



GEOLOGICAL SOCIETY OF NEVADA NEWSLETTER

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JAN. 9, 2025 THURSDAY

GSN WINNEMUCCA CHAPTER

The GSN Winnemucca Chapter meeting will be held at the Martin Hotel, 94 W. Railroad St. **SPEAKER: Kris Alvarez, i-80 Gold. TITLE: "The Granite Creek Mine—An Update". SPONSOR: JENTECH DRILLING SUPPLY.** For more information, please contact Chapter President, Kris Alvarez at: kalvarez@i80gold.com. Details on page 8.

JAN. 16, 2025 THURSDAY

GSN ELKO CHAPTER

The GSN Elko Chapter membership meeting will be held at the Western Folklife Center, 501 Railroad St. Elko, NV. **SPEAKER: David Browning, TerraCore. Tentative Topic: Hyperspectral Imaging Advances in Mineral Exploration from Beginning to End. SPONSOR: JUST REFINERS USA.** Please contact Elko President, Ajeet Milliard Ajeet@megllc.net for more information. details on page 10.

JAN. 17, 2025 FRIDAY

GSN REGULAR MEMBERSHIP MEETING

The GSN meeting will be at the Atlantis Hotel & Casino, Reno, NV. **SPEAKER: Dr. Jim Faulds, NBMG and UNR. TITLE: "Nevada's Dynamic Geologic Journey: Living on the Edge in a Long-Lived Orogenic Belt". SPONSOR: PREMIER DRILLING.** Dinner cost is \$60 per person. Please register for dinner online or RSVP at this link: [RSVP/DINNER](#). **PLEASE RSVP BY 5PM ON MONDAY, JANUARY 13TH.** Details on page 3.

GSN JANUARY RENO MEETING SPONSOR



FROM THE PRESIDENT—JANUARY 2025

Patty Capistrant

GSN President June 1, 2024-May 31, 2025



The best part of a new year are the boundless possibilities that await us over the next 12 months: outcrops to visit, map, and sample. Unfortunately, January often greets us with snow-covered landscapes, making it less ideal for fieldwork. But it's also a time for preparation and strategic planning. Now is time to outline our plans for the year. Connect with service companies to secure their services once outcrops and drillsites become accessible; and consider working with the generous sponsor of the Geological Society of Nevada!

It is also planning season for the GSN. The year ahead presents exciting opportunities and challenges that require thought and attention. One pressing task is assembling our slate of volunteers for the Executive Committee. Several key positions will open later this year, including the Secretary and Publications Chair. Additionally, the GSN Symposium Committee is seeking volunteers to help with all aspects of the conference planning and execution. If you are interested in contributing to the GSN leadership, please reach out!

Another exciting development this year is the revival of a GSN chapter in southern Nevada, led by Elizabeth MacDonald, a geologist working in Beatty for Anglo Gold Ashanti. The chapter will host their first speaker event in February. If you're in the area, drop in and show your support. It is also worth noting that the rocks in southern Nevada are likely snow-free and ready for inspection, so it may be a good time to be down there anyway! Stay tuned for more details about the southern Nevada chapter meeting in next month's newsletter.

This month we have a fantastic lineup of speakers across our chapters:

Elko: Dave Browning, of TerraCore, will present on hyperspectral core scanning case studies throughout the Great Basin on January 16. Dave is a leading expert in the field and will offer valuable insight into this upcoming technology. More details on page 10.

Winnemucca: Kris Alarez will deliver a talk on Granite Creek, operated by i-80 Gold. Don't miss an update on this exciting project on January 9. More details on page 8.

Reno: Dr. Jim Faulds will explore the geologic history of Nevada – a topic every geologist in the state should revisit regularly. This back-to-basics talk promises to be both insightful and thought-provoking. Join us on January 17 for what is sure to be a compelling presentation. More details on page 3.

Happy New Year,

Patty



Photo from 2024 ski season, when Mt. Davidson's north aspect offered a very fluffy ski day. May the snowy days of winter come again in 2025!

