar Canyon fault. Geochemical signatures collected from surficial rock samples suggest that gold mineralization in the range is predominantly structurally controlled and localized to high-angle north-south striking oblique-slip faults and north-south striking, near vertical rhyolitic intrusive dikes. Previous production in Fluorspar Canyon occurred at the intersections of high-angle north-south striking faults and the Fluorspar Canyon fault. Determining the relative age of individual deformational events in the region will aid in the construction of a more precise plan for future exploration and possible expansion of previously known ore bodies.

Bio

Cody Stock is currently enrolled as a Masters student at the South Dakota School of Mines & Technology. His focus of study is structural geology with an emphasis on structurally controlled precious metal mineralization in southern Nevada. He graduated from Idaho State university with a Bachelor's of Science degree in the summer of 2014 after which he worked as a Jr. Exploration geologist in the Yukon-Tanana terrain near Delta Junction, Alaska and as a well site geologist on petroleum production wells near Midland, Texas.

"FACES OF GSN" ALEXANDRA WHEATLEY

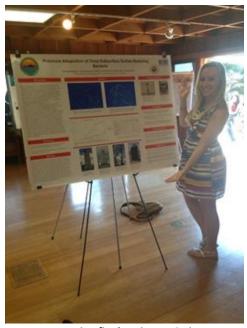
awheatley@graftinginnovativesolutions.com

Thank you Molly and Laura for the honor to be one of "the Faces of GSN".

I have always been proud to call myself a native Nevadan. While growing up in Las Vegas my father always encouraged me to ask question and to be curious. There was never a stupid question; he always answered my questions with patience and consideration.

That sense of curiosity instilled my love of science, which only intensified in high school. I

went on a camping trip to Lehman Caves and fell in love. I subsequently was mentored by a teacher and her former student to do a microbial survey of the caves for a science fair. Surprisingly, it was the first one done at Lehman Caves! I used that project to compete at the local science fair at UNLV. The project qualified me to go to the international science fair in San Jose. One of the judges at the science fair happened to be a Desert Research Institute Associate Professor, Duane Moser. He asked me to join his lab and do research on subsurface microbes. I jumped at the opportunity and stayed at UNLV to major in microbiology. My research entailed projects located in Death Valley, Armargosa Valley, Homestake Mine, and the Tau Tona Mine in South Africa. To further, my research I spent a summer at Scripps Institution of Oceanography growing microbes from the various locations under extreme pressure and anaerobic condi-



Presenting final project at Scripps

tions. The research ultimately led to me being a coauthor on a peer reviewed publication. Although the research was interesting, I decided I wanted to go a different career route.

My junior year I took a paleontology class at UNLV taught by Steve Rowland, and I couldn't



Hiking in the Steptoe Mountains, NV during NDOM internship

get enough. The next semester I changed my major from Microbiology to Earth and Environmental Science. I really enjoyed all the geology classes I took from there and got an internship with Nevada Division of Minerals (NDOM) as the first UNLV intern. Yes, you may have heard the running joke of not letting UNLV students participate in the NDOM internship or they'll transfer to Mackay. That's all my fault. Every other student I interned with was a Mackay student.

After talking with them I realized Mackay had many more resources, so I transferred. (continued on page 5)

Those extra resources led me to get a GIS internship with NV Energy during my senior year. I graduated from Mackay with a degree in Geography and minor in Ecology in 2016. After receiving my degree I realized my love of science, maps, travel, and cultures made me a die hard geographer. After graduating, I accepted a job in Portland, OR as a GIS Specialist but soon returned to Reno after missing my friends and the city. Upon returning, I started at NV Energy as their sole GIS Analyst for the company.

I left NV Energy in July 2018 to start my own Geographic Information Systems (GIS) consulting company to expand my opportunities and provide value to other businesses. GIS is an exciting field of work where I thrive. There's a thrill of constantly learning the newest technology, and how it can help improve processes and lower costs for almost any operation. My company seeks to consolidate and use data to provide the most complete picture of historic and current models. That's why I decided to call my company Grafting Innovative Solutions; grafting means integrating different sources to bring them together in one cohesive product.



