PACIFIC NORTHWEST CHAPTER
FRIENDS OF MINERALOGY

March 2024

PNWFM NEWSLETTER

Wulfenite with Willemite, Red Cloud Mine, Silver District, La Paz Co., AZ. 2.7 x 2.2 x 1.2 cm

Obtained from the free tables at NCMA. Bruce Kelley photo and specimen

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President's Message

Jessica Robertson

Greetings and happy spring! As the cherry trees start flowering and the daffodils start to bloom, we are excited for a full and exciting season for PNWFM.

Please join us for Seattle Mineral Market on May 18 and 19 at Magnusen Park in Seattle. PNWFM will again hold a presence both days, offering light refreshments, auctions, kids' activities, and educational displays. We would love more assistance with manning tables, setup and take down, and more auction donations! Sal Noeldner is coordinating a special curated PNWFM benefit auction for Saturday. Check out his auction preview and please contact him if you have any items to contribute.

Our 50th anniversary is upon us and we are hoping to mark this significant milestone with a celebration of where we've been and our continued longevity. We would like to produce a retrospective keepsake book or magazine about the history of PNWFM to be available by the symposium, but to make this happen, we need more material! We'll have more specific requests on this project as it starts to come together, but please contact me (jar7709@hotmail.com) if you would like to help or have any photos or stories you'd like to share about previous PNWFM events and founding members.

Did you save the date for the weekend of October 19? Planning for our annual symposium is in full swing! Our 2024 symposium will be held in Ellensburg, Washington. This year's theme is "Precious Metals and Golden Memories". As you know by now, we are no longer able to hold the symposium in Kelso due to the high costs of the venue, and we have identified an exciting new approach for our favorite event. This year, symposium talks and daytime events will be held at Discovery Hall at Central Washington University. We have already confirmed two amazing speakers, Terry Wallace, Director Emeritus at Los Alamos National Laboratory, and Nick Zentner, CWU geology professor and host of the PBS-TV series "Nick on the Rocks." More speakers will be confirmed soon. The Saturday evening banquet will be held at an Ellensburg hotel, where we are also currently in negotiations to also have a block of room dealers. We hope to also offer a nearby field trip in conjunction with our symposium and evening programs to make for a full and exciting weekend. Stay tuned for details and registration information!

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PACIFIC NORTHWEST FRIENDS OF MINERALOGY 2024 SYMPOSIUM

PRECIOUS METALS AND GOLDEN MEMORIES

SAVE THE DATE

ELLENSBURG, WASHINGTON
OCTOBER 18-20, 2024

Our 50th Anniversary!

Symposium Talks at Central Washington University
Saturday Evening Banquet and Live Auction
And Much More

More Details and Registration Coming Soon

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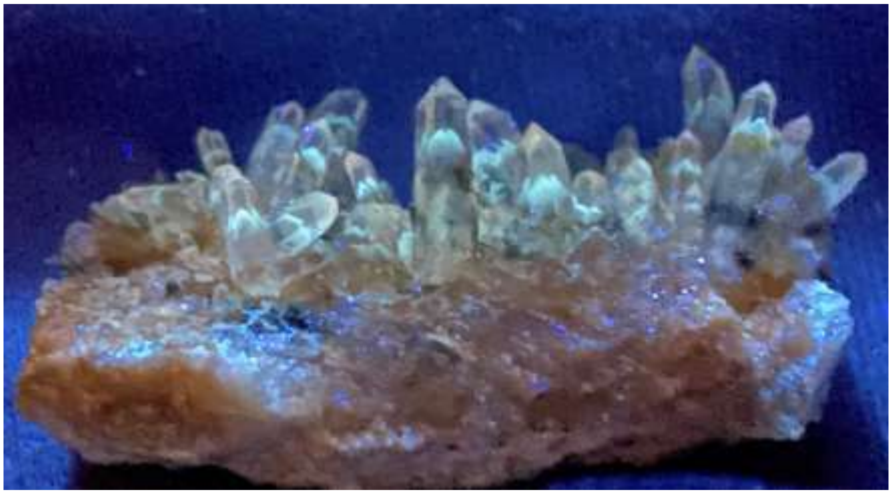
Al Liebetrau Memorial Case at the Tucson Show. Installed by Julian Gray.