GSN MEETING in RENO, NEVADA—FRIDAY, JANUARY 17, 2025

GUEST SPEAKER: Dr. Jim Faulds, Associate Director of NBMG,
Professor at UNR, and former Nevada State Geologist

TITLE: Nevada's Dynamic Geologic Journey:
Living on the Edge in a Long-Lived Orogenic Belt

Sponsor: PREMIER DRILLING

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

WHERE: Atlantis Casino & Hotel, upstairs Grand Ballrooms

meeting will be livestreamed and recorded, watch email for link

DINNER COST: \$60. RSVP /Register online no later than Monday, January 13th here: [RSVP/DINNER](#)

Abstract:

Nevada's journey through time has produced some of the most intriguing geology on Earth, with terrain rich in natural resources and replete with geologic hazards. Our current rapidly evolving landscapes reflect an active tectonic environment but also record a rich geologic history spanning more than one billion years of tectonism along the western margin of North America. The western North American plate margin originated during late Proterozoic rifting and breakup of a supercontinent, as marked by development of rift basins and local mafic volcanism. A broad late Proterozoic-Paleozoic passive continental margin developed in the wake of late Proterozoic rifting. Thick sections (commonly >10 km) of late Proterozoic to late Devonian, shallow marine miogeoclinal sedimentary strata accumulated on the continental shelf. The passive margin began to breakup in the late Devonian-early Mississippian with the onset of the Antler orogeny, whereby east-directed thrusting placed deep-water sediments over portions of the continental shelf. What followed was a long period of convergent tectonism that persisted into the early Tertiary and included both the accretion of exotic terranes and subduction of oceanic lithosphere (mainly the Farallon plate) with attendant arc volcanism. Facilitated by abundant subhorizontal discontinuities, broad fold and thrust belts developed in the thick sections of miogeoclinal sediments, eventually transforming the subdued topography of the Paleozoic continental shelf into a broad mountainous terrane, perhaps rivaling parts of the present-day Andes. Varying rates of convergence and angles of subduction affected the style and distribution of magmatism across the region. Typical intermediate composition arc magmatism was then punctuated by voluminous felsic volcanism of the poorly understood ignimbrite flareup, which swept southward across Nevada in Eocene to Miocene time and locally adorned Paleozoic shelf carbonates with large quantities of disseminated gold, thus generating the Carlin type gold deposits. Multiple calderas or super volcanoes spewed enormous amounts of ash-flow tuffs that flowed down and filled paleovalleys to the east and west from a high topographic divide in central Nevada. Some of these paleovalleys extended westward to the Pacific Ocean in what is now central California.

In mid-Tertiary time ~30 Ma, the North American and Pacific plates came into contact as the East-Pacific rise approached and much of the Farallon plate had been subducted beneath North America. Relative motions between the North American and Pacific plates induced development of a transform-plate boundary, with the right-lateral San Andreas fault accommodating the bulk of this motion. As the western Cordillera evolved from a convergent to a transform plate boundary, voluminous magmatism continued but was accompanied by major ~E-W extension across much of Nevada. Magmatism (including the ignimbrite flareup in some areas) continued and was partly induced by foundering of parts of the subducted Farallon plate and development of a slab gap, which placed relatively warm asthenosphere (previously insulated by the subducting slab) against the base of the lithosphere and triggered melting of mantle lithosphere. Extension was driven by relaxation of compressional stress coupled with gravitational collapse of overthickened crust produced by mid-Paleozoic to early Tertiary shortening. As North America continued to override more of the Farallon plate in Neogene time, the transform boundary increased in length and strike-slip deformation stepped inland, fully transferring parts of North America to the Pacific plate (e.g., Baja California) and initiating dextral shear on the east side of the Sierra Ne-

vada in the Walker Lane. As the transform boundary lengthened, volcanism eventually waned and retreated to the northwest, leaving most of Nevada devoid of volcanism since the Pliocene. Since the early Miocene, more than 400 km of right-slip have accumulated on the San Andreas fault system while parts of Nevada have extended >100%. Due to crustal extension, Nevada has been the fastest growing state for the past ~15 million years, and even today about 2 acres per year are added to the state thanks to regional extension. High geothermal gradients and abundant active normal faults resulting from regional extension bestow Nevada with huge amounts of geothermal resources, placing it at the center of one of the largest geothermal provinces on Earth.

Evolution of this long-lived plate margin is far from complete. The Walker Lane in western Nevada currently accommodates >20% of the plate motion and may one day (~7-8 million years from now) become the primary plate boundary, as evidenced by the inland stepping inclination of the San Andreas. As this occurs, the Sierra Nevada block will be transferred to the Pacific plate, and the Gulf of California may propagate northward, leaving western Nevada with ample beachfront property. The end result of Nevada's rich history is the most mountainous, fastest growing (tectonically speaking), and third most seismically active state that contains more gold, lithium, and geothermal resources than any state along with hundreds of active faults that are continually modifying and enriching our landscapes. Nevada is indeed an extraordinary place to call home.



