PACIFIC NORTHWEST CHAPTER FRIENDS OF MINERALOGY



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PNWFM



President's Message

Jessica Robertson

Hello friends!

As the new PNWFM President, I would first like to say a heartfelt thank you to everyone who helped make our return to in-person symposium a success! Our 2022 Symposium was smaller than it has been in years past, and while it was a challenge to re-engage as an in-person event while also learning how to also live-stream to remote viewers, it was worthwhile and wonderful to get it done.

A special thanks to Karen and Gary Hinderman, who carried a lot of the load in negotiations with the Red Lion and physically setting up displays. Brian Swoboda of BlueCap Productions was instrumental in taking care of the technical recording and streaming. For those who missed it, recordings of the symposium talks will be available in the spring; YouTube links will be announced on our Facebook page when available.

Planning is already underway for the 2023 symposium on the topic of rare earth minerals. Please consider pitching in to help this coming year in whatever capacity you are able. Many hands make light work and an engaging event!

I must also thank Toby Seim for his confidence in nominating me to be new President of Friends of Mineralogy Pacific Northwest Chapter, as well as the rest of the board and membership in selecting me for the office. I am honored. I pledge to try to provide active guidance while listening to the counsel of the folks that have been involved in the organization for much longer than I have.

For those who haven't met me, a bit of a bio—I live near Gig Harbor, Washington, with my husband Falk and two teen kids, Karst and Lena. I have been a lifelong mineral collector, and have been working as an environmental geologist in the Puget Sound region since 2002. Although I've been collecting since I was small thanks to my grandmother Kay Robertson, I only became involved with the greater mineral community in the last five years or so, as my personal and career commitments allowed.

(continued on page 2)

For the last few years, I have served as PNWFM symposium chair. I am also a board member of Friends of Mineralogy National, on the National Outreach Committee and a key member of the social media team. Personally, I find FM's goals of advancing promotion of mineral research, education and collection to be a wonderful outlet for my curiosity and energy, and best of all: fun!

Emerging out of the challenges to the organization presented by two years of Covid precautions, I also thank Toby, Bruce, Karen, Gary, and the rest of the board for keeping the organization as active as possible given the circumstances. Our next few years will present a fantastic opportunity to grow and re-activate PNWFM. To that end, we have started holding monthly evening board planning meetings over Zoom, in order to keep our goals on track for the year.

In addition to our usual October symposium, we hope to have a presence at the Seattle Mineral Market in the spring, and potential fundraising opportunities over the year such as offering "Rockhound 101" classes that were designed by the FM Virginia chapter and can be modified for our area. We are even starting to look a little beyond 2023, in order to tee us up for an exciting 2024—which will be our 50th year! More information on these meetings and the plans in motion is presented later in this newsletter. All members are welcome to sit in on these meetings and to become involved in planning. I look forward to getting to know all of you better and to see some fabulous events come together. Cheers!

PNWFM Board and Symposium Committee Notes & Call to Action

Current Board Members: President Jessica Robertson, Vice President Thea Stender, Treasurer Bruce Kelley, Secretary Karen Hinderman, Past President Toby Seim.

Symposium Committee: All board members, Julian Gray, Brittany Burkhardt, Gary Hinderman, Beth Heesacker.

We have met twice since the symposium to begin preparations for our next symposium: October 20 – 22, 2023, with a theme Rare Earth Minerals. We will be meeting again December 21, at 6:30 pm via Zoom. If you would like to join the symposium committee, please contact Karen at khinderman79@gmail.com.

Highlights of our two meetings include:

Kelso Red Lion is aging. There is very little foot traffic. There were many challenges working with the hotel and its staff this year.

Look for a new venue beginning with the 2024 symposium. Any member who has ideas or is willing to contact hotels in your local area, please contact a board member.

We need to increase our advertising for the symposium. Ideas include placing ads in local clubs' newsletters, send notices out to all Federation clubs, social media push, and make a large tripod sign to place outside the hotel pointing to where rocks/minerals are for sale.

We are working on creating a new logo for our club.

We will be meeting with Brittany Burkhardt and the Seattle Mineral Market group to coordinate having our club be involved in adding an educational component to the Mineral Market. Anyone who would like to join in on this committee, please contact Karen at khinderman79@gmail.com. One of our club's goals is educational outreach, and we feel that this is a way to meet the goal and be more visual in the mineral world.