An Origin of Fluorescent Mineral Discovery in Western Washington State

By Sal Noeldner



From a newly re-discovered quartz vein near North Bend, a specimen found and photographed by Aidan Cerenzie.

Two stapled pages have been the only evidence found that documents Philip Hennig's 1980 discovery of the "Pika" mineral location and its occurrence of fluorescing phantoms within quartz crystals. In the signed recollection, Philip describes not only finding a great array of mineral suites and quartz formed in different habits at the site, but also relates his discovery of multiple, fluorescing (yellowish) phantom faces of earlier-formed terminations visible within the clear quartz crystals, when at home using a SW UV lamp. After testing quartz crystals "from many locations in WA", Philip found only a couple from the Teneriffe area (but many from Brazil) actively fluoresced. In conversation with another local collector known as "a quartz expert" (do you, the reader, know whom this moniker relates to?) he learned of 2 more quartz crystal locations nearby also exhibiting this phenomenon. Philip asks the reader of his personal narrative only 3 questions:

"A- What is the material that causes fluorescence?

B. What other areas produce this F.P (**F**luorescing **P**hantom effect)?

C. Is it comparatively rare except the areas East of North Bend, WA?"

After this query list, he compels the reader to respond as he would like to know more and would appreciate the information. Philip lists some of the associated minerals he found with quartz crystals (with DT, parallel growth, and Japan Law twins habits present) at Pika: included pyrite crystals- always nearer the terminal end, green and white chlorite phantoms, sagenite inclusions, light blue partial phantoms (from "titanium?" he queries; and in contrast to the yellowish phantoms), amethyst scepters with pyrite inclusions, and, strangely enough, garnet inclusions.

I learned of this story years ago but was busy with life elsewhere; more recent discoveries of beautifully fluorescing phantoms within quartz crystals from Hansen Creek area claims brought the tale back into focus. Was there a new place to rediscover? My exploring partner and I went and picked up the scent, finding ourselves making multiple forays to track down this seemingly long-lost place. The first outing tried to follow the only absolute measurement from the story- Philip had used "2 miles South" of a good landmark- which put us just over the top of a mountain, getting near to a changing property management line we could not cross. Deer and hiking trails are numerous here and made reaching our search zone not too difficult. Using the point marked "X" on the map, we started working outwards and downwards, crisscrossing through the thickly wooded secondary (or tertiary) forest growth which sprouts outwards from the steep and needled slope. After an hour or two, we had only found healthy, old huckleberry bushes (remnants of an earlier forest) sprouting from old stumps within the brushy regrowth.

Finally, it was concluded that the particular area had been fully searched without finding any evidence of "Pika". Without better information, we cut the outing short and made it back to the vehicle. A couple of weeks passed until the specter of the unknown reared in mind with unanswered questions: "Had Philip not measured directly South? Why had no large areas of quartz been found when it was this aspect of the site that drew Philip in to prospect in the first place?" By turning the map slightly askew, "South" could now mean a different mountain slope; it was here we chose next to go.

The second outing's search entailed reaching the new summit first and then crisscrossing the eastern aspect of the slope. A muddled, overcast sky clung to the tops of trees but drew nary a whimper. We knew that continued effort is often rewarded, and if it was easy, everyone would be doing it! Logging roads helped to gain the rolling mountain top within an hour. Low-lying clouds flew deftly both above and below and doubtless were about to affect us, but a brief break of cloud cover gave some grandeur to the clearcut slopes.

