

Place: Arden  
Community Club  
Hall Rd  
Arden, WA



Time: 7:00 PM  
Third Tuesday  
Each Month  
(Jan.-Dec.)

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## The Panorama Prospector

June 2015

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### Minutes for May19, 2015

*By Ginger Pitman*

Forty members plus 5 visitors attended our first spring rock sale. Refreshments for next meeting will be provided by Cindy, Rita, Vanita and Zenda. Thanks you for all who have been volunteering.

The treasurer's report was given. The scholarship fund will soon be smaller as our trustees have picked the recipients of the 5 to be given out. Thank you trustees.

Johnie asked if some people would be interested in putting on a gold panning demonstration during Rendezvous Days, it would be 3 days, the first weekend in August.

The club has another rock donation, a large one, but it is in Deer Lodge, MT. Johnie asked for people with pickup trucks and a 2 or 3 day time period to go retrieve it. He will get in touch with the owners and the volunteers and discuss dates.

Our 3 person field trip committee has been busy, looks like a full season of rock hounding. Becky reported that 16 people had good finds at the Flagstaff mine for barite.

June 13 the club will travel to the Keystone area to visit a serpentine/copper/pyrite quarry. There is a paved road to the dig but then a scramble over and around rocks. Need rock hammers, gloves, eye protection, buckets and water/lunch. We will meet at the Chewelah Safeway parking lot at 9 am.

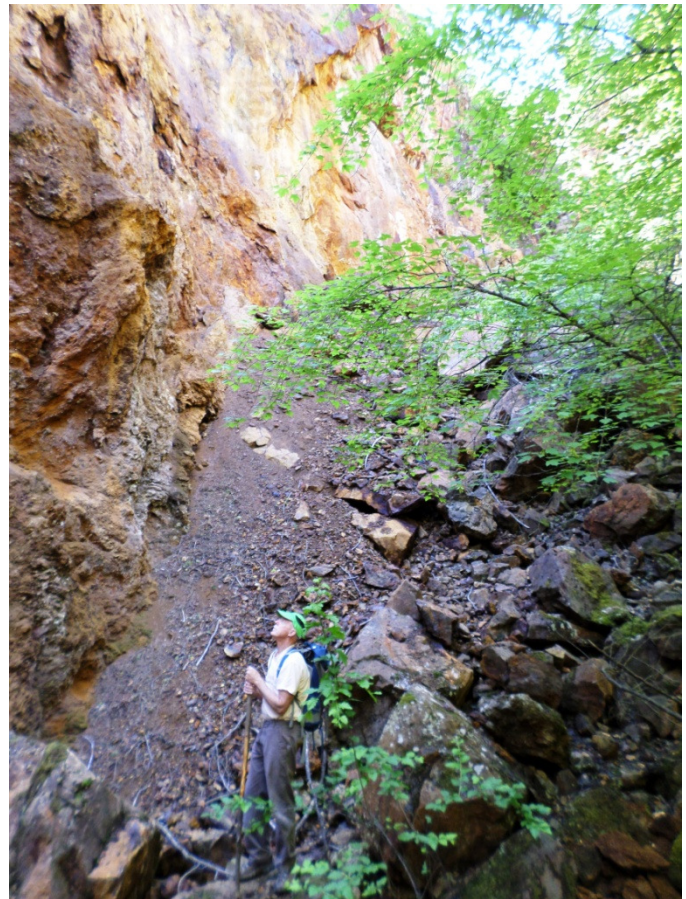
June 21-24 we can join with the Rock Rollers for jasper/agate/petrified wood/thunder eggs and more at McDermitt, NV.

NFMS Fieldtrip July 2-5 Vale, Grassy Mt and Hoo Doo Basin, see your Northwest Federation Newsletter.

*continued on page 2*

### A Nod to the Napoleon

*By Joseph Barreca*



[Doug Johnson looks up at the walls of the Napoleon]

A lot can change in 9 months. On August 23rd, 2014, the club had a field trip to the Big Iron Mine. On the way back I convinced Scott Jackson and some others to check out the Napoleon Mine as a short side trip. We had to walk in and after a lot of hiking up steep hills, I failed to find it. On June 5th, 2015, I set out again with better maps and found out that timber companies had bought the property and logged all of it. That turned out to be great news. The hills were covered with yellow sweet clover and the roads were all new and open. We could have driven right up to the mine. But of course we didn't, that would have been too easy.