Hiking in Lamoille Canyon, Nevada

GSN SOUTHERN NEVADA CHAPTER MEETING

THURSDAY, SEPTEMBER 6, 2018

Location: Las Vegas Natural History Museum

900 Las Vegas Blvd. North, Las Vegas, NV

Time: Pizza & Drinks @ 5:30 p.m.; Talk begins @ 6;30 p.m.

Speaker: Dr. Gene Smith, Emeritus Professor, UNLV

Title: "Did the eruption of Toba Volcano 74,000 years ago cause the

near extinction of humans?"

Food and Drinks Sponsored by:



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GSN ELKO CHAPTER MONTHLY MEETING THURSDAY, SEPTEMBER 20, 2018

Location: Western Folklife Center, 501 Railroad Street, Elko, Nevada

<u>Time</u>: 6:00 p.m.—Appetizers/drinks; 7:00 p.m.—Talk begins

Speaker: Joseph Becker, Newmont Mining Corp.

Topic: Cripple Creek and Victor Mine, Teller County, CO

Food and Drinks Sponsored by:



GSN WINNEMUCCA CHAPTER MONTHLY MEETING

WEDNESDAY, SEPTEMBER 19, 2018

Location: The Martin Hotel, 94 W. Railroad St., Winnemucca, NV

<u>Time</u>: 6:00 p.m.—Appetizers/drinks; 7:00 p.m.—Talk begins

Speaker: Eric Saderholm, American Pacific Mining Corporation

Topic: Tuscarora Gold Project, Elko, Nevada

Food and Drinks Sponsored by: To Be Announced







<u>Tuscarora Gold Project- Abstract</u> *Elko, Nevada*



The Tuscarora Gold Project, 50km northwest of Elko Nevada, is a high-level, low-sulfidation, epithermal gold prospect in the historic Tuscarora Mining District. The Property lies at the foot of Mount Blitzen on the eastern slope of the Northern Tuscarora Range, an area known for extensive exploration and mining in the past. The District is located within a major gold producing region of Nevada, only 35km northeast of the Carlin Trend, 20km southwest of the Jerritt Canyon Mine, and 50km east-northeast of the Midas deposit. Placer gold was discovered in the Tuscarora district in 1867 and production of silver-gold lode deposits began in 1875 (LaPointe, et al., 1991). Historical work has documented gold and silver production throughout the Tuscarora District. Total precious metal production between 1867 and 1990 consists of 244,000 ounces of gold and 7,632,000 ounces of silver from quartz veins and quartz stockwork mineralization. Since 1982, the Tuscarora District has had a sustained, exploration effort. This effort has been almost continuous, with each subsequent operator building on the previous work.

The Tuscarora Project, 100% owned by American Pacific Mining Corp., consists of 91 claims covering approximately 1,818 acres. Since the 1980's, the gold-dominant, high-grade vein portion of the district has emerged with two distinct zones, the South Navajo Vein Zone and the East Pediment Zone. There were several drilling phases with multiple holes containing significant gold mineralization within the South Navajo Vein and East Pediment areas. Drilling has outlined vein zones with 5 to 40 feet of gold mineralization. In the 1990's, Newcrest and Franco-Nevada Corporation each explored for the extension of the Navajo vein, encountering several drill intercepts grading over one oz per tonne gold. Historic drilling intersected 1.5m at 182 g/t gold in quartz-adularia veins at relatively shallow depths. Drilling has indicated the higher-grade gold values and intervals are coincident with sulfide-bearing and oxidized quartz veins. These vein-zones are typically within quartz-adularia altered tuff or are surrounded by chloritic zones in the tuff.