Our previously graveled tread disappeared less than a foot off the road into brush. Everything changed in a wink, as it often does in the Cascade Mountains. Thick shrubbery growth choked the talused slope between stunted and errant looking mountain hemlock. Every here and there, openings in the vegetation showed grey and dark rock where more recent hillside movement had occurred. It was to these we plotted a course to and through from the ridge. Gore-Tex coated fabric slips through the soaked brush, and in little time we began to see rock near the angle of repose but with little lichen or moss growth.

Chunks of coarsely grained quartz were sparse but present yet showed us no particular interest and no aim; no hidden outcropping of stone was discovered. Still sharp edges told of a non-glacial deposition yet thick, matted vegetative growth hid all. Each ravine was carefully traversed to see what showed up as debris in the erosional channel. None spoke of much interest and as we dropped in elevation, the plant growth became more regularly thick with woody growth. We had traversed the slope above a roadway, visible below by a dark groove within tree canopies, but now dropped to it as a blowing mist began further drenching the hemlock woods.

Near the verge of getting disheartened, I broke through the interlaced plants and dropped down an eroding cut onto the road. Looking left, I was surprised to see a woman crouching a stone's throw away within chunks of granite spotted with fully white rocks, the jumble of which had collapsed onto the roadway. She was intently studying the ground; her companions, seen a couple of hundred feet further down the debris filled road, were also looking downwards. I turned around and called loudly to my son, still weaving through interlaced branches, "Looks like there's a road here?!" I glanced over to see the lady's look of bewilderment and called out with a smiling "HI!"

My wetted companion popped out of the brush and clamored down. We quickly decided to take a lunch break in a clump of taller trees down the road, opposite the people in the mist and where less moisture was likely present. There, only slightly sheltered by dripping boughs, we discussed that the area we had reached was a known quartz location named "Butterfly"- named after Japan Law twins found there. How did this place relate to what we were looking for? After a heroic caloric intake and some hydration, the mist let up and we walked back to where we had seen the people.

It seemed they had now left traveling away from us down the same road. Where they had been, piles of angular quartz pieces held crude remnants of milky quartz crystals. Smaller cavities sometimes had clearer crystals with superior luster but seemed rare. Somewhat familiar with a couple of historical finds at this location, we still wanted to search for something as yet unfound. Taking opportunity of this thought, we grappled up over the steep northern edge of the cut and slowly made our way uphill. As still no rock outcrops had been seen, our hopes lay in a couple of larger talus fields seen from the road below as a break occurred in the clouds.

The convoluted slope hidden by plants was slippery, each footstep had to been carefully placed; trekking poles were a good help to keep mostly upright. First one, then the other talused slope was gained and searched with no luck of good sign. With a final effort, the same general ridge as earlier was reached. A longer break in the clouds allowed sunlight to warm our soaked clothing and packs creating tendrils of rising steam. Wiping mixed sweat and dew from the face, a realization was beginning to creep into being…was Pika really Butterfly? Such a simple possibility also began to seem the most likely after some thought, much like a broken car will be diagnosed in a process from least to increasing complexity. Perhaps someone out there knows the truth and is willing to share?

Maybe we will never know the true answer as Philip and wife seem to disappear after moving to Florida decades ago. Some unknowns we can build on however are:

What is the origin(s) of the fluorescent phantoms and why do they appear in only some of the local quartz locations in King County?

