Place: Arden
Community Club
Hall Rd
Arden, WA

Time 7:00 PM
Third Tuesday
April - September
6:00 PM October -
March & August

The Panorama Prospector

April 2017

Panorama Gem and Mineral Club Minutes

March 21, 2017
by Anni Sebright

Guests and new members were greeted and introduced at the beginning of the meeting. Welcome to Rick and Chana McDougald, Paul and Kathi Garrison and Paul and Yvonne Priddy.

Thank you to Bill Allen for another successful rock show. Thank you to all the volunteers that "gotter done." Chris Palm of Colville won the Grand Prize. Next year the show will be the second weekend of March NOT the third.

People are looking into the price for all the wood needed to make our own tables so scheduling around the Rock Rollers and borrowing trips become a thing of the past. It may cost around $1,000 to complete our tables.

The Ellensburg Rock Shop is going out of business. If anyone wants some Ellensburg Blue Agate, you may want to plan a road trip.

Scot Jackson, Arden and Kathy Fritz, Cheryl Kangas, Brenda Kroeger Piper and Jim and Rita Langevin will be the snack committee for April.

Rick McDougald won the door prize for March. Remember: April 18th will start our 7 p.m. schedule.

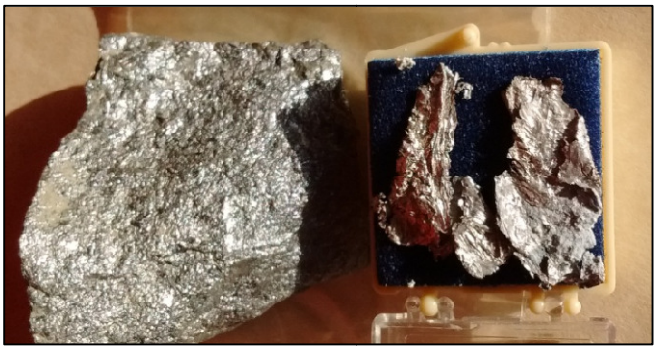
Needed: A volunteer to do the minutes at the May meeting.

Geology Snapshots - Hwy 395 from Arden to Deer Park

by Sharon Borgford

PART 4 Magnesium & Faults

When driving into the town of Addy, the gap through the center of the low hill on the west edge of town is very apparent. Through it can be seen the remains of Alcoa's (Aluminum Company of America) Northwest Alloys Magnesium plant, which operated from 1975 through 2001. The north end of the hill contained a significant deposit of high quality dolomite, a rock that contains Magnesium. It was conveniently located right beside the existing railroad, a major highway, and power lines. Close by were deposits of Silica (from Addy Quartzite deposits) needed for the ferrosilicon portion of the plant. "The Addy area was found to be one of the best areas in the entire country for these raw materials and energy needs" *(BPA Electrical Service to the Northwest Alloys Magnesium Plant...Volume 2).*



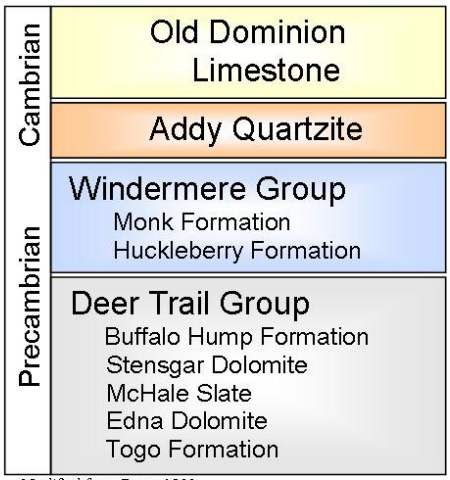
(L) Ferrosilicon and (R) Magnesium samples from NW Alloys 1976 Open House.

