PACIFIC NORTHWEST CHAPTER
FRIENDS OF MINERALOGY

June 2026

PNWFM NEWSLETTER

Inside this issue:

Fluorite CaF_2, Anglona/Osilo, Sassari Province, Sardinia, Italy. FOV 2.75mm.

Ex Jim Daly Collection. Beth Heesacker collection, photo and copyright.



President's Message

Jessica Robertson

President's Message:

We are halfway through 2026 already–time just keeps moving faster! PNWFM has been working hard on planning for our **2026 PNWFM Symposium** in October.

- We have ***eight* great speakers** already lined up to talk on various mines, minerals, and geology topics centered on our theme of the Great Basin area.
- We will also have a session on **PNW Mineral updates** and a **CWU student poster session.**
- And not only are we bringing back the option of ordering a **boxed lunch,** we are also bringing back the **Saturday evening dinner banquet and live auction**! The banquet will be held also on the CWU campus, close after the close of the Saturday talks, so folks will still have plenty of time for everyone's favorite evening dealers at the hotel.
- Even more exciting, ***symposium registration pricing is $15 lower than last year!*** We are pleased we have been able to lower costs and hope this will allow for even more of our members to join us.

See lots of details regarding the symposium later in this newsletter, including a list of our speakers and their topics as well as hotel information.

We also had a great spring already, with two events under our belt:

- PNWFM Spring Rendezvous at the Rice Museum was on April 25. Thea Stender and Aaron Witing gave great talks on PNWFM mineral collecting. We also installed a club display in a case in the museum's NW Gallery. The display will be there until October–go see it!
- Seattle Mineral Market on May 16-17 was another great mineral market experience, seeing so many members, friends, and happy interested members of the public. Our silent auctions were successful and we passed out over 300 mineral scavenger hunt bingo pages to kids. Tons of fun!!!

(Continued on page 3)

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(President's Message cont.)

See inside this newsletter for more details on all of the above. We are also looking for more volunteers and donations as always! We also would like to remind folks that this is an board election year–I will be 'term-limited' out of the presidency and look forward to having more folks involved in the planning of the club. Please let me know if you are interested. Everyone is invited to attend our monthly planning meetings via zoom. Please contact me to be added to the distribution list.

Happy digging!

Gearing Up For the Symposium

Karen Hinderman

Hotel Information:

We are staying at the same hotel as last year. SureStay by Best Western, 1500 S. Canyon Rd., Ellensburg. CALL this number to make your reservation: 509-962-6888. Let them know you are with Friends of Mineralogy. If you are going to be selling minerals out of your room, let them know you are a vendor. There are a limited number of rooms for vendors, so the sooner you make your reservation, the more likely you will get a room alongside the other vendors. Our room rate is $159.77. If you use a third party, such as Expedia to reserve your room, you are not guaranteed to be placed with our vendor group.

Auctions:

The silent auction will run continuously as usual in the classroom where the display cases, registration, and hospitality tables are. Auctions will close towards the end of the breaks so that everyone has a chance to bid. Please bring donations to the classroom anytime Friday afternoon or Saturday morning. The live auction will run after dinner on campus this year. We are hoping to get the auction started by around 6 and get you all back to the hotel and our room vendors by 730. Most importantly, I need quality donations from all vendors as well as any individual members who so choose, for the live auction. Finally, I need enthusiastic bidders. Come prepared to bid, bid, bid!!!

MINES AND MINERALS OF THE GREAT BASIN

2026 SYMPOSIUM EVENTS OCTOBER 16-18, 2026

Talks by:

Mike Wise: Nevada pegmatites
Scott Werschky: Round Mountain gold
Brent Thorne: North Star Mine
Dan Evanich: Culver Antimony Mine
Rick Kennedy: Virginia Valley opals
Jeremy Fuller: Thomas Range
Graham Sutton: Specimen Mining Adventures
Simon Kocher: Sulfosalt minerals
Plus: NW Mineral Updates session

Symposium Events

ALL daytime events on Saturday and Sunday will be held at Discovery Hall on the Central Washington University campus, including:

- Saturday and Sunday talks in the large lecture hall
- Mineral displays and silent auctions in the Intro Geology Lab classroom
- CWU geology student poster session
- Catered boxed lunch! Lunches will include a sandwich/wrap, chips, cookie, and water. We will also have a selection of soda available. If you'd like a boxed lunch, choose either a Southwest Turkey Wrap or a Hummus and Quinoa wrap during registration. Boxed lunches will be delivered for lunch break to our CWU Discovery Hall location .

Saturday banquet dinner and live auction--returning for 2026!

- Catered buffet on the CWU campus

Saturday Evening vendor hall at SureStay Hotel by Best Western Ellensburg

- 1500 Canyon Road, Ellensburg, WA. (Same hotel as last year!)
- You will need to call the hotel directly at 509-962-6888 and reference Friends of Mineralogy to make your reservation for October 17 and 18. Club rate prices are $160/night plus tax.
- The cutoff date for club rate pricing is September 19.
- It is very important that all room dealers have a reservation by September 19 and have communicated with Thea Stendar (theasmineralworld@hotmail.com),
- Continental breakfast is included.