We are looking at ways to generate revenue outside of our annual symposium. One idea is to have an online auction. Another idea is to sponsor a Rockhounding 101 class. Do you have thoughts or ideas? Contact us.

Please contact a board member with any thoughts or concerns.

PNWFM General Meeting Minutes October 16, 2022

Toby Seim, President, opened the meeting with 18 members in attendance. Minutes from our general meeting in May were approved as printed in the newsletter. Treasurer's report was shared. It was noted that with two years of virtual symposiums and expenses, as well as very little income during those two years, our club's treasury has shrunk. We will need to generate some income in the following year in order to build our treasury to a more secure level. One idea was to increase the fee for floor dealers to \$300. Also, over the last few months, we have discussed getting involved in the Seattle Mineral Market. Can we provide education about minerals while generating some income? More on this idea soon.

2023 Symposium themes were discussed and voted on. Our theme for our 49th symposium will be Rare Earth Minerals. If potential speakers are difficult to locate, our backup theme is Minerals of Peru.

Our 2024 Symposium will be our 50th Anniversary. Our theme will be PNW Minerals and Gold Mining.

The Symposium committee will be asking for more volunteers for next year. We need a new chairperson for the setup/tear down committee and a team to assist the speaker chair. Brittany will need an assistant for the Dealer chair position. We also discussed barriers to getting members to volunteer. One idea was to offer paid membership to volunteers. Another idea is to send out an email blast before the symposium asking for specific volunteers with times needed. Another idea was to be more personal and ask individuals via phone/email for their help. Soon the board will create a survey for members to complete in hopes of gaining member ideas and information on how to move forward successfully with more involvement by our members.

Election Results: The following individuals were nominated and elected for the next two years: President – Jessica Robertson, Vice-President – Thea Stender, Treasurer – Bruce Kelley, Secretary – Karen Hinderman (Toby Seim will remain on the board as Past President).

Good of the Order: the next newsletter will come out in mid-December. Please get articles and pictures to Beth at heesacker@coho.net asap. With so many activities being tabled or completed electronically the last few years, the board decided not to give out a Noble Witt Award this year. The board and symposium committee will meet on Wednesday, October 26, to debrief this year's symposium and begin planning next year's.



Marcasite

Freiberg, Mittelsachsen, Saxony, Germany. FOV 4.5 mm.Ex Lundgren collection. Collection and photo by Beth Heesacker

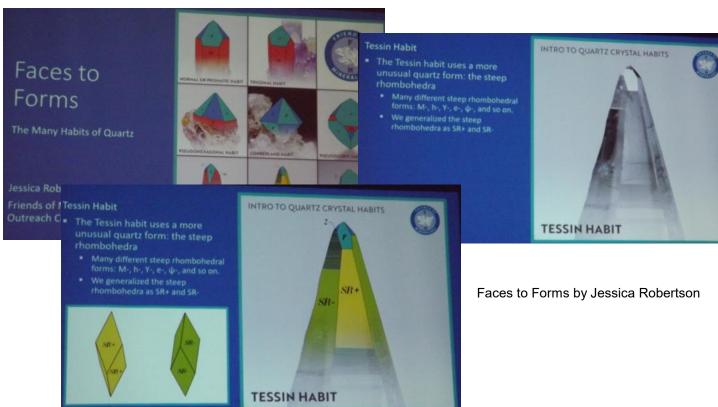


2022 Pacific Northwest Symposium

No Report Received

But here are a few pics (photos by Beth Heesacker):







Wonderful Displays!





More displays: Calcite



Along with dealers, auctions and friendships!



What Is New At The Rice Museum

Celebrating 25 Years



The Rice Northwest Museum of Rocks and Minerals exists to engage, inspire, and educate on the wonder and complexity of our earth.



Special exhibits:

Silver and Silver Bearing Minerals

Gene Meieran Topaz

Destination Moon Poster Exhibit



Museums for All:

Receive a reduced rate admission of \$3 per person when you present an Electronic Benefits Transfer (EBT) card and a valid form of photo ID. Rate is valid for up to four individuals per EBT card. Museums for All is a signature access program of the Association of Children's Museums (ACM) and the Institute of Museum and Library Services(IMLS).

