

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

September 2017

Panorama Gem and Mineral Club Minutes August 15 2017

by Anni Sebright

Thank you Bill Allen and Luci Bristow for your usual great job organizing and cooking that wonderful barbeque. It was certainly appreciated.

Bruce and Jan Hurley were among the missing as Bruce was getting a detached retina tended to. We hope for a rapid and complete recovery.

It took many man hours to assemble and be present at a booth at Rendezvous Days with \$200 going to the General Fund and \$44 to the Scholarship Fund. Bruce labeled minerals from this area for an interesting display.

Remember to check the website for field trip updates.

Information sheets regarding water rights issues in Stevens County were distributed.

Bob Bristow brought photos taken during the 1979 eclipse. He'll be in central Oregon for the August 21 eclipse, too, but will be manning far fewer cameras.

Our next meeting will be at 7 p.m., September 19th. People with last names ending in W, X, Y, Z and A are asked to provide the snacks.



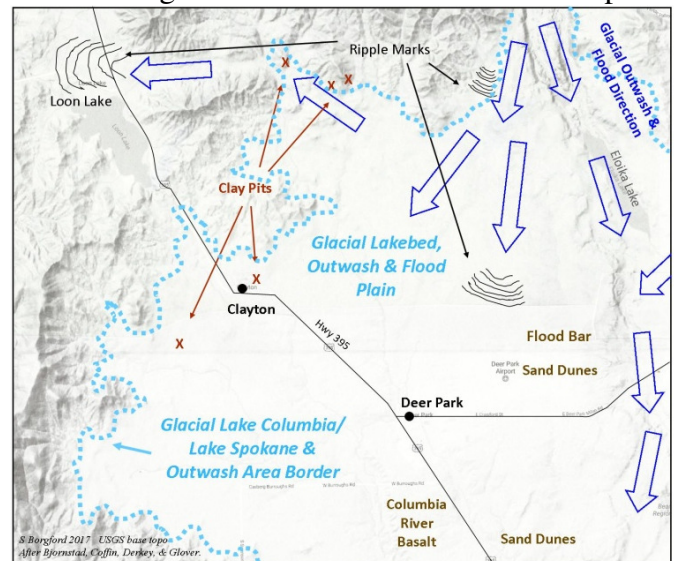
Bill Allen cooking up burgers for the picnic.

Geology Snapshots - Hwy 395 from Arden to Deer Park

by Sharon Borgford

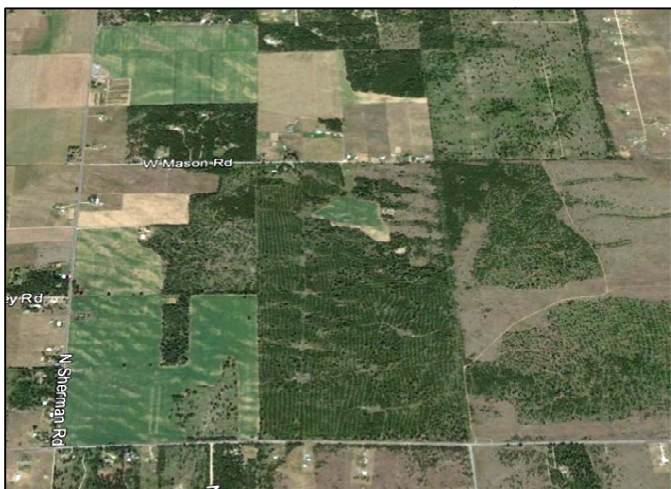
PART 9 Deer Park Basin

The lowlands from Clayton southward and as far as Mt. Spokane in the distance are a basin that was occupied by Glacial Lakes Columbia and Spokane, and served as an outwash plain for the Missoula floods that came through the Newport and Blanchard channels. It was also in the path of the outwash from the Pend Oreille River arm of the Cordilleran glacier that reached almost to Newport.



