

GEOLOGICAL SOCIETY OF NEVADA NEWSLETTER

Geological Society of Nevada, 2175 Raggio Parkway, Room 107, Reno, NV 89512
(775) 323-3500 - Hours Tuesday -- Friday, 8 a.m. to 3 p.m. Monday by appointment.
Website: www.gsnv.org • E-mail: gsn@gsnv.org



August 2013, Vol. 29, No. 6

Published monthly except June and July

CALENDAR OF GSN EVENTS

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Aug 8, 2013
Thursday

11TH ANNUAL "SILVER" SUMMER SERIES BBQ REVIVAL

Special Guest Speakers: Brent Cook, Exploration Insights and Paul van Eeden, Cranberry Capital. Dan Kappes's home, 13045 Welcome Way, Reno, NV. 6:00 PM Drinks, 6:30 PM BBQ, 7:00 PM informal talk. **Sponsors for the evening are Kappes Cassidy & Associates; Mine Development Associates and MRC Corporation.** BBQ meat and drinks will be provided. Please bring a side dish, salad or dessert to share! Also bring your own lawn chair. RSVP by August 5th to Laura Ruud, gsn@gsnv.org or 775-323-3500. Details on page 3.

Aug 9, 2013
Friday

WINNEMUCCA CHAPTER SUMMER BBQ

The BBQ will be held at the Vesco City Park, Mizpah and Haskell St., Winnemucca. 5:00 to 8:00 PM. BBQ catered by "Shredzz". **Food & Drinks Sponsored by ALS Minerals.** Contact Andy Jansen at andy.jansen@newmont.com for more information. Details on page 10.

Aug 15, 2013
Thursday

ELKO CHAPTER SUMMER BBQ

The monthly BBQ will be held at the Duncan Little Creek Gallery Bar Backyard, 518 Commercial St. BBQ begins at 6:00 p.m. **Food & Drinks Sponsored by ALS Minerals.** For more info. contact Josh Sovie, jsovie@barrick.com. Details on page 10.

Sept 20, 2013
Friday

GSN MEMBERSHIP MEETING (Every 3rd Friday of the month)

The monthly meeting will be held at the Reno Elks Lodge, 597 Kumble, Reno. Drinks at 6:00 PM, Dinner at 7:00 PM, Talk at 8:00 PM. **Tentative Speaker: Joaquin Ruiz, Univ. of AZ. Sponsor for the evening is: Boart Longyear.** Dinner reservations must be made by NOON Thurs., Sept 19th. Call Laura Ruud at (775) 323-3500; or email: gsn@gsnv.org. **DINNER \$25.00.**

Oct 5-6, 2013
Sat & Sun

GSN FALL FIELD TRIP

Round Mountain and the Lunar Crater Volcanic Field. Contact Laura Ruud at the GSN office for more information at gsn@gsnv.org or call 775-323-3500. Details on page 6 and registration on page 7.



**MINE DEVELOPMENT
ASSOCIATES**



FROM THE PRESIDENT
Tommy Thompson, G.S.N. President 2013-2014

Greetings, Fellow GSN Members and welcome to another exciting year of GSN activities.

I encourage all of you to attend the Reno “Silver” Summer BBQ on 8 August where our tradition is renewed after a 1-year hiatus with guest analyst speakers Brent Cook and Paul van Eeden. Laura Ruud reminded me that being GSN President requires a monthly commentary for the Newsletter, something that past-Presidents have considered the most demanding effort during their tenure in the office.

My Summer field season has renewed the “living out of a suitcase” experience with consulting and visits to sites where I have graduate students working on thesis projects, including the Vista vein underground system at Twin Creeks mine, Peñasquito mine in Zacatecas, Mexico, and Beartrack near Salmon, Idaho. Airline and field vehicle miles continue to pile up.

I’ve noticed over the last 10+ years that geologic mapping at operating mines is not being done. Sketches and/or photographs from a distance are all that are available. In most cases rock-bolted screen and shotcrete prevent *real* data collection. As a result structural information (*i.e.* kinematic data) is not recorded. I realize mine safety is critical, but geologic information is lost. As a mine geologist more than 25 years ago I went to the mine face every morning and did detailed drawings (to scale)



of mineral bands, contacts, and all structural information (joints, slickenlines, *etc.*). As an educator I want my students to be able to collect the same kind of information, but it is seldom possible. Can we make changes to mine management that allow for detailed studies of ore systems....again??

Part of my responsibility this coming year is to arrange for the presentations at our monthly meetings. I welcome suggestions from all of you. We will again have some student poster sessions and, possibly, dual presentations of thesis projects late in the Spring as graduate students are finishing their research. I do have the September and October speakers already committed.

Thanks to HARRIS EXPLORATION DRILLING & ASSOCIATES
For Hosting the May 17, 2013 Meeting!

GSN August 8, 2013 "Silver" Summer Series BBQ

11th Annual "Silver" Summer Series BBQ with Guest Speakers:

K. Brent Cook, **Author of Exploration Insights - Title: "Turning Rocks into Money, not so easy"**
and Paul van Eeden, **Cranberry Capital, Inc.—Title: "Observations on the Gold Price"**

Date/Time: Thursday, August 8th—Drinks @ 6:00 p.m., BBQ/Potluck Dinner @ 6:30 p.m., Talk @ 7:00 p.m.

Where: Dan Kappes's Home, 13045 Welcome Way, Reno, Nevada

DIRECTIONS TO DAN'S HOUSE (Please Carpool if you CAN!):

Take U.S. 395 to Damonte Ranch Exit. Head west on Arrow Creek Parkway, turn right (north) on Thomas Creek Rd. Turn right on Welcome Way at the 4-way stop sign. Dan's house is downhill from the corner, the first house on the left (except for the corner house) 13045 Welcome Way. Call if you get lost – Dan's Cell phone is: 775-848-1981 and home phone: 775-622-1117.

Things to Bring Along: A Side Dish or Dessert to share and a Lawn Chair!
James Sanwick with MRC will be providing some really good Scotch to share too!

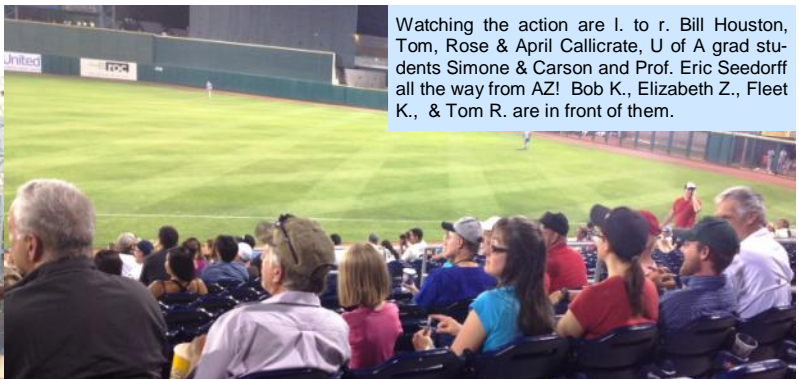
2nd Annual GSN Reno Aces Night: Hit it Out of the Park July 20th!



80 GSN members and friends turned out for the 2nd Annual GSN Night at the Reno Aces game on July 20, 2013. The Aces played the Las Vegas 51s in downtown Reno on a very warm Saturday evening. It was an exciting game taking 12 innings to decide the winner—the RENO ACES!! The fans enjoyed hot dogs, BBQ chicken and beverages prior to the game at "Baseball Mountain". The weather was hot but perfect for an evening of baseball in Reno. The drilling company **National EWP** sponsored the event again this year. Thanks to everyone at **National**, especially Jim Bruneio, Brian Johnson, James Stephens and Rhonda Shelton for making the trip to Reno to attend the game with us and for running a tab for our group. National provided financial support for the food and game tickets too. This event would not be possible without their generosity.