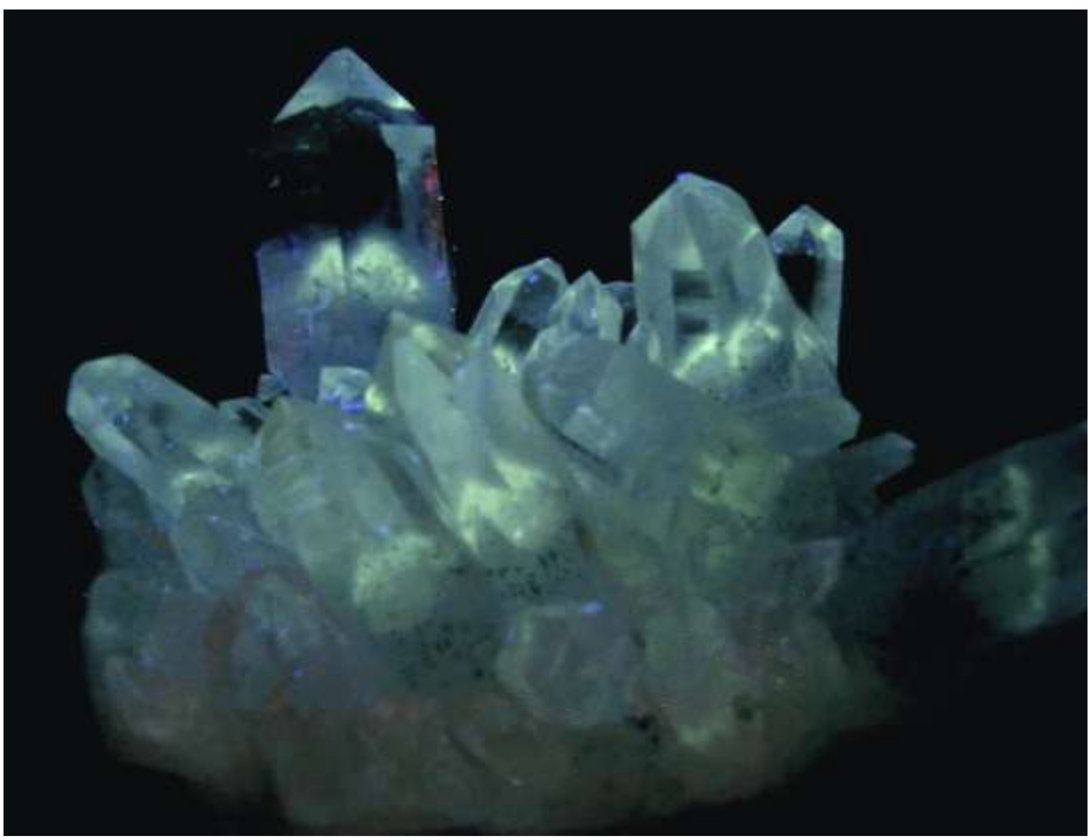
Is the existence of twinning related to the origin of the phantoms?

Are the phantoms made up a layer of small crystals, an amorphous coating, or both depending on circumstances?

Phantoms sometimes seem to be different shades of colors; are different minerals involved?

I wonder about the mode of origin: If amorphous, are the weakly fluorescent layers made up of slightly radioactive quartz, made that way by deposition over longer time periods where the surrounding granite’s radioactive mineral content could undergo secondary processes, with a secondary mineral deposited by pulsing reintroductions of hydrothermal fluid? In contrast to this possible mode of origin, did stronger, localized mineralization irradiate the still-fluid silica gel or are the fluorescing layers just made up of tiny euhedral crystals? New locations for this phenomenon are still being found making the answer(s) even more alluring; at least five King County occurrences can now be counted making contrasting collections possible for the interested. Analysis by destructive sampling, a strong microscope, and/or XRF may help answer this long-asked question facing western Washington State mineral appreciators with a fluorescent bent.

These two colorful clusters hail from the Clipper View Claim; images courtesy of Jeff Schwartz at washingtonminerals.com.



New efforts by the Northwest Mineral Collective at the noteworthy Hansen Creek locality have revealed superbly clear quartz crystals, many with visible amphibole and chlorite inclusions, as well as stunning, sharp greenish to orangish fluorescent phantoms when seen under shortwave UV light. Photos courtesy Northwest Mineral Collective

Micheal Bailey photos
(also courtesy Northwest
Mineral Collective)

Minerals from Poona: the Non-Zeolites

David Hardman

My last article examined some of the outstanding zeolites from the "Poona" area. This article aims to examine some of the interesting minerals found with the zeolites, in particular apophyllite, okenite, prehnite, babingtonite, cavansite, pentagonite, powellite, celadonite, calcite and quartz. The majority of these are silicates.