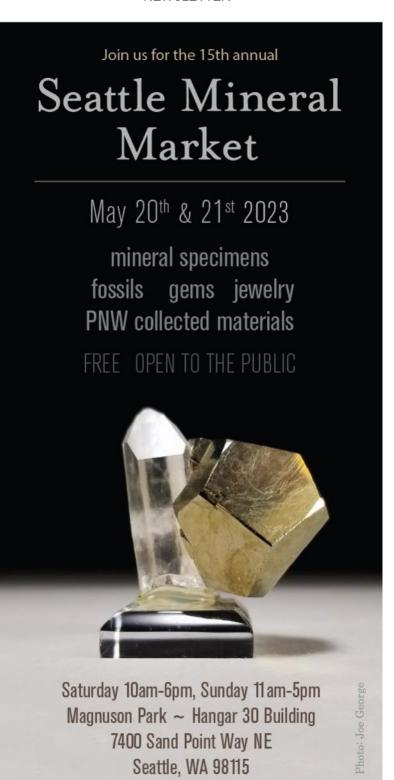
WINTER MUSEUM HOURS:

Wednesday 10:00 am - 4:00 pm Thursday 10:00 am - 4:00 pm Friday 10:00 am - 4:00 pm Saturday 10:00 am - 4:00 pm Sunday 10:00 am - 4:00 pm

23685 NW Groveland Dr. Hillsboro, OR



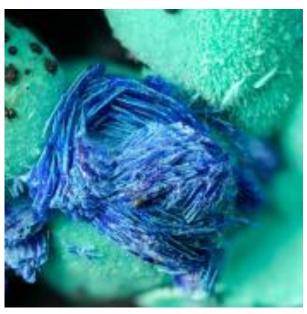
PNWFM NEWSLETTER



www.FlementalEndeavors.com

Seattle Mineral Market News

We need volunteers! There are many places one could jump in and lend a hand! There are volunteer positions to fill before, during and after the show, so if you can give a bit of your time, let us know! Please send inquiries to seattle-mineralmarket@gmail.com
Thank you!



Azurite and Malachite. 4650 level (Copper Mt. Extension) of the Morenci Pit, Morenci, Copper Mtn. Dist., Shannon Mts, Greenlee Co., AZ. FOV: 4.6 mm. Mined by Bob Jackson in 1986. Collection and Photo: Bruce Kelley

PNWFM NEWSLETTER



Ice crystals seen growing from western red cedar branches near Darrington, WA. (Nikki Noeldner photo)

Wintertime Notes Regarding A Future For Local Minerals By Sal Noeldner

Thankfully, we live in a geological cornucopia making for a continual 'reveal' of new mineral localities through erosion. Some bit of rock may be exposed by a natural slide event in the foothills or perhaps acidic rain etches carbonate gangue filling in a vein revealing more stable, associated crystals lining the edges (the author has seen both).

Historically, local mineral collectors have relied heavily on road building, quarrying, and mining operations to uncover areas of mineralogical interest, often keeping a low-key but close eye throughout any large-scale rock moving event. These actions will continue to be the main source of new mineral locations in the future but road building has dwindled in the mountains, crystal producing quarries have mostly dried up with private owners preferring to not allow access or create collecting agreements due to liability concerns, and collecting access is generally decreasing as mining of all types continues to be perceived by many locals as a negative function, with an strong attitude of "not in my back yard" at play.

This general dislike of mineral intent has progressed to a point where former mines, cabins, and townsites are added to wilderness- designated lands then destroyed when funds allow, mine openings are found and closed by public agencies for safety, and mineral-rich tailings piles are ensconced in giant rubberlined containers with public funds for relatively short-term disposal without being put through an extractive process for toxic-yet-useful metals even though moved from place to place with heavy machinery to DE-CREASE toxicity to the environment.

Paralleling this seemed wanton negation of previous human efforts, there seems to be no concerted movement by those in charge to implement cleaner, metal extraction- and toxin ameliorating technologies. For instance, using the proven (flue-dust remediation in Anaconda, MT and Waste Management aluminum smelting pot liner remediation), ph-based, pressure influenced "Cashman process" to extract precious and useful metals out of crushed rock from relatively small deposits. The residue created traps the arsenic keeping it mostly inert for many lifetimes. When used in concert with local metal-hyperaccumulator plants paired with mutualistic, toxin absorbing fungi in managed wetlands/ greenspaces, remaining effluent can be successfully mitigated, accomplishing many shared goals and making for a better narrative to our children.

