

THE CMS TUMBLER

January
2021

Next Meeting: Canceled

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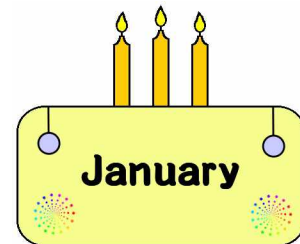
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This month remember
to wish a
Happy Birthday to
Sarah King on January 1
Jennifer Watson on January 7
Roger Danneman on January 8
Jonathan Fraser on January 10
John Haworth on January 13
Jeremy Bort on January 17
Ann McMurtray on January 19
Becky Trepanier on January 19
Rowan Miller on January 26

and also remember
to wish a

Happy Anniversary to
Michael & Katy Stevenson
on January 9
Catherine & Brett Petty
on January 18 (19 years)



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Tips, suggestions, recipes and experiments printed in this newsletter are the experiences and/or opinions of the individuals submitting them. We are not responsible for their authenticity, safety, or reliability. Caution and safety should always be practiced when trying out any new idea.

The monthly newsletter of the Cascade Mineralogical Society, Inc., Kent, Washington

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Postal, or Email, Exchange
Bulletins are welcome.
Email preferred.
greenrockdraggin@yahoo.com

2021 Elected Officers

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President	Kat Koch	425-765-5408	president@cascademineralogicalsociety.org
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Cascade Show	Treasurer Pete Williams	425-228-5063	petewill02@gmail.com
Cascade Show	Silent Auction Michael Blanton	425-271-8757	mblanton41@hotmail.com
Cascade Show	Raffle Donations Michael Blanton	425-271-8757	mblanton41@hotmail.com
Cascade Show	Demonstrators Richard Russell	253-736-3693	richru1@yahoo.com

2021 Committee Chairs

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2021 CMS Dues are \$15 per year per family

Pay online, by mail, or at our meetings.

Mailing Address: Charles Benedict, 25838 W Lk Wilderness Dr SE, Maple Valley WA 98038

You can pay your dues via credit card!! We now accept all cards through our website or at the meeting.

You can renew your membership or enroll as a new member and pay your dues all in one shot online. You will find it under the "Membership" tab on our website. <http://www.cascademineralogicalsociety.org>

The object of the Society shall be to stimulate interest in the study of the earth sciences, lapidary arts and related subjects.

This Society is affiliated with the American Federation of Mineralogical Societies; the Northwest Federation of Mineralogical Societies; and the Washington State Mineral Council.

Every member of the club should be receiving a copy of the Northwest Newsletter. If you are not receiving a copy contact Mike Blanton in person or by telephone at (425) 271 -8757 or by computer at mblanton41@hotmail.com

To get information to the Tumbler via the Internet send it to greenrockdraggin@yahoo.com Please put Tumbler and subject in the Subject Line. The deadline is the 20th of each month.

January

Sun	Mon	Tue	Wed	Thur	Fri	Sat
A new year, but the same old lockdown and no club meeting.					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

CMS Show Committee Meeting:....Canceled
 CMS Board Meeting:.....Canceled
 CMS General Meeting:.....Canceled

Lapidary Class Hours:.....By appointment, call to set a time & day for your lesson (425) 226-3154
 Lapidary Shop Hours:.....Most Tuesdays..... 2:00 pm to 5:00 p, call ahead (425) 226-3154
 Lapidary Shop Hours:.....3rd Saturday..... by appointment only (call a few days ahead to set time)

More Field Trip info can be found on Page 15

Remote Rockhounding

by KAM



The Tumbler has received One-Time Rights to publish this cartoon

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CMS Board Meeting Minutes December 7, 2020

Canceled.

CMS General Meeting Minutes December 6, 2020

Canceled.

Lower Dues for 2021

2021 club membership dues is \$15 for a family or individual!

The Board has approved a temporary reduction in our dues for 2021 only to \$15 per family or individual. Even though we are not presently holding meetings, our club still has to cover our annual dues to NFMS, AFMS, ALAA, WA State Mineral Council and the cost of liability insurance for 2021. I am sure by spring we will be back to holding our meetings again. When this does happen we will once again have the cost of the monthly rental for the meeting room.

From our website you can use a credit card to renew your membership. You can also mail a check to CMS, c/o Charles Benedict, 25838 W. Lake Wilderness Dr. SE, Maple Valley WA 98038.

January 2021 Meetings

The Board and General membership meetings for January have been canceled.

Everyone stay home and be safe. If you have to go out be sure to wear a mask.

Hopefully we will see each other by spring.

Our Club is a Member of these Federations and Associations

AFMS: The AFMS governs our Northwest Federation. <http://amfed.org/index.html>

The bulletins are published quarterly. You can find the news bulletins at <http://amfed.org/news/default.htm>



NFMS: The Northwest Federation is our home federation. To keep up on the goings on in our own backyard. <http://northwestfederation.org/>

The link for the news bulletins is <http://northwestfederation.org/Newsletters.asp>



ALAA: The American Lands Access Association, Inc. represents the rockhounding interests of 325 gem & mineral clubs/societies in 47 States and the District of Columbia.

The purpose of the association is to promote and ensure the rights of amateur fossil and mineral collecting, recreational prospecting and mining. The use of public and private lands for educational and recreational purposes. They also carry the voice of all amateur collectors and hobbyists to our elected officials, government regulators and public land managers. <http://amlands.org>

The front page also has a lot of current news, rockhounding restrictions or lack of, etc. <http://amlands.org>

ALAA also publishes a quarterly newsletter. To keep up on the news and lobby efforts on our behalf check out <http://amlands.org/>



Washington State Mineral Council: The Washington State Mineral Council is dedicated to the location and conservation of rock and mineral sites of interest to the rockhounds of Washington state.

<https://mineralcouncil.wordpress.com/>

You can find a database of local rock and gems shows and field trips. It's a great resource if you want to plan on outing.

Also check out "Misc. News" for all the latest updates on collecting sites around Washington.

<https://mineralcouncil.wordpress.com/news-updates/>

When the weather is good they have regular monthly field trips. So take advantage of these great outdoor rockhounding adventures! The field trip details are under "Field Trips" on the left side of the site. Check out the link for additional details for time and place to meet and the field trip leader.

You can find all this information and a whole lot more about what is happening in our state at

<https://mineralcouncil.wordpress.com/>



Mineral Cleaning Tip

For cleaning quartz, many collectors use hydrochloric acid (muriatic) to clean the brown stains from quartz crystals. This cleans the crystals but leaves a residue of ferric acid that requires washing to remove. Tartaric acid will clean as well and much easier. Put a spoonful of tartaric acid in water and immerse the specimen.

via The Quarry, 9/20; via AFMS Federation Newsletter, 9/20; via The Glacial Drifter; via Mineral Eureka News; from Osage Hills Gems

From the Top of the Rock Pile... by Kat Koch, 2021 CMS President

2020 sure has been a weird year in many aspect in every area of our lives. As we approach 2021 I have high hopes for a much better year.

The coronavirus has upended our way of life – but it's also having a dramatic impact on animals across the globe too. From Africa to Columbia to India poachers have been taking advantage of the quiet nature reserves and there has been a huge increase in the poaching wild cats.