The Great Basin in Nevada is a westward thickening wedge of carbonate and siliciclastic rocks deposited along a craton margin over hundreds of millions of years. The regional structural setting is simply portrayed as older Paleozoic and Mesozoic rocks above younger Paleozoic and Mesozoic rocks. Multiple global scale tectonic events pushed eastward, developing low-angle thrust faults that juxtaposed siliciclastic and carbonate rocks. In the late Mesozoic and early Cenozoic, extensional tectonic events led to multiple volcanic and intrusive events that continue into modern times. In this region of the Great Basin, three lithologic domains developed during the Cambrian to Late Devonian. Shallow, platform carbonates and shelf-slope carbonates formed the earliest domain as a westward-thickening wedge along the passive margin edge of the North American craton. A second domain formed in the Ordovician from deep-water ocean basin siliciclastic, volcanic, and volcaniclastic rocks to the west. The third domain is the result of the Antler highland emerging along the leading edge of the Roberts Mountain Thrust with subsequent erosion and deposition of the sediments along the eastern margin of the highland and into the foreland basin. In the early Tertiary, a period of extensive silicic volcanism occurred throughout a large portion of southwestern North America. The Tuscarora volcanic field developed during this period and is one of the largest examples of Eocene age magmatism in Nevada. The most intense magmatism occurred to the southeast in an area that encompasses at least five major volcanic centers including the Mount Blitzen volcanic center.

The Tuscarora District clearly displays gold and silver in low sulfidation epithermal quartz-adularia veins and stockwork veins associated with dacitic intrusives and structures formed along the southeast margin of Mount Blitzen. The northern silver-rich portion of the precious metals district occurs immediately north of the Project. The silver-rich area has high Ag:Au ratios (>100), strong base metals, and typically displays narrow alteration selvages around quartz-carbonate veins hosted mostly in intrusive dacite. In contrast the southern gold rich portion of the district, including the Tuscarora Project, have relatively low Ag:Au ratios (<15), contains almost no base metals, underwent local boiling, and displays widespread silicification and adularization along with quartz-adularia veins, stockwork veining, and vug-fills in tuffs and fine-grained epiclastic rocks.

2018 Winnemucca GSN Barbecue

By Matt Fithian, Chapter President

The Winnemucca BBQ this year once again featured the classic hammer toss, which everyone was yearning for after being outlawed at the Board of Directors BBQ in Reno. However, the elated mood was truncated by the notable absence of slip-n-slide (apologies to Dave Shaddrick, among others). Luckily, Mary Stollenwerk and ALS Minerals came through in the clutch with a volleyball set to fill the void. The GSN Winnemucca Officers once again did a fantastic job planning the BBQ on one of the only days of summer with foul weather, as the end of this year's BBQ was unceremoniously marked by a dusty tempest that sent napkins and nametags flying. Most of the 50+ members in attendance had departed by then, and the most steadfast of BBQ'ers and sponsors hastily loaded up the leftover supplies (including half-full kegs, good grief!). We cannot thank enough our sponsors, Boart Longyear and ALS Minerals for their continued sponsorship of our only summer event. Their sponsorship of this event has evolved into tradition, which we hope to continue for many years to come!





ALS Minerals and McClelland Labs buddies hanging out talking geochem?



GSN President Richard Bedell and Chair of the Board, Bob Thomas



G.S.N. ELKO CHAPTER BBQ #3

The GSN Elko Chapter held their 3rd and final BBQ closing out the summer of 2018 with another great event. A big thanks to the folks at EM Strategies for sponsoring the food and drinks at the BBQ. The EM Strategies crew did the grilling and GSN member Stefan Beck played the piano and sang as usual. Many of the GSN's Board of Directors attended the event this month too following their quarterly meeting in Elko. Everyone is impressed at what a vibrant and active membership the GSN has in our Elko Chapter. We go back to the speaker meetings at the Western Folklife Center beginning Sept. 20th!

Thank you to our generous sponsor for the Elko Chapter's AUGUST SUMMER BBQ!



Thank you to our generous Sponsors for the Winnemucca BBQ on August 15th!





GSN 17th ANNUAL "SILVER" SUMMER SERIES

Laura Ruud

We had a beautiful summer evening to gather with 130+ GSN members and friends at Dan Kappes's home for the 17th Annual "Silver" Summer Series on August 10, 2018. We had the great pleasure of welcoming guest speaker, **Doug Hurst** who is Chairman of Northern Empire which was just recently sold to Coeur. Doug held the crowd's attention with his talk titled, "Perspective of a Canadian Investor in the Nevada Mining Scene". I didn't see one person refilling their beer during the presentation!

The GSN wishes to thank once again our sponsors for the Series: KAPPES, CASSIDAY & ASSOCIATES for supplying the BBQ and venue; MINE DEVELOPMENT ASSOCIATES for supplying the kegs of Great Basin Brewing Co. beer; CGS for supplying the wine; and HUNSAKER, INC. for supplying the water and ice!