Detailed Schedule to Come-Register at pnwfm.org

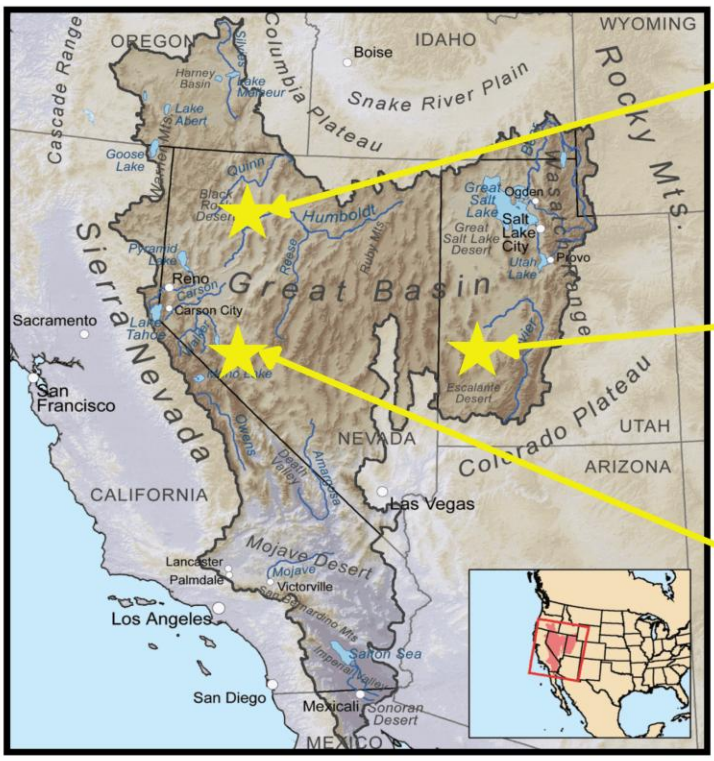
PACIFIC NORTHWEST FRIENDS OF MINERALOGY

2026 SYMPOSIUM

MINES AND MINERALS OF THE GREAT BASIN

ELLENSBURG, WASHINGTON

OCTOBER 16-18, 2026



Olivenite, Majuba Hill Mine, Nevada

Red Beryl; Thomas Range, Utah

Topaz; Zapot Mine, Nevada

Saturday and Sunday Symposium Talks
Saturday Evening Banquet and Live Auction
World-Class Mineral Displays
Evening Vendors at SureStay Hotel by Best Western

Register and Learn More at pnwfm.org

All images Creative Commons, including mineral photos by Bruce Kelley and Rob Lavinsky

2026 SYMPOSIUM PRICING

We are pleased to announce that tickets to our 2026 symposium are $15 less than last year! Additionally, the meal pricing is a 'pass through' cost based only on what we are charged per meal by the catering company.

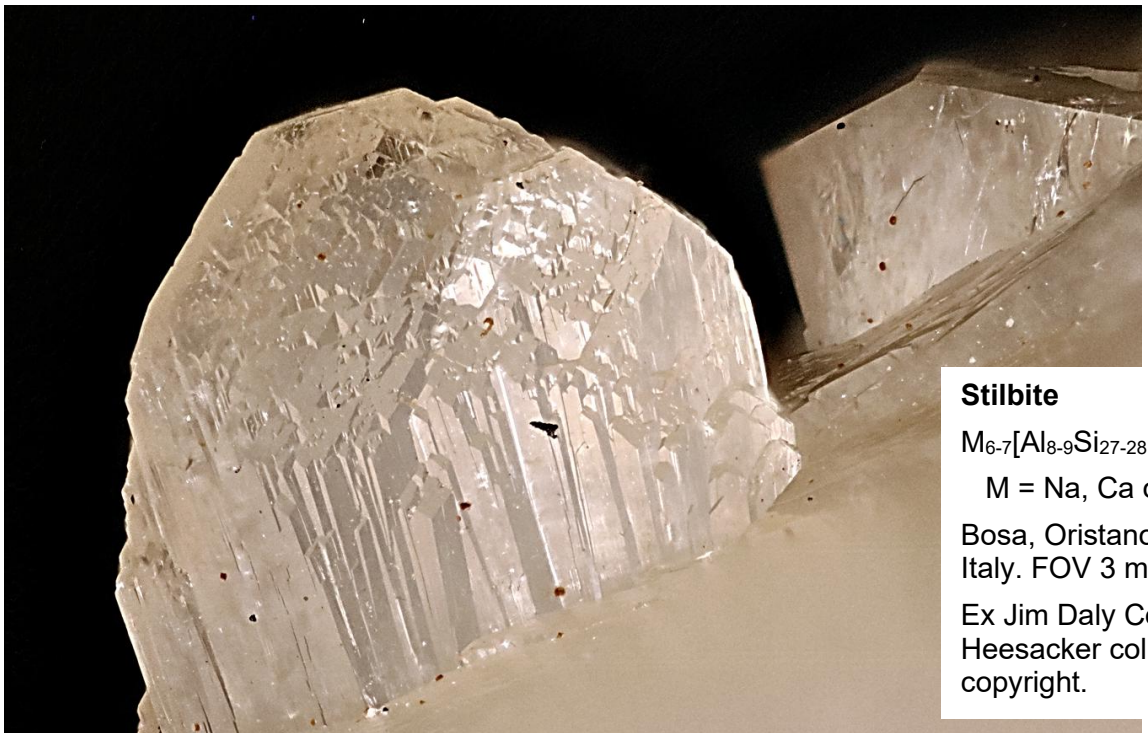
Base ticket options:

- *Symposium + Membership: $90 (most common)*
- 'Symposium only' for members pre-paid through 2027: $70 - this is a by request item only. Contact Bruce Kelley for this option.
- Full time Student symposium ticket only (membership separate): free

Add on options:

- Saturday Box Lunch: $20
- Saturday Banquet: $30
- Membership only: $20
- Room dealer fee: $25 (contact Thea Stender to confirm after purchase)

Please complete a separate registration for each attendee. Register today at pnwfm.org.