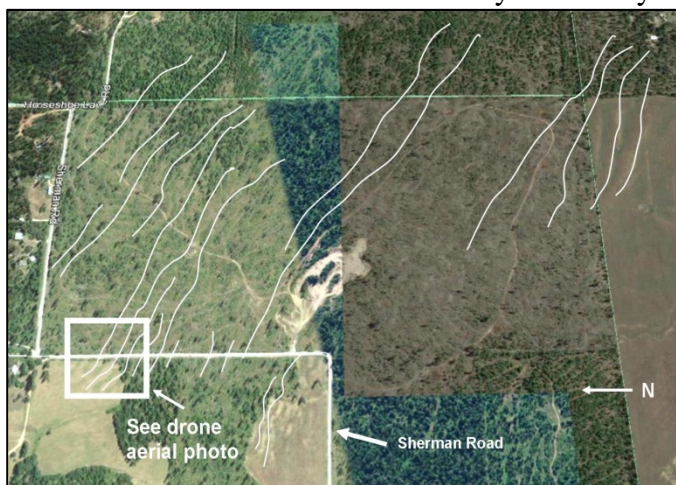
We have already seen the current ripples to the north in the town of Loon Lake. There are ripple marks located in the Deer Park outwash plain also, although they are not visible from Hwy 395. We will diverge from the highway and take a look at a couple of these current ripple features in the area. One set is north of the Deer Park airport (see map above). A good location to see them is along N. Sherman Road between W. Montgomery Road and Mason Road. Looking at them ahead of time from the air, such as in Google Earth photos or in Google

maps satellite view, makes it easier to grasp what you are seeing on the ground.



↑ Google Earth photo 1995 *Deer Park Ripple Marks*

About one mile north of the Deer Park ripples, another set is located northwest of Fan Lake and visible along Sherman Road. These are located at approximately 2400 feet elevation, draining from the Pend Oreille River area, and are aligned in the same direction as the ripples closer to Deer Park (if features exist between the two sets they are mostly



Google Earth photo base

obscured by vegetation). Along one section of Sherman Road, ripple measurements from crest to crest varied from approximately 35-55 yards and approximately 5-8 ft in height. The ripple dune interiors exposed in the road cuts consist of small (1" or less) angular or very slightly rounded rock fragments, interspersed with larger rocks of various sizes. Some are the readily recognized green and red Belt Supergroup rocks. Logging skid trails make it a little hard to delineate the lengths of the ripple marks from an aerial photo, but the

vegetation variation helps to define them.

Lines in the first photo do not outline all the ripples, but are representative of some of the visible ripples as well as a few of the ripples observed in the road cuts.



↑ Ripples visible on both sides of Sherman Road. Facing south. Drone photo by Merrill Ott.



↑ Photo along Sherman Road showing ripples cross-cut by the road. Drone photo by Merrill Ott.



↑ Ripple till - Largest fragment is 4 inches long.

A less extensive ripple mark set is visible a little further north along Horseshoe Lake Rd., and the undulating landscape is very noticeable as you look out across the pasture from the road.



↑ Google Earth photo Horseshoe Lake Road
Ripples

There are additional locations of current ripples in the Deer Park Basin, but those described above are the most prominent.

If you are considering using Google Earth to look for these features, how well they show up depends on the time of year, ground cover and lighting at the time the photograph was taken. If the current view does not show them clearly, use the timeline feature to see earlier photos that might be better.

The Little Spokane River provides the drainage for the Deer Park Basin, and they are both included in what is termed the Little Spokane River Drainage System .

Next time we will continue our journey south from Clayton and talk more about this drainage system, the soils it created, the rocks beneath it, and its relationship to the Missoula Floods. For basic information about the Missoula Floods, check out the Ice Age Floods Institute website at iafi.org.

References:

Bjornstad, B., Kiver, E., 2012, On the Trail of the Ice Age Floods, The Northern Reaches, Keokee Books.

Carrara, P., Kiver, E., Stradling, D., The southern limit of Cordilleran ice in the Colville and Pend Oreille valleys of northeastern Washington during the Late Wisconsin glaciation, Canadian Journal of Earth Sciences, Feb. 1996

Derkey, R.E., Hamilton, M.M., Stradling, D.F., 2005, Geologic Map of the Deer Park 7.5 minute Quadrangle, Spokane, County, Washington, DNR

All photographs and illustrations by Sharon Borgford unless otherwise noted.