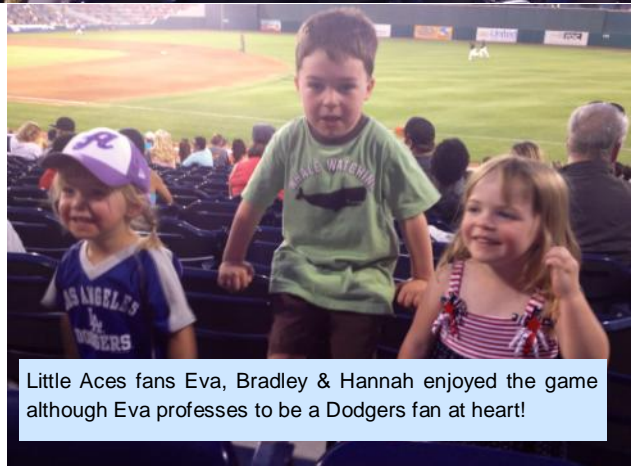
Rhonda Shelton & James Stephens, reps of our sponsor, National EWP, hanging out at the Aces Game with Patrick, Sandra and Kevin Kunkel.



Watching the action are l. to r. Bill Houston, Tom, Rose & April Callicrate, U of A grad students Simone & Carson and Prof. Eric Seedorff all the way from AZ! Bob K., Elizabeth Z., Fleet K., & Tom R. are in front of them.

A highlight of the evening was when GSN member Kevin Kunkel's son, Patrick got to throw out the first pitch at the game because it was his birthday. Way to go Patrick!

Thanks to everyone who came out to the ballpark and I hope we can do it again next summer!



Little Aces fans Eva, Bradley & Hannah enjoyed the game although Eva professes to be a Dodgers fan at heart!

"FACES OF GSN"

DEL FLINT, LIFETIME HONORARY MEMBER

"Faces of GSN" for the month of August features Del Flint. Del is a GSN Honorary Lifetime Member and has had a lengthy and fascinating career. Del's early years and education were in Pasadena, California. Following graduation, his career took him all over the U.S., he served in World War II and then worked in the foreign exploration fields of Okinawa and Cuba. Prior to taking a position in India, he had second thoughts and interviewed with Freeport Sulphur Company. This decision to work for Freeport ultimately led to Del's work with the Ertsberg copper deposit, one of the world's largest copper findings. After his work at Ertsberg and prior to retirement, Del worked in Australia, China, Egypt and the Sinai Peninsula. The Flints were transferred to Reno from New Orleans in 1975. From Reno, Del worked on a variety of projects until his retirement in 1995. What follows is Del's story, penned in his own words and filled with his wit and character.

DEL FLINT'S STORY by Del Flint

I was born and grew up in Pasadena, California, the home of the Tournament of Roses and Caltech, and I benefited from both. I regularly watched the parade and worked parking cars at the football game. I graduated from Pasadena High School in 1935 and entered Caltech as a freshman, living at home.

Caltech was an eye-opener for me. I had sailed through school without really working, but with teachers that required homework. The professors at Caltech took it for granted that you would do the homework. If you didn't, and you didn't learn the subject, they would simply fail you. It was your time, your money, and if you didn't study, it was your failure. I didn't take advantage of the instruction, and didn't do homework, and as a result, never felt at home with calculus. I didn't flunk the course, but I was convinced that the life in nuclear physics that I had hoped for at Caltech was not for me. Since I couldn't hack physics as a major, I decided I should be a civil engineer. I soon found out that I didn't enjoy spending my time over a drawing board, and looked around for a different major. Caltech requires that every student take a short course in geology, and I loved it. So I changed my major again, and took geology as my major. I've never been sorry.

I graduated from Caltech in 1939 and got an assistantship at Northwestern University in Evanston, Illinois. I had a teaching assistantship for 2 years at Northwestern. I did well at Northwestern and took a competitive exam for employment with the USGS, and got a summer job with the Survey, assisting Eddie Goddard in mapping the Judith Mountains of central Montana. At the end of the summer I was offered a full-time job for the winter, working in the Stillwater Complex in southern Montana. I had been scrimping and saving and living on almost nothing for 2 years, and the prospect of a paycheck was attractive. I took the job and planned to return to academe later – which I never did.

I worked in the Stillwater Complex for the next year and a half, and then went to Camaguey, Cuba, to study the chromite deposits of central Cuba. Jesus de Albear and I worked in Camaguey and Phil Guild worked in Oriente. When the Navy took care of the German U-boats, chromite was no longer a strategic mineral; it could be imported. And I was drafted.

After boot camp at Fort Bragg, North Carolina, and officer's training at Fort Sill in Oklahoma, I went to Japan as part of the Army of Occupation. We were in San Francisco awaiting shipment to the Orient on V-J day – it was a memorable evening.

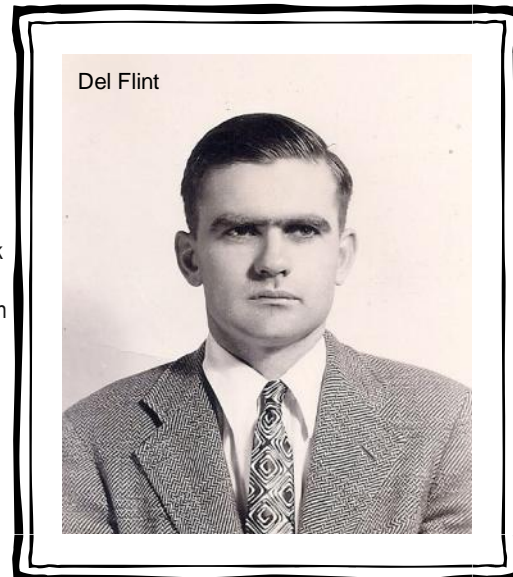
When I arrived in Japan, I was assigned to a field artillery battalion that was utilized as a unit of military police in Nagoya. I was able, however, to transfer to the Corps of Engineers in Tokyo, and was sent to Okinawa as part of a team mapping the geology of that island. After completing Okinawa we made a recon of the other islands south of Japan and north of Taiwan. I came back to the US in 1948, and worked to put our mapping into forms which would be useful to the Army.

Frances McCormick graduated from Mount Holyoke and was working in the geology department of Wesleyan University. She got a summer job with Military Geology in the USGS. I met her, wooed her, and married her on July 8, 1950. 5 children later, we're still married. After marriage she worked in the Survey until our first child was born. Since then, she has a full time job as mother of 5 children.

When all of our Okinawan work was completed, I returned to the Foreign Geology branch and was sent back to Cuba to head a Point Four project. The Point 4 was under the aegis of the State Department, who furnished the funds, and we had State Department status. When things began to get sticky in Cuba with Castro in the hills and general uncertainty, we left Cuba. I was offered a Point 4 job in India, and was expecting to go there, when we got a position report on India. It said that a family should expect at least one serious infection, and I couldn't see subjecting my family to that. So I quit the survey and took a job with Freeport Sulphur Company. We moved to New Orleans in 1957.

After spending a week working in various jobs with sulphur production, I left Fran in New Orleans and went to Minatitlan on the Isthmus of Tehuantepec in Mexico. There were sulphur mines in the area, and Freeport hoped to find another deposit, but we had no success.

Freeport Sulphur Company depended on sulphur to keep the company profitable, and tried to keep up with sulphur production worldwide. Forbes Wilson, a vice president of Freeport, asked me to accompany him to Sicily and Spain. Native sulphur is not the only source of sulphur for sulphuric acid; sulphide ores can also be utilized in acid production. We visited the abandoned mines on some of the small volcanic deposits of Sicily, and went on to Spain to visit the Rio Tinto sulphide mines and the mercury mines at Almaden, both of which had been worked since Roman and Phoenician times. (cont. pg. 5)



(Del Flint cont. from pg. 4)

Freeport was invited by the Polish government to evaluate the Polish work delineating their newly discovered native sulphur deposits. Dr. Pawlowski and his wife had prepared a study of their deposits that was thorough, complete, and luxurious. (It was the only time that I have ever seen drill logs presented separately in leather binders.) The Pawlowskis had proved large reserves in several deposits which cropped out near the town of Tamowbrzeg.