Stilbite

$M_{6-7}[Al_{8-9}Si_{27-28}O_{72}] \cdot nH_2O$

M = Na, Ca or K

Bosa, Oristano Province, Sardinia, Italy. FOV 3 mm.

Ex Jim Daly Collection. Beth Heesacker collection, photo and copyright.

Spring Rendezvous Recap

Our speakers:

Thea Stender and Aaron Wieting

PNWFM Case at the Rice Museum

Detail Pictures of the Case:

Seattle Mineral Market Recap

Photos courtesy of Brittany Burkhart

Kids in front of the PNWFM Mineral Education display cases

Busy SMM vendor hall

Shoebox Adventure 160:

The Real Thing

Photos and text by Mike Seeds

From The Conglomerate, June 2026, Baltimore Mineral Society

Humanity faces a question, and the answer may determine the fate of our civilization. The question is: Which videos of dancing kittens are real, and which were created by AI? If the kittens smile and have human teeth, you can be sure the kitties are not real, but if they keep their lips sealed and know the steps to the dance, it is hard to be sure. This extends to all images. Videos of politicians giving speeches, protest demonstrations, bombs falling on ships at sea, Uncle Harvy making a hole in one. How do we know what is real?

Figure 1 Strontianite on celestine, Meckley Quarry, Mondata, Pennsylvania. The cross is 2.1 mm across.

The mineral specimen in Figure 1 is real. It is strontianite on celestite, and it is my favorite specimen. I claim it is self-collected because a friend gave me a large lump of rock, and I broke it down into little pieces, I looked at each piece under my ‘scope, and I found this tiny cross. So, it really is self-collected. Really.

I admit I have to adjust the warmth of the image. The lights under my camera do not match the lights under my scope, so I had to cool the warmth of the image, so it matched the color as I see it through the ‘scope. Unfortunately, the lights under my ‘scope do not match real daylight, but then daylight is warmish direct sunlight mixed with a lot of cooler light from the blue sky. So, I’m not sure what the real color temperature of the image should be.

I wish you could see this specimen through my ‘scope. It is so delicate. The photo in Figure 1 is a bit “soft” in that the detail is not quite as sharp as it is through the ‘scope. The image is actually 32 exposures taken at slightly different focus settings and combined using a program called Helicon. So, the image you see isn’t really what you would see through my ‘scope. You would have to adjust the focus up and down to see all parts of the cross in sharp focus. Combining the 32 images brings all parts of the cross in focus at the same time. That’s not what you would really see through the ‘scope. So, the image in Figure 2 isn’t quite real.

I also sharpened the image using a program called ViewNX 2 that came free with my Nikon camera. I’ve tried a number of fancy and expensive sharpening tools, but the freebie ViewNX 2 seems to work best. I also gave the image a final sharpening using Microsoft Image Viewer. So, Figure 2 comes as close to the real thing as I can get.

Figure 2 The photo has been corrected for color temperature and sharpened.

If I turn to AI, I can process the image further. Asking ChatGPT to sharpen my final image, produces the image in Figure 3. It doesn't look quite like the cross I see through the microscope. It is somehow too sharp. Thinking of mathematical signal analysis, I might say the signal is ringing. It's not a bad photo, but it's not quite real. For a hint, look at the bright dots in the upper left corner and compare them to Figure 2. What should be dots are doughnuts.

Figure 3 The image sharpened by ChatGPT looks too sharp.

Using AI, I can produce anything I can think of. I can make the little cross into a larger specimen that would sell quickly on eBay (Figure 4). I could make it red, white, and blue, but I won't do that. That's not real.

Figure 4 The simple command, "Enlarge the cross and show it sitting beside a binocular microscope" produces an image that is not real.

From 1969 through 1974, Coca Cola advertised that Coke is "The Real Thing". AI means there is no "real" anymore. How can we trust a picture or a video when AI can make cats dance? 90% to 100% of the images in TV commercials have been digitally manipulated. Make that 100% of photos in food commercials. Those chicken wings aren't real.

We mineral collectors must accept the responsibility of making our photographs come as close as possible to reality. We want to share beauty and not make cats dance.

From Across the Pond

Courtesy of the

British Micromount Society Newsletter – June 2023

Leadhillite and serpierite Leadhills Smelter
FOV 2mm Colleen Thomson specimen Photo Steve Rust

These leadhillite crystals from the Leadhills Smelter are an interesting example of zoned twinning growth and their association with the pale green serpierite highlights the allure of slag minerals. In this edition we feast on the minerals from this location in Colleen Thomson's description of her expedition there in 2000 and the subsequent patient rock cracking over the following twenty years. When the results are combined with Steve Rust's imaging expertise and mineral knowledge, they provide a feast for the eyes that will soften the heart of any of us who are not slag mineral enthusiasts.

