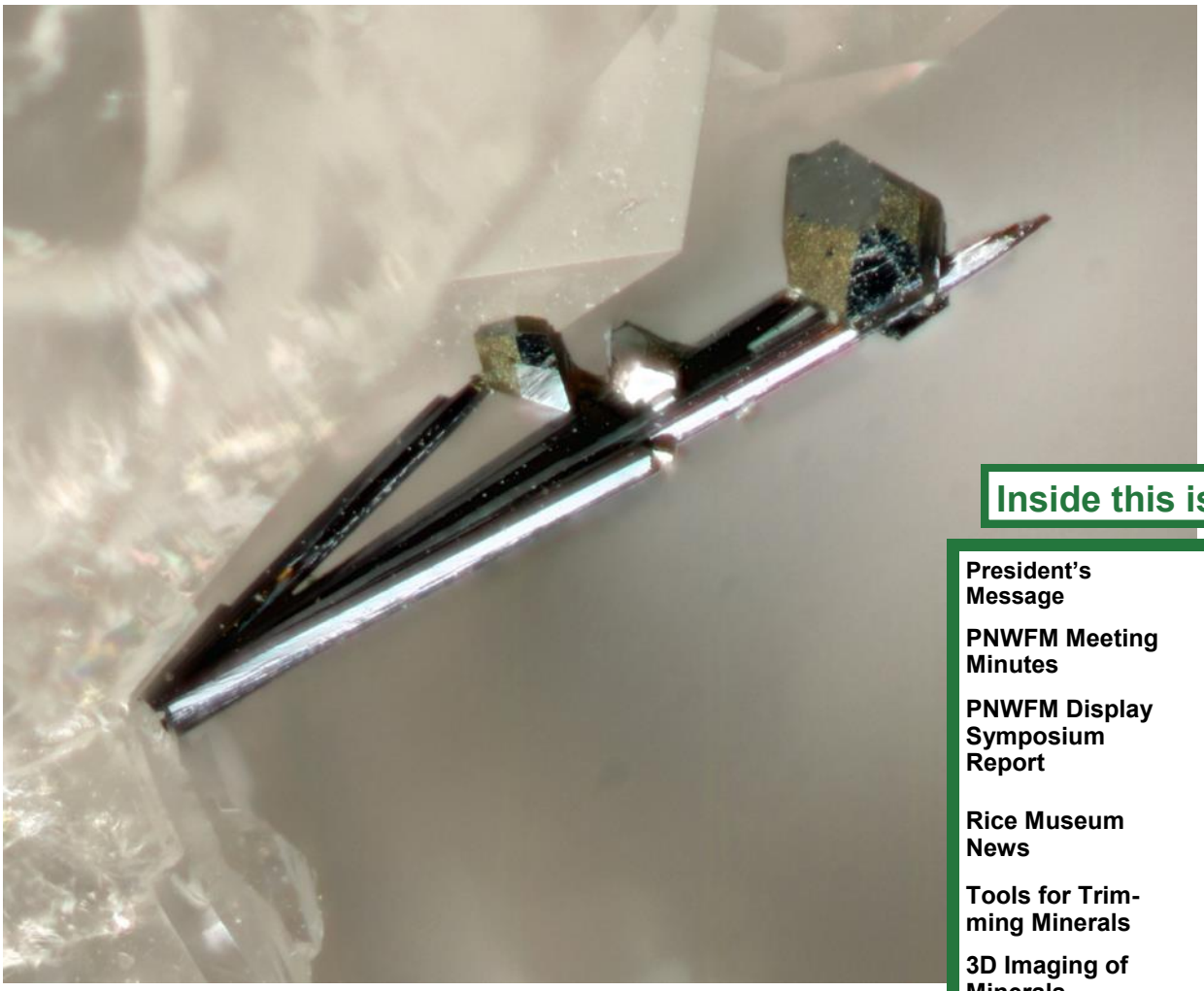
PACIFIC NORTHWEST CHAPTER
FRIENDS OF MINERALOGY

December 2023

PNWFM NEWSLETTER



Ramsdellite on Hollandite in a Las Choyas geode, Aldama Municipality, Chihuahua, Mexico. FOV 2mm. Photo and copyright by Beth Heesacker

Inside this issue:

President's Message

Jessica Robertson

Merry Christmas and Happy Holidays! We hope you joined us and had a great time at our October Symposium on the theme of Rare Earth Minerals. We'd like to thank all our fabulous speakers, organizers, and helpers, and thank you to everyone who attended and donated and made it a success. A special thank you is due to Karen Hinderman, who tirelessly kept after the hotel to make sure we had a contract and could continue our traditional format. Thank you Karen!

If you attended this year's symposium, you likely also already know that 2023 was our last year at the Kelso Red Lion. The rates at the Kelso Red Lion have risen to levels unsustainable for our type of event while the level of service and repair at the hotel has continued to fall. Therefore, the Board with agreement of membership at the Sunday morning meeting have decided to hold our 50th Symposium next year at an exciting new venue in an interesting new city: Central Washington University (CWU) in Ellensburg, Washington!

The geology department at CWU has agreed to sponsor our symposium and to provide us free use of their Discovery Hall facilities for the October weekend symposium talks. CWU geology is an outreach-focused department within a dynamic institution. We will be able to use their modern, 100-seat lecture hall for symposium presentations, and use of large, lockable classrooms a few steps away for our silent auctions, merch tables, display cases, and more. The board expects that this change in setting will draw new audiences to our symposium and to our club, and we are very excited about this new opportunity. We are also working hard to make sure the changes still satisfy the aspects of our symposium that our long-term members love and value, including the wonderful evening hours visiting with mineral friends. To that end, we are working with nearby hotels to arrange space for a Saturday evening banquet and block of rooms for our dealers and members. There will undoubtedly be some "growing pains" as we transition to the new venues, but we trust you will be as patient and as excited as we are to transition PNWFM to a new era. Please stay tuned for more details and dates as they become available.

(continued on page 3)

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In addition to this, our 50th Anniversary “Golden Memories” project is in the works and we are requesting copies of any photographs, memorabilia, or other memories regarding PNWFM and regional mineralogy that you may hold that could make this project a success. The more materials we compile, the more likely it is that this project will express in a glossy book or magazine keepsake that will be an important, permanent resource regarding the history of PNWFM and PNW mineral discovery, collection, and the personalities that deserve to be remembered.

The board and symposium and SMM committees are asking YOU to be part of making 2024 a success and to help us design our new era. We are actively looking for more "hands on deck" to expand our working committees and help strategize and organize our 2024 events, including both our participation at Seattle Mineral Market in May and the October symposium. In particular, we need folks to help us coordinate the Golden Memories project, coordinators and participants for SMM, and our symposium presentation/live streaming technology, field trips, and security, but we are open to anyone who would like to assist! The committees meet monthly via Zoom. If you’re reading this and thinking, “well, maybe I could help, but they probably have it covered”….we’re talking to you! Please reach out to me or to any of the board if you would like to participate.

Thank you and here’s to an exciting 2024!

Todorokite on Goethite needles in a Las Choyas geode (with a few additions) ,
Aldama Municipality, Chihuahua, Mexico. FOV 3.5 mm.

PNWFM Meeting Minutes
October 22, 2023

Jessica Robertson, President, opened the meeting with 27 members in attendance. Many thanks were given to all involved in making this another successful symposium. Minutes from the May meeting were approved as printed in the June newsletter.

Jessica presented a powerpoint titled 2024 & Beyond. She discussed the concerns with the Red Lion Hotel in Kelso and options for the future. With cost increases at The Red Lion, no improvements in the facilities, and no food service, we need a new direction. Our club is unable to make a profit and remain sustainable at this locality. Jessica presented ideas for our next symposium which is our 50th, or Golden Anniversary, Symposium. There was discussion about options (have a symposium at the Seattle Mineral Market, hold the symposium at CWU, or find another suitable hotel) for 2024, and the membership voted to have the next symposium at Central Washington University in the Geology Building in Ellensburg. Our theme will be something like “Gold & All Things Shiny” and include a retrospective of the club’s history. The geology department has a 100 person lecture hall and 2 large classrooms that we will be able to use. There are many details to be worked out in relation to room dealers and satellite dealers. Please stay tuned for more information. **Also, if you would like to be part of the 2024 symposium planning committee, let Jessica or Karen know.** We will be meeting once a month on Zoom. Our next meeting is November 22 at 7 pm. The board understands the importance of the camaraderie that occurs in our satellite hotel rooms on Friday and Saturday nights. We will make every effort to provide a similar atmosphere. The date for next year’s symposium will be the second or third full weekend in October. We are waiting to learn the date of CWU’s homecoming weekend before we can make our final decision.

Good of the Order: Julian Gray was presented with the Noble Witt Award for service. A plaque will be made for him and the plaque at the Rice Museum will be located and updated. Ray Hill thanked the board for all their work. Beth asked for articles, photos, field trip reports, and other content for the newsletter. Next deadline is early December. If you don’t receive a newsletter by December 15 or so, contact Bruce and he will check that he has your email correct. It was suggested that the 2025 Symposium theme be about WA State Collecting Sites. Meeting was adjourned.

The symposium committee met on October 25 to discuss what went well and what still needs to improve. The technology portion of the symposium still has some kinks to work out with sound and with moving back and forth between live speakers and virtual speakers. The schedule needs to include breaks between speakers. We need an individual to be the lead on registration so that Bruce can focus on technology. We need an individual to be responsible for the show cases, including repairing them and moving them to and from the symposium annually.

We also started our discussions on the 2024 symposium. We want to present a retrospective so would love pictures from the last 50 years to be part of that. If you have any pictures of the symposium, field trips, WA Pass clean-up, etc., please let a board member know and send them our way.

Displays at the 2023 PNWFM Symposium: Rare Earth Element Minerals

By Bob Meyer

Jessica Robertson's case entitled "Rare Earth Element Minerals," featuring specimens and examples of where rare earth elements are used.

The 2023 PNWFM Annual Symposium featured 7 displays, two of which related to the subject of rare earth minerals, but all were relevant, informative, and entertaining. The Pacific Northwest Chapter of the Friends of Mineralogy thanks each exhibitor for their efforts!

Jessica Robertson put in a very informative case featuring a very impressive information board at the back, entitled, "Rare Earth Element Minerals, Significant and Essential; or, Why There's No Such Thing as an Ugly Mineral." The case featured 9 rare earth element minerals plus a vial of Monazite sand. There was also a group of artifacts, human made items, that rely on or contain some of the rare earths. This group included a Makita cordless drill, a computer hard drive, a fluorescent bulb, and a ND YAG laser rod. The specimens included a nice Parisite-(Ce) specimen, about 5 cm in height, from the Snowbird mine, Fish Creek, Alberton, Mineral County, Montana, USA; and an Andradite with Yttrium, about 4 cm across, from Mina Prieta Linda, Chihuahua, Mexico.

Detail of Jessica Robertson's display.

Image of the collection of Benefit Auction specimens. Many thanks to the donor's!