In zoos across the world the social animals - including gorillas, otters and meerkats – are missing the attention of humans. Some zoo animals are making the most of their privacy. At Ocean Park, Hong Kong, it is thought that Ying Ying, one of the resident pandas, may be pregnant after 10 years of attempts at natural mating. Millions of baby turtles are hatching on India's empty beaches. In Florida, the Loggerhead Marinelife Center reported an increase in leatherback turtles this year. The tigers at the New York Bronx Zoo have been diagnosed with the coronavirus and emboldened wild goats are seen on the streets of Wales.

Bison roaming South Hill, Spokane for the 2nd time this year.

It has definitely been a weird year for humans and animals alike! It seems like our entire planet has felt the impact of the coronavirus one way or another.

Although we are not able to hold our monthly meetings our club is still alive and still kicking. We are still here producing our monthly news bulletin, maintaining our website and leading field trips when the weather is good.

If you are working on a lapidary project (or tumbling) and need help, we are all still here to help each other. If you have a question or need help just reach out to someone on the Board or another member. If you need grit, the club has some for our CMS members at a good price. Contact Bob Pattie and he will arrange for you to get some.

Dues for 2021 is only to \$15 per family or individual. Even though we are not presently holding meetings, our club still has to cover our annual dues to NFMS, AFMS, ALAA, WA State Mineral Council, website hosting and the cost of liability insurance for 2021. I am sure by spring we will be back to holding our meetings again. When this does happen we will once again have the cost of the monthly rental for the meeting room.

So please go to our website and renew your membership now!

<https://www.cascademineralogicalsociety.org/membership-signup/#join>

Now cozy up and enjoy the best these slower-paced days have to offer. Nothing says winter like a cup of hot chocolate, a pile of blankets and a soft pillow, a classic or Hallmark season movie or maybe binge watch your favorite streaming series.

Wear a mask, stay home, be safe and healthy as we all want to see each other next year.



Officers for 2021

Our election was supposed to have taken place at our holiday party in December. Since the meeting was canceled we were unable to hold the election and vote. The only person up for election was the Director's seat held by Rich Russell. He agreed to stay on for another term.

The Board agreed to the slate. So the Officers for 2021 remain the same as 2020.

Here's a picture of the board taken at the 2019 Christmas Party.

From left to right, Pete Williams (Secretary), Roger Pullen (Director), Kat Koch (President), Mike Blanton (Federation), Merriann Fu (Vice President), Charles Benedict (Treasurer), Bob Pattie (Mineral Council), Roger Danneman (Director), and Rich Russell (Director).

Photograph by John Cornell.



Energy Corridors by Bob Pattie

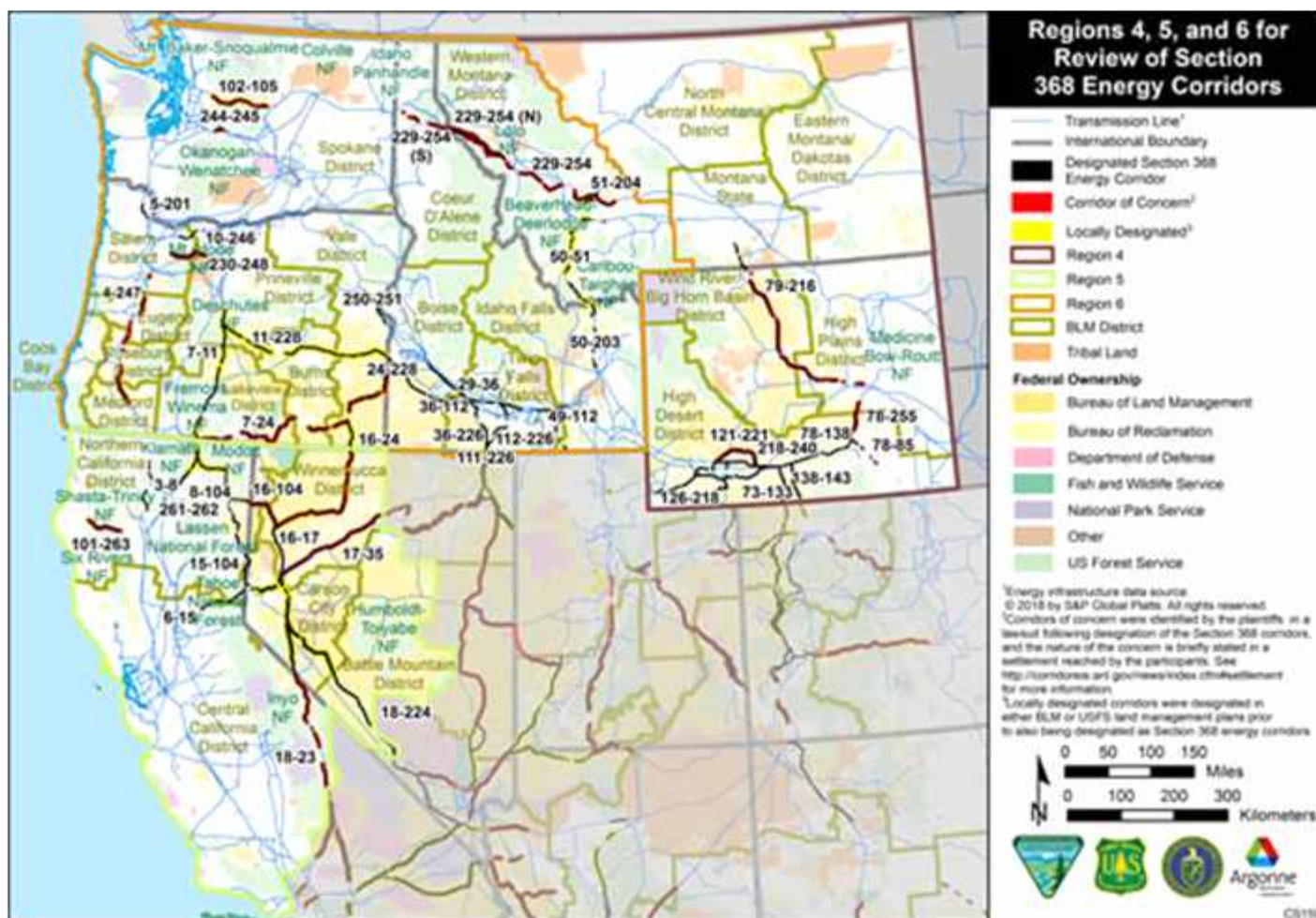
I believe that it is important for rockhound and the general public be aware of actions that are being taken in regard to our public lands. With the change in government officials in Washington DC what we think we know today, may not be what will happen tomorrow. We need to keep aware of the various study, reviews, etc. that effect our hobby. This is an example of a large activity that in some locations could effort our hobby and/or our appositions for the future.