Present-day mineral collectors must continue to strive to expand current knowledge and community interest or lose the advantage of noted provenance for specimens as access becomes more limited. Unfortunate for those budding few looking to find new mineral locations, crystallized minerals, or striving to learn mineralogy, Washington State has not been blessed with an updated compendium of former mineral locations for quite a few years making research into previous works almost a life study. Adding the significant amount of newer collegiate work and re-discovered College of Mines samples to original sample locations found in private and institutional notebooks, notes in historic mineralogical magazines such as The Mineralogist, 'Dana' related works (see elsewhere this issue), federal identification work by USGS and USBM, state bulletins, and state-encompassing publications (by the Western Mineral Exchange, Cannon, Ream, Claude, Jackson, and Tschernich) would be a start.

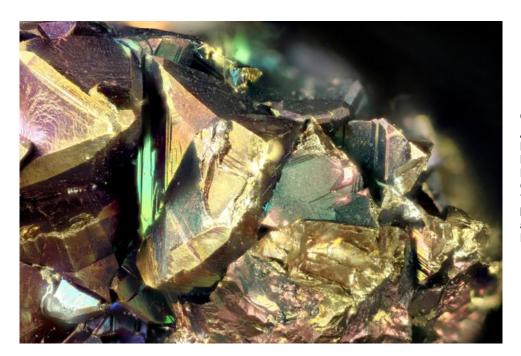
However, only by adding to this newspaper gleanings, new locality discoveries by known or unknown collectors (deceased in some cases but known to others), and warehoused state rock samples to similar ones held in out-of-state repositories, could a more complete compendium be within (possible) reach. Cannon realized this difficulty when in the preface to his 1975 book he explained, "Minerals of Washington represents an attempt to begin such a catalogue..." from the "...unorganized information..." and assumed his book would have continual updates, the last informal supplement being almost nearly a decade before his unfortunate, early passing. As his reluctance to update through a mass-printed second edition of his book extended

There were various reasons personally heard over time including economics, conservation of knowledge, and waning interest levels, but we will never know the whole truth as Bart's history went unrecorded unfortunately. A kernel of knowledge can be gained by noting further in the preface, "Minerals of Washington is not intended as a rockhound's collecting guide" and later in the introduction, "Please spare this book the curses of landowners and officials.". A good collector will proactively delineate which places one can freely collect specimens to greatly narrow possibilities without need for a further, successful communication with a landowner or manager. A better collector will successfully negotiate access to private land and share about the history of the area with the landowner. (In writing a state compendium, a separate but large chapter for massive silicates would help encompass the many colorful vesicle and wood casts, amorphous, secondary, and wood replacement silicates favored by the many rock collectors and lapidary artists, and which offer a different path of geological discovery for those people desiring to do something with their time vs. appreciation of the often fragile elemental compounds called minerals.)

When new discoveries are made, then linked to previously known work, the accumulation of results will give a much better picture of underlying geologic forces at work. This in turn may lead to further understanding and new discoveries by others. Hopefully there will continue to be an increase of knowledge as new connections are made. I feel there are many intriguing yet beautiful and possibly useful minerals still to be brought to light by dogged field work and through environmentally sound, managed development of small but high-grade metallurgical, hence mineral-rich, hard-rock deposits once importance is heightened as raw material supplies dwindle from recycling and other countries' exports...and we still need more. It is time to ask, "Will we be able to develop and implement better, environmentally-sound extractive techniques for geologic building materials fast enough to keep up with demand or not become better stewards of the planet and spoil where we live, the environment of the atmospheric bubble we call Earth, as population growth, technological advancement, and shareholders' needs increase?"

Reference

Cannon, B. Minerals of Washington; Cordilleran, 1975.



Chalcopyrite

Auguste-Victoria
Mine, Marl-Hüls,
Marl, The Ruhr, North
Rhine-Westphalia,
Germany. FOV
7mm.Ex Lundgren collection. Collection
and photo by Beth
Heesacker

A Review Of Dana Locations In Washington State Edited by Sal Noeldner

Near the middle of the 1979 PNW Chapter of Friends of Mineralogy Resource- Reference Booklet [1] one finds a partial list of regional mineral locations found referenced in Dana's System of Mineralogy (7th ed.) and Textbook of Mineralogy (4th ed.). Prefacing the list is musing of the editor, "A suggested project to be the review and reporting of current status of these locations of our area. Many are no longer productive, even accessible. We should know".