We also want to thank Paul Hartley for hauling the four kegs of beer and to Jim Estes who always makes sure everything gets done! Special shout out as usual to Dan Kappes whose continued generosity makes this one of the best GSN events every year. Kudos to Lori Carpenter who brought her very cool drone to the event so she could capture the crowd from high above us.



Thank you to our generous donors in August!

G.S.N. FOUNDATION

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G\$N FALL FIELD TRIP—OCTOBER 5-7, 2018!!

"Shaped by Fire and Ice"

By Dennis Bryan

The Fall GSN field trip is to the Mono Lake – Mammoth Lakes area in east central California, approximately three hours south of Reno. The trip will highlight the recent volcanism associated with the Long Valley Caldera. We will explore the cataclysmic eruption of one of the most extensive tuff units in North America, see craters formed 600 years ago, and walk on volcanic domes that have barely had time to cool. We will also touch on the extensive glaciation that carved valleys and deposited moraines along the eastern front of the spectacular Sierra Nevada. We will witness the results of tectonic forces that have uplifted these mountains over a mile above the Owens Valley. We'll even throw in some unusual tufa formations along one of the most unique saline lakes in the world. A highlight of the trip will be a morning exploring the extraordinary volcanic formations and beautiful vistas of the Devils Postpile National Monument.

The inspiration for the field trip is the recently GSN published "Geologic Guidebook to the Long Valley – Mono Craters Region of Eastern California" by Steven R. Lipshie. This guidebook and field guide is an excellent overview to the area and forms the basis of our planned trip.

The field trip will take place over three days, October 5 -7, 2018, Friday through Sunday. We'll stay in Mammoth Lakes two nights and be back in Reno that Sunday evening around dinner time. We'll ride in vans for better access to our field stops.

Bring your camera as this field trip features some of the most scenic geologic terrain you will ever have the chance to visit up close. And since it is in early Fall at altitudes up to 9,000 feet we may even be treated to some colorful fall foliage.

To get your name on the reservation list, please contact Laura Ruud at the GSN office: Email—gsn@gsnv.org; 775-323-3500.

The Registration form is on page 11 in this newsletter.

It can also be found on the website: http://gsnv.org/info/forms.php

2019 FY DUES DUE SEPT. 28TH

GSN members, this is a reminder that your yearly membership fee is due by the September 28th monthly meeting. Membership dues are \$50. Nevada student dues are \$10. **You can become a lifetime member and never have to worry about dues again for just \$1,250.**

Please log on to: http://gsnv.org/membership/join-gsn.php to pay your dues online or to download the paper form to mail it in. We are looking forward to enjoying another year of talks, field trips, and comradery with all GSN members. If you have questions please contact Molly Hunsaker, GSN Membership Chair at mollymariehunsaker@gmail.com or 775-340-0289.

(Paper Renewal form is on page 12 of this newsletter.)



Friday, October 5, 2018:

Geological Society of Nevada (GSN) Fall 2018 Field Trip Friday, Saturday & Sunday, October 5-7, 2018 Trip to Mono Lake & Mammoth Lakes Region - "Shaped by Fire and Ice"



The Fall GSN field trip is to the Mono Lake - Mammoth Lakes area in east central California. The trip will highlight the recent volcanism associated with the Long Valley Caldera. The inspiration for the field trip is the recently GSN published "Geologic Guidebook to the Long Valley - Mono Craters Region of Eastern California" by Steven R. Lipshie. This field guidebook is an excellent overview to the area and forms the basis of our planned trip. The field trip will take place over three days, October 5 -7, 2018, Friday through Sunday. We'll stay in Mammoth Lakes two nights and be back in Reno Sunday evening around dinner time. We'll ride in vans for better access to our stops.