The following article is a report on the study and potential changes to the energy corridors (electrical and gas pipelines). The map shows the area and particular lines that were studied, and the report has detail on each area. From a rockhound point of view, I do not see much of an issue. In the state of Washington, the two areas (Steven Pass and the road from I-90 to Lester) have no changes expected in the near future. Other areas have some potential changes and such as widening a power line and moving one from one hillside to another. I did notice in the section on organization that were involved, I don't see any rockhound organization as being involved in some of the early discussion or attending meetings on the subject, such as the list of nongovernmental organizations included which included the following: Alabama Hills, Stewardship Group, BARK, Center for Biological Diversity The Wilderness Society, Columbia Riverkeeper, Defenders of Wildlife, Friends of the Inyo, Greater Little Mountain Coalition, Great Old Broads for Wilderness Cascade Volcanoes Chapter, Oregon Natural Desert Association, Oregon Wild, Pacific Crest Trail Association, Toiyabe Chapter of the Sierra Club and the Bodie Hills Conservation Partnership, Trout Unlimited, and Western Watersheds Project.

Regions 4, 5, and 6 Energy Corridor Abstracts

The BLM, USFS, and DOE released the Regions 4, 5, and 6 Report on November 2, 2020, and are requesting stakeholder input. The Agencies request comments be submitted by January 31, 2021.

On February 20, 2019, the BLM, USFS and DOE published draft energy corridor abstracts for the Regions 4, 5, and 6 review process. That release initiated a 45-day stakeholder review period which closed April 8, 2019. The review includes 59 energy corridors across BLM and USFS lands located in California, Idaho, Montana, Nevada, Oregon, Washington, and Wyoming. Revised corridor abstracts were released on May 14, 2019, and are available below.



Regions 4, 5, and 6 Report Released

The U.S. Bureau of Land Management (BLM), the U.S. Forest Service (USFS), and the U.S. Department of Energy (DOE) have released the Regions 4, 5, and 6 Report and are requesting stakeholder input regarding energy placement on Federal lands across portions of California, Idaho, Montana, portions of Nevada, Oregon, Washington, and Wyoming. The agencies are requesting comments be submitted prior to January 31, 2021. The report is available on the

Regions 4, 5, and 6 Regional Review page of the West-wide Energy Corridor website. Please submit comments using the input form on the West-wide Energy Corridor Information Center website.

For More Information

Additional information and background is available on the West-wide Energy Corridor Information Center website at <http://corridoreis.anl.gov>. If you have questions, contact the West-wide Energy Corridor project team at Corridors@anl.gov.

What To Expect In 2021 Regarding Usage Of Our Public Government Land by Bob Pattie

A recent article by Lynda V. Mapes in the Sunday Times(11/22/2020) discussed the following topics.

From reintroduction of the grizzly bear to its wild North Cascades redoubt to attacking climate change, a wide range of environmental policies could see a new direction in the Pacific Northwest under a Biden administration.

This article included the below item and went into more detail in other areas, at this time I am going to discuss the grizzly bears. The parts of this report that is a direct extraction from the article in the paper it is italicized.

Endangered species

The Biden administration could reverse the withdrawal of federal Endangered Species Act protection for the gray wolf; reconsider listing for the wolverine; restart reintroduction of the grizzly bear to the North Cascades region; and restore effects due to climate change as criteria for listing and critical habitat designation.

Robb Krehbiel, Northwest representative for the nonprofit Defenders of Wildlife, said the Trump administration's on-again, off-again stance on grizzly reintroduction exemplified policymaking that was not based in science.

"This is the last native carnivore still missing from the Cascades," Krehbiel said. "Bringing the grizzly back home would just be huge to restoring this ecosystem."

The bears help maintain open, alpine meadows surely as a rototiller, as they dig in the ground with their big claws and muscular backs for insects, roots and small mammals, such as marmots and ground squirrels, said Bill Gaines, an independent biologist based in Leavenworth, who has worked on grizzly recovery since the 1980s.

Grizzly reintroduction also would restore the natural balance of animal life in the North Cascades with likely cascading effects, Gaines said.

In Yellowstone National Park, for instance, reintroduction of grizzly bears and wolves resulted in a redistribution of elk from riverbanks, allowing vegetation and birds to come back to those areas. Similar effects could happen if the grizzly were recovered in one of the few areas suited to them in the Lower 48: the more than 6.5 million acres of wild, open area comprised of the North Cascades National Park and parts of several national forests, Gaines said.

Just like the last time we studied the grizzly bear situation; I see very little science to base the reintroduction of Grizzly Bears in Washington State. The last one seen was what was thought to have been in Washington was on the Canadian-U.S. border and that was in 1996. The supporter of this project seen to be the people that are tour guides and photographers hoping to see a grizzly (1 of the 2 planted the first year) and still be far enough to be safe. Also they seem to be opening the area for the bears to include the land between the Canadian border and Snoqualmie Pass (I-90) that in a National Forest (an area where a lot of people live and work. We need to be ready to comment if and/or when this comes up.

Mining History of the Carbon River Valley, Pierce County, Washington by Kat Koch

Several times our rock club has gone rockhounding on the tailings pile from the Clipper Mine. We pass through several old and ghost towns I decided to find out what brought the settlers to this beautiful area.

The Carbon River Valley, named in 1876 after the coal deposits, and Carbon River is located in northeast Pierce County on state highway 165. It is approximately 45 miles southeast of Seattle. Once you leave Buckley and follow highway 165 you pass through several ghost towns before arriving at the entrance to Mt. Rainier National Park.

In the 1860s, coal mining was underway in eastern King County at Newcastle, Renton, and Coal Creek, driven mainly by demand in Seattle and other Puget Sound communities for raw materials. In 1871, a survey party initiated by Morton M. McCarver, an early promoter of Tacoma, discovered marketable coal on the Carbon River. After the Northern Pacific Railroad reached Tacoma in 1873, demand for coal expanded dramatically and more coal mines began operation in eastern King and Pierce counties. Contractor "Skookum" Smith, manager for the Northern Pacific during the completion of its line to Tacoma, also strongly advocated the development of coal resources in eastern Pierce County and convinced the railroad to build a spur to the coal fields. In 1877 the railroad reached the mines at Wilkeson.

During this 1880's economic boom the coal mining companies started setting up company towns along the Carbon River Valley. These "towns" were built by the mining companies on company owned land and were company owned.



The mining companies engaged in predatory practices through company-controlled stores. It required workers to shop at that the company store only and banned sales by outside vendors in town. Workers could take advances on their pay in scrip, redeemable only at the store. If used before payday the scrip's face value was discounted. Workers and their families in need of emergency goods found themselves in debt and prevented from leaving town until the debts were paid. In 1910 the state outlawed these practices!

Although coal was the primary reason for developing rail access up the Carbon River Valley, there were other resources too, and the trains were soon carrying timber, milled lumber, and the unique Wilkeson sandstone out of the region. The Wilkeson Sandstone Quarry is still open.

Logging and milling soon became as important to the regional economy as mining. Timber towns with extensive logging operation and multiple mills grew up overnight adjacent to the railroad lines.

Once you leave Buckley the first company ghost town is Wilkeson and then Burnett, Carbonado, Montezuma, Fairfax, and Manley Moore. These settlements sprawled up the valley to the very boundary of Mount Rainier National Park. The distance from Buckley to the last company town of Manley Moore is about 14 miles. At the close of 1919, the valley had 459 coke ovens!

Continuing on SR165 to the entrance to Mt. Rainier National Park is another 9 miles. From the entrance to the park the road continues to Lake Mowich.