Although this heartfelt plea was not directly answered in the following review, as a brief survey it does include information not in the 1979 list including additional minerals and locality information. Be forewarned this is not a weekend outing guide for collecting as most places are not accessible (due to various reasons including being located on private land or in a National Park); rather, please find below a near-complete listing of Washington State mineral localities referenced in both older and more current 'Dana' publications. This was compounded to hopefully help the old collection specimen researcher, possibly illustrate some error(s), and bolster efforts to quantify important and/or new minerals found in the state, a region which greatly increased in mineralogical complexity as local rocks and minerals were fervently studied in the later part of the last century, a process which continues hesitatingly into the present day. Attempts by local amateur and professional mineralogists have done much to help illustrate the landscape as an incredible, geological fruitcake holding hidden nuts and candied bits yet to find amongst lubricated, imbricated host rocks brought together by tectonic movement and metamorphic mixing over time (and much like slumping of a moldered cake, the surface layer of rock is exposed to erosion and slowly dissolves).

Why an interest in 'Dana' locations? Briefly, much of the way we currently classify minerals was developed through hard work by father-and-son members of the Dana family, James and Edward, as well as other mineralogists who have taken up the work of describing new minerals, localities of note, and changing mineral knowledge. Of particular interest to us is that only the more significant or noteworthy localities were usually mentioned in these publications. The addition or removal of a locality might tell us of changing suitability for listing. As date of the publication and/or edition can be useful in cross-referencing, the following list is chronological and starts with the oldest reference and ends with the newest. Only when information was added (beyond county name which was assigned when missing in some cases) or removed was a mineral noted again; historical and contemporary publications are referenced to supply additional information. Mineral removals, editor additions, and/or a formation associate was included on some entries where space allowed (in parentheses). In an attempt at brevity, lapidary-grade chalcedonic silicates have been left off the list. Entries are listed in order as found in publication. Edition number of the publication follows title abbreviation:

Sys- A System of Mineralogy (appendix number as decimal point)

Text- A Text-Book of Mineralogy

Man- A Manual of Mineralogy

(Note: Forgive this researcher if any mistakes exist here; please report them to me.)

PNWFM NEWSLETTER

Washington State 'Dana' Minerals

<u>Date</u>	<u>Pub</u>	<u>Mineral</u>	<u>Notes</u>
1868	Sys5	Gold	"W.T (is)at many points auriferous, and productively so", pg.8 ("as microscopic impuritiesto sizeable massesto xtls in vugsto large nuggets" [2])
1884	Man3	Scheelite Tourmaline Realgar	At Seattle, (King County) W.T., pg. 212 (multiple locations [3]) At Seattle, W.T., pg. 368, (dravite group is prevalent locally) At Fidalgo (Island- with calcite [2]), pg. 368 (All three entries for the state in the supplementary Catalogue of American Localities of Minerals are not italicized by Dana, meaning the mineral is not "obtainable in good specimens" and "occurs only sparingly or (is) of poor quality".)
1887	Man4	Magnetite	At Iron Mtn., 3 mi. NW of Snoqualmie Pass, (King County), pg. 398 (magnetite bands are known to occur locally)
		Copper ores	At Denny Company mine, King County, pg. 398 (Denny iron mines
	Tourmaline	"have already proved to be copper" [4]) With scheelite, Seattle, King County (no locations known for both occurring t gether) and Fidalgo, Whatcom County, pg. 398 (error?- although Fidalgo Isla had been transferred to Skagit County in 1883, both the 1884 Manual of Min alogy and this publication 4 years later had not caught the new county, nor wit explained why realgar was dropped and tourmaline added to Whatcom sin the 3 rd edition of the Manual)	
		Gold	Auriferous gravels and quartz veins, Yakima County, pg. 398
1892	Sys6	Tridymite Magnetite Muscovite Realgar Fire-opal	In the andesy(i)te of Mt. Rainier, pg. 193 (Pierce County added 1893) In large deposits, pg. 226 (only King County Iron Mt. on pg. 1098) Rockford, Spokane County, pg. 620 Seattle, with scheelite and tourmaline, pg. 1098 (not 'Fidalgo' which is still listed in Whatcom County and with tourmaline) Near Whelan, Whitman County, pg. 1098
1899	Sys6.1	Diaphorite	With stephanite, Lake Chelan district (Chelan County), pg. 23 (1st app.)
1909	Sys6.2	? Realgar	(With arsenopyrite [2]), As crystals in Monte Cristo Mining District, Snohomish County, pg. 88
1912 1915	Man13	Molybdenite	Okanogan County, pg. 137
1916	Sys6.3	3 Cosalite Ferritungstite	From Deer Park, (Stevens County), pg. 23 As oxidation of wolframite and found with it, Germania Tungsten mine, Stevens County, pg. 30 (magnetite reference is gone)
1922	Text3	Molybdenite	In quartz veins at Crown Point (Chelan County), pg. 361
1932	Text4	Bementite Molybdenite Boulangerite Siderite	(With other manganese minerals) in the Olympic Mountains, pg. 68 At Okanogan and Chelan Counties, pg. 413 From Stevens County, pg. 449 As spherosiderite on trap rock in Spokane, (Spokane County), pg. 519