John Lindell's Case entitled World-Wide Skarn Minerals

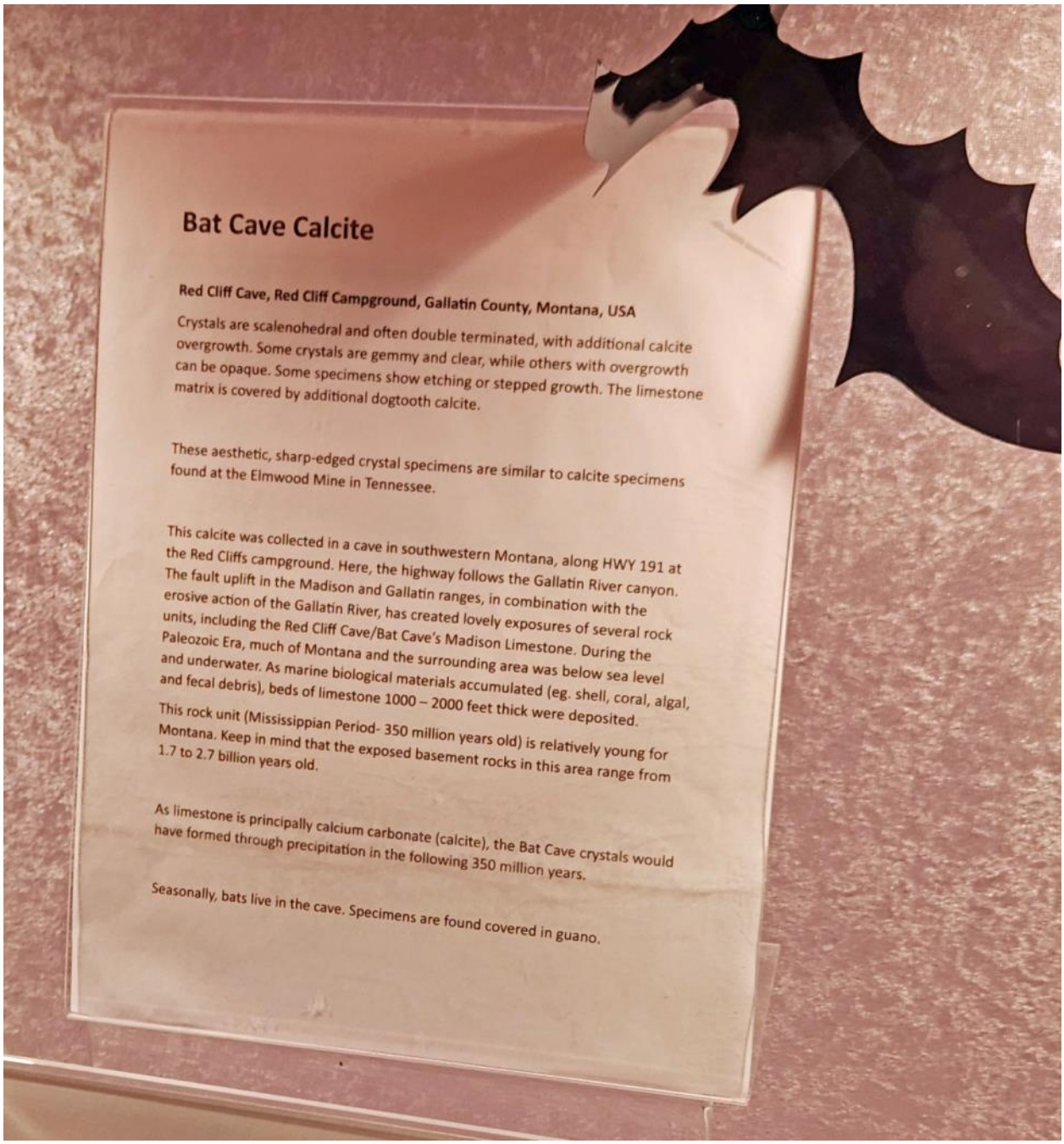
John Lindell put in a case containing 27 specimens from world-wide Skarn deposits. Of these, and representing the rare earth species included an exquisite small cabinet sized specimen (about 5 cm tall) of Parisite-(Ce) from the Snowbird Mine and a 3 cm crystal of Monazite-(Ce) from Sheep Creek, Mineral Point District, Ravalli Co., Montana, USA both of which had been collected by Bart Cannon.

Yttrian Fluorite with Calcite from the Qinglang Mine, Quonlong Co., Guizhou Province, China about 8 cm across.

The Rice Museum of Rocks & Minerals Display presenting a very fine occurrence of Calcite from the Red Cliff Cave, Red Cliff Campground, Gallatin County, Montana, USA.

A detail of The Rice Museum of Rocks & Minerals Display showing two of the specimens about 12.5 cm across, a map of the area, and some festive bats!

The Rice Museum of Rocks & Minerals put in a display entitled Bat Cave Calcite, consisting of eight superb specimens of yellow scalenohedral crystals of Calcite, many doubly-terminated, a map of the area, a page describing the find, and some festive bats!

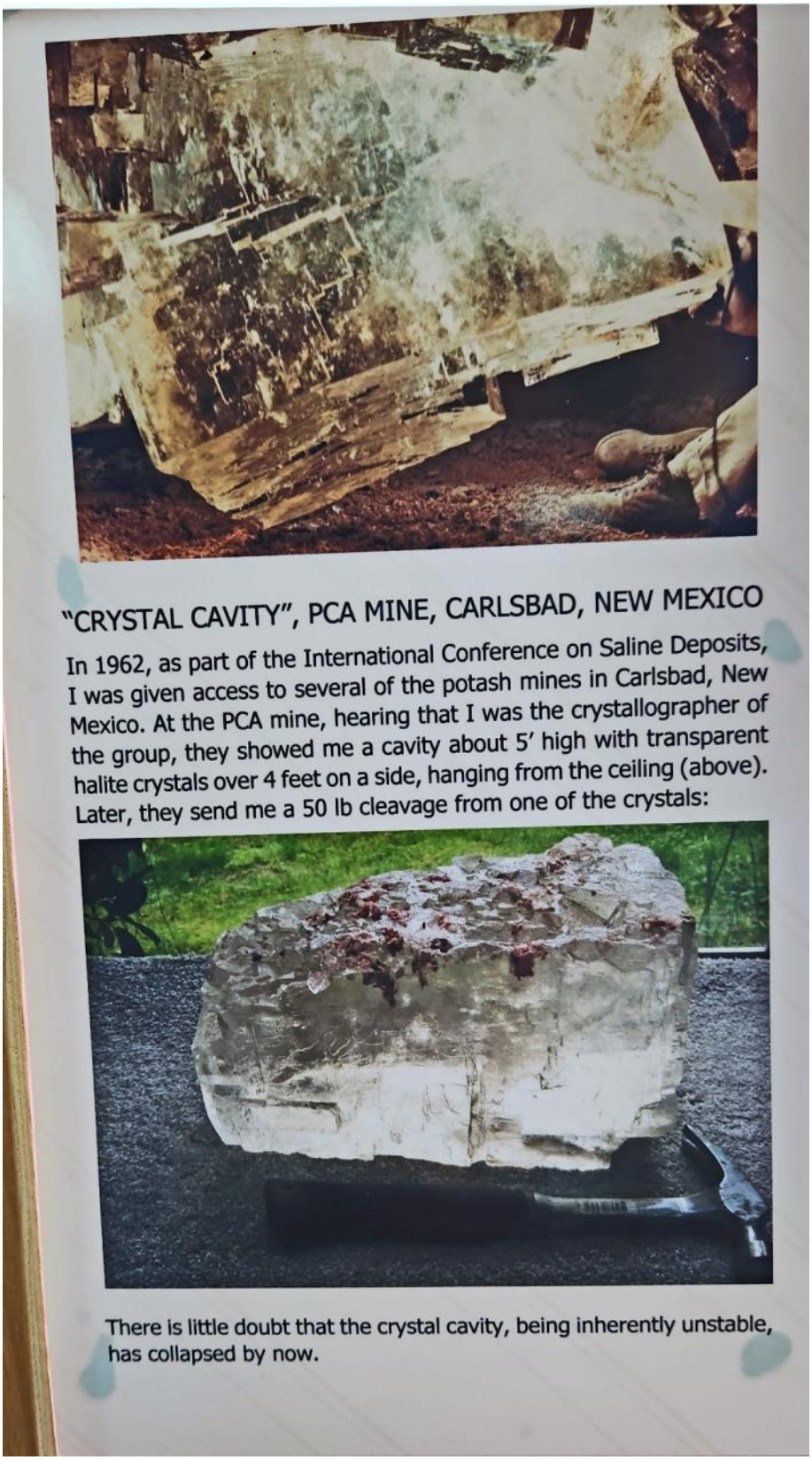


The Rice Museum of Rocks & Minerals Display Page Describing the Bat Cave Calcite find (with Bat!)

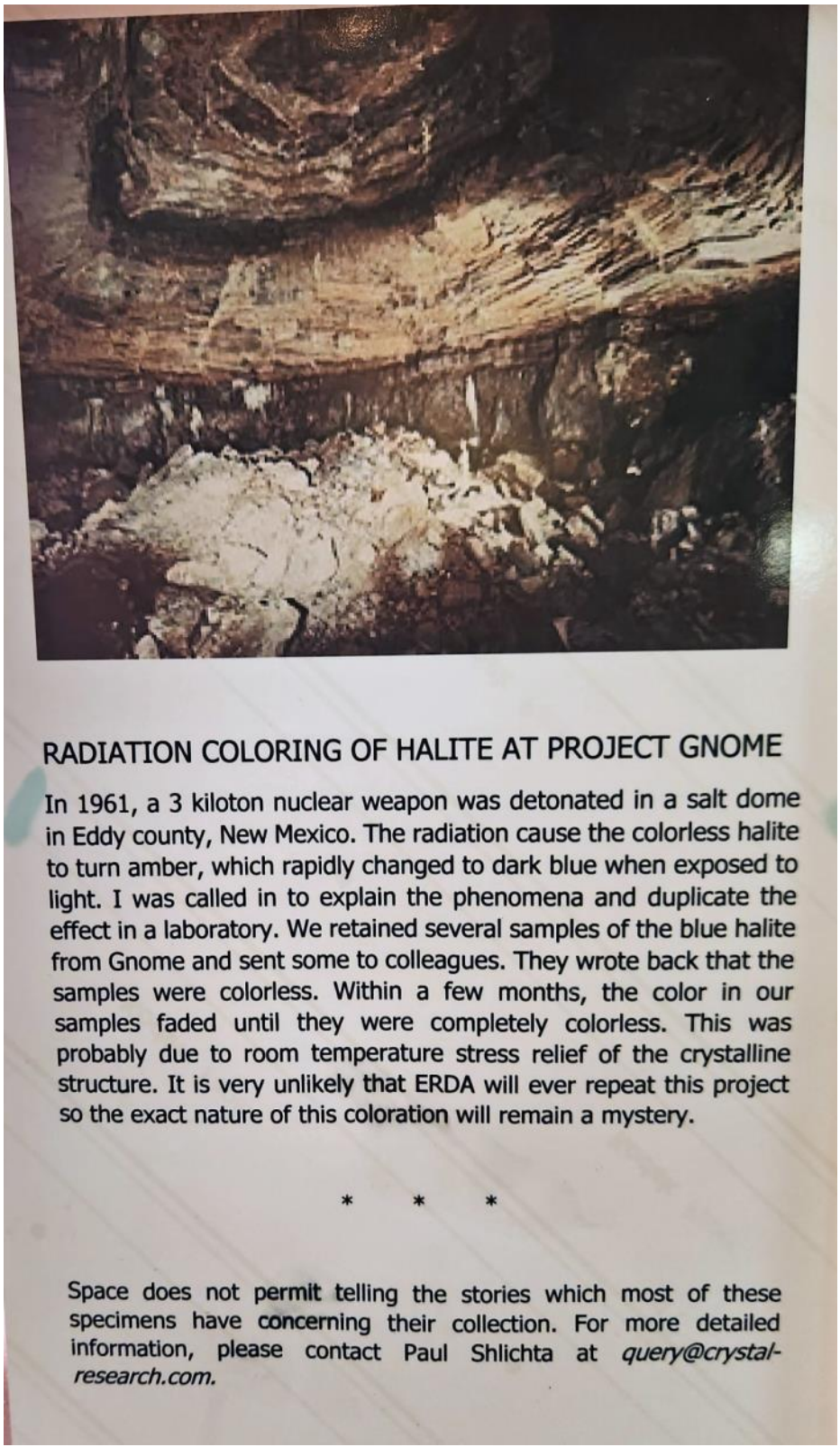
The case from the Crystal Research Collection featuring lost localities.

Paul Shlichta of the Crystal Research collection put a case entitled LOST LOCALITIES: SPECIMENS FROM THE CRYSTAL RESEARCH COLLECTION. The case contained 18 specimens from 11 lost localities and on the front of the case were two placards with information about localities.

Three specimens in the Crystal Research Collection lost localities case, each about 12.5 cm across.