Burnett: The town was founded in 1882 and named after Charles Burnett, Sr who owned the Burnett Pacific Coast Coal Company. The mine operated for 47 years and employed 100 – 300 men. During this time 70 miners were killed in mine dust and gas explosions. The peak population in 1891 was 400. The town and mine consisted of two rows of whitewashed miner's Cottages along South Prairie Creek. The rows were separated by a winding dirt road, in the center of which ran the railroad tracks of the NPR. Burnett was divided into Downtown, Finntown, and Brooklyn. Lower Burnett on South Prairie Creek consisted mostly of 8 to 10 saloons.

The post office open in 1888 and closed in 1927. This small community lives on today with some of the current residents living in the original company houses. Remains of the mines are still to be found on the hillsides.

Mines closed around 1927. Elevation 696 ft. Current population 2,216.

Wilkeson: In 1874, two brothers (William and David Flett), along with their brother-in-law (John Gale), staked a coal claim on a creek in the area that would later grow into the Town of Wilkeson.

The town was named for Samuel Wilkeson, secretary of the board of the Northern Pacific Railway. Wilkeson brought the railroad from Tacoma to Wilkeson in 1877. The towns' peak population around 1880 - 1885 was 3,000.

The sandstone quarries in the area produced a high-quality stone and supplied stone for cladding the majority of the state's Capitol buildings in Olympia. Wilkeson sandstone was a very high-grade building material – dense, watertight, and resistant to cracking and discoloration.

Early tourists were also drawn to Mount Rainier as soon as train service was available. Outfitters met tourists arriving by train in Wilkeson and then guided them by packhorse up into the high alpine areas of Mount Rainier.

In 1910 the town was hit by a devastating flood from the nearby river.

Wilkeson has been transformed into a ghost community by the depletion of its coal deposits and forests.

The mines closed around 1930.

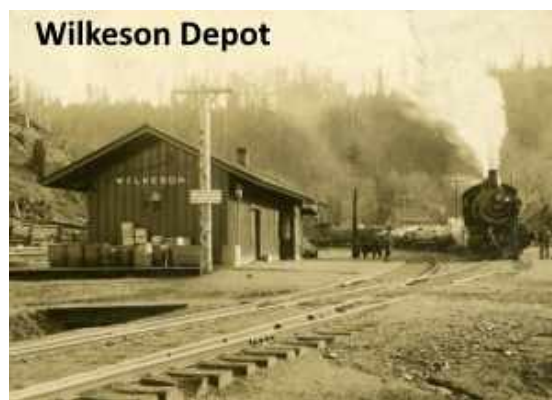
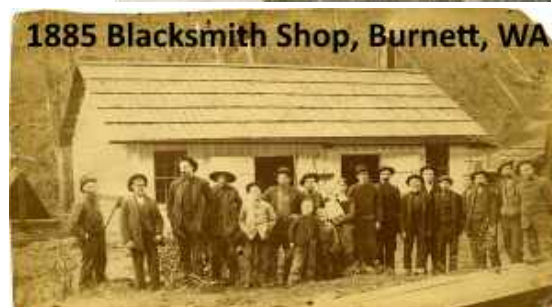
The Skookum Slope Mine was opened in the area in 1942 to supply coal to the war effort. The mine was named for Skookum Smith who was responsible for bringing the Northern Pacific Railroad to Tacoma. The mine operated from 1942 until 1956 producing thousands of tons of coal.

This mine closed in 1956. Elevation 804 ft. Current population 515.

Carbonado: Oddly, most of the history I have found pertains to the Carbonado area.

The first coal was discovered here in 1879 by prospectors Frances Bisson (Wales) and Robert Wingate (Scotland).

The growth of the town and surrounding mines grew quickly in the 1880s. One of the first projects was connecting the town which sat on a bluff 900 ft above the mines. The Carbon Hill Coal Company brought in Chinese laborers to build a path which was called the "Chinese Steps." In December 1880 the railroad came to town so the lumber company



constructed an incline railway from the town level down the 45-degree slope to the mines to bring the lumber or logs up to the railway. The "Steps" were then used for emergencies only.

In June 1880 the census records showed only 32 residents. By the summer of 1880, the Carbon Hill Coal Company had opened a store and the post office was established for Carbondale. A few months later the city name was changed to Carbonado, meaning "black diamond" in Spanish.

The first homes were very rustic on unpaved streets, no indoor plumbing, no potable water each but each home had an outhouse. The only water available was from public taps located around the town. The mining companies concentrated on hiring family men as they were less likely to strike. To handle the influx of children to their town school houses were also built. A school district was established in 1881.

The quality of the coal was good but conditions in the mines made extraction difficult. Uplift by the Cascade Range meant that the coal beds tilted at extreme angles, requiring crews to work on steep slopes. Other hazards, including firedamp (a mix of flammable gases, including methane), cave-ins, and injuries from machinery were common. Of particular concern were "bumps" – undetectable pressurized gas pockets that could explode when encountered. There were numerous mine explosions around Carbonado killing more than 100 miners. The worst single coal mining disaster in Washington occurred here in 1899 when an explosion in the Carbon Hill Mine #7 killed 32 miners.

1880 the census records showed only 32 residents. By the summer of 1880 the Carbon Hill Coal Company had opened a store and the post office was established for Carbondale. A few months later the city name was changed to Carbonado, meaning "black diamond" in Spanish.

By 1890 the towns population was 705. While upgrades to town facilities occurred regularly, residents had limited say. There was no town government or elected leadership; all improvements were at the behest of the Carbon Hill Coal Company and occurred on its schedule. While residents were relatively content with the status quo, subsequent years under this system would prove to be detrimental to growth and change of the city. One major improvement for Carbonado was when the mining company built a town hospital in 1892. Before that, medical help for serious injury or illness meant a trip to a larger city, usually Tacoma, by rail. This was a long and frequently taxing trip.

The quality of the coal was good but conditions in the mines made extraction difficult. Uplift by the Cascade Range meant that the coal beds tilted at extreme angles, requiring crews to work on steep slopes. Other hazards, including firedamp (a mix of flammable gases, including methane), cave-ins, and injuries from machinery were common. Of particular concern were "bumps" -- undetectable pressurized gas pockets that could explode when encountered. There were numerous mine explosions around Carbonado killing more than 100 miners. The worst single coal mining disaster in Washington occurred here in 1899, when an explosion in the Carbon Hill Mine #7 killed 32 miners.

The mining company gradually upgraded the homes with better construction, indoor plumbing, and water.

Many of the houses that the company built and originally owned still line Main Street. They look very similar to each other as was the style of the company builders at the time. And though many of the miners abandoned the town, some of those houses still live the direct descendants of the original miners. The old schoolhouse and an original homesteaders house and one barn have also survived until today and are still functioning in another use.

Carbonado was officially incorporated on September 13, 1948.

Since the decline of the mining era, Carbonado has experienced extreme shrinking and small booms ultimately ending with a steady population. All of the current residents work elsewhere and what was once an economic center for the valley is now a residential community.