Date	Place	Rocks	Meet
June 8th	Kinross Gold Processing	Tour starts at 9:30 AM	Kettle Falls Harvest Foods parking lot in time to START by 7:45 AM
June 13th	Keystone/Edna mines	Copper, Serpentine, Pyrite cubes	Meets at Safeway in Chewelah at 9am
June 21-24	McDermitt, Nevada	Jasper/Agate/Petrified Wood/Thunder Eggs	with Spokane Club, 509-251-1574, mikeshawmoose@yahoo.com
July 10-13	Clarkia, Id	Garnets/Quartz Crystals	with Mineral Council
July 11th	White Stone Calcium Plant		9 AM Big Smokestack south of Chewelah
July 19th	Silver Valley	Geology Tour with Andy Buddington	Meet at 8 am at the "Mineral Ridge" boat launch along Wolf Lodge Bay on Lake CDA.
July 19th	Horseshoe Mtn	Quartz Crystals/Fluorite	Meet at Intersection Hwy 20/Hwy 21 at 10am
July 24th	Kinross Buckhorn Mine	Gold Mine tour	Meet at Kettle Falls Harvest Foods Parking lot. Leave by 7 AM
Sept 11-14	Redtop Mtn in Wenatchee	Geodes	With mineral club
Sept 25-28	Little Naches River Yakima	Geodes	with Spokane Club

As a group trip the Rock Candy mine is not going to happen, but if you go to their web site, they have all the information and prices on how to join their mine sponsored tours.

Saturday July 11 there is another tour of the White Calcium plant in Chewelah. Meet at the smoke stack south of town on 395 at 9 am. You must have a hard hat, and wear closed toe shoes.

Sunday July 19<sup>th</sup> the geology tour with Andy Buddington to the Silver Valley meets at 8am at the "Mineral Ridge" boat launch along Wolf Lodge Bay on Lake CDA, ID.

There is a quartz crystal dig planned for July 19 details later.

The committee is working on details for a garnet dig in Clarkia, ID.

On June 8 is the tour of the mill at Kinross, near Republic, WA. There will be a tour of the mine on July 24<sup>th</sup>.

Joe asked for someone who wanted to take a tough hike to find the Napoleon Mine. Some hardy souls were talking with Joe.

*continued*

Sharon said she will again be doing a class on Viking Knit Chain, the members who were at tonight's work shop produced some impressive bracelets and beautiful work. The next class will be 4pm before the next club meeting. The cost is \$10 and you need to sign up so she has the materials.

Bob gave out ticket stubs to those who said they had never dug for garnets; then they all got to dig in his garnet material/gravel for their first garnets. Fun!

We had the drawing for our raffle of the carnelian agate from Madagascar; the lucky winner was Steve Bowman. The door prize was won by Denise Hunter. Congrats.

*end*

*Napoleon continued:*

The new roads had obliterated the path that I thought would take us to the large open pit left from mining up until 1955. So we found a skid trail that went in the general direction. When the skid trail petered out, we bushwhacked our way up a steep hill and came out on a large new road that went right by the mine. (This is why the



minutes from the last meeting mentioned "hardy souls" who might want to take this trip with me.)



[The opening at the base of the open pit.]

I brought out my strongest flashlight to look into This opening, about 6 feet across. It was not much help. This is doubtless the hole described in the club's new book, Discovering Washington's Historic Mines. "In 1905, P. Burns of Canada bought out the previous owners and worked it for a short time. Burns wanted the mine to use its ore as a neutralizer with his First Thought mine ore. A year later when Burns was drilling additional workings, the miners blasted through the depths of the mountain rock and into a deep hole. To test how deep it went, a cat was harnessed to a 225 foot rope and let downward until the line stopped without touching the bottom. The cat was hoisted back up...dead. Apparently, the air was bad. To alleviate any harm to miners, a crosscut was driven to strike the hole and create air flow."

Doug and I threw a couple of rocks in this hole to listen for how deep it was. They took several seconds to hit bottom. The hole is DEEP. We decided to back away from it. Ironically I had my camera set on video while I was trying to take the picture and we caught part of that action.



[This area just north of the hole is exuding sulfur.]

The mine assayed at 33% iron, 12% sulfur, 10% lime, 30% silica, 0.3% copper, 0.05 to 0.1 ounces to the ton of gold, and a trace of silver. I brought my high-tech testing equipment to see what kinds of rocks I could find. The big magnet stuck to most of the rocks. Some were very strongly attracted, others only weakly. I broke open one that the magnet would cling to but could not pick up. Inside it is very hard and shiny as you would expect from pyrite. But it is silver-colored, unlike most pyrite. Everywhere I went in the pit, I tested to see if a paper clip suspended on a string would cling to any of the rocks, indicating that they were magnetite. But nothing attracted the paper clip. They were just ugly rocks.