One of the placards on the Crystal Research Collection lost localities case describing a large find of Halite from the PCA Mine, Carlsbad, New Mexico, USA.



RADIATION COLORING OF HALITE AT PROJECT GNOME

In 1961, a 3 kiloton nuclear weapon was detonated in a salt dome in Eddy county, New Mexico. The radiation cause the colorless halite to turn amber, which rapidly changed to dark blue when exposed to light. I was called in to explain the phenomena and duplicate the effect in a laboratory. We retained several samples of the blue halite from Gnome and sent some to colleagues. They wrote back that the samples were colorless. Within a few months, the color in our samples faded until they were completely colorless. This was probably due to room temperature stress relief of the crystalline structure. It is very unlikely that ERDA will ever repeat this project so the exact nature of this coloration will remain a mystery.

* * *

Space does not permit telling the stories which most of these specimens have concerning their collection. For more detailed information, please contact Paul Shlichta at *query@crystal-research.com.*

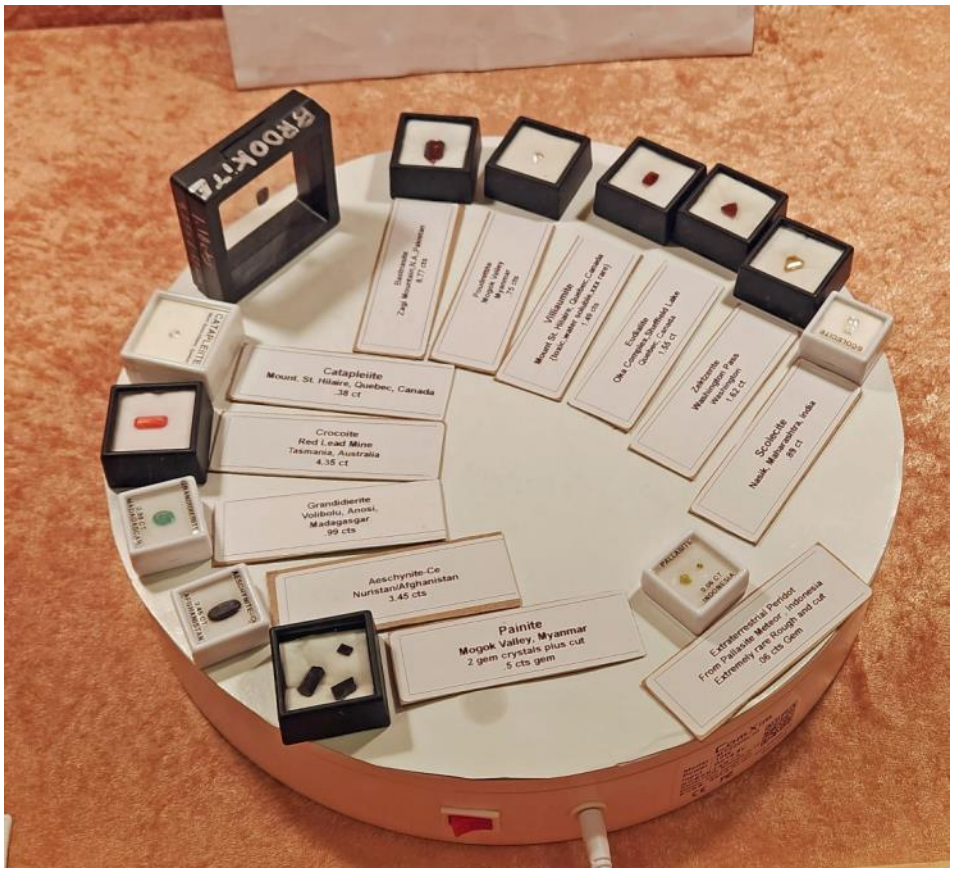
The second placard on the Crystal Research Collection lost localities case describing color change in Halite resulting from radiation from a nuclear weapon test.

Three purple specimens of Halite in the Crystal Research Collection lost localities case, each about 3 cm across.

Ray Hill's display entitled RE Mineral Gems + Really Rare Mineral Gems.

Ray Hill put in a very interesting display of cut gemstones, representing some rare earth minerals, but also with examples of cut stones of minerals that are rarely seen in cut form. Ray had 18 different mineral/localities, 13 of which were on a rotating turntable.

A detail of a group of stones on the turntable in Ray Hill's case. Please note the very fine example of faceted Zektzerite from our Washington Pass.



The turntable in Ray Hill's case. Of note is the very unusual Brookite that is standing up to show the varying optical colors of the piece as it rotates in the light.

Bill and Diana Dameron's case entitled PREHNITE: a FOZ – Friend of Zeolites.

Bill and Diana Dameron presented a case containing 33 excellent specimens of the mineral Prehnite from around the world. The case is very similar, but not identical in terms of both the arrangement of the specimens and the actual specimens themselves to the case Bill and Diana presented in 2017. Let us just call this an update, and a very welcome one! The specimens on display included an outstanding 8 cm specimen of curved buff-tan crystals forming bird's nest shaped aggregates (commonly known as "rope-knot") with tiny Quartz crystals inside from Imilchil, Er Rachidia Province, Drâa-Tafilalet Region, Morocco; a 8 cm tall specimen of the classic blocky prismatic flat-terminated crystals that were found many years ago at the Jeffrey Mine, Asbestos, Québec, Canada, as buff-colored crystals to 5 cm in length with needle like crystals of light brown Diopside; a 7 cm specimen consisting of two sharp, lustrous, blocky pale green crystals also from the Jeffrey Mine; an excellent polished 7 cm specimen of translucent yellow-green Prehnite hosting an inclusion of Natrolite forming a dramatic stellate pattern from Wave Hill, Victoria-Daly Region, Northern Territory, Australia, and a very nice lilac colored specimen of prehnite crystals from the Merelani Hills, Manyara, Tanzania that is about 10 cm high.

A group of exquisite Prehnite specimens in Bill and Diana Dameron's case.

A selection of Prehnite specimens in Bill and Diana Dameron's case.

Another selection of Prehnite specimens in Bill and Diana Dameron's case.

The case commemorating Gary McWilliams, 1942-2022

The final case I will describe is one that commemorates **Gary McWilliams**, author, and mineral collector. The case contained two photos of Gary McWilliams, 14 specimens from his collection all from Alaska (5 from Wrangel Burrough and 6 from Petersburg, and two of his books, The Anchor & The Pick, Rocks and Minerals by Boat in Southeast Alaska; and Wanderlusting. The business card mounted on the back of the case lists a third written work, The Mayor of Mucklerat.

A detail of the Gary McWilliams case. On the left, a stalactitic quartz with blades of Barrerite about 25 cm high from Rocky Pass, Kuiu Island, Petersburg Borough, Alaska USA, and a Pyrite on rock about 10 cm wide from Gambler Bay, Admiralty Island, Alaska, USA.

News from the Rice Museum

26385 NW Groveland Dr,
Hillsboro, OR 97124

https://ricenorthwestmuseum.org/

SAVE THE DATE!

Sat, Jan 20th - *A Stone is a Story* book release party with author Leslie Barnard Booth

Sat, Feb. 24th - Mineral Fashion Show

Tours:

Thanks to the Juan Young Trust, for the last two years the Rice Museum provided free tours from May through November for children and members of our community who could not have otherwise accessed our services. As a nonprofit organization, we rely on grants such as these and donations from friends like you to support our programs. Unfortunately, our grant with the Juan Young Trust comes to an end this year. We will no longer be able to provide free tours in 2024.

Our goal is to fund 60 free tours for the 2024 season - we are currently at 42 tours. With your tax-deductible gift of $175, you cover the ticket cost of a full guided tour for up to 20 people. While this is a suggested number, you can make a difference with any amount. By eliminating financial barriers, you can make science education accessible for any child or guest who wishes to visit.

Please consider giving today to prevent the end of our invaluable free tour program by making a donation on our website. By giving the gift of education, you become someone's hero and inspire our future geologists of the world.

Adopt a Mineral

Looking for the perfect holiday gift for the rock hound in your life? Adopt one of our minerals!

Adoption Benefits Include:

A photo of the mineral (a new benefit!), Certificate of adoption, Mineral fact sheet

The adopter's name displayed next to the mineral for a year

By joining our Adopt A Mineral program, you become an important part of the museum. Rock and mineral collections require special cleaning, maintenance, and care. Your yearly tax-deductible sponsorship makes an important contribution and gives you a personal connection to the museum. And, we hope you come and visit your mineral often!

To receive by Dec. 25th, please order by Dec. 17th.

Tools for Trimming Minerals
Clyde Spencer
2023

[The following is an edited summary of email exchanges between members of the South East Micromounters Group and myself; used with permission of the participants.]

***Quintin Wight*:** Clyde
I use ceramic tile nippers. They usually have tungsten carbide teeth, and are cheaper to buy.

Herwig Pelkmans: Quintin
One of the things I did not like about the ceramic tile nippers. I found that the max distance between both "jaws" when opened completely is quite limited, as is the space inside the jaws.

That of course translates to: OK for smaller samples, but not handy or even impossible for trimming somewhat larger rocks. That's where hoof trimmers can come in, I guess.

Quintin Wight: All
My tile trimmers (attached) open a full inch. I bought them at a local hardware store many years ago, and they are still as good as ever.

Mike Howard: Quintin Wight
Quintin, those trimmers are a bit different in shape of the nipper blades than the ones I have encountered. Very interesting!

Quintin Wight: Mike
Yes. In shot #1 below, you can see that when fully compressed, the teeth don't meet. That stops them from smashing into each other on a hard break. You can also make out the tungsten carbide teeth. In shot #2, you can see that the head is offset to give a better grip on the subject without interference from the pivot. They work well.

Clyde Spencer: All
My 14" hoof trimmers are one of my most useful tools for trimming limestone specimens. I can take off edges up to about 1/2". Only when I can't reduce it with the hoof trimmer do I resort to my hydraulic-jack trimmer. I also use a small pair of electrician's side-cutters for more delicate work.

Mike Howard: Clyde
HA HA, glad to know I am not the only person who used those type of trimmers! I have two sets, one with 9-inch handles and the other pair is 14" like yours! And, for very delicate work, I have both jewelers nips and side cutters! I wore out two Yost trimmers over the years, and I managed to locate a Chinese knockoff, but it is about 30% larger and has a little more slack in the works, which actually works to its favor. Tight tolerances are good, until they start wearing too much! I have trimmed many a specimen down to fit in a perky 1.25" cube with those tools! And getting rid of waste matrix can make a specimen set much more aesthetically for mounting! HA HA much of my trimming has been thin vuggy pieces of syenite...and when trimming with the 9" trimmer, I have to be very careful or I will pinch the palm of my hand!

Mike Howard: Quintin
The hoof trimmers are in the 2nd picture, the rule is there so you can see the max opening on them...2.25" for the large pair and 1.5" for the smaller pair. The small pair have been heavily used to the point that when closed, the handles are within 1/4" of each other, thus the pinching effect! These are very useful on thin, brittle, or crumbly matrix specimens. Like you said the ceramic tile SiC trimmers are fine but do not open much over 3/8th inch, so their use is very limited. After all, they were designed to trim ceramic tile, not rocks!

Trimming rock with any trimmer requires experience and patience, and some knowledge of how the rock will respond to applied force. I do like Jim Daly's Hydraulic German made trimmer. It is great for putting incremental pressure on the rock so the shock of breaking is not as much as the screw type, but the Chinese one cost me about $50 a few years back and the German Hydraulic trimmer is nearly $1,900 the last time I checked! I would rather spend my money on a couple of dozen nice fluorescent specimens than that trimmer (particularly at my age and the fact that I no longer collect, just silver pick and trade.)

J. Michael Howard, photographer

Herwig Pelkmans: Mike
Regarding these hoof trimmers: any specific brand you can recommend?

Looking at a few, I notice there is quite a price range, this one being quite expensive:

https://www.centaurforge.com/GE-14-Original-Style-Hoof-Nippers/productinfo/14GE/

Regarding pinching your hand: best to use a cloth to cover the rock and the head of the trimmer before putting pressure on it. That will not only keep all the fragments close, but it will also keep you from pinching your hand.