Magnesium had been mined in the Chewelah area since 1916. Geologically, there is what is referred to as the "Magnesium Belt" that exists on the east side of the Huckleberry Mountains from just inside the northern boundary of the Spokane Indian Reservation to Blue Creek, a short distance east of Addy. Magnesite had been mined primarily

only in the older Stensgar Dolomite formation inside this belt. The dolomite at Addy is located just outside the "belt" and is in the Old Dominion Limestone, deposited at a later time in geologic history, after the Addy Quartzite.

Even as the Magnesium plants in Chewelah were closing down in 1968, Alcoa was preparing to mine the mineral at Addy. Their updated processing methods would make the mining of Magnesium profitable once again, until imported Magnesium and other economic factors resulted in the closing of the Addy plant in 2001. Northwest Alloys was one of three Magnesium producers in the United States, and by 2000 was one of only two. The Magnesium produced here was used primarily in Alcoa's Aluminum plants. Former employees who still live in the area and many of us who lived close by remember the night time red glow in the sky above Addy each time a container of molten slag was dumped onto the tailings pile. We will talk more about Magnesium when we travel south of Chewelah.

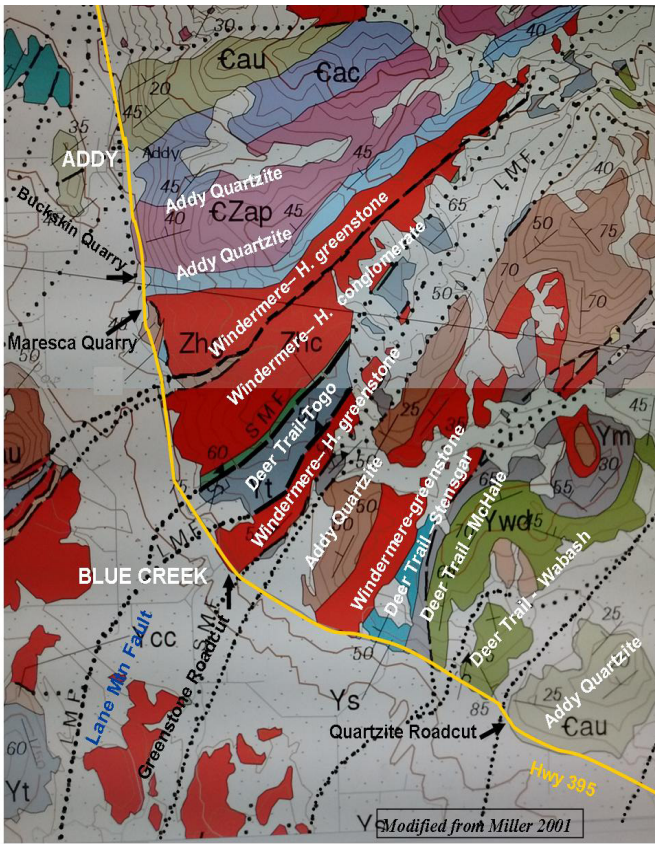
On the road again, the next several miles south of Addy display a very interesting and complicated section of rocks. The rock formations are older than the Addy Quartzite and were formed beneath it, but all are faulted and folded and tipped. They are classified into two groups: the Windermere group and the Deer Trail group. These two groups include various formations of slate, siltite, quartzite, dolomite, conglomerate, metabasalt, and metatuff. The illustration below gives a simplified strata section for this area.



Modified from Evans 1988

The area has experienced at least three pulses of plate tectonic movement which occurred at the same time new pieces of land were added to the western edge of the old continent, and which also were related to mountain building episodes further inland that formed the Rocky Mountains.

As you can see from the map, fault lines cross the highway. The sequences of Addy Quartzite, Windermere formations, and Deer Trail formations are repeated because of the numerous faults.



The first visible significant quarry south of Addy is the Buckskin Quarry, also in the Addy Quartzite (across the highway from the New Life Christian Center). It was started and owned for many years by Bristol Northwest Silica, an Oregon company that was one of the first to commercially mine silica. In the Buckskin's 1982 business year 1600 tons of metallurgical grade silica was shipped. (It was interesting to note that in the late 1930's a first commercial end use of crushed silica was for chicken grit!)