David does his best to ignore the zeolites while looking through his Poona collection so that he can focus our attention on other things!

Probably the most common non-zeolite mineral associated with zeolites world-wide is apophyllite. It occurs throughout the "Poona" area and is associated with a wide range of minerals, most of which are zeolites.

I find it very attractive and have about 20 apophyllites in my collection. The mineral occurs in two main forms: as pseudo-cubic and also as a prism with the termination in the form of a pyramid. Colour varies, those in my collection being colourless, white or green, the last being particularly attractive. Three specimens perhaps require special mention. Photo 1 shows a specimen with about ten pseudo-cubic, very light green, 2x3 cm apophyllite crystals with stilbite sitting on a mass of very small white apophyllites. Round the edges of the 8x7 cm basalt matrix are small patches of crystalline green celadonite.

Photo 1 Apophyllite and stilbite Poona

Another is a large ex-matrix piece of clear, transparent, slightly greenish apophyllites with some stilbites on top. This came from the famous Jewel Tunnel locality on the railway from Bombay to Poona which was built in the second half of the 19th century. This went through the Bohr Ghat mountains and was called "Jewel" because it cut through pockets of shiny zeolites.

I also have an excellent display specimen measuring

20x12 cm. It shows doubly terminated, transparent, colourless crystals up to 4 cm. The minerals associated with apophyllite can be very varied and I have examples with, and on, gyrolite, okenite, cellular prehnite and, particularly, stilbite.

Okenite is also a fairly common mineral associated with zeolites within the "Poona" area. It has a unique appearance in that it is found as white "cotton balls" which are in fact radiating, fibrous crystals. It is also a very fragile and powdery mineral that should be handled with care. It can form a base for other minerals, especially stilbite, or be found on top of a range of minerals. My collection includes okenite on gyrolite, apophyllite, prehnite and quartz. Two of my specimens are perhaps worthy of special mention. The first consists of two 3 cm "fluffy balls" joined together to form an unusually attractive specimen with no matrix and is from Nasik. The second, see right, has a 14x10 cm matrix with an almost complete coating of okenite, together with three small, darker groups of calcite crystals resting on very small quartz crystals and is also probably from Nasik.

Photo 2 Okenite Nasik

Photo 3 Prehnite Poona

Prehnite is another mineral often associated with zeolites and is usually found in green botryoidal aggregates. Two of my "Poona" specimens fit this description. The first has light green globular aggregates up to 1cm on a matrix which also includes fibrous okenite and small quartz crystals. I also have a similar prehnite shown in Photo 3 on which there is a "ball" of okenite with, unusually, protruding individual okenite crystals. Prehnite can also occurs as casts of former laumontite crystals, as a crystalline base for small, cream gyrolite balls and as a cellular base for apophyllite crystals, all of which I have in my collection. The final specimen has a group of agglomerated bluish "balls" (an unusual colour) with small quartz crystals at the front, all on a 7x4 cm matrix. It may also be of some interest that prehnite was the first mineral to be named after a person - Colonel Hendrik von Prehn -

the Dutch governor of the Cape of Good Hope colony in South Africa who found the mineral in that area in 1774.

Babingtonite is perhaps one of the more unusual minerals found in the "Poona" area in association with zeolites, although the link is quite common in other localities such as Massachusetts. Babingtonite is also unusual in that the aluminium that is normally found in zeolites has been replaced by iron. It is rated as a "rare" mineral in the "Poona" area and specimens are much sought after. The best specimen I have is quite complex, measuring 13x10x4 cm. On the upper surface a number of small, black babingtonite crystals are accompanied by globules of green prehnite, very small dark green gyrolites, quartz and apophyllite, all resting on a surface of okenite. It is sometimes considered to be the only black mineral associated with the generally light-coloured zeolites.