If you would like to read a very interesting article on Carbonado and the settling of the area see <https://www.historylink.org/File/20505> "Carbonado – Thumbnail History" by Edward Echtle

Mines closed in 1937. Elevation 1,191 ft. Current population 735.

Melmont: The town was established in 1900 when the Northwest Improvement Company, a subsidiary of the Northern Pacific Railroad established the mines at Melmont. By 1902 the mines were in full production, the coal was sent to Carbonado for processing. The town consisted of a hotel, saloon, butcher shop, store, train depot, and rows of company houses. Each row of houses accommodated a different nationality of miners, who were self-segregated. The peak



population was 400 to 500 people.

The foreman of the mines in Melmont, Jack Wilson's home was bombed in 1905 by a load of dynamite placed under his house. Wilson and his daughter were sleeping in the home at the time. They were unharmed but broke all the windows in their home and nearby homes. A Melmont miner, David Steele, was charged with the crime but acquitted because of the lack of evidence.

In 1915 the post office closed and the mines closed in 1918. In the 1920's most of the remaining buildings were destroyed by a forest fire. Very few remains of the town can be found.

Mines closed in 1918. Elevation 1,367 ft. Current population 0.

Fairfax: Fairfax was established in 1892 and named after the coal county of Fairfax, Virginia. By early the 1900's it had a school with a large schoolyard and a white picket fence around it. There were some 2 story homes plus a 3 story hotel to house the single men. The peak population was around 500. By 1920 many of the Fairfax mines had shut down. In 1941 the town was all but abandoned as the mining company completely pulled out. In 1943 the post office closed.

Fairfax, in the early 1900s, was considered the "prettiest mining town around." Tourists were now coming to the upper-end Carbon River Canyon by train or tooling down the road sightseeing in a Model-T on their way to Mount Rainier.

Today there are few remains of this once pretty town. The buildings are gone, having been torn down or the wood salvaged. The only remains to be found are remnants of 116 beehive coke ovens, the foundations of the mine workings and the school can be found.

All mines closed in 1941. Elevation 1,357 ft. Current population 0.

Montezuma: I have found very little history about this town.

Montezuma was originally a coal mining town located about a mile south of Fairfax. The town did have several coke ovens at its mining peak. After the coal mines shut down it became a logging town. I did find that the railroad was extended to Montezuma to haul out the coal and lumber.

I could not find any information that an actual town had homes where the workers lived. I assume that the workers lived in Fairfax. It seems the town was only a location to conduct mining or logging operations.

I could not find when the mines closed.

The Manley-Moore Lumber Company was still in operation in 1927.

There are no remaining ruins.

Elevation 1,191 ft. Current population 0.

Manley Moore: I have also found very little history about this town. I could not find any information that a substantial town existed or what it's population might have been.

In 1909 the Manley-Moore Lumber Company moved its operations to a tract of old-growth timber east of Fairfax in eastern Pierce County. The company built a large sawmill, a lumber yard, and buildings for workers on the south side of the Carbon River, and the town was named Manley-Moore. They had significant challenges, one of which can be seen in the above photo.

The railroad was extended into this area. Hence, Manley-Moore had access to the Northern Pacific Railroad for shipping finished lumber to market and a bountiful supply of timber without competitors. Whoever controlled access to the railroad also controlled the timber.

It wasn't all sunshine and roses for Manley-Moore. Though the area was rich in timber, those hills/mountains surrounding the narrow upper Carbon River valley were steep, presenting big challenges for loggers. People visiting the logging operation often commented "I can't remember ever seeing a logging railroad this steep - 57 degrees steep!"

Manley-Moore Lumber Company was in operation until 1934. At that time because of huge outstanding debt and it was forced to sell to the Eatonville Lumber Company.

There are no remaining ruins.

Elevation 1,357 ft. Current population 0.



The Clipper Mine, Pitcher Mountain: Where rockhounds go rockhounding.

The Clipper Mine is located in the Carbon River Mining District, elevation 3,921 ft. It is part of the Surprise group of claims starting around 1900-1901. The Clipper Mining Company was formed in 1901. I found a stock certificate issued in 1906 with a value of \$1.00 per share. At some time thereafter, the mine was known as the Mother's Day Mine. The mine was shut down in 1943.

It's a lead copper ore mine with a 1,200 ft adit and 3 or 4 short crosscuts. The Leola Mining Company bored the Clipper adit using 3 shifts of men. This mine primarily a lead copper ore mine. The veins at the opening ran vertically up to 15" wide in grandiorite and eventually grew to a 15 ft vein. This mine doesn't have any winzes or vertical shafts. Assay records show \$43 a ton in copper, silver, and gold after 380 feet of the tunnel had been run.

The mine is now abandoned. It's an easy hike to the bottom of the tailings pile. The mine adit is at the top of the tailings pile. You can get there by continuing along the path up and around to the top or climbing the tailings pile. Either route to the adit is a bit more strenuous. There is now continuous running water on the floor and with remnants of the ore car rail tracks. About halfway in you will see the crack in the wall where water is running in. The timbers in some areas are decayed and there have been a few minor cave-ins. There doesn't seem to be any mine equipment or tools left behind.

They say the mine is safe to enter because it is a hard rock mine although rock clubs advise their members not to go into the mine. When searching the tailings pile you can find Copper, Pyrite, Quartz, Azurite and Chrysacolla.

Carbon River Valley: The railroad has pulled out. The Rails to Trails project now has most of the actual rail line land in its possession.

Bibliography: Wikipedia, Historylink.org, KIRO7, Western Mining History, Google Maps, World Population Review: US Cities, The Town of Wilkeson, Rails to Trails, Roadside Thoughts, Black Diamond History, Washington State Historical Society, USGS.gov: Mineral Resources

**Pele is Acting Up Again Halema'uma'u Crater, Big Island, Hawaii is Active Once Again**

Kīlauea Volcano started erupting once again at 9:30 p.m. HST on December 20th. The USGS Hawaiian Volcano Observatory (HVO) detected glow within Halema'uma'u crater at the summit of Kīlauea Volcano, indicating that an eruption had commenced within Kīlauea's summit caldera. Due to the presence of the water lake at the summit of Kīlauea and the potential for steam-driven explosions and related hazards, HVO elevated Kīlauea's volcano alert level to WARNING and its aviation color code to RED on December 20 as the progression of events was uncertain.

The water lake at the summit of Kīlauea has boiled away and an effusive eruption has commenced, with three vents in the wall of Halema'uma'u crater generating lava flows that are contributing to a growing lava lake at the base of Halema'uma'u crater. The eruption is currently confined to Halema'uma'u crater.

On December 21st HVO decreased Kīlauea's volcano alert level to WATCH and its aviation color code to ORANGE, reflecting the less-hazardous nature of the ongoing eruption.

Recent Observations on December 20th:

An earthquake swarm beneath Kīlauea summit began around 8:30 p.m. HST on the evening of December 20th, accompanied by ground deformation detected by tiltmeters. A bright glow and vigorous steam plume, generated by the boiling water lake in Halema'uma'u, was subsequently observed on HVO webcams beginning approximately 9:30 p.m. HST. HVO scientists responded immediately and visually confirmed from the field that lava was visible within Halema'uma'u. The steam plume dissipated shortly thereafter. Activity over the past ten hours has been characterized by three fissure vents on the north and northwest walls of Halema'uma'u crater. Fountaining lava at these vents is estimated to be up to 25 m (82 ft) high; the vents are feeding lava flows into the base of Halema'uma'u crater, which is being filled with a growing lava lake.