Just around the bend and not visible from the highway is the Maresca Quarry (you can spot their sign). Both Quartzite and Greenstone are quarried here, used for decorative and fill purposes.

Greenstone from Maresca Quarry

The Greenstone is in the Windermere group, and known as Huckleberry Greenstone. It is metamorphosed ocean floor basalt. When you arrive at the Blue Creek intersection, the massive rock road cut is Huckleberry Greenstone.

Greenstone road cut at Blue Creek/Hwy 395. *Google Earth*

Other minor quarries are visible on the north side of the highway as you travel this route. If you have access to Google Earth, you can also see quite a few quarries just out of sight of the highway. The last significant road cut in this section of highway before approaching Chewelah is Addy Quartzite again. *(Google Earth photo)*

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All photographs and illustrations by Sharon Borgford unless otherwise noted. 4/4/17

Johnie's Jabber

The scholarship applications will be picked up from the three schools, Chewelah, Colville, and Kettle Falls on May 2 and given to the trustees to decide who the winners are.

Long time members Mary and Jerry Hill have donated a pickup load of rocks from their collection to the club for the purpose of raising money for the scholarship fund. Some was collected in the early 70's from California, and some from this area while on our club field trips. THANKS Jerry and Mary!!

Some feed back has been collected on the price of plywood for making our tables for the show. More is needed before deciding where to purchase it.

The club has 12 legs and 12 rails that were made when we made the 4'x8' tables that we use for the display cases. We are trying to make 35 tables which requires 70 legs, 70 rails and 35 tops. We have purchased 15 tops, so we need 20 sheets of 5/8" plywood for the rest of the tops. We also need 20 sheets to make the rest of the legs, we get 3 legs from each sheet. That is done by cutting 16" off the length of the sheet then cutting the 32"x96" piece

into three equal parts of 32" each. The 16" pieces from the tops and the legs is then cut in half to make 8"x96" rails. Dennis Gibbins has volunteered to make a jig to aid in cutting the slots in the legs and the rails. So a total of 40 sheets is needed to make all the tables that we need.

The subject of a scholarship for home schooled seniors was brought up at the last meeting, I have some additional information that I will share at the meeting for discussion.

We are almost out of the white skirting that we use at the show, so will need to get more before next year's show. We are also running low on rough grit (60-90) for those of us that do tumbling for the grab bags. It's also not too early to start sewing bags for the tumbled rock. We used 825 grab bags this year.

Libby Creek Recreational Gold Panning Area

Public site for gold panning

The Libby Creek Recreational Gold Panning Area is located 23 miles south of Libby, Montana, within the Kootenai National Forest. The public is allowed to pan for gold within this area and any gold you happen to find is yours to keep. Some rules do apply, but this is a great recreational opportunity for the whole family.

Howard Lake Campground is one mile south of the Gold Panning Area and offers fishing, hiking, swimming, boating and camping facilities.

The gold bearing gravels found in the area were deposited as a result of alpine glaciation between 10,000 and 130,000 years ago when glaciers gouged rock off the mountain peaks and carved the valley bottoms. The glaciers left deposits of till and moraines at the edge of the retreating ice. Water from the Libby Creek, Howard Creek and other streams have reworked portions of the glacial moraine concentrating the gold in the channels of Libby Creek and what is now known as the Libby Creek Recreational Gold Panning Area. http://www.libbymt.com/areaattractions/libbycreekgold.htm

Field Trip Ideas

The Libby Creek Gold Panning area is one of the many ideas the field trip committee (Becky Dobbs, Bob Bristow, Scot Jackson, Jerry Novak, Joe Barreca) is considering for field trips this year. There will be at least one gold-panning adventure. The Columbia River north of Northport is one option. Libby Creek is 200 miles from Arden, a 4 hour drive for most of us that would make it a long day or an overnight trip.