Clyde Spencer: Herwig
The one I have was made in the USA and was not particularly expensive. I have had it for several years and it will probably outlive me. I've touched up the edge on the jaws a few times. So, I'd go with the cheaper one -- unless it was made in China.

Mike Howard: Herwig
The hoof trimmers have their limits, but more due to the strength of the operator! Here are 3 pictures...first is of my Chinese knockoff Yost trimmer.....about 30% larger than the Yost. Note the springs to aid with retraction when opening....max opening 4" vertically, but I almost never use that full amount...the rock must be limestone or something with less tenacity to use the full opening. Width is about 4.5 inches horizontally between the vertical bars. I have trimmed 100s of specimens with this trimmer, after my two Yosts finally cratered.

***Stan Bogosian*:** All
I'm on my second hydraulic ZUBER, and have to say it has been worth every penny. For finer trimming, I use a Swarf Systems "mini" screw-type trimmer. And yes, I also have a tile trimmer, which I use maybe three times a year. Agree with Herwig, the jaws don't always open far enough.

Quintin Wight: All
I should fill in the picture. I also use a Yost trimmer (I bought that from Bill Yost in 1972), a five-ton hydraulic monster for bigger pieces, and a truly useful little 50 G hammer I bought in Fiesch, Switzerland, in 1966 (see below). It has a wooden shaft, and though the edges of the square striking face have worn slightly, it doesn't show a trace of mushrooming. That's real heat-treating! I use it on pieces held in my palm. The handle looks a little short because I've broken it twice over the years. It has trimmed a lot of rock!

Mike Howard: All
At one time a few years back, my friend Henry de Linde designed and had built by a local welding shop, a 5-ton hydraulic splitter. When he moved away, he sold it to Charles Steuart, another geologist friend of mine. Even later, he sent on consignment to a rock shop in Mt. Ida. There I saw it, called Charles and asked what he had to have for it. We agreed on a price of $100, thus it came into my possession!

I had it for about 10 years and broke lots of rock with it, but when I retired and quit collecting, I decided to sell it. That is about the time RV Stevens AKA Big Bob came by for a visit. He saw it and wanted it so he bought it from me.... for $100. I never had to do a thing to it! I had it mounted on a 3 ft. diameter oak tree round, so we pried it off of there and he hauled it away. I broke down a lot of 1 ft. boulders of vug-bearing nepheline syenite with it, and a lot of the vuggy brookite quartz host rock from the Christy pit too!

Clyde Spencer: Mike
I think I remember seeing that press outside, behind your house. You wisely put some heavy carpet over it to keep the shrapnel from wounding you.

I bought a 3(?) ton hydraulic press from Harbor Freight and Tools and then bought a Chinese, wide cold-chisel that I cut down .... It works well for most things. I also bought a carbide hacksaw blade that I use to notch big pieces to seat the cold-chisel blade, and encourage it to break where I want it to break.

I also made a small trimmer out of a hand-operated bearing press (Again from Harbor Freight), but ended up not using it much.

Mike Howard: Clyde
Yes, that was the one! If you broke a rock of any size, you needed to wrap the lower half of the machine with carpet! HA HA Besides protecting me, it also kept the shards from flying away into the bushes and me from having to hunt for them!

Mike Howard: All
But I found NO mineral trimmers available, even that fancy German one is no longer made. So, I decided I would see if I could find anything that I could adapt to make one, and this is what I came up with. You can look it up at Home Depot, but today it shows it is OUT OF STOCK! I wonder if I purchased the last one. It is: Black Bull 6-ton A-Frame Shop Press 806472. I have a few pictures of it and my ideas about how to modify it for a relatively inexpensive mineral/rock trimmer. It is no lightweight at 47 pounds unassembled. Cost with free home delivery was $119.

Here are my thoughts on modifications. In the reviews, several said it was rickety, well obviously, they did not tighten down all the nuts and bolts! But once I get it assembled, and all squared up, I will take it to a local welding shop and have the critical joins wire welded.

The other modification is on the end of the press ram rod. I will take it, before assembly and locate two carbide tipped masonry chisels, have them cut off and one welded on the end of the push rock and the other welded on the bottom plate so I can have chisels top and bottom on any standard rock trimmer.

I expect to come in under $170 on this little project and though it is not really very portable, when we have the CUSMMS back here in Arkansas next year, I will have it on hand for those wanting to trim their specimens. By then I hope to have had enough experience with it to let everyone know if it was worth the price or not.

Fortunately, there are a couple of YouTube videos that show how to assemble it...pretty amateurish but still better than just a static diagram! HA HA

J. Michael Howard, photographer

Herwig Pelkmans: All
And FYI: the trimmer that Stan mentioned, the SWARF trimmer, is still being made in the US by Ted Hadley (thadley01@yahoo.com).

I bought one too, and am very satisfied with its ease of handling and overall performance.

Clyde Spencer: Mike
The A-frame press you bought resembles the one I bought from Harbor Freight & Tools a few years ago. I made some modifications that you might want to consider. I bought a Chinese-made, wide cold-chisel, also from HFT. I shortened the shaft of the steel cold-chisel. (And, lost an expensive polycrystalline diamond, lathe tool bit in the process because I started with a hexagonal shaft.) I then machined a collar with my lathe to fit the cold-chisel and the plunger under the hydraulic jack platform. The collar has setscrews. This allows me to rotate the blade to align with any natural cracks while taking advantage of the full width of the platform. I chose a steel cold-chisel because it can be sharpened after removing it from the collar, should it become dull or chipped. I purposely avoided carbide because, while it is very hard (and hence difficult to sharpen), it also tends to be brittle. After a few years of busting some tough rocks, I haven't had a need to dress the upper cold-chisel.

I didn't make another bit to go under the specimen. I imagine just putting a length of steel angle iron under it should be adequate, although I haven't really found that necessary. The press came with a couple of iron spacer blocks that I just place at the outside of the specimen, leaving the center, where I want it to break, unsupported.

Before you go to the trouble and expense of having the frame welded, you might want to consider just applying (slow curing) epoxy to all the areas where the bolts are, to keep it from moving. I didn't do that, and haven't had any problems. I think that you are right that the people who complained about their frames being rickety just didn't tighten their bolts enough.

Mike Howard: Clyde
Thank you for your suggestions. I discovered one thing, carbide tipped chisels are damn expensive! In the order of two would cost me nearly as much, in fact maybe more, than this entire set up! I will go with just regular steel cold chisels...since I have no metal working equipment in my shop. I will take this rig to a metal shop, and explain what I want done. Due to your experience of not having to resharpen that upper bit after several years of use, I plan on having the rod shortened by the same amount as the chisel adds and having it welded into place. The bottom chisel will be welded to one of those plates. I did measure the diameter of the vertical push rod and it is 1" so I am thinking of buying a couple of 1" chisels. My small screw type trimmer uses 3/8" chisels, and I have never even chipped one.

I believe this unit is exactly the same one you bought from HF&T, but they have none in stock, and just imported under a different name.... HA HA The Chinese do that a lot! HF&T lists it on their web site, but every time I checked it was out of stock.

Anyway, yesterday afternoon I started to put all the bits and pieces together, hand tight. Between the parts diagram, the drawing and the picture on the box, I was able to figure it out. I have not yet attached the upper "A" portion to the body as that looks to be the fiddliest part of all. And I need to get the chisels attached before doing that.

As far as the collar and such, I just plan on rotating the specimen to the best "pinch" position. My very small screw vise has that rotation option for the lower bit, but I have never used it. Just have both bits aligned with each other.

***Mike Howard**:* All
I previously sent everyone pictures of this rock trimmer project, the 6-ton hydraulic trimmer, and pics of my small Chinese made trimmer and a couple of horse nail trimmers that I use occasionally. So here are pictures of both the finished rock trimmer and two other trimmers I had that I finally located...now everything sits on one bench so I do not have to look all over creation to find them when needed! HA HA

The first pic is of a steel nut cutter with an open jaw of 1 inch. This is a handy portable size, but you also have to carry a crescent wrench with you to use it. Also in the same picture is my tile cutter, this works well for up to 5/8-inch nipping of sharp edges and slivers. Needed for it is either a bandana or small towel to wrap around the cutter head once you are holding the piece in position as this sometimes needs two-handed operation and the pieces may fly away, if not wrapped!

The rest of the pics show.... 2nd picture shows the upper portion of the A-Frame, note the welded joints, the painting of the relief valve so that I can see it more easily that if it was black on a black background, and the 1" C-clamps holding the jack in place. These may be removed later as I have purchased but not yet received some 2" spring clamps. The 3rd picture shows the lower half of the rock trimmer and the alignment of the chisels for breaking a rock! The 4th picture shows the spring clip I bolted to the side of the press to hold the copper release pipe and the new jack lever bar. The last picture shows a close up of the alignment of the chisel bits for breaking rock. Note the 2 one-inch C-clamps being used to hold the lower plate in proper position. These also may be replaced with several spring clamps once they arrive.

This unit came with a single piece release and lever jack bar, but it was like 30" and actually did not fit into the jack properly. Previous bottle jacks I had had two - piece handles, so I just custom made them, and I like the way they nest on the side of the unit.

Anyway, not counting the spring clamps, I am finished with this unit and think it is ready to work with when I get some suitable material. Anything smaller than 2 inches, I will continue to break with my screw trimmer.

J. Michael Howard, photographer

***Herwig Pelkmans*:** Mike

Very interesting, Mike. So, what is the height of the rock you can still easily get between both chisels? Have you already done a test with a big tough rock that large?

What I would change are the clamps holding the lower plates. I would replace them by 4 good sized bolts (one on every corner; not welded, of course).
Right now, those clamps might be in the way of the (large) rocks you will be trimming, and it will also be more sturdy.

Via British Micromount Society, Newsletter 119, June 2023

Three Dimensional photographic images have been around for since the 1850's and John Chapman has been an enthusiastic exponent of its application to microminerals over the last few years - as many attendees of the BMS North West Branch will remember. So it was a pleasure when John offered to write an article on the principles behind the technique and share his expertise with the BMS members.

The Background to 3D Photomicrography through the stereomicroscope

Most of us that are blessed with two functioning eyes see the world in three dimensions: left/right (X-direction), up/down (Y-direction) and depth (Z-direction). We have only to try walking about somewhere unfamiliar with one eye closed to realise just how important depth is in navigating, assessing distances and avoiding predators. And then try picking blackberries with one eye closed – that could be a painful experience!

Our eyes and brain perform an amazing ability to create a third image, which we experience as a single one, yet made from two decidedly different images. A convenient demonstration that our eyes see different images is to hold your fingertip steadily half way between your eyes and this print. When you close each eye in turn you will see that your fingertip points to different locations. It is from those very slight lateral differences between the views seen by each eye that our brain creates the three-dimensional image with which most of us are familiar, not even aware of the computations having taken place.

The stereomicroscope was first envisaged by Horatio Saltonstall Greenough (1845-1916), an American biologist who was studying marine embryos. He approached Professor Ernst Abbe of Carl Zeiss Microscopes in Jena, Germany, who had already developed a stereoscopic binocular tube for high power microscopes. Greenough wanted lower magnification and greater free space, or 'working distance', between the microscope and the specimen and he postulated that two lower power microscopes could be fixed together at an angle so that the optic axes converged at the specimen plane. Abbe designed an instrument and Zeiss produced the first stereomicroscope in the world around 1896. Greenough's principle is still in use as a very effective stereomicroscope, having two optical tubes set at an angle, each complete with an eyepiece and an objective lens. Later and more complex models use a parallel beam construction and a common main objective.

A stereomicroscope enables us to view objects at magnifications from around 10x to about 50x with relaxed vision and with our eyes having a vergence that would be natural for a distance of about 10" (250 mm). On most stereomicroscopes this angle is about 12 degrees. As with natural viewing each eye sees a quite different view. Imagine holding a golf ball sized specimen at about 10" (the arbitrary close-focusing distance). The two different views are remarkably combined into a single aerial image that is constructed in the brain, and yet those two views may be radically different.