10:00 AM Leave GSN parking lot for Carson City, NV

2:00 F						
5:30 F						
6:30 F	Cocktails; 7:00 PM Dinner at Mammoth Mountain Inn; 8:00 PM Talk by Steve Lipshie (tentative)					
Saturday, October 6, 2018: Breakfas	st on your own					
8:00 A						
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12:30 F						
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	PM Return to Mammoth Mountain In PM Cocktails; 7:00 PM Dinner at To		Open evening to explore M	ammoth Lakes		
Sunday, October 7, 2018: Breakfast o	on your own					
8:00A						
		stop: Minaret Summit Ove	erlook;			
	M Field stop: Earthquake Fault - L	provided				
	PM Field stops: Inyo Craters, Obsidia PM Leave for Reno; and 5:30 PM A		ot			
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	THANK YOU TO OUR	GENEROUS	SPONSORS!			
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Company:		G.S.N	N. MEMBER* REGISTRA	TION COST:		
Cell Phone:			\$400 - Single Room	at Mammoth Mtn. Inn (2 nights)		
Email:			\$295 - Double Room	n at Mammoth Mtn Inn (2 nights)		
and an artist of the second se			\$190 - No Room ne	eded in Mammoth Lakes, CA		
Person to contact in case of		200-0000 00 0000	Member Helpers (limit 6)			
Name		_	\$160 - Spouse Rate	** (with Single Occupancy room)		
Name:			(**No Guidel	book included)		
Phone:			*NON-MEMBER REG	SISTRATION COST:		
		_	Add \$50 to the	e rates above		
		Non-mem	bers are encouraged to bec	ome members of the GSN in order to		
			intage of the reduced Memb	er Rates - Annual Dues are \$50/year.		
	y Friday, September 21, 2018					
No refunds after Tueso	day, September 25, 2018	Total ar	mount included wit	th this form:		
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Card Number:			Exp. Date:	3 or 4 digit security code:		
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Geological Society of Nevada

Phone: (775) 323-3500, Fax: (775) 323-3599

2175 Raggio Parkway Reno, NV 89512

E-mail: gsn@gsnv.org

Return with payment to:

GEOLOGICAL SOCIETY OF NEVADA

2019

2175 Raggio Parkway, Room 107, Reno, NV 89512 USA

Phone (775) 323-3500 • Fax (775) 323-3599 • gsn@gsnv.org • www.gsnv.org

Offices are located at NBMG's Great Basin Science Sample & Records Library at The Desert Research Institute Walk-in Office hours: Tuesday through Friday, 8:00 AM - 3:00 PM. Mondays - Call or email for appointment.

The Geological Society of Nevada (GSN) is a non-profit, educational organization whose principal objective is to promote the advancement of geological sciences, especially as they relate to Nevada. GSN supports the dissemination of information through meetings, field trips, publications and academic endeavors. Membership is open to geologists, geophysicists, geochemists, engineers, educators, students, prospectors or anyone else with an interest in the geological sciences and/or the goals of the GSN. The organization is based in Reno with additional Chapters in Elko, Las Vegas and Winnemucca.

The GSN Membership year begins September 1st. Annual dues are \$50.00, Students \$25.00 or \$1,250.00 for Lifetime Membership. Dues are due in September each year at the commencement of the fall meeting schedule. The GSN conducts a Field Trip in the Fall and one in the Spring of each year. Monthly meetings are held September through May in Reno, Elko, Winnemucca, and Las Vegas. If you would like to receive

University of Nevada, Reno, Great Basin College and Uni MEMBERSHIP APPLICATION Renewal Ne	•	eyas.	Date:
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ROCKTALK

Cell phones: Where do they come from? The ground.

By WIN GRUENING SENIOR CONTRIBUTOR

(reprinted from Must Read Alaska, August 1, 2018)

http://mustreadalaska.com/cell-phones-where-do-they-come-from-the-ground/

Recently, in a conversation with a friend, the subject of cell phones came up.

Most of us take these gadgets for granted but know very little about them. Their use is so widespread, we find it strange when encountering someone who doesn't own one.

Think about it for a second. You know how to operate a cell phone and would be lost without it. But do you know how and where they are made? What industries are supported by their manufacture? What impact they have on our economy?

As an op-ed writer, I'm always on the look-out for subject matter - especially subjects that aren't being talked about.

Why this topic interested me is a case in point. More on that later.

Obviously, current events comprise the main source of most op-eds today.

Likely subjects are ones in which the author has an interest and, perhaps, experience. After a career in banking, my columns often tackle the economic, financial or budgetary perspectives of local issues.