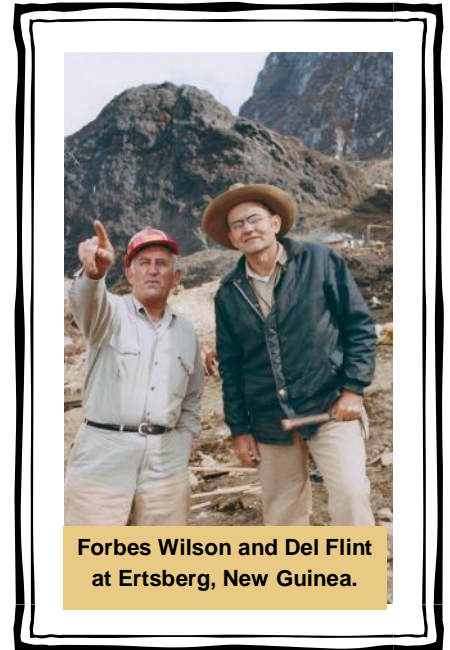
In 1960, we worked with OBM (Oost Borneo Maatschappij) to evaluate an outcropping of iron and copper ores located in the interior of New Guinea that had been reported by a mountaineering Dutch group. Jacques Dozy, an oil geologist who was part of the group, collected two small grab samples. It was interesting to him, but too remote to be important. He mentioned the deposit in a publication that came out just before Holland was overrun by the Germans.

We didn't have access to helicopters when we went in the first time. Our trip was made possible by Guru Moses, a native of Kelangin, (a tiny mountain village). He had been educated in a church school and was working with the highland natives. We crossed the coastal swamps with canoes and walked into the mountains. We had air drops of supplies. It was a trip into the Stone Age. The natives didn't have metals, or pottery. They could not boil water, and they would carry a load three days for a metal axe head. They had primitive kits to start fires by friction, and could start fires in the wet jungle faster than we could with matches and kerosene. We got to the Ertsberg, the outcrop that Dozy had mentioned, and it was all one could hope for. It was a huge mass of magnetite and chalcopyrite skarn. We cut samples from the surface of the ore body and took samples of the float around the edges of the deposit. When I returned to the United States after our expedition, I had a resistant form of malaria, which I was able to cure, but it took a year.

Our agreement was with the Dutch government, who still controlled the easternmost islands of their colonial holdings. When the rest of the Dutch holdings were granted to the government of Indonesia, we were able to talk to them. The representatives of the Sukarno government wouldn't answer. We could do nothing more, so we shelved the project.

My first experience in the Canadian Precambrian was a project at Romanet Lake in Quebec. Camp was established on the shore of the lake, and it was early enough in the spring that biting flies weren't out yet. There were nonbiting flies that got into your nose and your eyes but they didn't bite. We had been in the camp a couple of days when we got company. An airplane with a canoe strapped under the wing landed on the lake, carrying a field party from Homestake Mining Company. The party was headed by John Livermore.

We entered a joint venture with Bethlehem Steel Company, looking for massive sulphide deposits in the Canadian Shield. We found a deposit at Reed Lake, which wasn't large enough for us to develop, so it was sold to the Canadian company operating mines in the area. Freeport (cont. pg. 16)



Forbes Wilson and Del Flint at Ertsberg, New Guinea.

NEW HOURS OF OPERATION!!

**THE N.B.M.G. PUBLICATION SALES
AND INFORMATION OFFICE**

**HAS REDUCED THEIR HOURS DUE TO
BUDGET CUTS.**

NEW OFFICE HOURS ARE

TUESDAY-FRIDAY

8 AM TO 3 PM

CLOSED ON MONDAYS.

**LAURA WILL BE WORKING HER NORMAL HOURS BUT IF
THE BUILDING IS CLOSED PLEASE CALL HER TO MAKE
ARRANGEMENTS TO LET YOU IN. 775-323-3500.**

*Thank you to our
generous donors in May,
June and July!!*

G.S.N. FOUNDATION

Gold Sponsor

Fred Holabird

Silver Sponsor

Sandra Wyld

STUDENT DINNER FUND

Harmony Warren

STUDENT FIELD TRIP FUND

**George Kendrick
Tony Lomando**

U of Arizona Alumni Reunion

Plans are underway to hold a U of Arizona alumni reunion in Reno with Joaquin Ruiz, Dean of the College of Science at the U of AZ in September. We would like to invite all Arizona alumni and friends of Dr. Ruiz in the Great Basin to attend the reunion. Please contact Dieter Krewedl at dkrewedl@gmail.com for more information.

(This is tentative dependant on Dr. Ruiz confirming as the GSN's September speaker.)



G.S.N. FALL 2013 FIELD TRIP

Round Mountain and the Lunar Crater Volcanic Field

Geological Society of Nevada (GSN)

Fall 2013 Field Trip

Saturday, October 5, and Sunday, October 6, 2013

Field Trip Leaders:

Jon Price, Jonathan G. Price, LLC

Terry Jennings, Kinross Gold Corporation

Dave Boden, Truckee Meadows Comm. College

Trip Overview

This two-day trip will take you to Quaternary, Miocene, and Oligocene volcanoes; let you sample the Earth's mantle; and expose you to the two major types of hydrothermal alteration associated with epithermal gold deposits – quartz-adularia (low-sulfidation) and quartz-alunite (high-sulfidation; acid-sulfate). Starting at the GSN/NBMG office in Reno Saturday morning, on acid-sulfate altered andesite, we'll head directly to tours of the Round Mountain and Gold Hill mines, spend the night at the historic Mizpah Hotel in Tonopah, and have a blast collecting bombs and large crystals from Easy Chair crater in the Lunar Crater volcanic field before returning to Reno by dinnertime on Sunday. **REGISTRATION FORM ON PG. 7!**

JUST WHEN YOU THOUGHT IT WOULD LAST FOREVER ...

SUMMER'S ALMOST OVER!

AAAAACK... ¡TEQUILA!

Remarkable bird, the Norwegian Blue... beautiful plumage!

¡CERVEZA! NECESITO UNA CERVEZA FRIA ... Y ORO ... ¿DONDE ESTÁ ORO?

CLANCY'S GUIDE TO SONORA & THE BAJA

SPANISH FOR THE EXPLORATION GEOLOGIST

Come on back and swap snake stories with your friends at GSN!
Tell tall tales of tequila reveries!
Compare records on sock longevity!
Compare cholla scars!

It just doesn't get much better than this!

**COME TO THE FIRST FALL MEETING AND LIVE THE EXCITEMENT!
SEE YOU THERE FRIDAY, SEPTEMBER 20. HAVE YOUR DUES READY!**

JUST FOR FUN!!

Many of you old-timers (including me) remember the years that GSN ran cartoons drawn by long-time member, Peg O'Malley. The newer members (since 1996?) haven't seen these before so the Executive Committee thought it would be fun to revive some of her work. Thanks Peg!!



Geological Society of Nevada (GSN) Fall 2013 Field Trip
Saturday, October 5, and Sunday, October 6, 2013

Round Mountain and the Lunar Crater Volcanic Field

Field Trip Leaders: Jon Price, Jonathan G. Price, LLC
Terry Jennings, Kinross Gold Corporation
and Dave Boden, Truckee Meadows Community College

Saturday, October 5th:

Depart Reno @ 7:00 a.m. for Round Mountain & Gold Hill Mine Tours.
Sack Lunch Provided.
Dinner and Overnight at the Mizpah Hotel, Tonopah, Nevada.