Jim Faulds is the Associate Director of the Nevada Bureau of Mines and Geology (NBMG), and Professor at the University of Nevada, Reno (UNR), having recently stepped down as Nevada State Geologist and NBMG Director after 12 years at the helm. NBMG is a research and public service unit of UNR and is the state geological survey of Nevada. Faulds is a structural geologist with ~35 years of experience. He has been with UNR and NBMG since 1997, first as Professor and then serving as NBMG Director from 2012-2024. Prior to joining UNR, he was an Assistant Professor at the University of Iowa and held Post-Doctoral positions at both UNLV and the University of Southern California. He earned his B.S. at the University of Montana, M.S. at the University of Arizona, and Ph.D. at the University of New Mexico. He has studied crustal deformation in many parts of the world, including much of the western U.S., western Turkey, and New Zealand. His research has focused on how fault systems initiate and evolve through time. In recent years, he has been analyzing the favorable structural settings and exploration strategies of geothermal systems in the western U.S., Turkey, New Zealand, and elsewhere. His geothermal journeys have included short-term appointments with the BRGM in France and both GNS Science and the University of Canterbury in New Zealand (as an Erskine Teaching Fellow) while on sabbaticals. He has published over 100 papers and dozens of geologic maps. He has also taught courses in structural geology, tectonics, geothermal exploration, and field geology, while serving as advisor for more than 25 graduate students.

***GSN wishes to thank the DECEMBER HOLIDAY PARTY
sponsors in Reno, Elko, and Winnemucca!***



John Muntean Made Honorary Member of GSN

By Patty Capistrant

Dr. John Muntean was presented with the title of Honorary Member of the Geological Society of Nevada during the 2024 GSN Holiday Party. This recognition followed a unanimous membership vote taken from all those present. To highlight John's significant contributions to the Nevada geologic community, I've included an excerpt from the proposal submitted by Robert Selwood and Tyler Hill, who nominated him for this honor:

"During John's tenure as Associate Professor (2005-2024) and Director of the Ralph J. Roberts Center for Research in Economic Geology (2012-2023) at the University of Nevada, Reno he has authored and coauthored numerous scientific papers, geologic maps, and articles on geology of Nevada. His work, considered seminal and referenced by many, has significantly advanced our understanding of the formation controls of Carlin-type gold deposits and metallogenic history of the Great Basin.

"While John's contribution to Nevada focused scientific research is merit enough in our opinion, his greatest contribution has been his passionate teaching of UNR students, GSN members, and the wider scientific community. As an academic advisor John helped guide students through 20+ MSc and PhDs, and as a lecturer taught and inspired a generation of Nevada geologists to continue in his footsteps of exploration and research with passion. Throughout his career, John has been heavily involved with the Society of Economic Geologists, where he has been a fellow since 1989. Through SEG he has served on numerous committees, co-led field trips and short courses, edited dozens of publications, and acted as a mentor to many students and members. John has also had significant involve-

ment with GSN over the course of his career. He has co-led GSN field trips, co-authored field trip guidebooks, and published several articles in GSN symposium volumes. In his retirement, John continues to volunteer at local elementary schools, sharing his passion for geology with future generations."

Hats off to John Muntean, and we hope to see him at more than a few of the upcoming meetings this year!



John said a few words after receiving honorary member status at the GSN Holiday Party



Photo of John showing kindergarten students different rocks and minerals. Photo courtesy of Donna Muntean.

2027 GSN Symposium Update

December 2024 Update on the 2027 GSN Symposium

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

Location: The Nugget Casino, Reno, Nevada USA

Theme: *Ore Deposits of the Great Basin – Key to America's Mineral Independence*

(Jessica Bogossian winning nomination)

News of the month: Jessica Bogossian was awarded her \$200 cash prize proudly sponsored by the GSN for her winning Symposium theme nomination which was voted by GSN members. This month the Symposium Committee has opened the Logo Competition which is open until 28th February 2025 and a further online vote will be sent to all GSN members in March 2025 to vote on their favourite logo. The GSN has kindly donated a further \$200 cash prize for the logo competition winner. For those individuals with creative artistry skills, sharpen those Derwent pencils, Crayola crayons or digital design skills and think creatively about a logo aligned to the symposium theme and submit before the end of February 2025. GSN members, affiliates, friends and family members are welcome to submit their logo design.