Stevens County Historical Society

The Panorama Gem and Mineral Club has a long-standing partnership with the Stevens County Historical Society (SCHS). We have a wonderful display of local rocks at their museum in Colville. Recently they have requested that we do a one-day presentation there on several topics. Sue Richart has written us as follows:

"I would like to have the Rock Club do an extensive presentation on the geology, use of rocks, and mining in Stevens County. My thought is that we could have someone talk in the learning center about how the area was formed. Depending on how many can help from the Rock Club, it would be great to have someone talk about the various types of rocks the Indians used and why they used those particular rocks for each purpose this would be the grinding stones, arrow heads, scrapers, anchors, and heating stones. And to have someone at the mining exhibit in the museum itself and maybe outside depending on the weather to talk about mining. And to have someone to be at the rock exhibits in the museum to talk about the various rocks their formation and whatever else would be helpful."

Luckily our club has members who can do a great job of presenting information on

1. Local Geology
2. Types of rocks used by Indians
3. The rocks in their rock display
4. Mining equipment near their mining cabin

Unluckily the timing was not good for doing it this month. But we should try to line up volunteers reschedule it for some time after next year's Rock Show, when the museum will be open again. As a bonus, there is money available for the club from lodging taxes for doing this that could go to the general or the scholarship fund.

Picnic Potluck

Pictures by Sharon Borgford



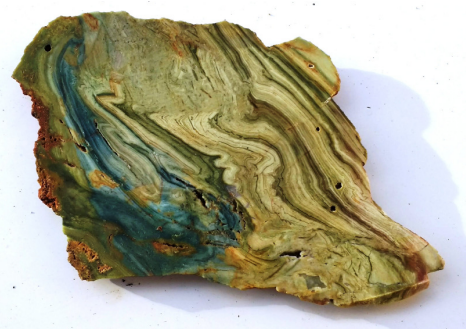
Bill at the Barbecue

Once again the club had a great potluck BBQ on the lawn outside the Arden Community Center where we meet. Bill Allen brought his mobile grill and fried up burgers and hot dogs that the club supplied. The rest of the food was from members and it was good and plenty.



Bev Bockman and Becky Dobbs foreground, Lucy Bristow near the condiments.

After eating, we had the usual tailgate rock exchange. I am grateful to Jerry Novak for this piece of Gary Green Jasper from McDermitt Oregon.



Johnie's Jabber *by Johnie Pitman*

Devin Hunt from Colville, and Emily Rowe From Chewelah have been paid their scholarships.

I still have 9 pieces of plywood 16"x 8' for sale @ \$5 each.

Ice Age Vocabulary *By Sharon Borgford*

Northeastern Washington State is a land shaped by glaciers, so here are brief descriptions of some Ice Age terms used frequently in publications and presentations. Most of the comments are quotations or summaries found in the sources in parenthesis.

GLACIER

"The *definition* of a *glacier* is a huge mass of ice and snow that forms where snow gathers faster than

it melts and flows slowly over an area of land." (www.yourdictionary.com)

ICE SHEET

"A large ice mass, with an area usually greater than about 50,000 km². The Antarctic ice sheet is the world's largest." (Oxford Dictionary of Geology & Earth Sciences, Allaby, Oxford University Press, 2013). The ice sheet that formed in western Canada and advanced into northern Washington, Idaho, and northwestern Montana is known as the Cordilleran Ice Sheet.

ICE AGE

An ice age is a period of colder global temperatures that features recurring glacial expansion across the Earth's surface....There have been at least five major ice ages in the earth's past... Outside these ages, the [Earth](#) seems to have been ice-free even in high latitudes.....

The current ice age, known as the Pliocene-Quaternary glaciation, started about 2.58 million years ago..., when the spread of ice sheets in the Northern Hemisphere began." (Wikipedia) This is labeled as the beginning of the Pleistocene epoch.

GLACIALS, INTERGLACIALS

Within an "ice age", there are periods when the ice is **advancing (Glacial)** and covering increasingly more land area, interspersed with periods of time when the ice is **retreating (Interglacial)** and melting back temporarily. "Since the beginning of our current ice age, the world has experienced several glacial and interglacial periods, where ice sheets advance and retreat on time scales of 40,000 to 100,000 years....The Earth is currently in an interglacial period (named the Holocene), and the last **glacial** period ended about 10,000 years ago. What remains of the continental ice sheets that once stretched across the globe are now restricted to Greenland and Antarctica, as well as smaller glaciers...."(Wikipedia) This ice age will not be over until Antarctica is ice free.