1941	Man15	Magnesite Epsomite	Sedimentary type in large masses, Stevens County, pg. 228 Found in lake deposits, Stevens County, pg. 264 (error?- both Cannon [2,3] and Claude [5] list epsomite from lakes in Okanogan County)
1946	Sys-7.	Cassiterite	As columnar- fibrous masses, Cleveland Mine, Stevens County, pg. 422 In pegmatite, near Spokane, Spokane County, pg. 579 At Lake Crescent (Crescent Mine) and Humptulips, pg. 715
1951	Sys-7.	2Strontianite Cerussite Celestite Mirabilite	(With relict celestite) Near La Conner, Skagit County, pg. 199 Summit and other mining districts, Stevens County, pg. 205 In dunite at La Conner, Fidalgo Island, Skagit County, pg. 418 From small alkali lakes in Okanogan County, pg. 441
1962	Sys-7.	3Precious opal	At a number of minor occurrences over a wide area in Klickitat, Yakima, and Benton counties, pg. 301 (tridymite reference is now gone)
1997 \$	Sys-8	Aguilarite	(As finely disseminated grains [2]), L-D Mine, Wenatchee (Chelan
			County), pg. 42
		Naumannite	(With aguilarite in chalcedonic ore [2]), L-D Mine, pg. 42
		Mackinawite	Named in 1962 for the Mackinaw Mine, Snohomish County, pg. 63
		Metacinnabar	(With cinnabar [2]), Reward Mines, King County, pg. 69
		Realgar	"Only the more significant are listed", King County (for the 1968 Cannon find) and Monte Cristo, pg. 84
		Cubanite	("As grains and clots" [2]), Mackinaw Mine, pg. 96
		Pyrite	Spruce Peak, (Middle Fork of the Snoqualmie R.), King County, pg. 114
		Maucherite	(From collapsed adit), Mackinaw Mine, pg. 147
		Pekoite	Germania Consolidated Mine, Stevens County, pg. 170
		Andorite	(With rhodochrosite [2]), Bear Basin, King County, pg. 176
		Ramdohrite	(With andorite [3]), Bear Basin, pg. 177
		Dufrenovsite	Silver Star claims, Stevens County, pg. 181
Galenobismuti		Galenobismut	ite (With quartz [2]) Germania Mine, Stevens County, pg. 194
		Gagarinite-Y	Found in alkaline rocks, Washington Pass, pg. 412
		Siderite	Globular fibrous siderite is found in diabase, Spokane, pg. 435
		Ankerite	High-iron species (subparallel "saddle" habit with quartz [2]) at Spruce Peak, pg. 451
		Liebigite	(In surface alteration zone [2]), Midnite Mine, Stevens County, pg. 468
		Kotoite	(Near rock contact [3]), Jumbo Mtn., Snohomish County, pg. 539
		Hexahydrite	As efflorescence on epsomite, Oroville (Okanogan County), pg. 608
		Epsomite	In salt lakes with mirabilite, near Oroville (Okanogan), pg. 612



Coquandite Lucky Knock Mine, Okanogan County, pg. 628

Schultenite (With galena [3]), near North Bend, King County, pg. 698

Autunite Daybreak and Triple H & J mines, Pend Oreille County, pg. 766

Meta-Autunite Dark green, with uraninite, Daybreak Mine, (Spokane County), pg. 766

Forsterite (With talc [2]), Jumbo Mountain, Snohomish County, pg. 1026

Grossular (With axinite) Vesper Peak, Snohomish County, pg. 1046

Zircon (With smoky quartz), Washington Pass area, Okanogan County, pg. 1055

Sillimanite Silver Hill, Spokane County, pg. 1064

Staurolite At various localities within the state, pg. 1071, (Chelan; Okanogan;

Skagit; and Snohomish counties [2])

Alleghanyite Brown Mule Claim, Mason County, pg. 1079

Dumortierite Near Woodstock, pg. 1117

Gadolinite-Ce Liberty Bell Mountain, (Okanogan and Chelan counties) pg. 1124

Gadolinite-Y (With microcline [3]), Golden Horn Batholith, pg. 1124 Okanoganite-YGolden Horn Batholith near Washington Pass, pg. 1130