When it comes to studying tiny minerals the instrument of choice by a long way is the stereomicroscope. When we are viewing a micro mineral our brain processes these two views and gives us a mental image which includes a visualisation of the depth of our specimen and its cavities. But now try closing one eye and (with a different specimen), see

how much you are missing. (It must be a different specimen because the brain records the data it has just produced, and this can be used to interpret a specimen using only one eye.)

During my work with Zeiss, it happened several times that people complained that the photographs they had taken through their stereomicroscopes didn't look like what they could see visually. I used to suggest that they closed the opposite eye to the one using the camera port and so, in that way, they would see with one eye what the camera would record.

A large part of the skill in making a good mineral photograph is the ability to provide a sense of depth and replicating what is seen as a stereoscopic image as much as possible. If we could recreate a stereoscopic image of a specimen, then we should possess the closest interpretation that is possible. In conventional photography this has been done for many years - from around 1850 stereo photo pairs were produced by several eminent photographers of landscapes, buildings, interiors and portraits. And in stereomicroscopy, early 3D images were made by direct projection of the left and right images from a stereomicroscope onto a single photographic plate. In all cases, when developed, the printed images were mounted on a 'stereocard' that was inserted into a viewer, in which each eye viewed its own photograph, recreating the view through the stereomicroscope.

Making 3D Stereoscopic images

How could we use a stereomicroscope to produce 3D images? Simply, though tricky, we could hold a compact digital camera or mobile phone camera over each eyepiece of our stereomicroscope and take a Left then a Right image. These two images can be combined in the free software Stereophotomaker, which offers all of the 3D viewing methods available. In practice this is a tricky technique because it's difficult to align the camera or phone accurately over the exit pupil of the eyepiece whether for 3D or 2D. So-called 'eyepiece cameras', which temporarily replace an eyepiece, are more amenable, but the best way is to use a 'phototube' on a stereomicroscope. Some of these can be added to an existing microscope but in other cases they must be built in at manufacture. But to make 3D images, it must be possible to attach a camera to each beam path in turn. The system I use makes it easy to slide the camera from one beam path to the other.

Once you've obtained your left and right hand images these can be loaded into Stereophotomaker. For immediate 3D viewing and for adjustment, the two images should be switched to red-cyan anaglyph view and observed with the respective spectacles. There is an automatic alignment function, which should always be used before making any adjustments to the position of foreground objects in relationship to the plane of the computer screen. The image can then be saved as an anaglyph, a left-right stereo pair or an MPO file and each of these is discussed below.

An **anaglyph** is easily produced. In this method, the left and right images are superimposed and coloured red for the left image and cyan for the right image. This is by far the most common version, though previously red and green were used. Yellow-purple is another possible combination.

Anaglyphs have some distinct advantages, as well as some equally distinct disadvantages. The great advantage over all other methods is that the image can be enlarged on screen, and it is a considerable delight to be able to roam around such a 3D image at high magnification, often discovering things that had not been noticed in direct microscopy. Secondly, the only viewing aid necessary is a pair of cheap red-cyan spectacles.

The main disadvantage is that the colours of the filters in the spectacles prevent some inherent mineral colours from being seen properly. Thus, brilliant red realgar is seen as black through the cyan filter and equally, colours such as those of caledonite and aurichalcite do not get through the red filter. There are some types of anaglyphs that can help get around these issues, but the final result always looks unnatural.

Stereo image pairs can be made as L-R side-by-side pairs for parallel viewing (as used in stereocard viewers) and several other formats. The first can be 'free viewed' so long as the centres of the images are not further apart than the separation of one's eyes (about 65 mm). The OWL viewer, with stand at £15, or Lite OWL hand-held viewer at £5, from the London Stereoscopic Company headed by Brian May are probably the best aids but you are still limited to images that are little wider than 80 mm each. There are also available mirror devices working on the periscope principle that enable larger images to be viewed. However, even these do not allow for detailed inspection of an image.

MPO files can be easily produced in Stereophotomaker and these are used by 3D projectors and 3D televisions. These allow viewing in completely natural colour using either shutter glasses ('active viewing') or polarising spectacles ('passive viewing'). Shutter glasses are constructed of liquid crystal films that rapidly alternate between full passage and opaque. They are synchronised with the projector, which projects rapidly alternating left and right images. So, at one instant, the left eye sees the left image and the next instant the right eye sees the right image. This is all so rapid that it cannot be detected. The passive method, mainly for 3D TV allows each eye to see alternate image lines. For that reason, a 4K television is better since it provides 2K resolution for each eye.

When I am making 3D images I save a red-cyan anaglyph, a L-R side-by-side pair and an MPO file. An anaglyph cannot be turned into other types but the other two can be converted into any other, so are good to save.

Improving the apparent depth of field

If you've been successful with making a single stereoscopic image, you will have made a 3D image that is a record of what you observed through your stereomicroscope. As you will be aware when using a stereomicroscope, the depth of field you observe becomes shallower as you increase the magnification and resolution. An image taken at a single position of focus may be all that is needed but, of course, when you observe a specimen, you instinctively move it up and down to obtain sharp focus at different heights of specimen details.

The answer, as we know, is to use the method of image stacking. There isn't space here to go into the process in great depth, but most readers will know about stacking software such as Helicon Focus, that will produce a single image having a very large depth of field, from a stack of images, each with limited depth of field. Whilst it may be thought that a motorised stacking rail is essential, it isn't – until you start to work at very high magnifications. The likelihood is that you will be able to manually control the focussing of the optical system sufficiently to produce excellent images.

And so, the routine becomes to fix our specimen in place, adjust the illumination, determine the exposure time (using manual exposure rather than auto), and then acquire a stack of images through the left microscope pathway, focusing down a tiny amount for each image acquisition. The folder of images could then be processed in stacking software whilst a stack is acquired through the right microscope pathway. When this and the previous stacks are combined, they can be processed in Stereophotomaker to make the final 3D image.

Problems encountered with the stereo microscope at higher magnification

Returning to the stereomicroscope, it will be recalled that the angle between the two visual light paths is about 12 degrees. This angle is determined by the working distance and the separation of the two beams as they enter the microscope. The magnification range of 10x-50x quoted above can be varied to both higher and lower ranges and this is done either by attaching an 'auxiliary lens' to the front lens of a Greenough type of microscope or replacing the front 'objective lens' of a 'common main objective' type of stereomicroscope with another one of different focal length. In all cases, the working distance is changed and, as a result, so is the viewing angle.

Quite regularly, there was a need to produce a mineral image at a magnification higher than that which the stereomicroscope could produce in its normal format. A 2x objective lens could be added but this resulted in an angle of over twenty degrees, which produces 3D images that are difficult to view. Ideally, we need to match the angle between the two beam paths to that which the eyes would be (the vergence) at a distance of ten inches.

A 3D image made with too large an angle produces what is known as a 'hyperstereoscopic' effect. This results in two observations: the apparent depth from the foremost object to the furthest one is greater than it should be to appear natural. Whilst the 3D image can be adjusted in Stereophotomaker so that some parts of the image appear to be in front of the

screen, it can happen that the furthest parts are so distant that they would require divergent eyesight, which is most unnatural. Secondly, a geometrical distortion occurs; if a sphere was to be observed or imaged in 3D with too large an angle between the two optical paths, the sphere would appear to be a rugby ball shape with its pointed end toward the observer. Similarly a view of the corner of, say, a pyrite cube would look more like the bow of Titanic, pointed toward the observer. If such as pyrite crystals, or any other for that matter, are to be observed in their correct way, the angles must be consistent and reasonably accurate.

3D images without the stereomicroscope

For producing conventional 2D images at higher magnifications I mostly use Zeiss Luminar objectives on bellows. The thought was how to turn this system into one for making 3D images. All that had to be done was to imitate the form of a stereomicroscope. In other words, the Luminar, bellows and camera setup had to photograph the specimen from two angles, preferably 4° for projection and 6°for viewing on computer screens.

A simple solution would seem to be to mount the specimen on some kind of tilting stage and make a stack of images at 2° (or 3°) to the left and then to the right. This sounds easy but it is difficult to be able to tilt an object whilst keeping the point of interest in the same position, and without any horizontal rotation, then to be able to tilt by a fairly exact angle.

Another solution would seem to be to tilt the specimen and then slide it sideways, precisely parallel to the camera frame edge until the location appeared back in the centre of the field of view. I tried this and succeeded, but with considerable difficulty.

However, we haven't considered the illumination. The specimen may have been successfully tilted and centred, but the lighting hasn't moved. Maybe with some objects this would be an insignificant detail but not with many minerals. Our eyes are very adept at interpreting the shape of objects as a result of the way that light strikes them, and the way the shadows have formed; the word that comes to mind of the appearance of a 3D mineral image made this way is "weird".

Extreme macro 3D images - The solution

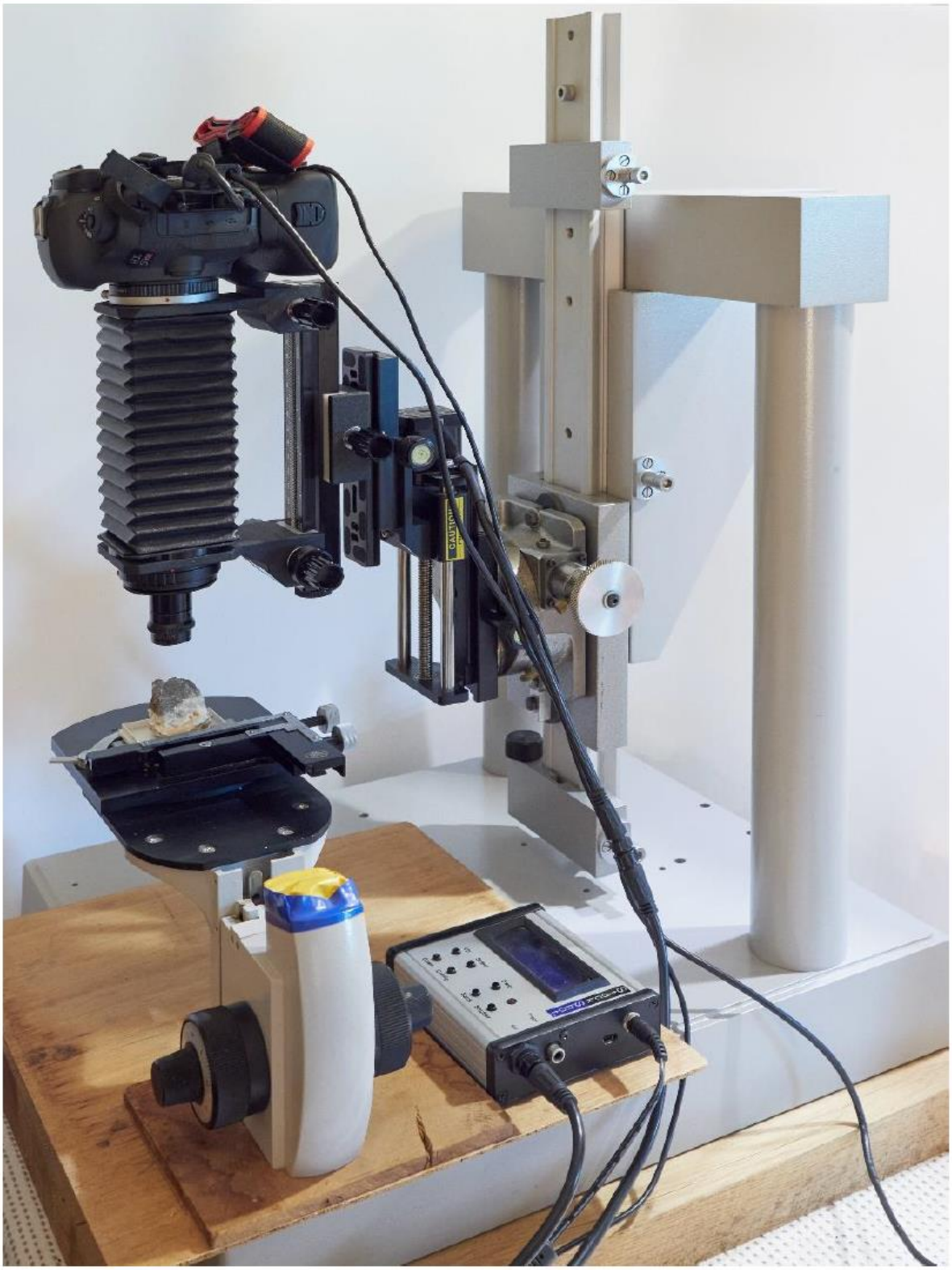
Unless the illumination can be tilted together with the specimen – which isn't impossible – another way must be found. And that way is to tilt the entire optical setup in such a way that it rotates around the location that is being imaged. To do that, the height of the rotational axis must be at the same height as the location on the specimen being photographed. At this point some means of making much smaller focus steps than was needed with the stereomicroscope became essential, and the chosen one was a Stackshot stepper motor controlled focusing rail. Based on these ideas I have now designed my system using a Zeiss AC stand which is a versatile, heavy and highly stable stand. This was fitted with an engineer's rotating stage, thanks to Nigel Hoppe's workmanship.