If you are anxious to get out there and find some good rocks, the first opportunity is with the Spokane Rock Rollers. The Spokane club is going to Saddle Mtn. on 4/29 to collect petrified wood. Meet at the Sprague Rest Area at 9 am sharp to join them.

Another idea is to visit Brian Martell's Rock Shop on Highway 395 a little north of Noisy Waters junction. No date has been set for that.

Bruce Hurley is setting up another visit to the Metaline Falls Trilobite site but no time has been set. Weather permitting, we will make it up to the Flagstaff Barite Mine this year.

We will probably go back to Horseshoe Mountain for some quartz crystal clusters. We might follow that on the same day with a visit to nearby Klondike Mountain that has some geodes and fossils. As with many of these ideas, some preliminary exploration is necessary to see what the conditions are like. The weather has not been very cooperative for that, but it is getting better. Hang in there and we will post information in this newsletter and on our website.

Chips From The Outcrop

By Bruce Hurley

Since those of us in the Inland Northwest have been pretty much shut in for the past six months by rain, fog, snow, ice, and more rain, I have had plenty of time to go through the minerals I have at home. And in doing so, I have been surprised to see just how many sulfate family mineral specimens I have.

The sulfate group, those minerals having the chemical species (SO^4) in their formula, is not usually thought of as highly desirable for mineral specimens, as are gemstone and ore minerals, and native elements. Two of the sulfate minerals are of considerable economic importance, barite and gypsum. Barite (barium sulfate) is the primary component in heavy drilling muds used in all oil and gas drilling operations. Gypsum (hydrated calcium sulfate), is the main constituent of wallboard, used to finish the inside walls of nearly all homes and office buildings. Perhaps of more interest to us, a number of the sulfate minerals produce crystals of a variety of shapes and colors, both between the different minerals and within the same mineral species.

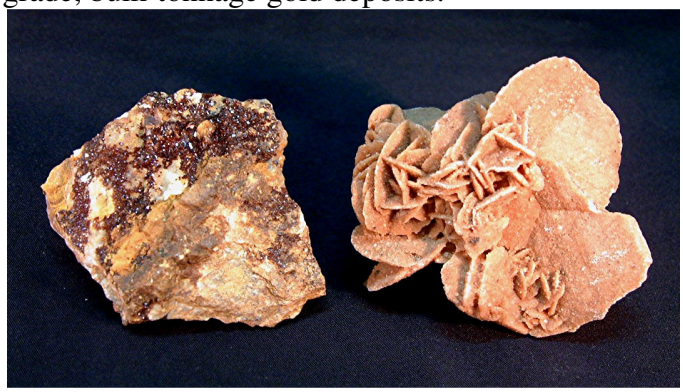
[Celestite Geodes from Madagascar Have Spectacular Crystals]

The sulfates are formed in a number of geologic environments. The most common sulfate environment is that of deposition within sedimentary rocks during their formation, especially within sediments deposited in evaporative lake basins. Gypsum most often occurs here, as massive rock (alabaster), fibrous layers of shiny needle-like crystals (satin spar) or well-formed crystals (selenite), in clay-rich sediments, as is its close cousin anhydrite (calcium sulfate). Similarly, celestite (strontium sulfate) often forms in geodes within mudstones.

The second common environment for sulfate mineral formation is within weathered masses of rock which originally contained abundant sulfide minerals. In this case, oxidation breaks down the sulfides above the groundwater table, and sulfate minerals are deposited below, near the water table. Anglesite (lead sulfate) commonly forms here, beneath weathered deposits of the lead sulfide galena. Chalcanthite and brochanthite have similar origins beneath weathered copper sulfide deposits.

[Celestite Geodes from Madagascar]

The third environment in which sulfates are typically formed is as gangue (non-ore) minerals along with metal-bearing ore minerals deposited from hydrothermal solutions (hot groundwater), within fractures and open spaces underground. Barite is most commonly found here, as is jarosite (iron sulfate), a mineral often associated with low-grade, bulk-tonnage gold deposits.