Smelter or Grouse : A Leadhills Adventure

Colleen Thomson

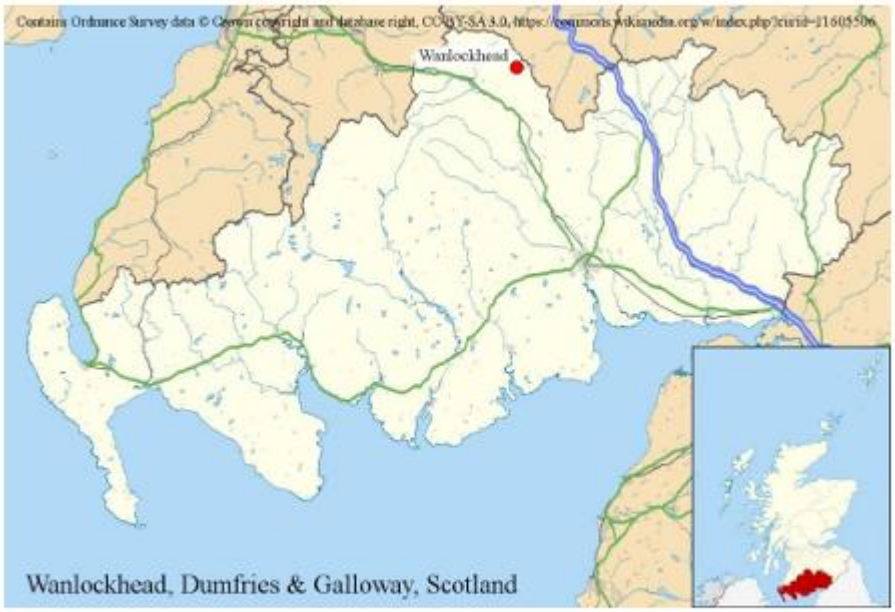
Colleen reflects on a wet weekend more than 20 years ago which have now been revealed to the world as some of the slag minerals in Steve Rust's most recent book

Back in the mists of time when I was younger and fitter, I was an active mineral collector. OK, so it was the year 2000, but who's counting? It was the Easter weekend in April and a select band comprising Eddie Foy, Stephen Burchmore and I made the long trek up the motorway to the Leadhills in Lanarkshire (Dumfries and Galloway) for a few days of scrabbling around in the dirt and the damp in the hopes of finding a few nice 'bonnie bits' for our micromount collections.

We had arranged accommodation for the weekend at a family run B&B in Leadhills, where Steve and Eddie had stayed previously and had got to know our hosts Rab and Helen quite well. Rab had a day job as a shepherd at a farm a few miles up the road and was pretty busy as it was lambing season. They made us very welcome in their home, ensuring we had plenty of homecooked food, including an evening meal (not many places to eat thereabouts). One couldn't be too squeamish with Helen serving up the most delicious slow cooked lamb and the faint sounds of 'baaaaa' coming from an outbuilding where Rab was tending to the orphan lambs. I hasten to add he was feeding and cuddling them and keeping them warm and cosy until they were big enough to go back to the farm. Country life.

For many years there was some rivalry between Leadhills and its neighbour Wanlockhead, a mile up the road, as to which village was the highest in Scotland, with Leadhills always claiming it was they who held the title. It now seems that after much surveying and measuring that Wanlockhead can claim that particular honour at 1,457 feet (the recommended measurement by the Ordinance Survey taken at the doorsill of the highest house in each village) whereas the highest house in Leadhills is at 1,411 ft.

Wanlockhead is situated 37 miles southeast of Glasgow, nestled in the Lowther Hills amongst heather smothered moorland.



The weather forecast was pretty dismal for the weekend and rain was to be our regular companion. At least the cold breeze helpfully kept the wee biting midges away. We had come prepared with waterproofs and many layers, and I didn't go far without a thermos of hot coffee. It certainly felt like it was the highest village in Scotland!

Our first port of call was in the Museum of Lead Mining in Wanlockhead, housed in the original Miners' Library, where we marvelled at the exhibits and amazing old time mineral specimens, before we had a brief tour underground. The outside exhibits, such as the miners' cottages and the 19th century water pumping beam engine were a real eye opener. How on earth did families survive in those hovels with no glass in the windows (window tax from 1748 until 1851) in one of the coldest places to live in the British Isles? It's well worth a visit if you go that way. Meanwhile, we asked for permission to explore and collect in the area, (always worth doing wherever you are) and set off down the road beside the Wanlock Water, passing by ever eager hopefuls who were knee deep in the frigid stuff, trying to perfect their gold panning technique.

Steve and Eddie had been collecting in the area previously and thankfully knew where interesting areas might be to explore and collect. Our first day was spent at the Meadowfoot Smelter dumps, much of which had sadly been turned into a carpark. We were extremely fortuitous with the chosen excavation site however and managed to find some surprisingly large lumps of slag and bricks (parts of the smelter works probably, as there was evidence of heat and attached slag material, giving rise to some of the more interesting and rare chemical compositions and associations). We also

found a few other artefacts, including a 17th C clay pipe and several rifle bullets (purportedly from artillery practice circa WW11).

Carpark area at Meadowfoot Smelter looking back through the approaching rain towards Wanlockhead – Photo Colleen Thomson

I had brought with me a new gadget which was an early Digital camera (either a Sanyo or Epson) with a staggering 1 to 2 megapixels giving a marvellous image that actually looked similar to the one through the viewfinder (if you sort of squinted through one watery eye and had cataracts). You will be delighted to know I found those photographs and can share some of them with you to interpret in your own way. It really does help if you squint a little.

Eddie Foy in an impressive hole (he didn't dig it himself) at Meadowfoot Smelter - Photo Colleen Thomson

We probably spent a couple of days at Meadowfoot Smelter before carefully backfilling the excavation and leaving it as we had found it. All of us were excited at the potential of the material we had managed to dig out. We really had no idea at the time just how good the slag 'minerals' were, or that a fair number would feature in a book two decades later.