Cavansite was first discovered as small blue crystals and "balls "in the early 1960s near the Owyhee Dam in Oregon. It was named in 1967 and chemically is a calcium, vanadium silicate, hence its name. At the type-locality it is associated with zeolites, usually stilbite and occasionally heulandite and chabazite. However, in the mid-1970s, larger and spectacular specimens were discovered at a quarry near Wagholi, 20 kms north of Poona. These are definitely the world's best for the species, and I have several including a hand specimen covered with small blue cavansites and separated by 1 cm, terminated, white stilbite crystals. In others they are agglomerated, darker blue groups of crystals again associated with stilbites. The one I have chosen for Photo 4 is an interesting small (3x2x2 cm) specimen with, unusually, a mass of individual cavansites. In recent years few specimens have come from the type-locality and "Poona" is now still the main producer. However, the mineral has been found at two other localities, one is the Municipal Quarry in Rio Grande do Sul, Brazil (small crystals), the other is Aranga Quarry in North Island, New Zealand. On holiday, I was able to collect at the latter site and, in addition to excellent calcites and zeolites, we found some small cavansite "balls" (the usual form). However, the fact that there are currently only four localities in the world makes cavansite still a very rare mineral! It may also be of some interest that a new mineral, waipouaite, has recently (2020) been identified at Aranga and this too is a calcium vanadium silicate.

Figure 4 Cavansite Wagholi

Photo 5 Pentagonite Wagholi

Another development in the calcium vanadium silicate group of minerals occurred in the early 1970s when a mineral, very similar to cavansite, was identified at the type-locality at Owyhee Dam. Whereas cavansite usually occurs as "balls" with a radiating structure, the new mineral has sprays of more spiky, deep blue crystals. Photo 5 shows a 1-cm, dark blue spray of pentagonite crystals on what is probably heulandite on a 5x3 cm matrix. This was named pentagonite in 1973 and has proved to be the dimorph of cavansite: it has the same chemical composition but different physical characteristics (as with the dimorphs calcite and aragonite). It was expected that pentagonite might be found in the "Poona" area but its presence, again at Wagholi, was not confirmed until 1999. Pentagonites from this location are now the world's best for the species.

Photo 6 Powellite Nasik

Powellite is unique for "Poona" in that it is a calcium molybdate and therefore the only mineral in the area containing molybdenum. It is uncommon, especially in basalts, and is much sought-after by collectors. It was first found in the early 1980s and the crystals are rated among the best in the world. I have two specimens, each with a single, light brown, pseudo-octahedral,1x1 cm crystal on matrix (Photo 6) with stilbite and both from the Nasik area. The mineral is named after the American explorer and geologist John Wesley Powell, a former Director of the United States Geological Survey.

The three remaining non-zeolite species found at Poona - quartz, calcite and celadonite, do not normally occur as showy, display specimens but are usually found as associated minerals with other, more desirable, species as part of a complex matrix. Where relevant, they have been mentioned when describing some of the specimens earlier in this article.

In conclusion, the "Poona" area has produced, and is still producing, a large number of high-quality zeolite and non-zeolite specimens every year, still at relatively cheap prices. However, the rarer species are often becoming more difficult to obtain as quarries are becoming worked out or threatened by encroaching urbanisation, a trend which is likely to continue.

All Photos by David Hardman

Via British Micro Mount Society Newsletter 114, Nov. 2021

Mineral Classification, Mineral Kinds and Penguin Poop

Clive Cornwall

A dilemma. How to summarise two technical publications in the American Mineralogist, encompassing a research project that ran for 15 years, in a few short pages, without losing the sense of excitement generated by such originality.

Mineral classification, developed and refined over a number of years by Berzelius (1842), Dana (1854) and Strunz (1941), is based on a combination of chemical composition and crystallography. Take for example pyrite (FeS_2). It fits neatly into the Sulphides Group and Cubic system. However, what of the genesis of pyrite? It is surprising to learn it is the most diverse of all minerals, with 21 possible origins. Pyrite can form at high and low temperature, with and without water, with the help of microbes and in harsh environments where life plays no role whatsoever. Pyrite is derived and delivered via meteorites, volcanoes, hydrothermal deposits, by pressure between layers of rock, near-surface rock weathering, microbially precipitated deposits, several mining-associated processes including coal mine fires, and many other means.