The lava lake has been rising approximately several meters (yards) an hour since the eruption began. The current lava lake exhibits a circulating perimeter, but stagnant center.

The event has been accompanied by only moderate amounts of deformation, indicating deflation of a magma reservoir under Halema'uma'u. Rates of tilting have decreased slightly since the beginning of the eruption.

Increased rates of seismicity in the summit region continue. Some of these earthquakes may be felt. A magnitude-4.4 earthquake located beneath Kīlauea Volcano's south flank occurred on Sunday, December 20th, at 10:36 p.m. HST.

Condensed from <https://volcanoes.usgs.gov/hans2//index/volcano/332010>

Washington State's Only Commercial Oil Well by Kat Koch

Oil was used by Native Americans in Northwest Washington long before the coming of white settlers. They often spoke of "smell mud," which were natural oil seeps. Early pioneer settlers became interested in the potential of oil in Washington. When the first well was dug specifically for oil is not certain, but most likely in the 1880's. An oil boom

developed in western Washington in 1885. A water well had been drilled on a farm in the Puyallup Valley. At the depth of 1,250 feet water at a temperature of 80 degrees was struck along with enough gas to heat and light the farm home for a time. This, along with traces of oil in other water wells, generated some excitement.

In August 1885 the Tacoma Petroleum Company dug their first well at Elhi, Pierce County.

In December 1911 the Olympic Oil Company filed a plat for Oil City at the mouth of the Hoh river in Jefferson County. This was to be a deep water oil port. Many of the lots were bought on the hopes of oil prosperity, but some were used for vacation homes. A first addition to Oil City plat was filed in January 1920, by the Olympic Oil Company of Washington.

There was a boom in the area of Tenino in Thurston County that ran from about 1914 to 1916.

In all over 600 exploratory wells have been drilled in Washington and only one ever achieved commercial production.

In 1957, the Sunshine Mining Company, under the Presidency of Robert M. Hardy Jr., drilled the Medina No.1 oil well, located immediately north of the town of Ocean City on the coast of Washington State.

This was a joint venture with J. W. Tanner who was a businessman from Olympia with specific interests in the oil industry. The Sunshine Mining Company purchased Tanner's interest in the company in 1958.

Sunshine's Medina No.1 well would produce 12,500 barrels of oil and to this day remains Washington State's only commercially producing oil well. In 1961 the well was capped and production stopped.



Victoria Stone by Kat Koch

I was looking at all the beautiful rocks, minerals and geodes on the various Facebook pages and I came across a picture of beautiful blue and white Victoria Stone. The person was hesitant on cutting the stone but gave no other information.

I was so taken by its bright color and crystal structure that I couldn't believe this was a real stone. So I did some research.

Victoria Stone is also known as Imori Stone named after the Japanese Doctor Satoyasu Imori. It is not a fake, synthetic or artificial stone but a reconstructed stone. Dr. Imori created this stone in his own laboratory from natural raw materials by blending 7 different minerals using a process he developed. Materials such as quartz, feldspar, magnesite, calcite, flourspar, etc. were fused under high pressure and high temperature. The boule of Victoria stone was slowly cooled down for 35 to 40 days under great pressure to make it crystallize into the pretty fan shapes.

He produced the stones from the 1960's through 1980's in an array of colors: green, sky blue, reddish-purple, yellow-green, blue-green, sky blue, chocolate, yellow, deep indigo, white, peridot green, quiet yellow, quiet blue, gray and deep black. It has a hardness is 5.5 to 6, a specific gravity of 3.02, and a refractive index of 1.62. It is suggested to thoroughly research before cutting the stone as it can easily crack. If done properly it can take a very good polish.

Dr. Satoyasu Imori (October, 19, 1885 – October, 13, 1982) was a Japanese analytical chemist and a pioneer of radiochemistry. He is so called "the father of radiochemistry in Japan." I find his name found to be spelled two ways Imori and Imori. I am using the spelling found on his obituary. Dr. Imori died without confiding in anyone how the process worked and no one has been able to duplicate it. There is only a limited and non-replenishable supply of Victoria Stone in existence, when this material is gone it will be gone for good. The average finished cabochon of 10 grams runs about \$200 USD.

Dr. Imori claimed that his stone was a synthetic jade. Recent research on this stone has revealed that the stones are molten glass. When the Victoria Stone boule was released from its mold it had a crust on it. This crust is also indicative of a glass mixture. Maybe that is the reason that Dr. Imori never patented his process to making his stones. The only secret remaining is what was mixed into the molten mixture to make it recrystallize like it does.

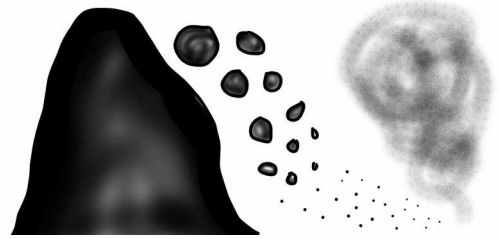
There are people in Australia, United States and Asia working on producing Victoria Stone once again.

Bibliography: Facebook, JJ&L Rocks and Minerals, Wikipedia, Snob Appeal Jewelry, Silver Jewelry Rocks, Pinterest, Snob Blog.



YOUNG TUMBLER NEWS

- What do Mountains Make? Boulders and Rocks
- What do Boulders and Rocks Make? Stones
- What do Stones make? Pebbles
- What do Pebbles make? Sand
- What does Sand make? Dust



Heat, cold, rivers, oceans, earthquakes, volcanoes, glaciers moving and the tectonic plates moving all help to breakup the rocks, boulders, stones, pebbles, sand into dust.

Activity for Preschoolers and Elementary Graders to Learn the Alphabet, Spelling and Math

This is great activity for your budding rock hounds.

1 bag river stones – have your kids collect them or you can find them at Michael's or a dollar store.

Sharpie marker – medium point.

Write the entire alphabet a couple of times or more on the rocks plus extra vowels (e, l, o u, y).

Now using the rocks you can teach your youngster the alphabet plus how to spell simple words.

Get a new set of clean river rocks and write a couple sets of numbers 0 to 9 plus the signs +, x, ÷.

Now using the rocks you can teach your youngster basic math and counting.

Juniors—Just for Fun

Match up the terms with the description.

Geology

Archaeology

Culture

Paleontology

Volcanoes & seas

Study of people who lived long ago

Study of fossils

Study of rocks

Places new rock comes from

A way of life

via Pick & Shovel, Spring/20; from Pick & Shovel, 5/81

A 47 Million Year Old Python Fossil

Scientists have identified the world's earliest python from 47 million-year-old fossils recovered from a quarry in southwest Germany. Remains of the new python species, called *Messelopython freyi*, were discovered in Messel Pit, a UNESCO World Heritage Site near the German city of Darmstadt. Researchers report in a new paper that the 'completely preserved' species had a length of just over three feet.

Left, the full specimen, and right, a close-up of its head.