Chunks of slag material - Photo Colleen Thomson

Incidentally, I know that the purist mineral collector may not agree that these post mining / post smelting chemical crystallisations are actually naturally occurring minerals and therefore 'don't count'. However I think the majority would agree that these weird and wonderful crystals are very pretty and worth collecting just on that principal, alone. Images of these amazing crystals are further on.

We continued our explorations around Wanlockhead, visiting several areas and finding along the way some acceptable specimens of Pyromorphite (Belton Grain vein), and cerussite. Other areas produced nice leadhillite, cerussite, pyromorphite and phosphohedyphane.

Whytes Cleuch looking towards the Conical spoil heap landmark of New Glencrieff Mine - photo Colleen Thomson

Whilst exploring Whytes Cleuch and enjoying the views (for once not shrouded in rain), I heard a rustling in the heather and then a cacophony of noise like nothing I've ever heard before resonating and reverberating around me and off the sides of the narrow valley. All of a sudden this massive bird burst out of the undergrowth, all fluffed feathers and huge vibrant red eyebrows shouting at the top of its quite considerable lungs. A male Red Grouse 'calling', though it sounded remarkably like swearing to me – if you've never experienced this amazing sound then please follow this link to YouTube https://youtu.be/zfgFY-hgiOk to hear the sound of a male red grouse call - I can only describe it as a cross between a turkey and a kookaburra.

Male Red Grouse calling - photo by Giedrius

What a fabulous bird! He continued for several hours and seemed quite unconcerned by my close proximity. I was just happy to be there. Several other grouse took up the call and the sounds echoed around us. It was a magical, immersive experience.

Only recently did I find out that the Leadhills area supports one of the largest Grouse Moors in Scotland, this one covering approximately 11,500 acres with another 2.6 thousand beyond. It saddens me that my birthday falls on 12 August; 'The Glorious Twelfth' when the guns gather in the 'Butts' on the hillsides and shoot far too many of these beautiful birds out of the sky. I feel humbled and privileged to have been face to face with one of these extraordinary wild creatures and capture a brief glimpse into its life. I hope it had a long and fruitful one.

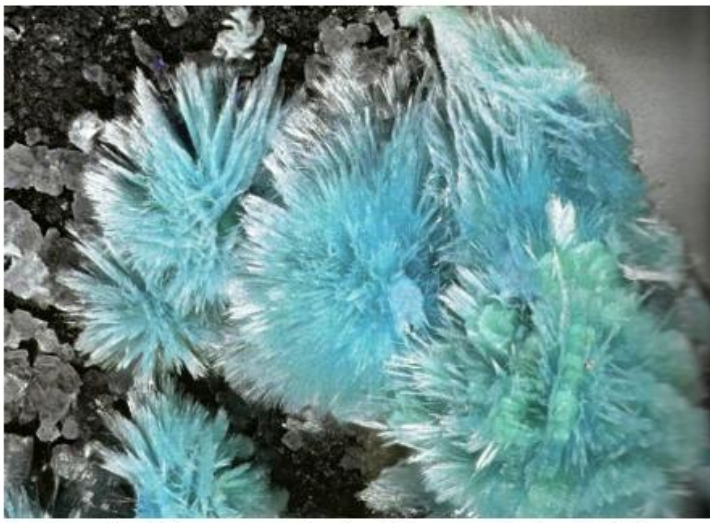
Minerals of the Meadowfoot Smelter by Steve Rust. Photo Colleen Thomson

Sadly, Eddie passed away a few years ago and didn't get to see Steve Rust's magnificent tome on 'The Minerals of the Meadowfoot Smelter' and marvel at the stunning and quite beautiful photographs of the microscopic crystals in the slag. Again, I've deliberately chosen to use this article as a 'trip down memory lane' rather than an accurate scientific field report and so will not be listing all the minerals found (FYI the number of recorded species including unnamed species has increased from 28 (Green 1987) to 67 mostly confirmed by analysis in Steve Rust's publication). For further information about the history of Meadowfoot Smelter and Wanlockhead and an opportunity to see over a thousand superb photographs, please do look at Steve's book. Meanwhile, Steve has kindly allowed me to share some of the images he took and some that are featured in his publication of specimens that Stephen Burchmore and I collected on that weekend in April 2000 with Eddie. Apologies for the quality of some scanned images, which is entirely down to me having to hold the very heavy book to scan!

Well-formed sprays of purple elyite
FOV ~1mm Colleen Thomson specimen. Photo Steve Rust

Well developed slabbed crystals of wroewolfeite on altered serpierite FOV 1.5mm Colleen Thomson specimen. Photo Steve Rust

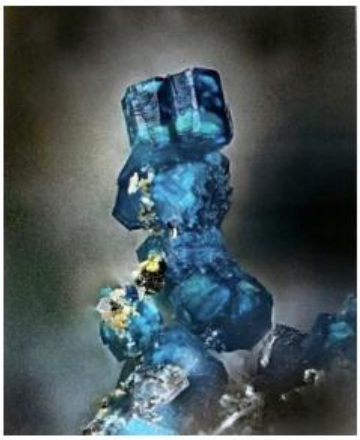
Bladed - platy crystals of lautenthalite growing epitaxial on partly altered wroewolfeite Colleen Thomson specimen Photo Steve Rust



Radial sprays of serpierite with green brochantite replacing wroewolfeite. Associated with colourless/ white anglesite crystals. FOV ~4mm Colleen Thomson specimen Photo Steve Rust

Bladed fan of linarite crystals with botryoidal malachite and areas of grey/white cerussite. FOV 3mm Colleen Thomson specimen Photo Steve Rust

Pale blue blocky crystals of caledonite on lanarkite with pale yellow lanarkite
Stephen Burchmore specimen Photo Steve Rust



Stacked crystals of pseudohexagonal langite with some alteration to brochantite. FOV ~1mm
Stephen Burchmore specimen Photo Steve Rust

Bladed chenite crystal with leadhillite FOV ~1.5mm.
Stephen Burchmore specimen Photo Steve Rust

Thanks to Stephen Burchmore and to Steve Rust for their contributions to this article. No doubt there are many more mineral species (or new chemical compounds) yet to be discovered from Meadowfoot smelter.