So, by definition, we are still in an ice age cycle with the remaining ice in Antarctica and Greenland still melting and retreating, which adds another dimension to the study of the global warming topic.

In popular publications, the last glacial is often referred to as "the Ice Age" instead of just a glacial period, so the terminology can be confusing. Not only that, but the different glacials and interglacials are named differently on each of the major



continents, also named differently within a continent.

In North America, our current ice age is divided into three glacials. In our area, the most recent is named the "Pinedale" episode, but "Fraser" or "Wisconsin" names are also used. The next to the last area episode is named "Bull Lake" or "pre-Wisconsin", and there are some remaining features from this advance also, but they are much harder to recognize, since the Pinedale episode destroyed most previous features over which it traveled. These two names, "Pinedale (Wisconsin)" and Bull Lake (pre-Wisconsin)", will appear in literature you might read about our area.

"Although the exact causes for ice ages, and the glacial cycles within them, have not been proven, they are most likely the result of a complicated dynamic interaction between such things as solar output, distance of the Earth from the sun, position and height of the continents (plate tectonics), ocean circulation, and the composition of the atmosphere." (<http://www.pbs.org/wgbh/nova/earth/cause-ice-age.html>)

GLACIAL LAKE COLUMBIA, GLACIAL LAKE SPOKANE

The glacial period and interglacial changes in the ice cover did not take place evenly, and there were many smaller scale advances and retreats occurring throughout the episodes. Lobes of ice advanced from the north into the major river valleys, with familiar names such as Okanogan Lobe, Columbia River Lobe, Colville River Lobe, Pend Oreille Lobe, and Purcell Trench Lobe. When the lobes sufficiently blocked the drainages, lakes formed behind the ice dams. The Okanogan Lobe created a

dam not far from present day Grand Coulee Dam that blocked the Columbia River, creating what became Glacial Lake Columbia. This lake covered the Columbia River drainage to an elevation of approximately 2350 feet all the way to the east of Spokane and into Idaho. At the times when the Columbia River lobe blocked the Columbia River where the Spokane River enters the Columbia, the eastern part of the lake was separate and was

called Glacial Lake Spokane.

GLACIAL LAKE MISSOULA AND MISSOULA FLOODS

The Purcell Trench is the long, wide valley that extends from Pend Oreille Lake north beyond Sandpoint, Idaho and into Canada. An ice lobe filled this valley also, blocking the Clark Fork River, which drains a large portion of northwestern



Montana. The lake that formed is the now famous Glacial Lake Missoula, all 3000 square miles of it (Bjornstad, Kiver 2012). When the

Wikimedia

Commons Photo - Patagonia

pressure of the huge volume of water became too great for the dam to hold any longer, the dam failed and the entire lake gushed through Idaho and eastern Washington, scouring and carving the landscape until it reached the ocean. This was repeated many, many times during the last glacial cycle, creating the flood features that we study today.

A thorough description of the history and features of the Missoula Floods can be found in the book by Bruce Bjornstad and Eugene Kiver, "On the Trail of the Ice Age Floods, the Northern Reaches", published by Keokee Books, 2012. The Ice Age Flood Institute's website is www.iafi.org.

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).

September Meeting 7 PM

TONS of thanks to Sharon

Borgford for pulling this issue out of a hat for me. I have a fairly long list of places to go and things to do that would be worth writing about in this newsletter, but it is also harvest time and crunch time on several other projects, so that list has not been used. If you have a rock trip coming up and could use another body. Invite me.

Meanwhile Johnie Pitman supplied a box of Montana Agates to give away at the Farmers Market to advertise the club. It has been a big hit.

Montana Agate is the term given to the stunning chalcedony that was found in the alluvial gravels of the Yellowstone River. It formed during the Pleistocene period from (2,588,000 until 11,700 years BP).



Montana Agate is spread over in a vast area covering millions of square miles. The beauty of this is that it

cannot be mined by a small number of

companies. In fact, it will still be available in small amounts to the public and stone collectors for years to come.

Silica from volcanic ash and tree ash is the main component of agate. When dissolved in rain water, it fills cavities left in lava. Black manganese oxide produces tree-like dendrites in Montana Agate and red iron oxide creates bands of color.

Adapted from

<https://www.gemrockauctions.com/learn/additional-gemstone-information/montana-agate-gemstone>

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	294 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	509-684-6093
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