The Symposium Steering Committee is currently filling the very important role of Symposium Treasurer, and the Committee's recommendation will be presented at the January meeting. In addition, the Steering Committee has been compiling the Sub Committee volunteers and several discussions are ongoing and will also be discussed at the January meeting. The Steering Committee is grateful to the large response received from the volunteer survey for the Sub Committee roles, this demonstrates a strong organisation to support a fun and collaborative team designing the next Symposium where all can enjoy some geology social fun.

There was no meeting held in December 2024 due to the Christmas busy period.

Next 27GSNS meeting is scheduled: Monday 13th January 2025 4.00-5.00pm. The Steering Committee is looking for an alternative rotating venue to that of the NBMG building for the monthly meetings. Facilities required include conference room with remote internet access and Zoom suitable visual-audio facilities, if you or your company would like to open your conference room for a meeting or two, please kindly contact the Symposium GSN Secretary Christine Ballard on Secretary@gsnsymposium.org

We hope everyone enjoyed their festive season and New Year celebrations and are ready for another year of professional geology adventure.

Travel safely

From the 27GSNS Symposium Steering Committee

Regina Molloy – Chairperson - chairperson@gsnsymposium.org

Mark Travis - Deputy Chairperson - depchairperson@gsnsymposium.org

Christine Ballard – Secretary - secretary@gsnsymposium.org

Treasurer – Candidate in process



2027 Symposium Update

2027 GEOLOGICAL SOCIETY OF NEVADA SYMPOSIUM

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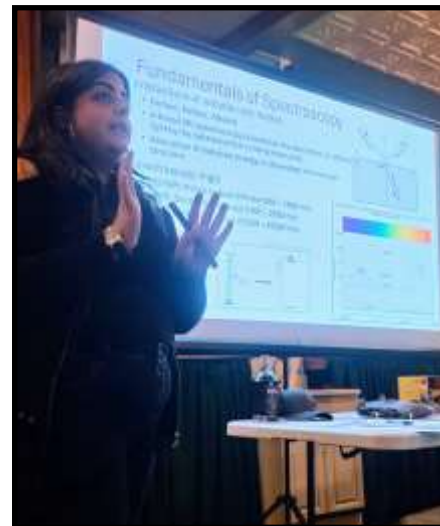
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Gsn Winnemucca CHAPTER NEWS



The Winnemucca chapter saw out the year with UNR student Pooja Sheevam speaking on "Expanding Hawaii's Geothermal Resource Characterization through Alteration Mineral Analysis of the PTA, KMA and Lanai Drill Cores, Hawaii, USA". She delivered a helpful review of elementary spectroscopy, and touched on the cultural legends tied to the Hawaiian islands, and their ties to the geological features of the present.



The yearly silent auction went well, and while the traditional "Original Sin" painting didn't make its annual appearance, the soon-to-be equally legendary "Bad Morels" artwork graciously donated by Eli Witte stood proudly in its place. The party continued well after the meeting. We had numerous sponsors, and want to thank you all. The final results of our fundraising are still pending.

next Winnemucca Chapter Meeting

Thursday, January 9, 2025

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

Food and Drinks at 6 pm; Talk at 7 pm

**Speaker: Kris Alvarez, Production Modeling Geologist,
Granite Creek Mine, i-80 Gold**

Title: The Granite Creek Mine - An Update

FOOD AND BEER SPONSOR:



***For more information, contact Winnemucca Chapter President Kris Alvarez at
kalvarez@i80gold.com or 775-621-6195***

GSN Holiday Party Pictures

From Reno, Winnemucca, and Elko, December 2024





Elko Chapter Meeting
Thursday, January 16, 2025
Western Folklife Center, 501 Railroad St., Elko, NV
Drinks and Appetizers at 6 pm; Talk at 7 pm

Speaker: Dave Browning, TerraCore

**Tentative Topic: Hyperspectral Imaging Advances in Mineral Exploration
from Beginning to End**

FOOD & DRINKS SPONSORS:



For more information, contact GSN Elko Chapter President, Ajeet Milliard, ajeet@megllc.net

THANK you

to our generous sponsors,

Boart Longyear and Legarza Exploration,
for the drinks and fabulous Basque dinner at the Holiday Party!
We GREATLY appreciate your continued support!