Sunday, October 6th:

Breakfast on your own
Depart the Mizpah Hotel @ 8:00 a.m. for Lunar Crater Volcanic Field.
Sack Lunch Provided
Return to Reno @ ~ 6:30 p.m.



FALL 2013 Field Trip Registration

Name: _____

Company: _____

Address: _____

Cell Phone #: _____

Email: _____

Person to contact in case of emergency:

Name: _____

Phone: _____

Lodging: Single _____ Double _____

Double roommate: _____

*Non-members are encouraged to become members of the GSN for \$50 annual dues in order to take advantage of the reduced rate.

MEMBER COSTS:	Double Room (Limited #)	\$245.00
	Single Room	\$275.00
	Room Not Required	\$155.00

*NON-MEMBER COSTS:	Double Room (Limited #)	\$295.00
	Single Room	\$325.00
	Room Not Required	\$200.00

Amount included with this form: \$ _____

Paid with Check Number: _____

Credit Card # _____

Visa: MasterCard: Expiration date: _____

3-digit security code (back of credit card): _____

Signature: _____

(as it appears on card)

Payments must be made by September 25, 2013
No Refunds after September 25, 2013

Fax form to: (775) 323-3599 or mail to GSN office:
2175 Raggio Pkwy, Reno, NV 89512 or email to gsn@gsnv.org

NEWS FROM THE GSN FOUNDATION

Having just completed FY 2012-2013 it seems timely for an overview of the Foundation's activities last year and events this summer. Again the membership stepped up to the plate both with contributions and participation at the Christmas event, in addition to several sizable one-time donations. Our treasury is currently about \$500,000. The goal at the inception of the Foundation was to build an endowment that could earn sufficient income from investments that the organization would be self-supporting. Given the current interest rate environment this is not possible. Our plan is therefore to continue to seek contributions to support current activities while having sufficient funds available that when special opportunities are identified we can participate.

During the past year we continue to contribute to the UNR Earth Sciences scholarship endowment and have developed a program to assist the Elko Chapter in providing a scholarship at Great Basin College. We are also working with the Nevada Bureau of Mines and Geology to supply funding to aid in publishing Nevada geology maps. The Flowery Peak quadrangle (just east of Virginia City) is nearing completion in part with funding from the Foundation.

About \$12,000 was allocated to the K-12 Field Trip Grant program. These grants pay for transportation for teachers to take students on earth science related field trips. This year we reached about 2,300 students in Washoe, Clark, and Lyon counties.

Goldcorp provided the Foundation with a generous donation of \$5,000 to increase the funding for UNR Geology Field Camp scholarships. This allowed the Foundation to award six \$2,000 scholarships, which represents about half of the tuition for the course. The recipients were Murya Dube, Austin Smith, Andrew Durham, Andrea Troiano, Kenneth Coleman, and Tom McDonald. They are all geology majors and attended the UNR Field Camp.

Two GSN Foundation scholarships will be awarded to geology undergraduates at UNR this coming school year. The recipients are Nathan Bricker and William Fisher IV. Nate is from Santa Rosa, CA and was attracted to UNR by the geology program. He plans to seek a position in mineral exploration upon graduation. William is from Los Angeles and is interested in continuing his education at the master's level after graduation.

The Foundation matched funds raised by the Elko Chapter to award a \$2,000 scholarship for the coming year at Great Basin College to Nellie-Ann Robinson.

An opportunity that is beyond our normal outreach was present this spring and since we had the funds the Foundation Board decided to support this one time program. The Mackay School of Earth Sciences and Engineering recently acquired the Stanford Ore Collection which is a significant collection of tens of thousands of samples from ore deposits throughout the world. These specimens are available for teaching and research. When the collection was received it was indexed on cards. Christina Roberts (a UNR geology student) was available this summer to create a digital index, but there was no funding to pay her. The Foundation supplied the funding and when completed the index will be publically available through the Nevada Bureau of Mines and Geology, and the Keck Museum websites. The collection is managed by the W.M. Keck Earth Science and Mineral Engineering Museum.

FY2013-14 is off to a great start. Thanks to all the golfers and Inspectorate America Corporation this year's tournament raised \$3,190 through the sale of mulligans and raffle tickets, which is a record for the event.

I sincerely thank the membership and friends of the Foundation for their continued support of our organization.

Roger C. Steininger
Chair GSN Foundation



GSN Spring 2013 Field Trip Wrap-Up

On May 5 and 6, 2013 GSN completed a great field trip touring Marigold Mining/Goldcorp's operations and Premier Gold's Cove Project. We want to thank the leaders at Marigold, Jim Carver & Perseo Anaya for great talks and tour, and especially for the tables and chairs at the lunch stop so we didn't have to sit on the ground! Thanks also to Warren Thompson, Chad Peters and Mia Cowgill for the informative talk and the tour of the Cove Project.

Our sponsors for the field trip, [ALS Minerals](#), [American Assay Laboratories](#), [American Mining & Tunneling](#), [Boart Longyear](#), [National EWP](#), [Mine Development Associates](#) and [West-Core Drilling](#) are greatly appreciated by everyone who participated.. The trip was much more fun with your generous support of food and drink! We also want to thank [Joe Laravie](#) for providing all of the GIS maps for this guidebook. Check out Joe's website www.greatbasingis.com.



Marigold Mining/Goldcorp Tour, GSN Spring Field Trip 2013.

Front Row: Scot Russell, Randy Henkle, Fred Zoerner, Larie Richardson, Mia Cowgill, Catherine Lee, Sergio Pastor, Abigail Stephens, Jenna Russell, Laura Ellis, Tim Jefferson, Ron Fenlon. 2nd Row: Bus driver Reggie, Gary Thomson (Marigold geotech), Perseo Anaya, Bryan Kellie, Cindy Howald, Alan Wright, Geof Messchaert, Joe Laravie, Dave Shaddrick, JoAnn Newbury, Christine Ballard, Rob Edie, Earl Abbott, Jason Gross, Dave Lawry, John Hoskins. 3rd Row: Garry, Richardson, Scott Richardson, Tom Gesick, Tommy Thompson, Bob Kellie, Jim Brunejo, Rick Redfern, Brian Johnson, Laura Ruud, Bob Kastelic. Back Row: Bill Howald, Robbie Anderson, Kyle Larson, Tom Callicrate, Andy Armstrong, Stefan Syts, Neil Whitmer, Michael Harp, Doug McGibbon, Chad Peters, Greg Eisen (Marigold), Nancy Wolferson.



Gold Standard Ventures geologists Michael Harp, & Rob Edie, and their NV Land Manager Neil Whitmer, take a look at the Cove Project core while Chad Peters, geologist for Premier stands by to answer questions..



Geologic overview at the Cove Pit presented by Warren Thompson, Premier Gold's Nevada Exploration Manager.



**G.S.N. WINNEMUCCA CHAPTER
SUMMER BBQ**

**FRIDAY, August 9, 2013
5:00 p.m.—8:00 p.m.**

Come meet the New officers and get
reacquainted with old friends.

Location: Vesco City Park, Winnemucca
(Mizpah St. and Haskell)

Food and Drinks Sponsored by:



**G.S.N. ELKO CHAPTER
AUGUST BBQ**

**Thursday, August 15, 2013
6:00 p.m.—9:00 p.m.**

**Duncan Little Creek Gallery Bar
Backyard
518 Commercial Street**

Food and Drinks Sponsored by:



**ELKO CHAPTER
JUNE 2013 MEETING SPONSOR**

**ELKO CHAPTER
JULY 2013 SUMMER BBQ SPONSOR**



INSPECTORATE

**Thanks to
Inspectorate America Corp.
for sponsoring the
Winnemucca Chapter
meeting in May!**

**Thanks to
Major Drilling
for sponsoring the
Elko Chapter meeting in May!**



TONOPAH MINING PARK

The Tonopah Historic Mining Park (THMP) is located on the site of the original mining claims that started the rush to [Tonopah](#), making it "Queen of the Silver Camps". Jim and Belle Butler's strike in 1900 helped to put Tonopah on the map, and many of the mining processing techniques developed during that time are still being used today.