[A hole emerging into the main pit halfway up.]

Notice all the blue in this picture. This part of the pit showed signs of copper coloring and peacock copper (bornite). We didn't try to get up to this hole, but looking back, I should have taken some samples of the rock.



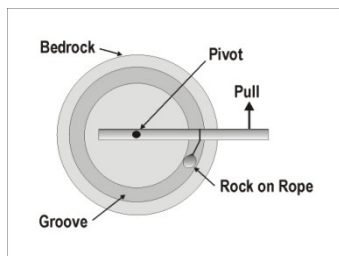
On the way back out of the area, Doug and I stopped to check out an old quarry above the road. I think this is a giant rock crusher left behind from that operation.



## Mining Rock Crushers

Bob Bristow

I am often asked about crushing rocks, especially for mining purposes. There are many kinds of crushers, but I will only cover a few of the main types. They are used for chipping off samples from a large rock, crushing the sample for assay, breaking up large rocks for use in the tumbler, and for liberating mineral grains in milling operations. The very first crusher was another rock. This evolved into what today we call a rock hammer or rock pick. Smashing ore with a rock hammer is rather slow, so faster ways were devised to break ore down into small enough particles to separate out valuable minerals such as gold. The first quantity crusher was the arrastra. It was used around the world before power sources were available and was probably used before steel was in common use. By the mid 1800's, stamp mills became the rage. They could be powered by steam or water and each "stamp" could crush up to four tons of ore a day. Stamp mills are still advertised on the Internet. Early in the 20<sup>th</sup> century, jaw crushers replaced stamp mills. These are still the primary crushers, but for very large production, cone and gyratory crushers are used. For secondary grinding, rollers, ball mills and hammer mills have been used extensively. Secondary crushers, where the ore is further crushed to a fine powder, will be discussed in a future article.



### Arrastra

Early miners who had no access to power equipment used these crushers. It is believed they

originated in Spain and came to the Americas with the Conquistadors. Figure 1 is a schematic of a typical arrastra. The miner finds a large flat rock and grinds out a circular groove. He then drills a hole in the center of the circular groove and places a vertical steel rod in the hole to form a pivot. A pole is then prepared by drilling a hole in one end and lowering the pole onto the steel rod. Next, a large stone is tied to the pole such that it will follow the groove when the pole is rotated around the pivot. Ore material is placed in the groove and crushed as the stone is pulled over it. Some kind

of arrangement is made to pull the pole in a circular path around the pivot. Often a mule or donkey was used to walk in a circular path pulling the pole. If a solid rock could not be found, an arrastra was made up of smaller rocks and concrete. Many refinements were made, such as extending the pole beyond the pivot until it balances.

Sometimes a wheel was added to hold up the pole.

{Editor's Note }



Figure 2. Arrastra in Solid Rock

I had a chance to see one of these in action in Oaxaca Mexico. Indians there still used it to extract gold from rocks hauled by burros down from ancient mines in the hills above their village. The arrastra was powered by a vertical-axis water wheel in a stream that ran under the crusher. They used mercury to trap the gold dust once it was panned, and a leaf to funnel it into a jar.

## Scholarship Presentation

Here is a picture of Luci Bristow with our scholarship recipient in Chewelah, Tia Justice on June 4th. Luci got a lot of laughs when she read the club's statement from the back of the newsletter.



## **Chips From The Outcrop**

*By Bruce Hurley*

As those who have collected minerals, fossils, lapidary, or gem materials for very long already know, collecting sites continue to become less numerous and more difficult to access. There are a number of reasons for this, including less mining activity, liability concerns by property owners, increasing intolerance of collecting by some governmental land agencies, environmental reclamation of old mine sites, and urban sprawl over rural collecting localities. Unfortunately, there is little which individuals or rock clubs can do about these kinds of closures, in most cases.

However, there are other types of collecting sites over which individual collectors and clubs can have considerable influence over access. These sites are typically on property owned by private individuals or companies which have been tolerant of collecting in the past, because of previous positive experiences with collectors. Regretfully, access to some of these sites is also beginning to disappear, in many cases because of recent bad experiences with collectors themselves. Two recent examples of this occurred in Pennsylvania. At the Rossville malachite/azurite locality in York County, heavy collecting pressure over recent years produced unsafe excavations at the site, prompting the property owners to close access. At St. Clair, PA, excellent yellow and white fern fossils preserved on black shale have been collected for decades. Recently, however, groups using power equipment carried out heavy excavations, then began selling the fossils on the Internet. This locality is now open only to school groups on scheduled visits.