This has now enabled the possibility of using high magnification, high resolution objectives that can currently produce an image field of 0.25 mm, which is equivalent to the photographic field when used on a high power microscope at 400x visual magnification. The exciting thing about this is that only a few top models of stereomicroscopes can achieve such a magnification, and then only by using a high power front lens that creates too great an angle, resulting in distortion. Besides this, the resolution of stereomicroscopes is considerably lower than that of the single objective lens system. This means that the extreme macro system that I've described can produce 3D images with natural stereo depth, free of distortion and, best of all, with a relatively huge depth of field and a very high resolution. The observer of such a 3D image is able to zoom in further and roam about the photographed field, seeing everything in focus. This is not possible any other way.

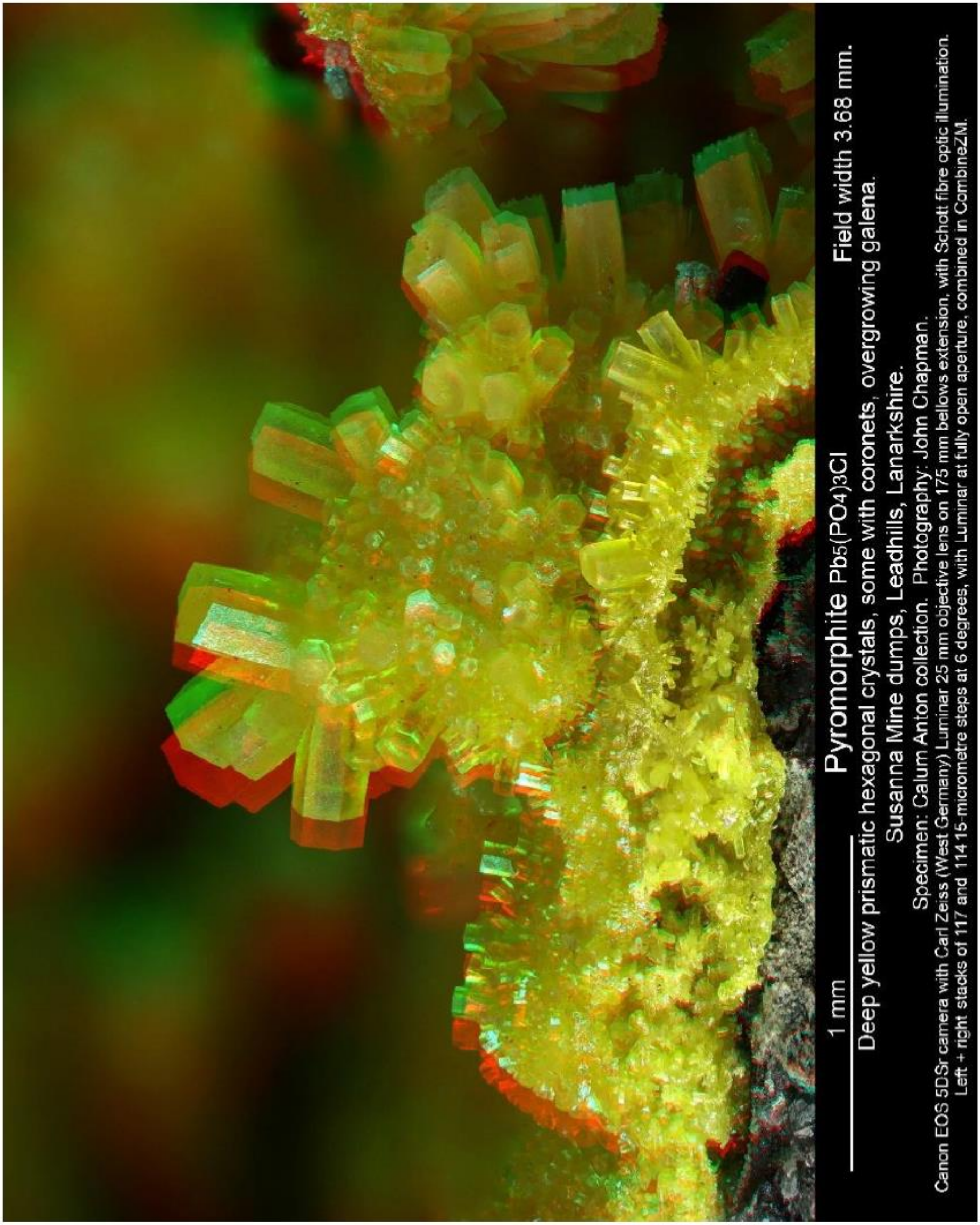
This opens up such a new dimension in image-making that the hope is that it could revolutionise the way we record not only mineral specimens but many other kinds also.

To view the anaglyphic image on page 34 you need a red / cyan cardboard spectacles. David Roe has a number of these from a source contacted by John Chapman. David will be bringing them to the symposium to distribute to interested BMS members or you can buy them direct from David Roe (davidroeqsa@gmail.com for £1.50 (to cover p/p). David hopes to provide a brief computer screen and Powerpoint display of some of John Chapman's recent 3D photographic work at the Symposium. David is currently arranging to put a selection of John's images on the BMS Website. The 3D red/cyan spectacles work with print images, screen shots and PowerPoint

Via Midwest Chapter of Friends of Mineralogy, Sept-Oct. 2023



John Chapman's Extreme 3D imager made up of a Zeiss AC stand fitted with rotational head, Stackshot rail and control, Canon EOS 5DSr camera, bellows, Zeiss Luminar objective lens and the lower half of a Zeiss Standard microscope with mechanical stage.


1 mm
Pyromorphite Pb5(PO4)3Cl
Field width 3.68 mm.
Deep yellow prismatic hexagonal crystals, some with coronets, overgrowing galena.
Susanna Mine dumps, Leadhills, Lanarkshire.
Specimen: Calum Anton collection. Photography: John Chapman.
Canon EOS 5DSr camera with Carl Zeiss (West Germany) Luminar 25 mm objective lens on 175 mm bellows extension, with Schott fibre optic illumination.
Left + right stacks of 117 and 114 15-micrometre steps at 6 degrees, with Luminar at fully open aperture, combined in CombineZM.

Clackamas River Drainage, Clackamas and Marion Counties, Oregon:

A Micro-Mineral and Geological Research Project

By Beth Heesacker

It all started out with my love affair with Big Cliff siderite. All the colors and the beautiful shapes, hemispheres and rhombs really caught my attention. I wondered why they were so abundant at Big Cliff, so I had to investigate the geology. That meant looking at maps, not only of the geology but also the extent of the Clackamas River drainage.

A page from one of my large Benchmark roadmap books was the starting point, and with a colored marker, I traced the river, its tributaries and streams noted on the map. This gave me an idea of the extent of the drainage. I also marked some of the areas I had read about or had in my collection. Not all sites have been positively located using gps.

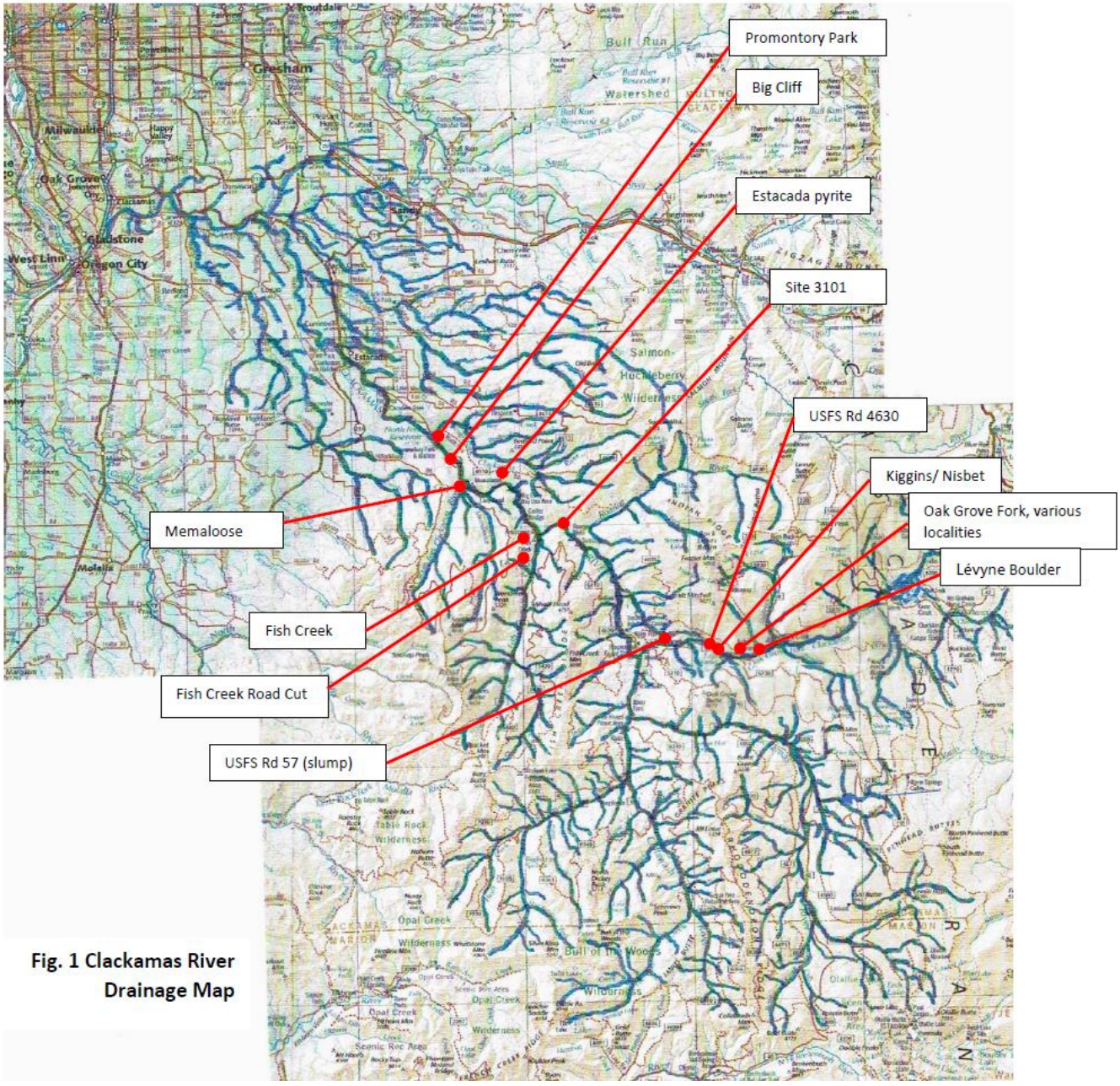


Fig. 1 Clackamas River Drainage Map

The Clackamas River begins on the slopes of Olallie Butte, a High Cascade volcano. The watershed includes 16 sub watersheds and flows 82.7 miles from an elevation of 6,000 feet to an elevation of 12 feet when it flows into the Willamette River near Oregon City.