Please do contact Steve direct at ***steverust27@gmail.com*** if you would like a copy of his excellent book *"The Minerals of the Meadowfoot Smelter"* as they are digitally printed to order and not available to buy elsewhere.

An extremely rare combination (maybe unique) of a bladed linarite crystal associated with crystalline cuprite over a slag bubble with colourless - white anglesite
Colleen Thomson specimen. Photo Steve Rust

From Across the Pond

Courtesy of the

British Micromount Society Newsletter – June 2023

The Ojuela Mine

David Hardman

The Ojuela Mine, Durango, Mexico is one of a small number of so-called multi-species mines in various parts of the world. Such mines have become favourites amongst mineral collectors, many of whom have built up suites of the minerals either from individual mines or groups of mines in a small area. Other examples listed by MINDAT include Lavrion (683 species), St. Hilaire (440), Franklin (200), Sterling Hill (237), Broken Hill, Australia (329), Bisbee (325), Tsumeb (342), Langban (309), and Jachymov (264). At one time or another I have had an active interest in all of these mines. However, the total number of species recorded at a site is not the only criterion by which mineralogical importance should be judged, other relevant factors being the quality, attractiveness and size of the material, the number of rare and type-locality species present and the current and future availability, and price of old and new material.

David continues his world tour via his mineral collection and arrives in Durango, Mexico, to extol the minerals from the Ojuela Mine

The Ojuela Mine has a long history, mining for gold and silver beginning in 1598 and continuing throughout the "New Spain" colonial era. Before mine closure an estimated 6 million kg of silver and 49,000 kg of gold had been produced by the Ojuela Mine as well as considerable amounts of lead, zinc and manganese. The ore was sent by rail to Mapimi, 10 kms to the south, for processing until formal closure of the mine in 1932. Geologically, the mine has seven ore "chimneys" in which mining eventually reached the water-table at a depth of over 700 m and there were 450 kms of underground workings. Particularly since the mid-1940's the mine has been worked by local cooperatives solely for mineral specimens which have therefore continued to come on to the market and prices have been kept relatively low. Although the remains of some of the buildings still exist, the former hilltop mining settlement of Ojuela is now mainly a "ghost" town, connected to the abandoned mine site by the famous 314-metre Roebling Suspension Bridge. This was completed in 1898 when it was the third longest suspension bridge in the world. It was also the prototype for San Francisco's Golden Gate Bridge later built in 1933. (Incidentally, Washington Roebling, the designer of the Ojuela Bridge, was an avid mineral and rock collector.) However, the present bridge was in fact almost completely rebuilt for tourism in 1991.

Today, 90 years after closure, Ojuela Mine is still Mexico's most prolific specimen mine and is sometimes referred to as "The Tsumeb of Mexico" or "The Tsumeb of the Western Hemisphere"! Mindat has recorded 143 species including seven type-locality species, and two of these are zinc arsenates which are named mapimite and ojuelaite after the location. Other type-locality arsenates are paradamite (zinc), metakottigite, (zinc/iron) and lotharmeyerite (calcium/zinc). New identifications are still being made on Ojuela material including two manganese oxides miguelromeroite (2009) and mikenewite (2022). Unlike some other multi-species sites, I have never attempted to compile an extensive suite of Ojuela minerals, nor have I ever been to

Mexico, but in the early 1970's I stayed twice in the USA with friends who had visited Mexico and collected at various sites including Ojuela. From them, and also from two visits to the Lake Sunapee Show (1971 and 1973), I acquired some attractive specimens at a time when excellent material was coming out of the mine. I still have over a dozen species, mainly arsenates and carbonates, for which the mine is particularly well known and these will now be illustrated and discussed.

The zinc arsenate, adamite, is perhaps the single species for which Ojuela is best known and it is generally accepted that the "world's best" specimens of the species come from this locality, (even though the type-locality for the species was in the Chanarcillo area of Chile in 1866). I have some 15 adamites ranging from "thumbnails" with small but excellent crystals to a 12x6x4 cm matrix with a 6x4 cm area of yellow crystal groups including a 2-cm diameter ball (Photo 1). Some specimens have one centimetre single crystals, others the fairly common, semi-circular "pinwheel" crystal groups. In every case the matrix is a brown limonite, two also displaying their crystals on black, botryoidal goethite. Most of these adamites date from the early 1970's. 1980/81 saw a "one-off" find of unusually coloured purple adamite, the best of which fetched very high prices! I later managed to obtain two good representative specimens, one with a mass of small purple crystals on matrix with associated calcite, the second with an attractive 2x1 cm group on botryoidal black goethite, both again, with a limonitic matrix. The purple colour was first thought to be caused by cobalt but later research has established manganese as the activator. Purple adamites are still quite difficult to obtain. Paradamite is the dimorph of adamite (triclinic compared to adamite's orthorhombic), but the two minerals are both yellow and virtually impossible to tell apart in hand specimens. Perhaps of some interest is that paradamite was named in 1956 by George Switzer who started the Smithsonian's famous National Gem and Mineral Collection in 1958 by his acquisition of the Hope Diamond for the institution!