Hiddenite and Kunzite, The Wonderful Gem Varieties Of Spodumene by Ana Papadopoulos

Sometime in the mid 1990s I received a translucent, glassy pink colored stone as a gift that was found at a mine down in San Diego County, California, and I fell in love with the color and texture of the stone. The stone turned out to be Kunzite, the pink to purple variety of Spodumene. What is Spodu-mene and why is it important you might ask. Spodumene is a pyroxene mineral consisting of lithium aluminum inosilicate with the chemical formula $\text{LiAl}(\text{SiO}_3)_2$. It occurs in pegmatites, and it is often found with other pegmatite minerals such as Muscovite, Lepidolite, Tourmaline, Morganite, and Aquamarine. As the chemical formula suggests, Spodumene is a source of Lithium, which is used in lithium batteries and as a flux in ceramic glazes. It is a much purer form of lithium than alkaline brines and can be processed in days rather than months or years.

Apart from Spodumene's industrial uses, it is also used as a gemstone. While it is often colorless to ashy grey and opaque, it can be transparent, pale to emerald green and light pink to lilac purple and even yellow. The pale to emerald green variety is called Hiddenite and the pale pink to vibrant lilac purple variety is called Kunzite. They are both beautiful as crystals and as faceted gemstones. I refer to them as "hidden gems" because they are not as well known as other gemstones like diamonds, emeralds, or rubies, but are beautiful in their own way. They contain properties which make them harder to facet but also contain properties which enhance their uncommon beauty.

Hiddenite ($\text{LiAlSi}_2\text{O}_6$), or Lithia Emerald as it was once called, is certainly a hidden jewel. Hiddenite was first discovered around 1879 in a small settlement that was later renamed Hiddenite in Alexander County, North Carolina. The mineral was named in honor of William Earl Hidden who was instrumental in its identification. As a mineral specimen, Hiddenite forms as bladed crystals, which can have an etched surface creating interesting shapes. It also has a vitreous luster. Like Emerald, its green color comes from chromium. As a gem, Hiddenite is a tricky stone to work with due to its monoclinic crystal system and two cleavage directions, but when faceted, the icy green color just sparkles. Another reason why it is not widely used as a gemstone is because it is 6.5-7 on the Mohs scale and can chip more easily. Another drawback is the color can slowly fade over time when exposed to sunlight so it is often worn at night if set into jewelry (the Kunzite specimen I have from the 1990s has not faded but then again I keep it away from direct sunlight). With Hiddenite, the deeper and richer the color, the more valuable it is. While there are other sources besides North Carolina for green-yellow Spodumene, such as Afghanistan and Brazil, the stones are much paler and of lesser quality, and are often irradiated Kunzite. However, the mines are still active in North Carolina, and are the on-ly source for true Hiddenite, making it rare and valuable.

And now we come to that mineral I fell in love with as a ten year old; Kunzite. It was discovered in San Diego County, California and sent to George Frederick Kunz, a mineralogist working for Tiffany and Company, who identified it as a new species in 1902. It was subsequently named in honor of Kunz in 1903. It shares properties with Hiddenite except that it is colored by traces of Manganese, so it is not green but various shades of pink or purple. As a mineral specimen, it can form beautifully elongated crystals with a sharp termination.

Both Hiddenite and Kunzite are pleochroic, meaning they change color depending on the angle and that makes them special. Only a handful of crystals have this property including Tanzanite and Alexandrite, and they are valuable gems! As with Hiddenite, the deeper the color the more valuable it is. While Hiddenite may be considered a connoisseur gemstone due to its rarity, Kunzite is more abundant, and therefore more affordable, making it the perfect gemstone for collectors of all levels. This is why I consider it a "hidden gem".

The main sources for Kunzite are Afghanistan, Brazil, and of course, San Diego County, CA where some of the best stones are found. There is a famous necklace designed by Paloma Picasso for Tiffany and Co. that is set with a large 396.30 carat Kunzite from Afghanistan that resides in the Smithsonian, and yet, this mineral is still an underappreciated gemstone that deserves more love.

from Breccia, 11/20

Lattice Agate by David Springer

Among the myriad types and forms of agate familiar to rockhounds, I recently discovered a variety that has drawn me in; it is referred to as lattice agate. It's found at the site of Hart, California, a short-lived (1908-15) gold mining town in the Mojave Desert, about 12 miles east of Ivanpah, California. This same location is the site of the more recent Castle Mountain gold mine, whose tailings now cover up the spot where lattice agate was found. Therefore, expectations of material entering the market in the future are diminished (i.e., get it while you can!).

Chemically, lattice agate is a jaspagate-after-barite pseudomorph that often features chalcedony-filled vugs. The feature that gives the material its name is intersecting barite crystals that form a lattice. Its colors can often resemble those of the Cady Mountain jaspers, with lots of reds and purples and a balance of white. I have made multiple spheres from this material, all of it sourced from Wes Lingerfelt's rock pile. He collected it back in the days when the deposit was more accessible.

from Rockhound Rambling, 9/20

Young Richard's Almanac by Dick Morgan

Initiating a conversation is a good way to make friends. Especially in this time of the pandemic when you can only see a person's eyes, although a person's eyes do express their smile, a friendly greeting can lead to a chat that may make up for the inability to meet with your usual friends and give them a chance to talk about what's going on. Hopefully your action will be interpreted as friendly.

Field Trips

The club or clubs sponsoring the field trips are shown in italics. When known I have listed a phone number and contact person for each sponsoring club below the listed trips. If you are not a member of the sponsoring club, you should phone and ask permission to go on their field trip.

Information from the Washington State Mineral Council webpage (<https://mineralcouncil.wordpress.com>).

January 25 *Darrington Rock Club - South Skagit* – Meet before 9 am Hwy 9 & South Skagit Hwy P & R – Jade Hematite & more – bring a stream bar
Ed Lehman wsmced@hotmail.com h# (425) 334-6282 c# (425) 760-2786

Why Rocks Flow Slowly in the Earth's Middle Mantle

For decades, researchers have studied the interior of the Earth using seismic waves from earthquakes. Now a recent study, led by Arizona State University's School of Earth and Space Exploration Associate Professor Dan Shim, has re-created in the laboratory the conditions found deep in the Earth, and used this to discover an important property of the dominant mineral in Earth's mantle, a region lying far below our feet.

Shim and his research team combined X-ray techniques in the synchrotron radiation facility at the U.S. Department of Energy's National Labs and atomic resolution electron microscopy at ASU to determine what causes unusual flow patterns in rocks that lie 600 miles and more deep within the Earth. Their results have been published in the Proceedings of the National Academy of Sciences.

Slow Flow, Down Deep

Planet Earth is built of layers. These include the crust at the surface, the mantle and the core. Heat from the core drives a slow churning motion of the mantle's solid silicate rocks, like slow-boiling fudge on a stove burner. This conveyor-belt motion causes the crust's tectonic plates at the surface to jostle against each other, a process that has continued for at least half of Earth's 4.5 billion-year history.

Shim's team focused on a puzzling part of this cycle: Why does the churning pattern abruptly slow at depths of about 600 to 900 miles below the surface?