The park covers more than 100 acres, and its rich history is brought to life through preserved and restored equipment and buildings, historic exhibits, video presentations (in our on-site theater), and a self-guided tour. All of the buildings located on the property are open for visitors to enjoy.

The Mining Park is one of the best mining exhibits in the West, and is a "must-see" in Tonopah, Nevada. John Livermore supported the Mining Park, and through his Public Resource Associates, provided the Mining Park's seed money. John's support—part of his commitment to preservation—is but one of his lasting legacies here in Nevada. John served on the Board of the THMP, and is one of the first members of the THMP "Friends of the Park".

The THMP has commissioned a spectacular two ounce silver medallion commemorating the life and achievements of our friend John Livermore (1918-2013). This medallion is made in two forms: 1) a silver piece with proof, reflective flat surfaces and frosted raised surfaces and 2) the same coin with 24kt gold plating of the frosted relief, inclusive of the border.

The Livermore medallion at two ounces is twice the size of the normal silver medallion—twice the size to reflect John's larger than life achievements, including "Father of Modern Nevada Gold Boom". Proceeds from the sale of the medallions, along with donations to the THMP will go into our 501c3 endowment fund.

As co-discoverer of the Carlin Trend with Alan Coope, John introduced a new generation of mining geologists to the world of microscopic gold deposits. A field geologist at heart, John remained true to his calling his entire life, easily turning down high-level management jobs that put him at a desk, instead opting for work that kept him in the field. John's accomplishments are known to all western mining geologists and mining engineers, influencing geologists world-wide. His geologic work leading to the discovery of the Carlin trend and other major gold-bearing lineaments led to the discovery and production of more than 100 million ounces of gold in Nevada.

The Tonopah Historic Mining Park is proud to have received many "Best of Nevada" Readers' Awards from Nevada Magazine. Thanks to those readers, we were named "Best Museum in Rural Nevada" for six consecutive years, 2002

through 2007. We were also the recipient of the 2003 and 2004 Governor's Award for Tourism Development. The grounds are constantly changing. New exhibits are added frequently and restoration of existing buildings is ongoing. Your membership fees and donations go directly toward expanding our collections and improving the Park and our visitors' experiences. Please contact me at ann.carpenter57@gmail.com or 775-240-2477c to find out more about membership and donation-sponsorship opportunities. For those interested in purchasing medallions, please make checks payable to Tonopah Historical Mining Park & mail to: Fred Holabird, 3555 Airway Drive #308, Reno, NV 89511.

Ann Carpenter
Board Member, Tonopah Historic Mining Park



NEVADA MINERAL EXPLORATION COALITION

The "Voice" of Nevada Exploration

P.O. Box 1734
Elko, NV 89803
www.nvmec.org

Join Us!

October 15, 2013

Save the Date: October 15

NMEC 2013 Annual General Meeting

The Nevada Mineral Exploration Coalition is excited to announce the date for this year's Annual General Meeting. We have had a very busy year, which included a highly successful legislative session, and now we want to hear from you!

The meeting this year will take place at the Nugget Casino in Sparks on Tuesday, October 15. The meeting will commence with our annual business meeting, along with an update of our legislative achievements and what we can expect going forward. There will be numerous panel discussions facilitated by Nevada's foremost experts on topics of interest to you including federal land transfers, permitting, sage grouse updates, venture capital outlook, implications of SJR15 on the exploration industry, and a forum where you will have an opportunity to take full advantage of your membership by voicing any of your concerns to a panel of Nevada legislators. We will also be looking for suggestions as to what we can further do as an organization to represent YOUR specific interests.

Dave Shaddrick
President, Nevada Mineral Exploration Coalition



The Geological Society of Nevada
and Inspectorate America Corp.



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Thank You, Thank You, Thank You, Thank You



The GSN wishes to especially thank
INSPECTORATE AMERICA CORPORATION

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for Sponsoring the GSN Annual Golf Tournament - 2013

G.S.N. Golf Tournament 2013 Wrap Up



The 1st Place Winners from Schlumberger!



Bob Lane with Brocade Metals came all the way from BC to golf with us this year! Nice form Bob... you saved Dave & I from last place!

The **G.S.N. 2013 Annual Golf Tournament** hosted by Inspectorate America Corp. had the most players ever with 100 golfers turning out at the beautiful LakeRidge Golf Course on June 29, 2013. Competition was all in good fun as the Peoria scoring system gives even the bad golfers a chance at winning. This year the **1st Place Team** was the foursome from Schlumberger Inc. made up of Tyler Cluff, Brad Hay, Ron Parratt, Jr. and Joost Reidel. **2nd Place** was won by Tom Callicrate, Al Lander, Don Mewes and Chuck Whipple. The **3rd Place** team included Annie Aranda, Pam Klessig, Paul Strobel and Johnnie Taylor. Other winners of the day were David Gwin who won "**Closest to the Pin—Hole #2**" and Al Lander who won "**Closest to the Pin—Hole #15**". **Longest Men's Drive** went to Don MacKerrow and **Longest Women's Drive** was won by Sarah Lightner this year. A lot of golfers and their guests won great raffle prizes that were all donated by the people and companies on the facing page. The GSN Foundation benefited \$3,190 from the purchase of raffle tick-



Newlywed Kristi SCHAFF from JBR, Sarah Lightner and Angel Markins (both with Geotemps) turned in a stellar performance as the only all woman team this year!



Inspectorate employees, Shianne Garman, Wannetta Garman, Rob Teran and Christina Teran volunteered to work at the Tournament this year.

Not pictured: Carolyn Bautista who was behind the camera & Eric Ruud.

ets and mulligans. That is a record and we thank everyone who participated!

Thanks to **Geotemps, Inc.** who supplied ice cold bottles of water out on the course this which was especially appreciated when the temperatures soared over 100 degrees during the tournament. And thanks to **Bruce Metals Inc.** for donating the ice cold beer too!

And finally we'd like to thank **Inspectorate America** for sponsoring and organizing the tournament. Special thanks go out to the Inspectorate staff who put in so many hours organizing the event, securing prizes for the raffle, making signs and especially for being out there on that really hot day handing out snacks and cold drinks to the golfers. Despite the heat, everyone had a great time!

Activity Update

Mike Brady, June 2013

www.activityupdate.com

NEVADA

Atna Resources Ltd. announced that it would lower the mining rate at the Pinson Mine to 100-150 tpd and reduce its workforce by roughly 50% at the project in the hopes that gold sales would now offset property maintenance costs. (underground resource = 2,654,000 tonnes @ 12.56 gpt Au measured+indicated) *N.M.*: June 10

Coeur Mining Inc. and Rye Patch Gold Inc. announced that they settled their claim dispute at the Rochester Mine. Rye Patch will now receive a 3.4% net smelter royalty on 39,400,000 silver-equivalent ounces at the mine as well as \$10,000,000 to relinquish all of their interest in the property. *Press Release*: June 25

Veris Gold Corp. announced that recent underground drill results at the SSX Project include 32.94 meters @ 6.41 gpt Au (SR-231); 35.99 meters @ 4.97 gpt Au (SR-232); 26.23 meters @ 5.45 gpt Au (SR-234) and 23.18 meters @ 8.74 gpt Au (SR-237). (resource = 3,647,000 tonnes @ 7.64 gpt Au measured+indicated) *Press Release*: June 10

Veris Gold Corp. announced that reserves at the Jerritt Canyon Mine aggregate 928,200 tonnes @ 3.21 gpt Au proven+probable open pit and 5,696,000 tonnes @ 5.70 gpt Au proven+probable underground. (was 504,800 tonnes @ 4.78 gpt Au measured+indicated open pit and 8,683,500 tonnes @ 7.95 gpt Au measured+indicated underground) *Press Release*: June 17