Lawsonite (In schist [2]), near Darrington, (Snohomish County), pg. 1157

Chevkinite-Ce (With okanoganite [3]), Golden Horn Batholith, pg. 1177

Ca catapleiite Associated with a Pb- bearing catapleiite which occurs as cores to

rims (/ multiple growth relationship) of calcium catapleiite, Golden Horn

Batholith, Washington Pass area, pg. 1227

Calciohilarite Golden Horn Batholith, Washington Pass area, pg. 1229

Kainosite-Y Golden Horn Batholith, Okanogan County, pg. 1236

Sogdianite Associated with zektzerite (in cores to rims/ multiple growth relationship), Gold-

en Horn Batholith, pg.1278

Clinoenstatite Mt. Stuart Batholith, (Chelan County) pg. 1291

Johannsenite (Veinlets in rhodonite [2]), Brown Mule Claim, Mason County, pg. 1301

Ferroactinolite In talc, near Wenatchee Lake, Chelan County, pg. 1346

Riebeckite Golden Horn Batholith, Okanogan County, pg. 1361

Inesite (with hausmannite [2]) Crescent Mine, Clallam County, pg. 1372

Zektzerite Associated with microcline, Golden Horn Batholith, near Washington Pass,

Okanogan County, pg. 1374

Astrophyllite (With riebeckite [2]) Golden Horn Batholith, Okanogan County, pg. 1382

Caryopilite Hurricane Claim, Olympic Peninsula, pg. 1417

Lizardite In a submarine ridge, Sultan area, (Snohomish County), pg. 1418 ClinochrysotileSultan area, (Snohomish County) Cascade Mountains, pg. 1428

Hisingerite Cardinal Mine, Stevens County, pg. 1434

Neotocite Anacortes and Olympic Peninsula, pg. 1436

Muscovite 3T polytype at Sunrise Cu Prospect, Snohomish County, pg. 1448

Celadonite Wind River area (Skamania County), pg. 1454

Nontronite Various places in Whitman and Spokane counties, pg. 1485

Saponite Mt. St. Helens ash found in the Grand Ronde Formation, pg. 1489

Gonyerite Karnes mines, Jefferson County, pg. 1519

Okenite Skookumchuck Dam, Thurston County, pg. 1532

Elpidite (With riebeckite), Golden Horn Batholith, Okanogan County, pg. 1543

Palygorskite (With calcite), Pend Oreille Mine, Stevens County, pg. 1558

Amethyst (Quartz, with Hematite) Denny Mountain, King County, pg. 1582

Japan law-twins (Quartz) Occur in King County (various locations), pg. 1583

Orthoclase Var. adularia (in contact zone [2]), Denny Mountain, King County, pg. 1600
Analcime (With thomsonite at [2]) Skookumchuck Dam, Thurston County and Kalama

(area), Cowlitz County, pg. 1646

Wairakite Mt. Rainier National Park, Pierce County, pg. 1649

Laumontite Tum Tum Mountain, Clark County, pg. 1650

Offretite "From...Washington", pg. 1655 (Rock Island Dam, Thurston, and Clark coun-

ties per Tschernich [6])

Erionite ("In tiny acicular crystal bundles" [3]), Rock Island Dam, pg. 1656

Levyne Elk Mountain, (Cowlitz County [6]), pg. 1600

Garronite (In altered basalt near [6]), Capitol Peak, Thurston County, pg. 1662

Paulingite Rock Island Dam, Wenatchee and Douglas counties, pg. 1667

Heulandite-Ca Skookumchuck Dam, Thurston County; South Fork Toutle River, Cowlitz Coun-

ty; Kosmos, Lewis County, pg. 1669

Stilbite-Ca Skookumchuck Dam; Poison Creek, Skamania County; Mossyrock Dam, Lewis

County; South Fork Toutle R. near Mt. St. Helens and Kalama, Cowlitz County,

pg. 1674

Natrolite Robertson Quarry, Mason County and capped by mesolite on Snake River W of

Clarkston (Asotin County?), pg. 1677

Mesolite To 10 cm. long, Skookumchuck Dam, pg. 1681

Scolecite South Fork of Toutle R., near Mt. St. Helens, Cowlitz County, pg. 1682 Cowlesite (Found alone in basalt [6]), Capitol Peak, Thurston County, pg. 1686

Mordenite South Point Quarry, Jefferson County; near Stevenson, Skamania County, pg.