"Recent geophysical studies have suggested that the pattern changes because the mantle rocks flow less easily at that depth," Shim said. "But why? Does the rock composition change there? Or do rocks suddenly become more viscous at that depth and pressure? No one knows."

To investigate the question in the lab, Shim's team studied bridgmanite, an iron-containing mineral that previous work has shown is the dominant component in the mantle.

"We discovered that changes occur in bridgmanite at the pressures expected for 1,000 to 1,500 km depths," Shim said. "These changes can cause an increase in bridgmanite's viscosity -- its resistance to flow."

The team synthesized samples of bridgmanite in the laboratory and subjected them to the high-pressure conditions found at different depths in the mantle.

Mineral Key to the Mantle

The experiments showed the team that, above a depth of 1,000 kilometers and below a depth of 1,700 km, bridgmanite contains nearly equal amounts of oxidized and reduced forms of iron. But at pressures found between those two depths, bridgmanite undergoes chemical changes that end up significantly lowering the concentration of iron it contains.

The process starts with driving oxidized iron out of the bridgmanite. The oxidized iron then consumes the small amounts of metallic iron that are scattered through the mantle like poppy seeds in a cake. This reaction removes the metallic iron and results in making more reduced iron in the critical layer.

Where does the reduced iron go? The answer, said Shim's team, is that it goes into another mineral present in the mantle, ferropericase, which is chemically prone to absorbing reduced iron.

"Thus the bridgmanite in the deep layer ends up with less iron," explained Shim, noting that this is the key to why this layer behaves the way it does.

"As it loses iron, bridgmanite becomes more viscous," Shim said. "This can explain the seismic observations of slowed mantle flow at that depth."

The above story is based on Materials provided by Arizona State University.

from The Sierra Pelonagran, 6/20

How Do You Break Open A Geode At Home?

1. Put on safety goggles.
2. Grab a rock pick or a screw driver/chisel and hammer.
3. Wrap your geode in a sock or cloth.
4. Set the geode on a concrete surface.
5. Place the chisel/screw driver in the middle of the geode, and tap it very gently a few times with the hammer. Or tap it gently with a rock pick. Watch your fingers!
6. Turn the geode a quarter turn and do this again. Continue to move along the circumference of the geode until you see a crack form all the way around, then pull the two halves apart.

from Rock Talk Newsletter, 5/20

Rockhounding Code of Ethics

I will respect both private and public property and will do no collecting on privately owned land without permission from the owner.

I will keep informed on all laws, regulations or rules governing collecting on public lands and will observe them.

I will, to the best of my ability, ascertain the boundary lines of property on which I plan to collect.

I will use no firearms or blasting material in collecting areas.

I will cause no willful damage to property of any kind such as fences, signs, buildings, etc.

I will leave all gates as found.

I will build fires only in designated or safe places and will be certain they are completely extinguished before leaving the area.

I will discard no burning material - matches, cigarettes, etc.

I will fill all excavation holes which may be dangerous to livestock.

I will not contaminate wells, creeks, or other water supplies.

I will cause no willful damage to collecting material and will take home only what I can reasonably use.

I will practice conservation and undertake to utilize fully and well the materials I have collected and will recycle my surplus for the pleasure and benefit of others.

I will support the rockhound project H.E.L.P. (Help Eliminate Litter Please) and will leave all collecting areas devoid of litter, regardless of how found.

I will cooperate with field-trip leaders and those in designated authority in all collecting areas.

I will report to my club or federation officers, Bureau of Land Management or other authorities, any deposit of petrified wood or other materials on public lands which should be protected for the enjoyment of future generations for public educational and scientific purposes.

I will appreciate and protect our heritage of natural resources.

I will observe the "Golden Rule", will use Good Outdoor Manners and will at all times conduct myself in a manner which will add to the stature and Public Image of Rockhounds everywhere.

from the AFMS website

Dave's Recipe For Polishing Patuxent River Stone by Dave Lines

1. Using a 12 pound Lortone tumbler, fill with about 6 pounds (less than rated capacity, but this tumbler is old and works better with less load) of Patuxent River Stone of various sizes from 1" to 3".

2. For the 1st tumbling, add 6 tablespoons of 60-90 grit and half-fill barrel with water and tumble for 11 days.

3. Washed off rocks thoroughly and weighed --- about 5 pounds left. Scrub each stone individually with a brush to eliminate carryover contamination of grit.

4. For 2nd tumbling, add 6 tablespoons of 120 grit and half-fill barrel with water and tumble for 9 days.

5. Washed off rocks thoroughly and weighed --- about 4 $\frac{3}{4}$ pounds left.

6. For 3rd tumbling, added 8 tablespoons of 600 grit and half-fill barrel $\frac{1}{2}$ with water and tumbled for a week.

7. Wash off rocks thoroughly and weighed --- still about 4 $\frac{3}{4}$ pounds left.

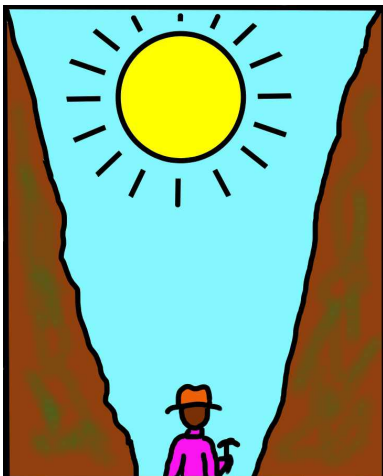
8. For polishing, divided pre-tumbled rocks into 2 batches and put 1st batch (about 2 $\frac{1}{2}$ pounds) in a small (3 Pound size) Thumbs Tumbler --- added 3 tablespoons of tin oxide and 1 teaspoon of powdered Tide detergent.

9. Add plastic pellets (small approximately $\frac{3}{16}$ " diameter) to bring level of barrel up to $\frac{3}{4}$ full --- then added water to just a little above the $\frac{3}{4}$ full level. (Note: this part is a little tricky as the plastic pellets float and you have to keep them pushed down with your hand while you add the water to keep the pellets in the barrel.)

10. Tumble for 1- 2 weeks (1 week should be enough, but due to other events, they tumbled an extra week.)

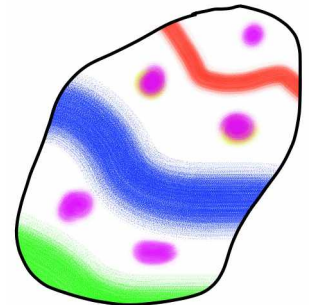
11. Wash off rocks thoroughly and dry with an old towel.

via West Seattle Petroglyphs, 8/20; from Rock Talk, 10/15



Collecting Rocks

I think that there shall never be
An ignoramus just like me,
Who roams the hills throughout the day
To pick up rocks that do not pay;
For there's one thing I've been told,
I take the rocks and leave the gold.
O're deserts wild and mountains blue
I search for rocks of varied hue.
A hundred pounds or more I pack,
With blistered feet and aching back.
And after this is said and done,
I cannot name a single one.
I pick up rocks where e're I go,
For reasons why I do not know,
For rocks are found by fools like me
Where God intended them to be.



via Rockhound Rambling, 11-12/20; from Rockhound Rambling, 1954