Photo 1 Adamite Ojuela Mine 12x6x4 cm

The copper-zinc arsenate, austinite, is more uncommon than adamite but again specimens from Ojuela are considered to be the "world's best." The crystals are colourless with a greenish tinge and they usually occur in globular aggregates in

limonitic gossan. I acquired my 5x3 cm specimen at the Lake Sunapee Show just 50 years ago! Another zinc arsenate, legrandite, is a rare and very localized mineral with Ojuela again producing the "world's best" specimens. However, the type-locality for the species is not the Ojuela Mine but rather another Mexican location to the north-west, the Flor de Pena Mine, Nuevo Leon, where it was identified in 1932 and named after a Belgian mining engineer. The Ojuela legrandites were first discovered in the late 1960's with further discoveries in the 1970's and early 1980's from levels which are now flooded. However, new material from a recent find is being rated as comparable to the older specimens. The 1971 Lake Sunapee Show was the source of two of my legrandite specimens, one a 6x5x3 cm limonitic matrix with a mass of 0.5 cm yellow crystals and the second a 4x3 cm with associated small platy wulfenites. My most attractive specimen however is small, a 3x2 cm limonitic matrix on which is a small but very attractive spray to one centimetre. (Photo 2). The calcium-copper arsenate, conichalcite, also features in my small suite in the form of an excellent coating of green microcrystals on a limonitic matrix and on top of which are 0.5 cm colourless rhombs of calcite.

Photo 2 Legrandite on limonitic matrix Ojuela Mine 3x2 cm

Ojuela has also produced a number of very attractive and colourful carbonate minerals which must certainly rank among the world's best for the species. Malachite and azurite are not common and do not feature in my small suite. However, one relatively common species is rosasite, a zinc-copper carbonate, which occurs as blue-green globular aggregates. My best specimen has a 9x5 cm limonitic matrix with a coating of

black goethite on which a mass of rosasites is associated with small, transparent, colourless, prismatic crystals of hemimorphite (Photo 3).

Photo 3 Rosasite and prismatic hemimorphite on limonitic matrix coated with black goethite 9x5 cm

Another relatively common species, also a zinc-copper carbonate, is aurichalcite which is usually found in blue-green crusts of small, feathery, prismatic crystals, as on my most colourful specimen, a 10x4x2 limonite-goethite matrix with associated colourless and transparent calcite (Photo 4).

Photo 4 Aurichalcite and calcite Ojuela Mine 10x4x2 cm

In contrast hydrozincite, a zinc carbonate, is rarely crystalline, occurring as eith white powdery material or globular aggregates. This can however form very attracti specimens as in my 9x7 cm display specimen which shows both white forms limonitic gossan together with aggregates of colourless calcite crystals. (Photo These three carbonates can frequently be found together on the same specimen.

Photo 5 Hydrozincite and calcite Ojuela Mine 9x7 cm

Photo 6 "Flos-ferri" aragonite. Ojuela Mine 8x5x6 cm

The final carbonate species in my mini suite from Ojuela is aragonite. This can occur in crystal form but is more common as the "flos-ferri" variety, the specimen I acquired in the early 1970's being an excellent white display piece measuring 8x5x6 cm with individual two centimetre crystals on a crystalline base (Photo 6).

Hemimorphite is the only silicate in the suite but I have a number of specimens showing different crystal habits of the mineral, Ojuela again ranking as one of the best world sources for the species. Singly terminated, prismatic crystals measure up to 3 centimetres, most on limonitic matrix but some forming complex, ex-matrix groups. My best example is a 7x6 cm with the surface completely covered by singly terminated, colourless and transparent crystals of hemimorphite (Photo 7). This was acquired not from the USA but from Hilary Corke 50 years ago. Interestingly perhaps, apart from one with minor calcite, none of the hemimorphites have any associated minerals.

Photo 7 Hemimorphite Ojuela Mine 7x6 cm

My last species is very different, the lead oxide, plattnerite, which is fairly rare at Ojuela I obtained an excellent specimen, the whole of the 9x6 cm limonitic matrix being covered by jet-black crystals of plattnerite, with some small associated calcites. Showing through from underneath in places are possible crystals of the lead-copper vanadate mottramite, demonstrating yet again the complex nature of the Ojuela orebody. Good specimens of plattnerite are uncommon at Ojuela but let us not forget that the type-locality for this species is Leadhills, Lanarkshire where it was first identified in 1845!

Wikipedia and MINDAT have files on all these species and the Ojuela Mine.
See also Thomas P Moore, The Ojuela Mine in Min. Record, Vol. 34, No 5, 2003.