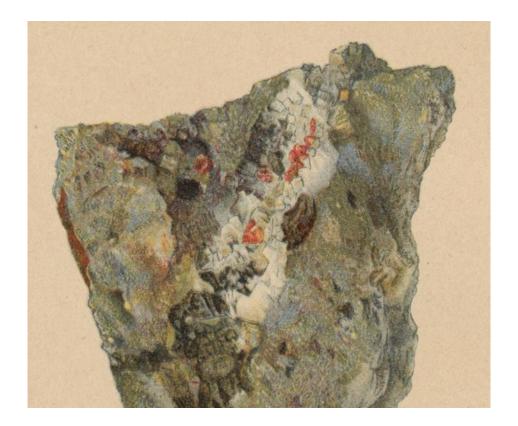
1689

Epistilbite (On mordenite [6]), near Riffe Lake, Lewis County, pg. 1689 Dachiardite (With ferrierite [6]), near Altoona, Wahkiakum County, pg. 1690

Na Dachiardite (As base of [6]) strongly Na-Ca zoned crystals, near Altoona, pg. 1691 Ferrierite Orthorhombic and monoclinic polymorphs occur near Altoona, pg. 1692

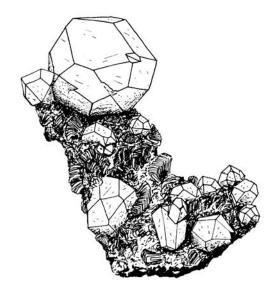
References

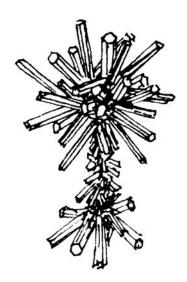
- 1) Pacific Northwest Chapter of the Friends of Mineralogy. In *Resource- Reference Booklet*, 2nd ed.; Dunn, H.M., Ed.; 1979; pp. 18-21.
- 2) Cannon, B. Minerals of Washington; Cordilleran, 1975.
- 3) Cannon, B. Minerals of Washington; self-published (update), 2015.
- 4) Hodges, L.K. Mining in the Pacific Northwest; The Post-Intelligencer, 1897; p. 7.
- 5) Claude, R. Mineral Sites of Washington; Terminal Trajectory, 2010; ISBN 978-0-9727219-0-1.
- 6) Tschernich, R.W. Zeolites of the World; Geoscience Press, 1992.
- 7) Spurr, J.E. *The Ore Deposits of Monte Cristo*; pl. LXXXII in U.S. Geological Survey Annual Report 22; pt. 2. pp. 777-865.





Drawings from literature of realgar specimens from the Monte Cristo district above [Reference # 7] and much later King County find below [Reference #2].





Drawings by Bart Cannon (1975) illustrate well many of the newer 'Dana' minerals. A Rudy Tschernich specimen of white analcime with tan thomsonite sheaves from Skookumchuck Dam (left) and "bundles" of acicular, white erionite from Rock Island Dam (right) show some of the wide breath of mineral diversity of Washington State as well as hint at connections between zeolite-favoring mineralogists of the time. (By special permission of the family.)







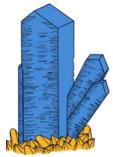
Mullite

Niveligsberg, Eifel Volcanic Fields, Germany. FOV .45 mm. Ex Lundgren collection. Collection and photo by Beth Heesacker



Editor's Plea I need articles! Please email articles and photos to heesacker@coho.net

The next deadline will be March 8, 2023



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MINERAL MEETING CALENDAR

2023:

Pacific Micromineral Conference (MSSC) - January 27-28 Fallbrook Gem & Mineral Museum 123 W. Alvarado St., Fallbrook, California

NW Micro Mineral Study Group - May 13 Sons of Norway Columbia Lodge 2400 Grant St, Vancouver, WA 98660

Seattle Mineral Market - May 20-21 SATURDAY 10:00AM-6:00PM SUNDAY 11:00AM-5:00PM The Hangar 30 building at Magnuson Park 7400 Sand Point Way NE, Seattle, WA 98115

NCMA - May 26-28
Eldorado Community Hall
6139 Pleasant Valley Rd.
Eldorado, CA

NW Micro Mineral Study Group - November, Nov. 11 Sons of Norway Columbia Lodge 2400 Grant St, Vancouver, WA 98660

Stay Safe and Healthy!