OTHER UPCOMING EVENTS

January 6, 2025: Denver Region Exploration Geologist' Society (DREGS) monthly meeting. Speaker and Title: TBA. Golden, CO. More information here: <https://www.dregsgeology.com/event-details/dregs-monthly-meeting-2025-01-06-18-00>

January 7, 2025 Arizona Geological Society Speaker Series 2025 in person or online. Speaker: Tawnya Wilson and Brian Gootee, Arizona Geological Survey. Title: "Arizona's Deep Subsurface: Exploring Energy Resiliency through Gas Storage, Mineral-Sequestration, and Geothermal Resources". More information and online registration here: <https://www.arizonageologicalsoc.org/event-5992112>.

January 9, 2025: GSN Winnemucca Chapter Meeting. The Martin Hotel, Winnemucca, NV.

January 16, 2025: GSN Elko Chapter Meeting. Western Folklife Center, Elko, NV.

January 19-20, 2025: Vancouver Resource Investment Conference. Vancouver, BC. More information here: <https://cambridgehouse.com/vancouver-resource-investment-conference>

January 20-23, 2025: Association for Mineral Exploration Annual Roundup Conference. Vancouver, BC. More information here: <https://roundup.amebc.ca/>

January 27-30, 2025: Nevada Water Resources Association (NWRA) Annual Conference. Nugget Casino Resort, Reno, NV. More information here: <https://www.nvwra.org/2025-annual-conference-week>

More Pictures from the GSN Holiday Parties December 2024





NEWS FROM THE FOUNDATION

January, 2025

Bob Felder



The annual holiday party and fundraiser was a huge success and a good time was had by all. Feedback on our move to the Atlantis was also very positive! The Foundation would like to extend its sincere thanks to all the volunteers who worked so hard to make it a success and to our sponsors, **Envirotech Drilling**, for hosting the bar, to **Legacy Drilling** for sponsoring the carving station, to **Neilsen Exploration** and **Miner's Lunchbox** for donating live auction items. We also greatly appreciate Doug Hensen and Carol Flores at **Paragon Geochemical** for being the drop-off and storage location for all of our donations! Many thanks also to our membership for their many generous donations to the silent auction and raffle. And last but not least, to all the people who attended the party, purchased raffle tickets, and bid on the silent and live auction items. We could not do this without all of your support and generosity and we are deeply grateful to all.

This year we raised \$26,274!!!

Our generous donors:

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Stay tuned for announcements in the February Newsletter about our 2025 scholarship opportunities.

The mission of the GSN Foundation is to provide funding for the Geological Society of Nevada's philanthropic contributions around Nevada. This work is not possible without the donations GSNF receives throughout the year, during the holiday party fundraiser and from generous donations from our members. Thank you!!

Mining Activity Update

NOVEMBER 2024, Mike Brady

LMBrady@aol.com

NEVADA

Barrick Gold Corp. announced that the Four-mile Project now aggregates 3,600,000 tonnes @ 11.76 gpt Au indicated and 14,000,000 tonnes @ 14.1 gpt Au inferred. (was 1,500,000 tonnes @ 10.04 gpt Au indicated and 8,200,000 tonnes @ 10.1 gpt Au inferred) Press Release: November 22

Orla Mining Ltd. announced that recent drill results at the South Railroad/Dark Star Project include 192.02-237.74 meters @ 0.67 gpt Au (DS24-1); 201.17-220.98 meters @ 0.77 gpt Au (DS24-3); 121.92-138.68 meters @ 0.38 gpt Au (DS24-4) and 150.88-163.07 meters @ 0.28 gpt Au (DS24-5). (resource = 32,717,000 tonnes @ 0.88 gpt Au measured+indicated) Press Release: October 31

Orla Mining Ltd. announced that recent drill results at the South Railroad/Pinon Project include 76.2-113.84 meters @ 1.15 gpt Au (PC24-1) and 80.77-97.54 meters @ 0.32 gpt Au (PC24-2). (resource = 28,925,000 tonnes @ 0.58 gpt Au measured+indicated) Press Release: October 31

Western Exploration Inc. announced that recent drill results at the Gravel Creek Project include 645.27-647.25 meters @ 4.98 gpt Au, 206.6 gpt Ag (WGC458); 543.89-547.58 meters @ 16.66 gpt Au, 458.6 gpt Ag (WGC459) and 313.03-314.07 meters @ 12.34 gpt Au, 372.2 gpt Ag (WGC460). (resource = 1,315,000 tonnes @ 4.73 gpt Au, 75 gpt Ag indicated) Press Release: November 11

Ridgeline Minerals Corp. announced that recent drill results at the Swift Project include 676.3-677.4 meters @ 10.4 gpt Au (SW24-6). Press Release: November 7