My background in the military and aviation along with an interest in history – particularly Alaska and U. S. history – has guided other columns.

But, sometimes, it's fun to branch out.

A good opinion piece should do more than present a point of view. It can educate the reader (and the writer) on a subject and provide a different perspective on a related issue. Which brings me back to cellphones.

Because of the high cost of communication infrastructure in third-world countries and remote areas of the country, telephone technology has skipped a generation of people who don't even know what a "landline" is.

Over 7 billion cell phones are in use today – led by China (1.3 billion), India (1.2 billion), and the U.S. (327 million). Last year, over 1.5 billion cell phones were sold globally – mostly manufactured in India, China, and Vietnam.

It's big business.

A cell phone is made from a variety of materials, with the most common being aluminum alloys and plastic – found in the phone case. Lithium, cobalt, and manganese are contained in the batteries. Elements like gold, copper and silver are used in the wiring of the phone.

The microphone and speaker of the phone both use magnets, which contain gallium and neodymium. Gallium is a by-product of mining and the processing of aluminum, zinc and copper. China produces 80 percent of the world's gallium and 90 percent of the world's supply of rare-earth minerals – neodymium being one of them.

Obviously, the mining industry is critical to the production of cellphones. But that isn't where it ends.

The infrastructure to support cell phones, especially in Alaska, is complex and enormous. There are hundreds of cell towers located throughout our state. In many remote communities, cell phones are the only way to communicate long-distance.

Every cell tower requires periodic maintenance, technical service and a constant, reliable source of electricity. Outside most urban areas of Alaska, that means using diesel generators – for which fuel needs to be transported in regularly by helicopter.

By now, you probably know where I'm going with this.

Thousands of everyday products use petroleum products and mined metals. From plastics, paint, cosmetics, bug dope, and tires to phones, laptops and complex space-age devices.

It's easy and commonplace to trash the mining and oil industries.

It's also easy to take cell phones for granted but reject the tradeoffs required to produce them and keep them connected.

America's environmental regulations are clearly superior to most countries where mining and oil exploration occurs. Furthermore, there is concern America could potentially be held hostage by China and others that control rare-earth metals, minerals, and oil that are critical to America's economy and security.

Objections to oil exploration in ANWR or existing mine expansions at nearby Greens Creek Mine and Kensington mine, as well as potential Alaska mining projects, like the Herbert River prospect near Juneau, are short-sighted. These projects would stimulate our economy, reduce dependence on foreign oil and minerals, as well as improve global environmental quality.

I wonder how many other products we use every day depend on resources available in Alaska – the continued development of which could further strengthen our economy?

That might be worth knowing.

Win Gruening retired as the senior vice president in charge of business banking for Key Bank in 2012. He was born and raised in Juneau and graduated from the U.S. Air Force Academy in 1970. He is active in community affairs as a 30-plus year member of Juneau Downtown Rotary Club and has been involved in various local and statewide organizations.

Activity Update

Mike Brady, July 2018

www.activityupdate.com

NEVADA

American Pacific Mining Corp. announced that recent drill results at the Tuscarora Project include 159.9-165.2 meters @ 2.44 gpt Au (APTU18-01); 64.0-70.8 meters @ 1.58 gpt Au (APTU18-05) and 198.1-201.2 meters @ 9.39 gpt Au (APTU18-09). (resource = 1,186,000 tonnes @ 1.22 gpt Au inferred) *Press Release:* June 28

Newmont Mining Corp. announced that the Twin Creeks Underground Mine has now achieved commercial production status. The project will add 35,000 ounces/year gold to its overall production at a capital cost of \$42,000,000. (reserve @ Twin Creeks = 27,100,000 tonnes @ 1.82 gpt Au proven+probable) *Press Release:* July 3

MGX Minerals Inc. announced that it acquired an option to earn a 50% interest in the Kibby Basin Property (Li) from Belmont Resources Ltd. for \$600,000 in exploration expenditures. *Press Release:* July 13

Corvus Gold Inc. announced that recent drill results at the Mother Lode Project include 233.17-342.9 meters @ 1.4 gpt Au (ML18-068); 292.61-306.32 meters @ 0.94 gpt Au (ML18-069) and 339.85-342.9 meters @ 0.95 gpt Au (ML18-070). (resource = 8,545,000 tonnes @ 1.57 gpt Au indicated) *Press Release:* July 12