Scorpio Gold Corp.(70%) announced that recent drill results at the Mineral Ridge Project include 12.19-15.24 meters @ 1.9 gpt Au (MR13537); 19.81-32.0 meters @ 1.53 gpt Au (MR13538); 7.62-13.72 meters @ 0.51 gpt Au

(MR13541) and 7.62-28.96 meters @ 5.17 gpt Au (MR13542). (resource = 4,230,000 tonnes @ 1.47 gpt Au indicated) *Press Release*: June 5

Rye Patch Gold Corp. announced that as a part of the settlement with Coeur Rochester Inc., it would receive a 100% interest in the Blue Bird patented claim located adjacent to its Lincoln Hill Project. (resource @ Lincoln Hill = 3,847,000 tonnes @ 0.43 gpt Au, 12.2 gpt Ag measured) *Press Release*: June 25

Nevada Copper Corp. announced that recent drill results at the Pumpkin Hollow/North Project include 241.1-279.2 meters @ 1.45% Cu, 0.08 gpt Au (NC13-05); 236.5-243.8 meters @ 0.33% Cu, 0.01 gpt Au (NC13-08) and 146.3-163.1 meters @ 0.43% Cu, 0.01 gpt Au (NC13-09). (resource (all) = 155,900,000 tonnes @ 0.59% Cu, 0.10 gpt Au measured) *Press Release*: June 17

Klondex Mines Ltd. announced that recent underground drill results at the Fire Creek Project include 223.72-224.76 meters @ 20.9 gpt Au (FC13-063U); 161.03-163.04 meters @ 4.95 gpt Au (FC13-064U); 45.42-46.94 meters @ 6.46 gpt Au (FC13-065U) and 88.79-90.83 meters @ 10.9 gpt Au (FC13-067U). (resource = 5,176,000 tonnes @ 9.9 gpt Au indicated) *Press Release*: May 30

Canamex Resource Corp. announced that recent drill results at the Bruner Project include 45.5-92.8 meters @ 1.58 gpt Au (B-1303); 14.6-32.8 meters @ 0.35 gpt Au (B-1304); 205.3-229.3 meters @ 0.67 gpt Au (B-1305) and 125.6-185.6 meters @ 1.09 gpt Au (B-1306). *Press Release*: June 7

Welcome back to the GSN for Fiscal Year 2014! We will begin our membership drive in September but if you'd like to get a jump start on renewing your dues, I am including a membership form here for your convenience. You can also renew your dues online using PayPal through the GSN website: <http://www.gsnv.org/membershipform.php>

GEOLOGICAL SOCIETY OF NEVADA

2014

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 membership year begins on January 1. Annual dues of \$50.00 (\$25.00 for full time students) are due prior to December 31. The GSN conducts a Field Trip in the Fall and one in the Spring of each year. Monthly meetings are held in Reno, Winnemucca, and Las Vegas (Southern Nevada Chapter) September through May. The Elko Chapter holds meetings January through December.

Please help support the GSN Foundation when renewing. Foundation dollars are used for the Kindergarten through 12th grade Field Trip Grant Program, Nevada Mapping Grants and University of Nevada scholarships.

MEMBERSHIP APPLICATION

Renewal New

Date: _____

Name: _____ Position/Title: _____

Everything is the same as before, except as indicated below.

Consultant: Company Name: _____

Student: University: _____

Address: _____

City: _____ State/Province: _____ Zip Code: _____

Country: _____ Website: _____

Telephone) **Work:** _____ **Fax:** _____

Numbers) **Cell:** _____ **Residence:** _____

(Your residence telephone number will not be listed in the Directory)

E-Mail: _____

Email address is required for Emailed Newsletter

- I would like to have an asterisk by my name in the directory indicating I am available for consulting.
- I have met the licensing requirements and want "QP" (Qualified Person) by my name in the directory.

I authorize GSN to send to me, via email: GSN announcements, publications updates, employment opportunities, etc.

Yes No

Optional Chapter Affiliation (to be eligible for chapter voting and emails from those Chapter Officers)

Elko Chapter Southern Nevada Chapter Winnemucca Chapter

Regular Membership Dues 2014 - Email newsletter \$50.00 (**International & Domestic**) _____

Regular Membership Dues 2014 - Hardcopy newsletter via postal service \$70.00 (**Domestic Only**) _____

Student Membership Dues 2014 - Email newsletter only \$25.00 (Nevada students' dues paid for by Geotemps, Inc.) _____

Donations: _____ I wish to donate to the **GSN Student Dinner Fund** _____

(Foundation Donated Funds will be used for unrestricted grants and scholarships unless otherwise specified below) I wish to donate to the **GSN Student Field Trip Fund** _____

I wish to donate to the **GSN Foundation** _____

TOTAL: _____

Payment Type: Check # _____ Cash Visa Master Card Discover

Card Number: _____ Exp. Date: _____ 3-digit security code: _____

Signature (as it appears on card): _____

Return with payment to: Geological Society of Nevada,
2175 Raggio Parkway #107, Reno, NV 89512
Fax to 775/323-3599, E-mail: gsn@gsnv.org

(Flint cont. from pg. 5)

Sulphur Company heard a report of a possible sulphur deposit in the far northern portions of Canada, well above the Arctic Circle. They dispatched Bob Weaver and me to check on things. We went in with helicopter support, and were able to reject the area for sulphur.

Freeport had a joint venture in Australia with Selection Trust, the South African holding company. So when we got a prospect in South Africa, it was easy to share the prospects with them. *[We had several, and they were all dogs.]* I visited a mine that was just reopening after a fatal accident underground. The native miners would not go into the underground workings until a witch doctor had appeased the malevolent spirit or spirits that they believed caused the accident. The native miners worked with bare feet, which were exposed to urine on the ground under the urinals. Since we were using the same ladders, I was also exposed to any pathogens they might carry on their feet. I came home with filariasis (elephantiasis). I had flukes in my blood and worried about transmitting them to my family, especially because the doctors didn't treat the flukes. They trusted that, unless I got re-infected, my body would throw off the flukes, and my family would be safe if I was careful where I peed. I did and I was.

The situation in Indonesia changed radically on the evening of Sept. 30, 1965, when the Communist PKI attempted to seize power in a coup which started with the murder of six generals who were anti-Communist. The PKI made a big mistake; they didn't kill all the generals.

General Suharto took charge of the Indonesian army and crushed the insurrection. Sukarno refused to condemn the PKI, and was accused of conniving with them. He lost his popularity and control of the government, which was taken over by Suharto. The Suharto government was interested in restoring the Indonesian economy, and to do that, they wanted to bring in outside capital that would be on terms favorable to everybody. After negotiations, Freeport and the Indonesian government signed a contract of work agreement that allowed Freeport to explore and develop any mines in the area of 100 square kilometers centered on the Ertsberg. This time, we brought in helicopters to aid us in the exploration and development. We got the choppers and 3 pilots and 2 mechanics from Petroleum Helicopters, a service company in Louisiana.