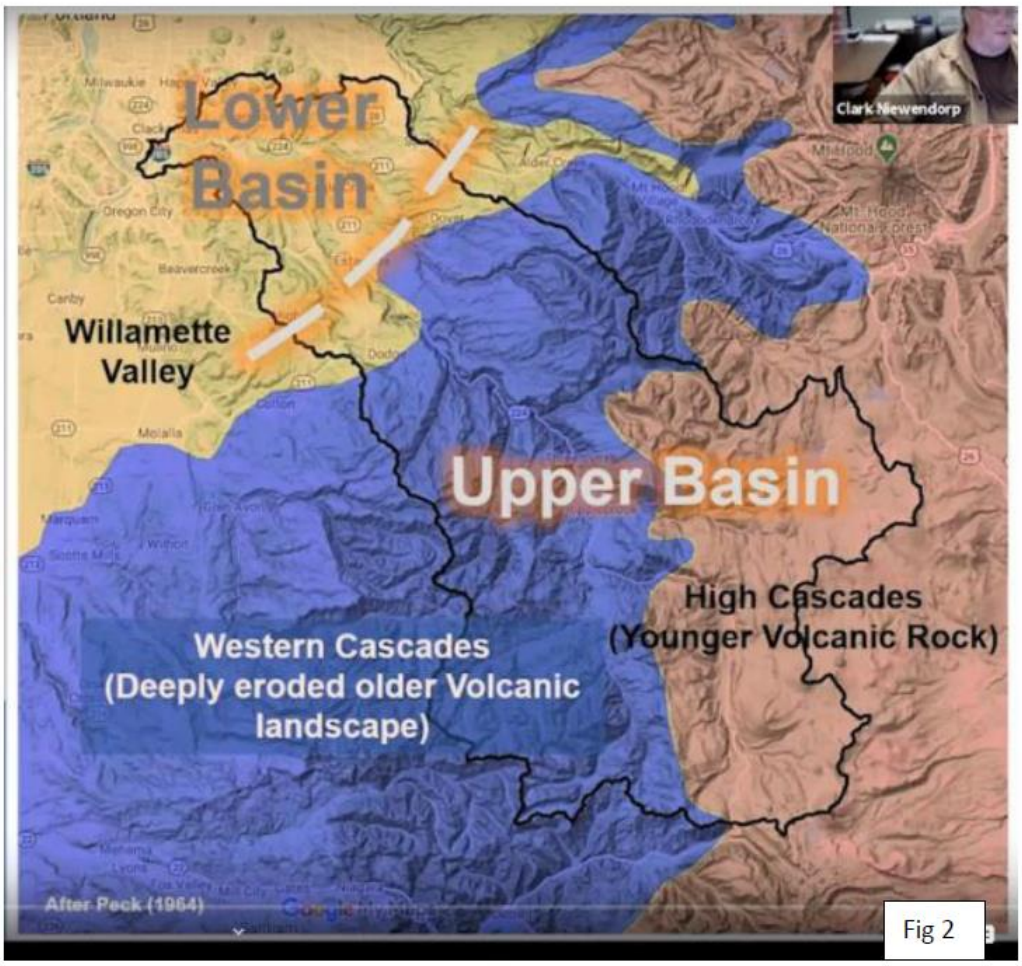


Fig 2

A YouTube presentation by Clark Newendorp, President of the Geological Society of the Oregon Country (GSOC), about the Clackamas River Basin in which he talked about the geology of the area was a very big help in identifying the geology of the collecting areas. Some of his slides are included in this paper with his permission.

According to Newendorp, there are three main areas of the Clackamas River Basin: The Lower Basin (closest to the Willamette Valley), the Upper Basin including the Western Cascades (eroded older volcanics) and the High Cascades (younger volcanics including glacial deposits).

From what I have gathered so far most of the micro mineral collecting has been done in the Western and High Cascades.

Two volcanic flows dominate the area, the Boring Lavas (purple in the lower and upper basin, Fig 3) and the Columbia River Basalt Group (CRBG) (red and blue in the upper basin Fig 4). All the collecting areas, where the exact location is known, are in CRBG.

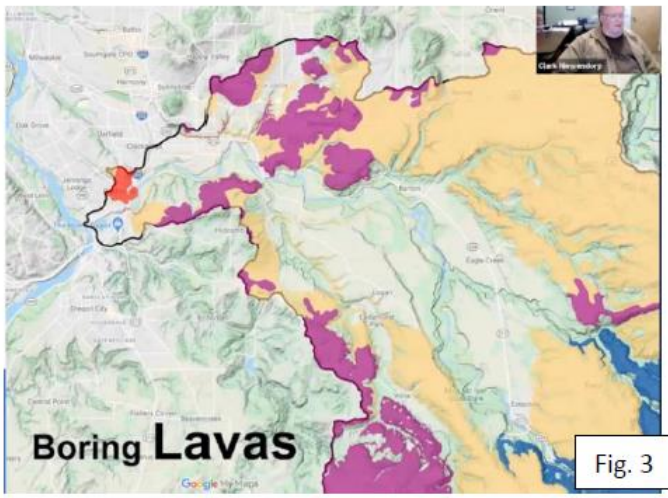


Fig. 3

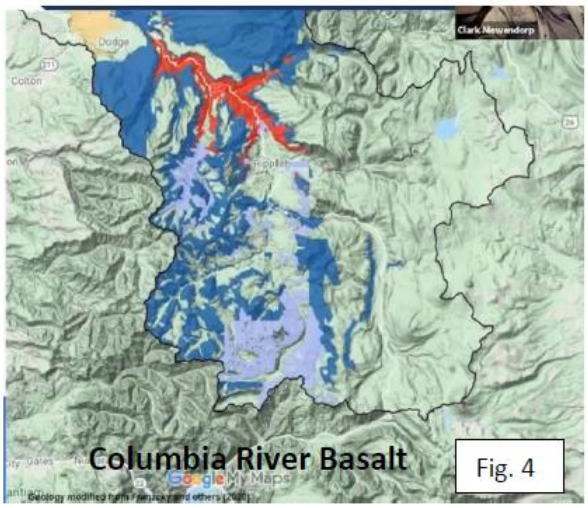


Fig. 4

There are also three river terraces (greens, Fig. 5) along the main river flow area in the Lower Basin which also include Missoula Flood deposits. Along the main river and its tributaries and streams there are landslides and debris flows (pinks and yellows, Fig. 6).

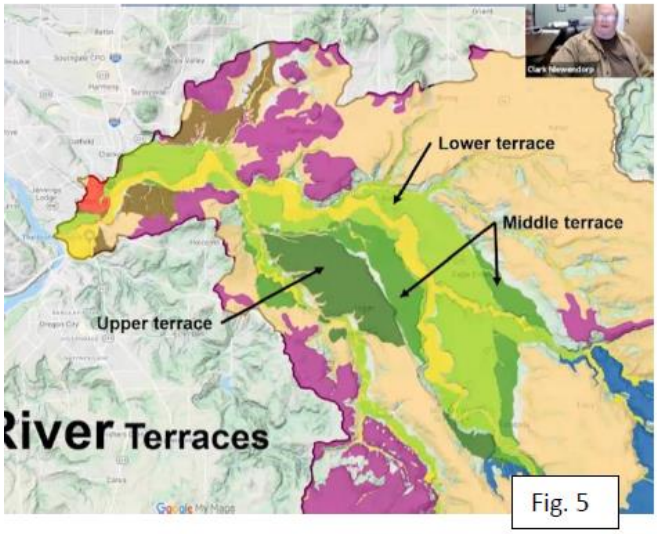


Fig. 5

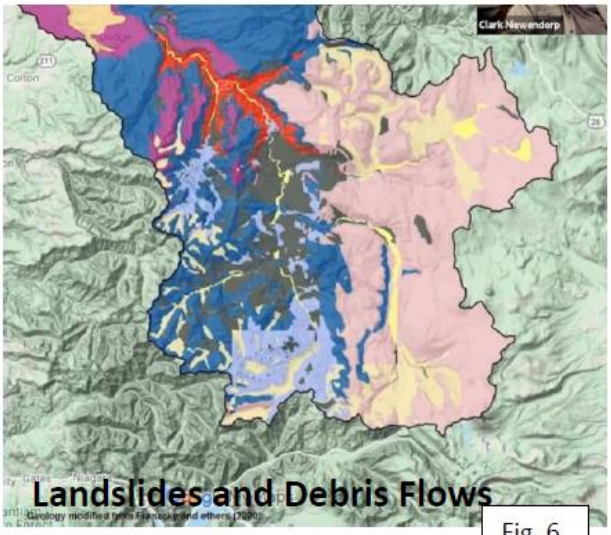


Fig. 6

Many fault systems cut through the Clackamas River Basin which possibly could lead to some of the many mineral deposits to form due to hydrothermal mineralization. Alteration of the deposits have been caused by intrusions, faulting, glaciation, and landslides.

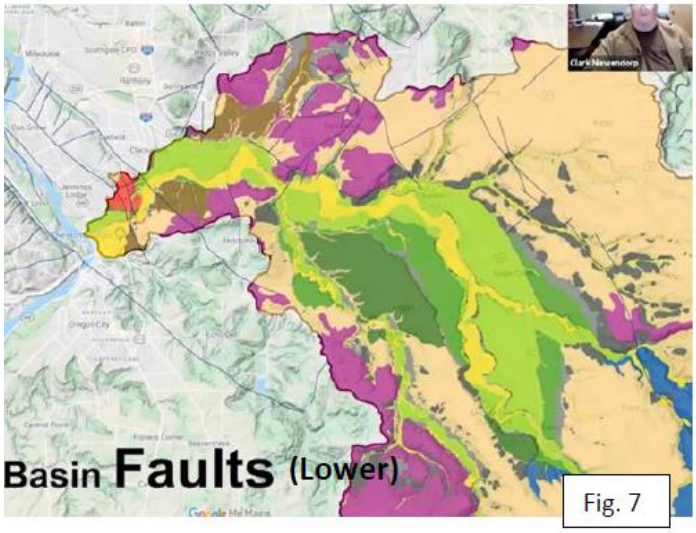


Fig. 7

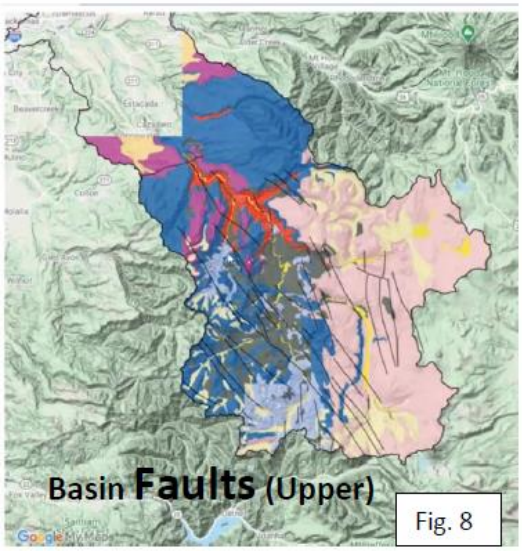


Fig. 8

Geology of the Collection Sites*:

Promontory Park – Promontory fault, Grande Ronde Basalt flow (Columbia River Basalt Group, CRBG)
Big Cliff – Grande Ronde Basalt flow overlying the Prineville flow (both CRBG flows)
Memaloose - Sedimentary layer on top of Grande Ronde Basalt flow
Fish Creek – Grande Ronde Basalt (CRBG) in contact with Wanapum Basalt (both CRBG flows)
Fish Creek Roadcut – Grande Ronde Basalt (CRBG) in contact with Wanapum Basalt (both CRBG flows)

Site 3101 – Lockaby Fault, Prineville and Grande Ronde Basalt (both CRBG flows)
USFS Rd 4630 – Lake Harriet Fault, Grande Ronde Basalt (CRBG) in contact with Wanapum Basalt (both CRBG flows)
USFS Rd 57 (slump) - Lake Harriet Fault, Grande Ronde Basalt in contact with Wanapum Basalt (both CRBG flows)
Kiggins - Lake Harriet Fault, Grande Ronde Basalt in contact with Wanapum Basalt (both CRBG flows)
Oak Grove Fork - Lake Harriet Fault, Grande Ronde Basalt in contact with Wanapum Basalt (both CRBG flows)
Lévyne Boulder – Unknown source location.