Goldcorp Inc. announced that it purchased an additional 7,300,000 shares of Gold Standard Ventures Corp. to now hold a 12.73% interest (was 9.86%). (resource @ Pinion = 31,610,000 tonnes @ 0.62 gpt Au indicated) *Press Release:* July 5

Newrange Gold Corp. announced that recent drill results at the Pamlico Project include 44.2-94.5 meters @ 0.50 gpt Au (P18-41); 44.2-131.1 meters @ 0.58 gpt Au (P18-44) and 85.4-125.0 meters @ 1.48 gpt Au (P18-47). *Press Release:* July 10

NuLegacy Gold Corp. announced that recent

drill results at the Red Hill/Serena Project include 132.9-184.0 meters @ 1.47 gpt Au (SR18-01). *Press Release:* June 27

Newmont Mining Corp. announced that the Northwest Exodus underground project at Carlin is now in operation at a capital cost of \$69,000,000. *Press Release:* July 17

Anova Resources Ltd. announced that it is interested in a buyer for its Big Springs Property. (resource = 5,403,000 tonnes @ 2.5 gpt Au measured+indicated) *Press Release:* July 17

Gold Resource Corp. announced that recent drill results at the Mina Gold Project include 0-13.72 meters @ 1.1 gpt Au (MGRC-09); 3.05-19.81 meters @ 1.51 gpt Au (MGRC-10); 0-36.58 meters @ 0.47 gpt Au (MGRC-16) and 3.05-22.86 meters @ 1.47 gpt Au (MGRC-25). (resource = 890,700 tonnes @ 3.51 gpt Au inferred) *Press Release:* July 16

Silver One Resources Inc. announced that it acquired 5 patented claims near its Cherokee Property from Castelton Park LLC. for \$92,500 cash over 2 years. *Press Release:* July 19

Barrick Gold Corp. announced that recent drill results at the Fourmile Project include 656.8-667.0 meters @ 9.3 gpt Au (FM18-01D); 717.5-761.2 meters @ 18.1 gpt Au (FM18-07D); 781.1-795.7 meters @ 56.8 gpt Au (FM18-16D) and 912.3-915.3 meters @ 18.5 gpt Au (FM18-17D). *Press Release:* July 25





6th Annual Great Basin Rendezvous

September 13-16, 2018

Come join your fellow explorers and their families at Camp Lamoille in the beautiful Ruby Mountains of Elko County for our *Sixth* time around!!



Hosted by: Nevada Mineral Exploration Coalition, 2018 Great Basin Rendezvous Committee

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REGISTER ONLINE NOW AT: https://www.nvmec.org/gbrregistration.

Contact Warren Thompson (<u>wfthompson@frontiernet.net</u> or 775-340-3724) or JoAnn Newbury (<u>jnewbury.consulting@yahoo.com</u>, or 775-224-1717) for more details.

OTHER UPCOMING EVENTS

4 September: <u>Arizona Geological Society:</u> Jim Reed Presents - Applying Geological Exploration Methods Towards the Location of Clandestine Gravesites, Sheraton, 5151 E Grant Rd. (& Rosemont), Tucson AZ 85712. Please click on the link for more information and to RSVP: <u>Jim Reed Presents - Applying Geological Exploration Methods Towards the Location of Clandestine Gravesites</u>

6-8 September: Mining & Exploration International (MEI2018) Conference & Expo will be held September 6, 2018 through September 8, 2018, at the Las Vegas Convention Center, Las Vegas, Nevada. Workforce Development, Sustainability & Community, and Technology are the primary areas of emphasis, though a wide range of topics crucial to mining and exploration will be explored. Details can be viewed at MEI2018 Sessions & Workshops.