Some boffins take mineral classification very seriously - but Clive keeps it simple and down to earth in a timely fashion

Two publications in 2022 detail the work of Dr Robert Hazen and Dr Shaunna Morrison of the Carnegie Institute of Science in Washington DC in reclassifying 5659 minerals recognised by the International Mineralogical Association. They have added the dimensions of time and also the environment in which it was formed to the previous classification system of chemistry and crystal structure. When mineral genesis is incorporated, the number of "mineral kinds", a proposed new term, increases to more than 10,500. A number that is 75% greater than the current mineral species recognized by the IMA, based on crystal structure and chemical composition alone. The authors achieve this expansion by a novel approach of clustering (lumping) kindred species of minerals together or splitting off new species based on when and how they originated.

Let me give you an example, possibly controversial, of how this increase occurs. The IMA recognises calcite as a single-entry mineral, composed of calcium carbonate, occurring in the Trigonal system. The authors suggest this is too limiting an approach. They contend there are possibly up to 20 different “kinds” of calcite. The calcite deposited as a shell is very different from the calcite that forms on the ocean floor through chemical precipitation, or calcite formed deep within the Earth in a process of metamorphism, at high pressure and temperature. They see many different kinds of calcite and that is the key to their new approach to mineralogy.

The study, part funded by NASA, details the origins and diversity of every known mineral on Earth. It will help reconstruct the history of life on Earth, guide the search for new minerals and ore deposits, predict possible characteristics of future life, and aid the search for habitable planets and extra-terrestrial life.

Dr Hazen declares - "*This work fundamentally changes our view of the diversity of minerals on the planet. For example, more than 80% of Earth's minerals were mediated by water, which is, therefore, fundamentally important to mineral diversity on this planet. By extension, this explains one of the key reasons why the Moon and Mercury and even Mars have far fewer mineral species than Earth.*"

"The work also tells us something very profound about the role of biology. One third of Earth's minerals could not have formed without biology—shells and bones and teeth, or microbes, for example, or the vital indirect role of biology, such as by creating an oxygen-rich atmosphere that led to 2,000 minerals that wouldn't have formed otherwise. Each mineral specimen has a history. Each tells a story. Each is a time capsule that reveals Earth's past as nothing else can."

How was the study executed? The team at the Carnegie Institute created a database, which set against all accepted minerals the known processes of their development. The compiling of the resource drew on established open-access mineral databases, such as mindat.org and rruff.ima/info. The scope and reach of the resource was enhanced by drawing upon the findings of thousands of primary research articles on the geology of mineral localities around the world. The net result enabled the identification of 10,556 different combinations of minerals and modes of formation. Through detailed interrogation of the newly created database, it was established that minerals have come into being in one or more of 57 different ways.

This examination of the data generated a wealth of insights and conclusions, and a system of mineral classification that reflects mineral origins in the context of evolving terrestrial worlds. Listed below are a number of these fascinating observations, facts and interpretations to tickle the little grey cells:

- Water has played a dominant role in the mineral diversity of Earth, involved in the formation of more than 80% of mineral species.
- Life played a direct or indirect role in the formation of almost half of known mineral species while a third of known minerals—more than 1,900 species—formed exclusively as a consequence of biological activities.
- Rare elements play a disproportionate role in Earth's mineral diversity. Just 41 elements—together constituting less than 5 parts per million of Earth's crust—are essential constituents in some 2,400 (over 42%) of Earth's minerals. The 41 elements include arsenic, cadmium, gold, mercury, silver, titanium, tin, uranium, and tungsten.

Time is of the essence

- Much of Earth's mineral diversity was established within the planet's first 250 million years, some 3,534 minerals.
- Some 296 known minerals are thought to pre-date Earth itself, of which 97 are known only from meteorites (with the age of some individual mineral grains estimated at 7 billion years—billions of years before the origin of our solar system).
- The oldest known minerals are tiny, durable zircon crystals, 4.4 billion years old
- More than 600 minerals have derived from human activities, including over 500 minerals caused by mining, 234 of them formed by coal mine fires.