Fortitude Gold Corp. announced that recent drill results at the County Line Project include 0-9.75 meters @ 0.76 gpt Au (CLSN24-1); 0-9.22 meters @ 0.63 gpt Au (CLSN24-2); 0-11.73 meters @ 0.81 gpt Au (CLSN24-4) and 0.76-17.53 meters @ 0.83 gpt Au (CLSN24-5). (resource = 1,202,500 tonnes @ 0.97 gpt Au measured+indicated) Press Release: November 13

Sun Silver Ltd. announced that recent drill

results at the Maverick Springs Project include 248.41-298.7 meters @ 43.9 gpt Ag, 0.31 gpt Au (MR24-198). (resource = 195,735,000 tonnes @ 40.2 gpt Ag, 0.32 gpt Au inferred) Press Release: November 19

Blackrock Silver Corp. announced that recent drill results at the Tonopah West Project include 367.3-369.3 meters @ 174 gpt Ag, 084 gpt Au (TXC24-80); 181.5-183.5 meters @ 131.9 gpt Ag, 1.50 gpt Au (TXC24-81); 257.9-260.0 meters @ 102 gpt Ag, 1.04 gpt Au (TXC24-84) and 249.5-252.1 meters @ 32.1 gpt Ag, 2.74 gpt Au (TXC24-85). (resource = 6,119,000 tonnes @ 2.9 gpt Au, 242.6 gpt Ag inferred) Press Release: November 21

Nevada Lithium Resources Inc. announced that based on recent drill results at the Bonnie Claire Project, resources aggregate 275,850,000 tonnes @ 0.352% Li, 0.84% B indicated and 1,561,060,000 tonnes @ 0.308% Li inferred. (was 3,047,000,000 tonnes @ 0.217% Li₂O inferred) Press Release: November 12

GMV Minerals Inc. announced that recent drill results at the Daisy Project include 76.2-109.7 meters @ 0.108% Li (DC24-1); 100.6-112.8 meters @ 0.077% Li (DC24-2) and 54.9-61.0 meters @ 0.068% Li (DC24-3). Press Release: November 15

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Big Sky Geophysics

Clark Jorgensen, M.Sc.
Geophysicist

*Field Work
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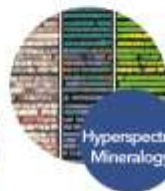
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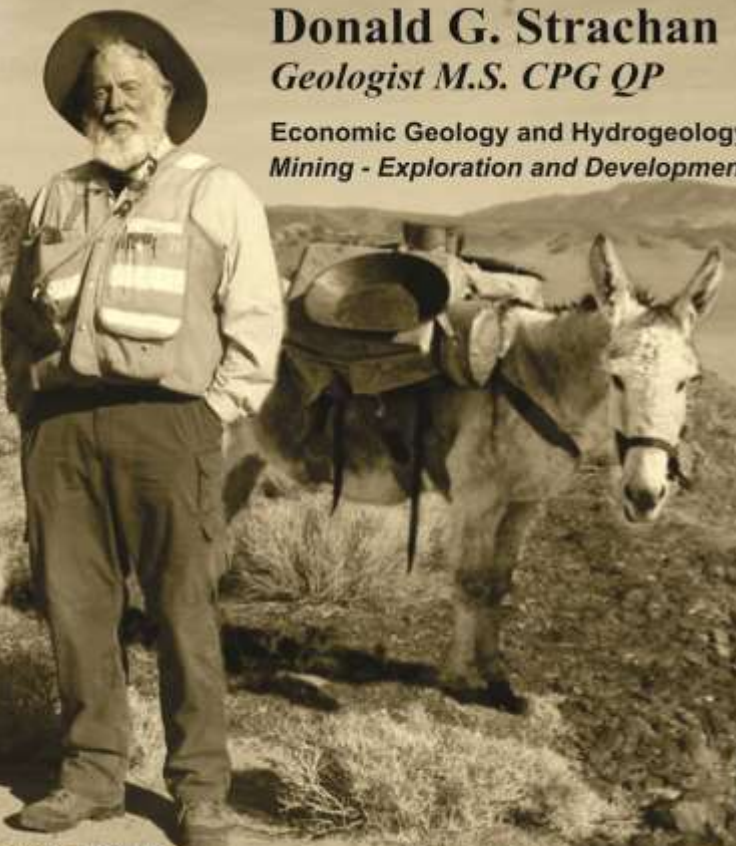
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