* The sites that have relatively known locations

Specimens:

The specimens were selected from collections originally owned by Jon Gladwell, Mickey Marks and Tony Sobelik. I do not have specimens from all the Clackamas area locations and sometimes specimen locations are not fully specified with gps coordinates or even mile post designations on the specimens.

Since these specimens are from three different collections, different site names may apply to the same area. Also, in some instances I cannot find the exact label locations on the map. I hope that some of you who have collected in the area will help bring all these locations together by identifying the exact places. I welcome your input.

Mindat resource:

Mindat has a very lengthy list of locations, many are for rock for road building and do not mention any minerals and many do not give exact locations or Google maps. That of course does not mean that they do not have minerals. Unless found and checked out physically, we will not know.

Mindat lists the following elements and minerals for the Clackamas River Localities:

Elements: Hydrogen, Carbon, Oxygen, Sodium, Magnesium, Aluminum, Silicon, Sulfur, Potassium, Calcium, Iron and Barium.

Minerals:

Group 2 - Sulphides and Sulfosalts

Pyrite	FeS_2

Group 4 - Oxides and Hydroxides

Opal	$SiO_2 \cdot nH_2O$
Quartz	SiO_2
var. Chalcedony	SiO_2

Group 5 - Nitrates and Carbonates

Calcite	$CaCO_3$
Siderite	$FeCO_3$
var. Sphärosiderite	$FeCO_3$

Group 7 - Sulphates, Chromates, Molybdates and Tungstates

Baryte	$BaSO_4$
Gypsum	$CaSO_4 \cdot 2H_2O$
var. Selenite	$CaSO_4 \cdot 2H_2O$

Group 9 - Silicates

Celadonite	$K(MgFe^{3+}\square)(Si_4O_{10})(OH)_2$
Harmotome	$Ba_2(Si_{12}Al_4)O_{32} \cdot 12H_2O$
Heulandite-Ca	$(Ca,Na)_5(Si_{27}Al_9)O_{72} \cdot 26H_2O$
Heulandite-K	$(K,Ca,Na)_5(Si_{27}Al_9)O_{72} \cdot 26H_2O$
Montmorillonite	$(Na,Ca)_{0.33}(Al,Mg)_2(Si_4O_{10})(OH)_2 \cdot nH_2O$

Phillipsite-K (K,Na,Ca0.5,Ba0.5)4-7[Al4-7Si12-9O32] . 12H2O
Thomsonite-Ca NaCa2[Al5Si5O20] · 6H2O

Unclassified Minerals, Rocks, etc.

'Chabazite' -
'Gismondine Subgroup' -

My Original Question:

Why is there so much siderite at the Big Cliff area, and though also found at other sites in the Clackamas River drainage, it is not found in the quantity and many colors found at Big Cliff?

1) The main commonality of the area is the Grande Ronde Basalt. The siderite is found in vesicles in this iron rich basalt in the Clackamas River Drainage.
2) Siderite is an iron carbonate (FeCO3), and a member of the Calcite Group. The range of colors, colorless to black, depends on the amount of ferric iron in the crystal. The darker the crystal, the more iron present.
3) According to Clark Niewendorp the Big Cliff site has a fault (right-lateral strike-slip) just north, or left, of the collecting area and looks hydrothermally altered.

Putting this information all together, the iron-rich basalt, the chemistry of siderite and the hydrothermal alteration along faults in the area, seem to answer some of my original question. But a key part of the question still remains: what is the source of the substantially higher amount of iron in this one locality that produces such a substantially larger amount of siderite. The presence of many other faults in the area also makes me wonder if more sites like this might be found but that is a challenge for others to undertake.

The Localities from Which I Have Specimens (Listed in order approximately going upriver):

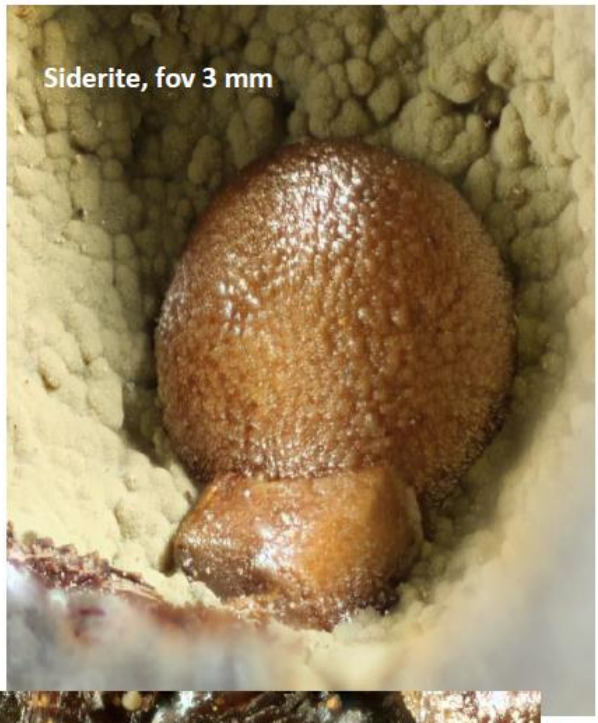
Locality (according to source's label and GPS, if known)		in Mindat	Location known	Source
Promontory Park	(45.216571, -122.236014)		X	Jon Gladwell
Big Cliff (MP 32)	(45.20040, -122.22183)	X	X	Jon Gladwell
Memaloose	(45.19199, -122.21146)	X	X	Mickey Marks
Fish Creek	(45.161219, -122.150655) (incorrect gps in Mindat)	X	X	Jon Gladwell
Fish Creek Roadcut	(45.14585, -122.15353)		X	Jon Gladwell
Site 3101	(45.13391, -122.07856)		X	Jon Gladwell
USFS Rd 4630	(45.081910, -121.980920) (incorrect gps in Mindat)	X	X	Jon Gladwell
USFS Rd 57 (slump)	(45.079814, -121.982598)		X	Jon Gladwell
Kiggins	(45.07722, -121.97306)	X	X	Jon Gladwell
Oak Grove Fork	(45.08307, -121.99102) (various localities)	X	X	Jon Gladwell
Lévyne Boulder	(45.070470, -121.951530) (or 45.079464, -121.982033)		X	Jon Gladwell
Route 224 Pyrite	(probably Mindat location Estacada pyrite)			Mickey Marks
Route 224 Selenite	(probably Big Cliff)			Mickey Marks
Route 224 (MP 32) Selenite	(probably Big Cliff)			Mickey Marks
Route 224 (MP 40.8)				Mickey Marks
Clackamas River Roadcut				Jon Gladwell
Clackamas River				Tony Sobelik
Estacada				Tony Sobelik
USFS Rd 57 (near rockslide)				Jon Gladwell

Specimen Photos (All photos copyrighted by Beth Heesacker):

[Note that the pictures in this article are only of the siderite included in the full article. The full article, with all the many pages of pictures, can be found at http://micromineralstudy.org/]

Big Cliff


Siderite, fov 12 mm


Siderite, fov 3 mm


Siderite, fov 2 mm


Siderite, fov 4 mm


Siderite, fov 6 mm

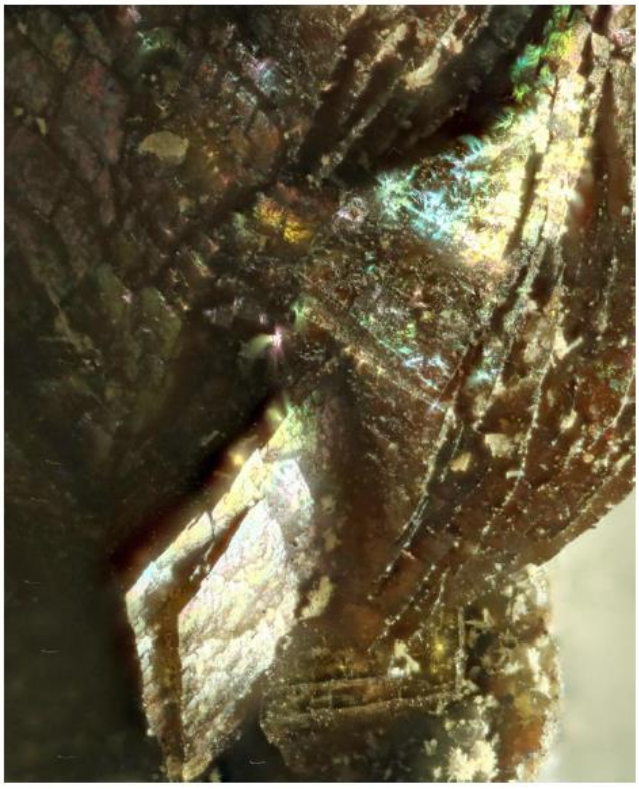
Memaloose

unknown on Siderite, fov 1.5 mm

Siderite, fov 3.5 mm

unknown

Clackamas River (exact locations unknown)



Siderite, iridescent, fov 2 mm

Siderite, fov 4 mm

Acknowledgements

I wish to acknowledge my great friends who proofread and commented on this article: Jon Gladwell, Don Howard and Julian Gray. They read, and reread, so that this information could be as accurate as it is. Any errors left are my own either due to disagreements with my friends or my lack of understanding. I am also grateful to Clark Niewendorp for sharing his expertise and slides on the geology of the Clackamas River drainage area.

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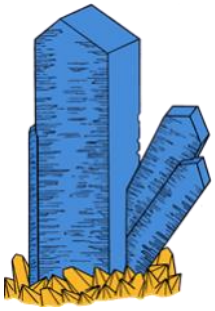
The next deadline will be March 13, 2024

Interested in a wonderful resource for teaching children about minerals?



Check out the books and other resources at Diamond Dan Publications.

http://www.diamonddanpublications.net/

BREAKING NEWS

from Swarf Systems

Hi All,

I am writing to tell you about a cool little attachment I made for my microscope. As you all know, I make microscope illuminators. Well, Jon Gladwell gave me a box of carpathite micros from Cook, WA, and they are a pain to find and see with a microscope because they are _tiny_. So, I made a dual light illuminator: There are two sets of LEDs: white light and long-wave UV, each with its own power switch. Now, when I put one of the samples from Jon under the microscope, I can zoom in on the fluorescing area, turn on the white light LEDs and see what I am looking at.

If you are interested, I can make illuminators for each of you to fit your microscope (provided it is a microscope model I can fit to). If you go to SwarfSystems.com you can see what microscopes I can fit to. If your microscope is not listed, I might still be able to help so don't give up if you want one. Since I have to buy lots of extra components, the cost of the illuminator will be 1.5x that listed on SwarfSystems.com. If you already have a Swarf Systems illuminator, you will get a discount since I will only make a new circuit board and you will reuse your microscope mount. "Some assembly required."

One limitation is that there is no UV filter for the LW UV LEDs. I have found this not to be a problem since fluorescing minerals will advertise their presence brightly anyway.

If you know anyone else who might be interested, let them know.

Cheers, Ted, Swarf Systems

www.PNWFM.org
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MINERAL MEETING CALENDAR

2024:

Pacific Micromineral Conference (MSSC) - Jan 26-27
Fallbrook Gem & Mineral Museum
123 W. Alvarado St.,
Fallbrook, California

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

Seattle Mineral Market - May 18-19
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 24-26
Eldorado Community Hall
6139 Pleasant Valley Rd.
Eldorado, CA

PNWFM Symposium - TBD
New Location :
Central Washington University
Ellensburg, WA

NW Micro Mineral Study Group - Nov 9
Sons of Norway Columbia Lodge
2400 Grant St,
Vancouver, WA 98660