Many and diverse are the ways in which minerals are created

- 3,349 minerals occur in just one process (paragenetic mode).
- 40% of mineral species originated in more than one way.
- 1,372 minerals occur in two ways.
- 458 minerals that occur in three ways.
- 480 minerals occur in four or more ways.
- 9 minerals came into being via 15 or more ways.
- There are nine ways in which diamonds have formed in environments from outer space to deep Earth.

And it is astonishing how many minerals need life as part of their creation

- Biology played a direct or indirect role in creating ~50%: of approved minerals.
- 1,900 minerals formed exclusively by biological processes.
- Up to 350 minerals were created in near-surface marine and terrestrial environments when water first appeared on Earth ~4.45 billion years ago.
- 72 minerals were derived from the guano and urine of birds and bats

To end with a quick look at the link between penguin's poop and its relationship to mineral genesis. On Antarctica's Elephant Island the product of defecating penguins creates a chemical reaction that generates a dull brown mineral called spheniscidite. It is unique and reflects the special conditions that exist only in that locality. The name comes from Sphenisciformes, the label used to describe penguins' grouping in the avian tree of life.

Creative Penguins possibly pondering the life story of spheniscidite

References:
Robert M. Hazen *et al*, "On the paragenetic modes of minerals: A mineral evolution perspective," American Mineralogist (2022).
Robert M. Hazen *et al*, "Lumping and splitting: Toward a classification of mineral natural kinds," American Mineralogist (2022).

NB Previous publications authored by Hazen et al appear in the American Mineralogist, Canadian Mineralogist, Mathematical Geoscience, and Earth and Planetary Science Letters chart the development of the study. One of many interesting predictions found in these papers was that nearly 35 percent of sodium minerals remain undiscovered, because more than half of them are white, poorly crystallized, or water soluble. By contrast, fewer than 20 percent of copper and magnesium minerals have not been discovered.

Via British Micro Mount Society Newsletter 117, Oct. 2022

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Eye Candy

Fizélyite [$Ag_5Pb_{14}Sb_{21}S_{48}$] - elongated black crystals
Diaphorite [$Ag_3Pb_2Sb_3S_8$] - tabular black crystal (or maybe Freieslebenite per Rob Woodside)
Boulangerite [$Pb_5Sb_4S_{11}$] - fibers and rings but no silver (or perhaps Tubulite per Rob Woodside)
Van Silver Property, BC, Canada. FOV: 1 mm
Ex. Charlie Hall collection. Bruce Kelley photo and specimen
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More Eye Candy from Across the Pond

Agardite Christiana Mine, Lavrion, Greece FOV 8 mm Photo Henk Smeets

Henk says of this image, awarded a top place in the Symposium competition: "The specimen on my photo is labelled as agardite-(Ce). Agardite is a REE (Rare Earth Element) mineral. Four varieties are found at Lavrion: agardite-(Ce), (La), (Nd) and (Y). This may sound distinctive, but in reality, agardite never has only one REE in its structure as one of the four will always be dominant, but never exclusive. I recently talked about this with Branko Rieck who is at Vienna University. He is a renowned specialist who does much of the research on existing and newly discovered species from Lavrion. I did not find this specimen myself, but obtained it from my dear local friend Vasilis Stergiou, who is a long term and very enthusiastic collector. Stergiouite {$CaZn_2(AsO_4)_2 \cdot 4H_2O$} is a new mineral from a few years ago that is named after him.

RICE
MUSEUM OF
ROCKS &
MINERALS

News from the Rice Museum

26385 NW Groveland Dr, Hillsboro, OR 97124

Please email articles and photos to heesacker@coho.net

The next deadline will be June 12, 2024

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

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heesacker@coho.net

MINERAL MEETING CALENDAR

2024:

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 - Oct. 18-20
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

2025:

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