I was sent to Darwin in October of 1967, preparatory to going on to New Guinea by sea. In Darwin I met Ernie Dargas, an East German who had migrated to Australia and was our agent. He put Forbes Wilson and me on the Edewina Mae, a 40-foot long shrimp boat which was carrying a deck load of 175 drums of diesel and aircraft fuel as well as the two of us to Timika, our base. Bal Darnell had located the site for our drill camp at the Ertsberg and an intermediate site on a gravel bar in the Aikwa River, where supplies could be stored temporarily while awaiting transport to the Ertsberg. The intermediate storage point allowed the choppers to stockpile diesel at the halfway point when the weather didn't allow them to go all the way to the upper camp. Bal was surprised when he started to move the prefab camp buildings into the Ertsberg. The natives put "saleps" (hex sticks) around the supplies. They were claiming all the supplies that were being brought in. Bal was able to get Guru Moses to talk to the natives and straighten out the situation. When the camp was in and a 25-horsepower electric generator installed, it was time to bring in the drills and start the drill program. Three large diesel-powered Longyear diamond drills were broken down into parcels small enough to be lifted by the helicopters. The drills arrived Dec 1st and were immediately positioned for drilling. They were operated around the clock 7 days a week. Cores were put in core boxes, divided lengthwise into channels just wide enough to hold a core. Markers giving the depth at the beginning and end of each run allowed the core to be located within the body of ore being drilled. I kept track of the drilling and described the mineralogy and logged each core. The core boxes were carried by helicopter to Timika where they were sampled and the boxes containing remaining cores were stacked in high racks. The samples were ground and cut and preserved for analysis. Each morning just after dawn, I'd get on the radio and give the weather report, and clue Bal in on developments and needs of the camp. I also taught Indonesian geologists to log the cores. Often there would be a native at the radio who would watch what I was doing and interpret it in line with cargo cult theory. They thought that I was ordering things from a mysterious place that was the source of all supplies, which they could tap if I would give them the proper magic words.

One day the watching native indicated he would like to order some things after I was finished. I gave him the microphone and listened to his desires. He wanted, among many items that I couldn't understand, a D6 tractor and a helicopter.

When we finished the drill program, we closed up the camp, leaving bedding on some of the beds, canned food in the kitchen, and fuel in the generator. We put padlocks on the doors and made arrangements with the Kerala to watch the camp, and we left.

Our drill program indicated that there was a minimum of 33 million tons of ore above a depth of 100 meters in the Ertsberg, and the possibility of much more. The grade was poorer than the grade of our surface samples, but was still much better than that of most copper mines of the world. Forbes felt that we needed more information about the potential for more ore in this area, if we were to get financing for the project. Ernie Dargas and I returned to the Ertsberg camp where we expected to find survival rations and bedding. We got out of the helicopter, released it, and walked over to the camp buildings. The camp had been broken into and everything was spilled all over the place. There was one unholy mess and no food and no bedding, and it gets cold in the mountains. We radioed the base camp to bring up food and bedding, but the weather wouldn't allow the choppers to fly. We found the generator batteries had enough power left to start the generator, and it had fuel, so we had electricity. We had nothing to eat, but we had heat and we could sleep on the sponge mattresses that had been stripped of cloth covers. When the natives of Wa saw the chopper was flying again, they came up to see what was going on. We had asked them to watch over our camp and given them some supplies to pay them for their trouble, so they felt that they had some explaining to do. They put on a show illustrating how they had fought with other natives who had come over the mountains, and had lost. The story was good, and it might have been convincing if some of the actors hadn't been wearing items from the ravaged camp.

Ernie and I cleaned up the place and replaced the missing items, and I started my reconnaissance. I was assisted by Tangles, a young Australian from a whaling town on the southwest corner of the continent. Tangles had a very limited vocabulary, using only a few nouns and verbs to cover almost every occasion. The nouns and verbs he used were all closely related to reproduction, which resulted in some pretty colorful descriptions and many oxymorons. We finished the reconnaissance, and I headed back to Darwin on the Sundowner. The Sundowner was a boat designed for harbor work in WWII. It was powered by 2 big Rolls-Royce engines, and it depended on speed to give it stability in the protected waters of the harbors. When we left port we immediately encountered rough weather. The ship was rolling badly, so badly that even the captain was seasick. I wedged myself into my bunk and fought off seasickness sufficiently to get to sleep. I was awakened by the strong odor of diesel fuel that overpowered my attempt to keep my dinner down. After a trip to the rail, I found out the engine had blown a connection and the ship was wallowing in the high seas. The engineer got the engine going and we made our way into the area north of the Aru Islands, where we anchored in the lee of Aru, the largest island in the group. We stayed there for about 24 hours while the ship's engineer worked on the engine, and we listened to the broadcast of Super Bowl I. The next day we were able to limp into Darwin with no more trouble.

The next steps didn't involve me. A bulk sample of 300 tons was obtained by driving a tunnel into the Ertsberg and flying the ore out by (cont. pg. 17)

(Flint cont. from pg. 16)

helicopter. The sample was tested and proved to be amenable to concentration by standard flotation methods that would recover about 93% of the copper in the ore, and yield a concentrate with about 32% copper. Most of the gold and silver in the ore would report with the concentrate. Bob Wernet, a long-time engineer with Freeport, was Freeport's engineer in charge, and Bechtel did the work. There were no maps or surveys of the area. The road was planned to follow Darnell Ridge which was very narrow and very sharp in parts. The actual layout was done by a young Canadian geologist and a Cajun engineer, who were lowered by cable from a helicopter, to a point well ahead of the road's end. They then worked their way back to the end of the road, blazing the way, marking the route to be followed. The construction started by lowering a man with a chainsaw who cleared a drop zone. The D-4 tractor would then be skidded in. At the elevation the chopper could not hover with the heavy load. It had to keep moving as it landed the tractor. The same method was used to bring in parts of the larger tractors. The little tractor was used to enlarge the drop zone to allow a D6 to be brought in. It was flown in, in 6 pieces, and put together in the drop zone. The D6 was used to cut a pioneer road back to connect with the already constructed road, and allow the bigger D8s and really big D9s access to do the heavy work.



Forbes Wilson and Del Flint .

I was working in and out of Australia while this was going on, and asked Bob if I could come over and see how they were doing the job. He answered, "You're welcome to come over at any time, but please don't." I stayed in Australia. Since I couldn't help, at least I could keep out of the way. I didn't see the Ertzberg again until the road was in, and construction of the facilities was under way. Frank Nelson, a geologist we hired from Anaconda's Yerington mine, was living in the new town of Tembagapura and running exploration outside the mine area. Frank was very good at getting the needed equipment from the supply depot. The depot was disorganized at the time, and Frank knew more about where things were kept than the clerks. He was able to find things they didn't even know they had. The road was open to the town site on Christmas Day 1971 and soon was through to the mill site. It was 63 miles long and it passed through 2 tunnels, and climbed to an elevation of more than 9,200 feet before dropping to the town site at about 5,500 feet, and then rising to terminate at the base of the glacial cirque on the Aghawagong, where the mill was to be built. The two tunnels (one, 3,627 feet long) and the other (2,788 feet long) were driven with only helicopter support.

I came back to the project in time to see the construction of the aerial tram which would carry ore from the mine to the mill. This was the largest jig-back tram built up to that time. It was 5,000 feet long and dropped 2,400 feet in a single span. The tram had track cables 3 inches in diameter on which the ore cars would run to the ends of a 10,000 foot drive cable which was looped around a large drive wheel. Two cars, each capable of carrying ten tons of ore, were attached. A loaded car would run down to the mill and the other car, having dumped its load, would be pulled up to the loading station. With the trams working, the mill was able to start up and begin processing ore, and pumping concentrate as a slurry down to the port. At the port it was dewatered and dried before shipping. It sounds very simple but the project was full of problems. If you pump the slurry too fast or with a too thin consistency, it will cut through the pipe walls. If you pump it too slowly or with too thick a consistency it will clog the line. Freeport had all the problems; after ruptures and clogging and lab tests and complex calculations, they arrived at the parameters that allowed the line to operate.

We continued exploration in the area until the mine geologists were able to take on the project. David Potter, the geologist for the mine, drilled the first holes into the Grasberg, one of the largest copper deposits in the world.

Reg Barden, an experienced mining engineer headed Freeport's Australian office in Melbourne. We had a partnership with Metals Exploration Company, a small Australian company. The two companies developed a lateritic nickel mine and mill near Townsville, Queensland. They also operated a small molybdenum mine at Wolfram Camp, Queensland. These projects were discovered by Metals Ex and operated by the partnership. Metals Ex continued to explore from Queensland across northern Australia to the Kimberleys, unfortunately with no success.