Rock Chippings

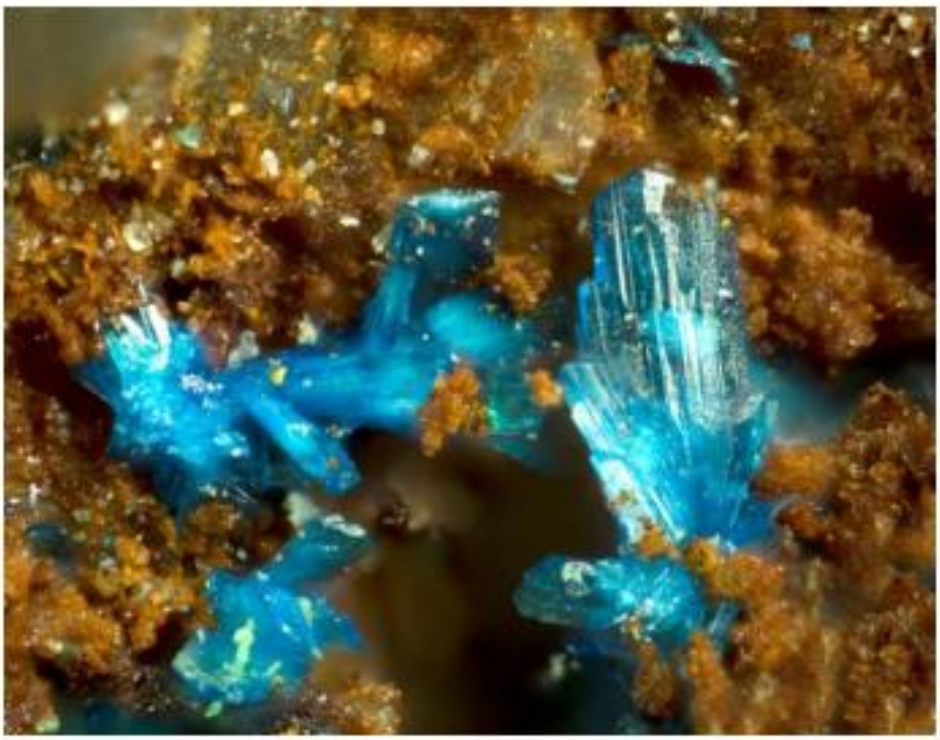
Mineral Note - Mrázekite

Mrázekite $Bi_2Cu_3(PO_4)_2O_2(OH)•H_2O$ is a very rare bismuth, copper, hydroxyl phosphate species that is only found in less than 10 worldwide localities. The type locality is the Podlipa deposit, Ľubietová, Slovakia. It was first identified in 1992 and named after a Czech mineralogist Zdenek Mrazek, who first collected it. (Ref 1). It forms as small eye-catching blue coloured monoclinic crystals.

Two notable specimen localities are outlined below:

Ľubietová, Banská Bystrica District, Slovakia:

Ľubietová was earlier known as Libethen in German and Libetbánya in Hungarian and prior to 1919 it was in the territory of Hungary. The large copper deposit of Podlipa, near Ľubietová village, is known for its rich oxidation zone with secondary minerals of copper. MINDAT lists 60 species. It is also the type locality for libethenite $Cu_2(PO_4)(OH)$ (named in 1823 by August Breithaupt after Libethen). The nearby Svätodušná deposit is the type locality for Euchroite $Cu_2(AsO_4)(OH)•3H_2O$.



Mrázekite Ľubietová FOV 1mm John Haupt Specimen & Photo

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MINI MINERS MONTHLY

VOL 18, NO 5 MAY 2026

WHERE AN EDUCATED COLLECTOR IS A SUCCESSFUL COLLECTOR!

CELEBRATING YOUNG COLLECTORS

YOU ARE THE FUTURE OF MINERAL COLLECTING!

In this issue you will find contributions from three different contributors, all of which are young collectors (teenage and younger). Here at "Mini Miners Monthly" we want to have more and more young collectors sending your writing (articles, poetry, etc.) and your drawings (minerals, fossils, dinosaurs, etc.) so we can publish them. Please email Darryl Powell at powellpublicaitonsgroup@gmail .com to submit your work for publication!

Quartz stained with iron oxide by Darryl Powell

"Every great rock collection begins with one curious child picking up one interesting stone."

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Please email articles and photos

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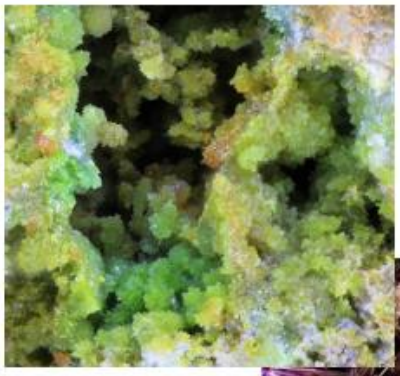
The next deadline will be September 12, 2026



Grabbed from the fabled BMS Symposium Grab Table

Peter Bainbridge's Loch na Meine pyromorphite
(Photo Peter Bainbridge assisted by Martin Gale).

Dick Belson found erythrite on mansfieldite from Mount Cobalt, Australia
(Photo Dick Belson)

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Central Washington University and SureStay Hotel by Best Western, Ellensburg
Discovery Hall
Ellensburg, WA

NW Micro Mineral Study Group - Nov 14
Sons of Norway Columbia Lodge
2400 Grant St., Vancouver, WA 98660

2027:

Pacific Micromineral Conference (MSSC) – TBD
Fallbrook Gem & Mineral Museum
123 W. Alvarado St., Fallbrook, California

NW Micro Mineral Study Group - May 8
10 am - 4 pm
Sons of Norway Columbia Lodge
2400 Grant St., Vancouver, WA 98660

Seattle Mineral Market – TBD
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

Northern Mineralogical Association (NCMA) – May 21-23
Eldorado Community Hall
6139 Pleasant Valley Rd., Eldorado, CA