10 September: <u>SME Northern Nevada Chapter Meeting.</u> Circus Circus Mandalay Room, Reno, NV. Spealer: **Dan Kappes, Kappes, Cassiday & Associates. Topic: Tambor Mine Project in Guatemala.** Click on the link to pay for dinner. https://squareup.com/store/nnevsme. To RSVP by email: NNevSME@gmail.com

13-16 September: The NMEC (Nevada Mineral Exploration Coalition) is hosting the 6th Annual Great Basin Rendezvous at Camp Lamoille near Elko, NV. Contact Dave Shaddrick, dshaddrick@aol.com or Warren Thompson wfthompson@frontiernet.net for more information. Register at https://www.nvmec.org/gbrregistration

15-23 September: Association of Environmental & Engineering Geologists Annual Meeting, "Engineering Geology for a Sustainable World". Hyatt Regency, San Francisco, CA. Click on the link for more information. https://www.aegannualmeeting.org/

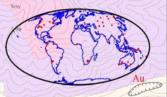
22-25 September: <u>SEG 2018 Conference</u>: SEG 2018: Metals, Minerals, and Society, Keystone, CO. Website: http://www.seg2018.org/

24 September: NWRA MODFLOW with the GIS-based GUI FREEWAT; 8:30 a.m. - 5:00 p.m. Lunch is provided. Location: 5650 Riggins Court, Reno, NV 89502, Instructor: Laura Foglia, Ph.D. Department of Land Air & Water Resources, University of California, Davis. Contact Hours Available / CEU approval for attendees Go to www.nvwra.org/2018-freewat-workshop to register or call Tina Triplett at 775-473-5473 or creativerno@charter.net.

25-26 September: Nevada Water Resources Association Fall 2018 Symposium. Tuesday & Wednesday from 8:00 a.m. to 5:00 p.m. each day. Lunch is provided. Location: 5650 Riggins Court, Reno, NV 89502. Go to www.nvwra.org/2018-fall-symposium to register or call Tina Triplett at 775-473-5473 or crea-tiverno@charter.net. https://www.eiseverywhere.com/ereg/index.php?eventid=305384&

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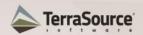


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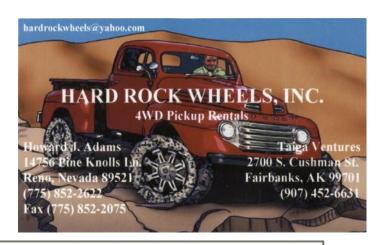


Chris Ioannakis, Managing Director, Analytical Services

Corporate Office

1500 Glendale Avenue Sparks, NV USA 89431-5902 Telephone: (775) 356-0606 Fax: (775) 356-1413

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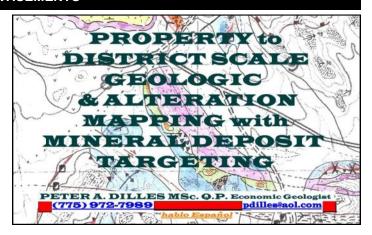
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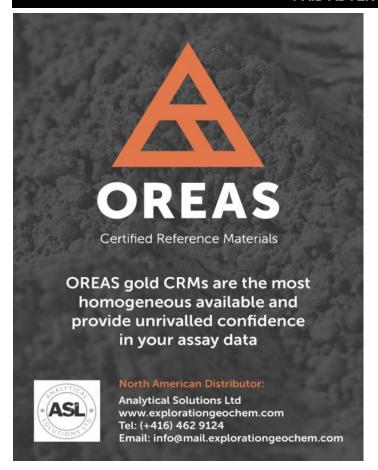
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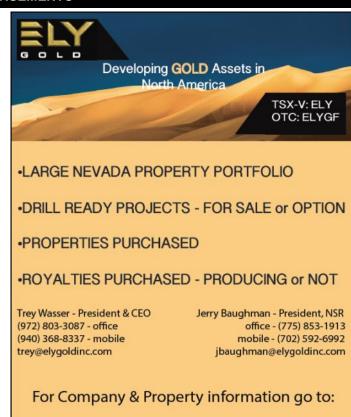
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TRAVELLING GSN BACKPACK PHOTOS

(submit your photos anytime and I'll place them when I have room!)

GSN backpacks have been traveling the world again this summer. GSN Treasurer, Bob Kastelic captured a photo of his 2015 Symposium backpack in Cuba (left) while GSN members, Don Hudson and Lynne Volpi, sent in photos of a 2010 Symposium backpack at Machu Picchu,

Cuba