Closer to home, similar overzealous excavation by commercial collectors at the Lolo Pass quartz locality on the Montana border has left the area resembling a war zone. Because some of the excavations in loose material are quite deep, the U.S. Forest Service has closed this site due to collector safety concerns. In this case, a collecting site controlled by a relatively-tolerant land agency was closed due to the irresponsible actions of a few collectors.

What is the solution to the type of closures in Pennsylvania and at Lolo Pass mentioned

above? In short form, more responsible behavior by the rock-collecting community in general. If you are a commercial collector, talk to the property owner or administrator *before* you embark on your commercial venture, and respect their wishes relative to what you can and cannot do on their property. If you are a club group or an individual, be sure you have permission to collect before you dig, and be prudent in the amount of material you take and what you leave at the site. If you leave dangerous holes or unsightly trash materials, it is practically guaranteed that you, or the next collector, will not be welcome in the future. If you find other items on the property which you would like to have, such as mining memorabilia, check with the owner about its availability. More than one inactive mine in the Southwest was closed to collecting after collectors took ore carts from mines, without the owner's permission.

## **Kinross Plant Tour**

*Bob Bristow*



[Bob lifting a Million Dollar gold bar]

This was the most enjoyable tour I have taken. The people were absolutely great. We drove up to the gate on Fish Hatchery Road and the guard stepped out of the guard building with a



big smile and motioned for us to come in. We were given a short safety video and signed a government form. (They had already filled out the form for us with our personal information. All we had to do was sign.) This form certifies we have had required safety training and is good for a year. It is valid at all mines. When we left the Guard Shack, he called the administration building to be ready for us. When we walked into the Admin Building, they were ready with boots (all properly sized for us), a safety vest, hard hat, glasses and ear plugs.



[Fire Assaying]

The Tour Guide was a very friendly young lady who turned out to be much more knowledgeable than any guide I have had before. I turned out she is their professional metallurgist acting as a tour guide between metallurgy crises. She gave us a lecture on the processing plant and a number of facts:

They process the ore from 70 truck and trailer loads each day. Each truck carries a total of 70 tons of ore. The trip each way to the mine is about 50 miles. Kinross supports around 200 families in the Republic area and another 70 around Chesaw. The ore is now running 0.2 ounces of gold per ton with a small amount of silver. They ship several 70-pound bars of gold at a time. (She would not disclose when or how the shipments were made.)

We had to climb five stories to look down on the jaw crusher. It has a grizzly with 2x2 foot slots. It breaks the ore down to minus four inches and is then sent to one of four rod mills. The rod mills are 17 feet long and about 15 feet in diameter. Each rod starts out five-inches in diameter. The wear on the rods, balls and cone crusher each day totals 1400 pounds of steel lost. There are also several large ball mills

and one large cone crusher. The ore goes through the various mills depending on the size of each particle. Some ore uses flotation to capture the gold. When the ore is sized down to talcum powder consistency, it is sent to five or six huge vats for cyanide treatment. To extract the gold from the cyanide, activated coconut charcoal is added to the cyanide slurry. Screens capture the charcoal and a hot solution of alcohol and acid is used to strip the gold from the surface of the charcoal. Electrolysis is then used to make large enough gold particles to settle to the bottom. The result is a black powder that looks like dirt.

The black powder is sent to the smelter area. This is where things get really interesting. We had to sign in and out and we were told that if we stepped over the yellow line, we would be taken by security and given a thorough search. Here, we watched a huge amount of gold and flux melted and then poured into a mold. The glassy brown flux was broken off and 70 pounds of red-hot gold was left. After cooling, it was weighed and placed on a table for us to examine. We were told the bar was approximately one million dollars worth of gold.

There were many other very interesting things we saw, such as huge liquid oxygen tanks, but that will have to wait.

{ Thanks to Bob Bristow and Bruce Hurley for adding articles and pictures to this newsletter at the last minute. }

#### Membership Dues:

**\$15.00 per household per year is due to the club**

**Treasurer** Johnie Pitman (address below) on the third Tuesday of November for regular members.

Webpage: <http://panoramagem.com/>

Contact: Bruce Hurley, President, 509-413-2768.

We, **The Panorama Gem and Mineral Club**, are a multi-faceted group of mineral-minded people. Our proud members include some real gems, a few fossils, and even some diamonds in the rough. A few have lost some of their marbles, but they know where to get more! A few need to polish their coordination because they are always tumbling! And some are miners who use the “silver pick” as their tool of choice! It should be crystal clear, that we all enjoy this unique conglomeration and above all else we strive to **HAVE FUN**. And we never throw stones (away).