[Jarosite & Selenite Bear Little Resemblance But Are Both Sulfates] *continued on Page 6*

Membership Dues:
$20.00 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.

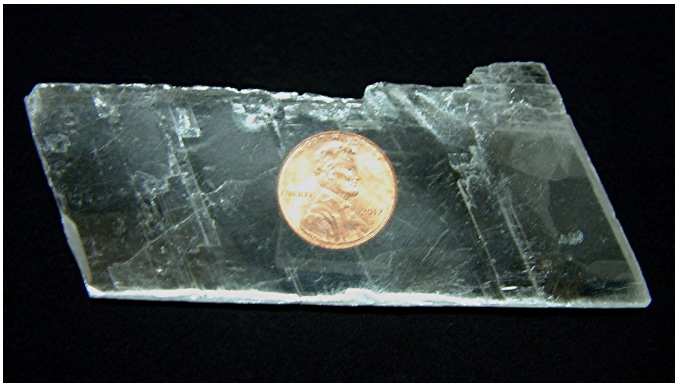
We**, The Panorama Gem and Mineral Club**, are a multi-faceted group of mineral-minded people. Our proud members include some real gems, a few fossils, and even some diamonds in the rough. A few have lost some of their marbles, but they know where to get more! A few need to polish their coordination 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).

April Meeting 7 PM

Andy Buddington's talk is entitled "Unroofing the Ancient Precambrian Basement in the Priest River Complex."

"Basement complex" refers to an assembly of metamorphic rock types which are the deepest rocks from the crust exposed at the Earth's surface. These rocks have been tectonically uplifted from far down in the crust, where they were metamorphosed from pre-existing rock types.

Selenite gypsum is the most abundant of the crystalline sulfate minerals. It forms in the monoclinic crystal system, which allows selenite to have many variations in crystal shape, although it tends to have limited color variation. Barite, the next most common sulfate, also occurs in a variety of shapes, all of which belong to the orthorhombic crystal system, along with a number of different colors. At the other end of the scale hanksite [$Na_{22}K(SO_4)_9(CO_3)_2Cl$], is found as good crystals at only one locality in the world, Searles Lake, California, where it is abundant in the lake bed sediments. Hanksite forms a variety of crystal shapes within the hexagonal crystal system, a number of which mimic quartz and beryl crystal shapes quite well.



[Quality Selenite Shows Transparency & Three Cleavage Directions]

(This article will be continued in the next issue of the Panorama Prospector.)

Panorama Gem and Mineral Club: Organizational Chart

Officers:			
President:	Bruce Hurley	10617 W. Lakeside Lane, Nine Mile Falls, WA 99026	509-413-2768
Vice-President:	Bob Bristow	PO Box 1165; 2567 Mud Lake Rd. Chewelah WA 99109	509-935-4375
Secretary:	Anni Sebright	POB 293, Clayton, WA 99110	509-276-2693
Treasurer:	Johnie Pitman	701 B Williams Lake Rd, Colville, WA 99114	509-684-8887
Trustee 2:	Gene Fisher	295 Gold Creek Loop Rd, Colville, WA 99114	509-684-8546
Trustee 3:	Bill Allen	2633 Highline Rd, Chewelah, WA 99109	935-8779, 936-2446
Trustee 1:	Sherryl Sinn	725 S. Chester, Colville, WA 99114	
Committee Chairs			
Program Coordinator:	Bev Bockman	1750 N Havichur Loop, Post Falls, ID 83854	208-773-5384
Hospitality:	Sherryl Sinn	725 S. Chester, Colville, WA 99114	509-684-6093
Club Shop:	Gene Fisher	295 Gold Creek Loop Rd, Colville, WA 99114	509-684-8546
Historian:	Carol Price	PO Box 77, Laurier, WA 99146	509-684-2857
Newsletter:	Joseph Barreca	2109 Hwy 25 South, Kettle Falls, WA 99141	509-738-6155
Show Chair	Bill Allen	2633 Highline Rd, Chewelah, WA 99109	935-8779, 936-2446