The partnership found and mined a small nickel sulfide deposit at Nepean in southwestern West Australia. We had more success at Mount Keith, a sheep ranch in the Meekathara area, where we blocked out a large tonnage of lateritic nickel ore, Unfortunately Freeport lost interest in Australia and sold the deposit to Western Mining.

Freeport heard of an occurrence of basic rock on Luzon (Philippines) which was being explored for chromite and asked me to visit the property on my way home from Australia. There was very little lateritic soil over the bedrock and the chromite was insufficient to be of interest to Freeport.

A delegation from the Chinese government asked Freeport to come to China and advise them on sulfur that they had discovered, Four of us, headed by Vice President Bob Hills, made the trip. I was the geologist and we had a research-process-chemist/engineer and a politically experienced negotiator to round out the party. When we arrived in Beijing, the Chinese took our party an hour's drive out of the city to stay at a petroleum refinery. (cont. pg. 18)

(Flint cont. from pg. 17)

We were told that it would be illegal to stray off the highway that we had been driven over between Beijing and the refinery. Since we had only the transportation furnished by government, we weren't going anywhere anyway. A young engineer from the Lurgi company who was overseeing the installation of some pieces of new refinery equipment was staying with us. He told us that he found the Chinese engineers in the plant were afraid to show any initiative. They had to have authorization to do anything even down to turning off a piece of equipment that was malfunctioning.

We were taken around to the tourist attractions in the vicinity of Beijing while we were staying at the refinery. We left Beijing by train and traveled overnight to a city that was located on the flank of Mount Tien Shan in Shantung province. Mount Tien Shan was Confucius' holy mountain. We traveled in 2-man European style compartments with seats that converted into upper and lower bunks. The next car on the train was a sleeping car made up of square horizontal tubes piled up like slots in a post office into which the passengers could slide and sleep. Most of the train was made up of second-class cars in which most of the passengers slept sitting down.

We (the 4 Freeporters, the local professionals, and the representatives of the ministry of chemical materials) discussed the large scale problems and then we broke up in groups and each of us studied more of the subject that was our specialty. I studied the drill logs. It soon became obvious that the Chinese had only assayed those portions of the drill core that contained sulphur, and they had added all of them together to obtain the amount of sulphur in the ore. It was an easy thing to do, as sulphur was what they wanted, and they thought that Frasch mining would melt the sulphur and would allow only sulphur to be pumped up to the surface; after all that's what we and the Poles do. However in this case, the sulphur rich layers were thin and were mixed with lots of barren layers, and the overall grade was only about 3%. In Frasch mining, the whole rock mass must be heated above the melting point of sulphur, to allow the sulphur to drain, be collected, and pumped to the surface. In draining, the liquid sulphur wets the rocks through which it passes, and a lot of it is left coating the barren material. A characteristic of the rock in the Chinese core was high density and low permeability, which is not good for Frasch mining. Large amounts of hot water must move through the rock mass to melt the sulphur. We had hoped we might get access to a large new source of sulphur, but this deposit did not live up to expectations.

Much of the gas in Egyptian oilfields contains hydrogen sulphide, which can be treated to produce pure sulphur. Amounts of sulphur are noted in the drill logs of some of the holes drilled for oil. Freeport was searching for new sources of sulphur, so they made arrangements with the Egyptian-government-owned oil company for me to visit Cairo and the oilfields to check the drill and geophysical data to see if there was any evidence that might suggest the presence of a sulphur deposit. I was working with the chief geologist of the oil company, and he didn't seem to want to arrange for me to go into the eastern desert, which required a special passport, lacking which I had to cool my heels in Cairo. That wasn't all bad, it gave me time to see more of Egypt-but that wasn't why I was in Cairo. Eventually, I went to the chief geologist and told him I would have to go home if I couldn't finish my job. The next day I got the necessary passport, and arrangements were made for the trip on the succeeding day.

The next morning we took off for the Eastern Desert. We were four men in a Russian jeep: a black Numidian driver, two Arabian-Egyptian geologists, and me. The road to Suez ran parallel to the Suez Canal and the Bitter Lakes for miles. It was strange to look across the sparsely vegetated desert and see an ocean liner apparently sailing through the desert sand. It was a ship in the Suez Canal transiting from south to north. There were signs along the way warning of minefields east of the highway, left over from the Six Days' War. We also saw an army outpost composed of a hut and, where we would have a vehicle park, two camels were tethered. It was a hot day, and the Russian jeep had no air conditioning, and the rear windows wouldn't open. It was an uncomfortable ride. The two Egyptian geologists got into a heated religious argument. I think they were arguing about how far up the arm one should wash when performing ablutions before attending services in the mosque. They soon got into a shouting match, as both participants ditched logic in favor of loudness. They finally agreed that they couldn't settle the matter, and we got into a discussion of the recent war with the Israelis.

We crossed the canal and spent the night in an oil company camp on the west side of the Sinai Peninsula. The next day we looked at outcrops along that coast. We found several places where small amounts of secondary sulphur were evidence of oxidation of hydrogen sulphide, but added nothing to the knowledge of the area. I was able to identify an area where the geophysics suggested a possibility for sulphur. There later was a drill program to test that area, which evidently didn't find enough sulphur to justify further work. I had retired by the time the drilling was done and never saw the results of the drilling.

Written by Del Flint, GSN Lifetime Honorary Member

OTHER UPCOMING EVENTS

12, August—UNR Chapter of SAIWI (Student Association for International Water Issues) will be holding its first ever fundraiser golf tournament at Hidden Valley Country Club on August 12, 2013 (1:00pm shotgun start). Contact Lydia Peri, peri.lydia@gmail.com or Murphy Gardner murphygardner@gmail.com for more information. Registration deadline is August 1st.

12-16, August—Short Course —Ore Mineralogy & Microscopy, Metro State University. Instructor is Dr. John Lufkin. Contact him at 303-593-0975 or lufk3@comcast.net for more information. Course registration is \$500.

21-22, August—Nevada Water Resources Association. Elko Mine Tour. Register online www.nvwra.org or contact Tina Triplett at 775-473-5473 or creativemo@charter.net.

24-27, September—SEG Conference—Whistler 2013: Geoscience for Discovery. Whistler, BC, Canada. Visit www.seg2013.org for details and to register online.

27-29, September—NMEC is hosting the 1st Annual Great Basin Rendezvous at Camp Lamoille near Elko, NV. Contact Dave Shaddrick, DShaddrick@aol.com or Warren Thompson, wthompson@premiergoldmines.com for more information.

GREAT BASIN & WESTERN CORDILLERA MINING GEOPHYSICS SYMPOSIUM—INAUGURAL ELKO, NEVADA ~ 23RD NOVEMBER, 2013

The GSN Elko Chapter and local Elko geophysicists are hosting the inaugural Mining Geophysics Symposium on Saturday, November 23, 2013 at the Western Folklife Center, 501 Railroad St., Elko, NV.

Presentations welcome on mining and exploration geophysics case histories from the Great Basin & Western Cordillera and technological advancements.

Please contact them by email at: mininggeophysicssymposium@gmail.com for more details or to register.

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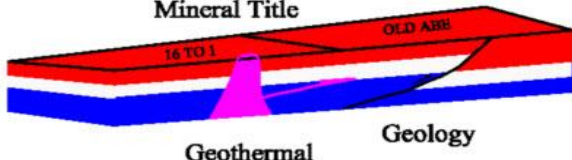
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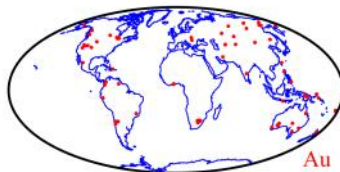
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