PACIFIC NORTHWEST CHAPTER
FRIENDS OF MINERALOGY

March 2023

PNWFM

Inside this issue:

President's Message

Jessica Robertson

Hello friends!

We may still be feeling the last blasts of wintery weather, but spring is just around the corner. I hope you all get a chance to get out in nice weather this spring and enjoy some of the great geology and amazing minerals of our region.

PNWFM has great plans in work for 2023 (our 49th year!) starting with our partnership with Seattle Mineral Market (SMM) in May. The board and SMM team volunteers have plans for auctions, displays, a kid's corner, and snack bar, PLUS we hope to also unveil our new PNWFM logo and some new merchandise! But, because this is one of the most ambitious events our club has produced in some time, we need your help to make this event a success--please consider pitching in and taking a shift in our booth! See the article later in this newsletter for details.

We are also getting a healthy early start on planning for our 2023 symposium in October, on the topic of rare earth minerals. Some of the speakers are already lined up, and we hope to make it a fantastic and vibrant event. More information on the symposium will be forthcoming later this spring.

Other efforts for 2023 include least one group field trip this summer (details to come), and the beginning of a new project to coincide with our 50th year in 2024—production of a short history of the chapter. We will be asking for "long timers" to look through old photo albums and their memory banks for recollections of PNWFM chapter events, stories, and of course the people that made it possible. If you're one of the folks with these long memories who would like to help with this effort, please let me know, and stay tuned! In 2023 we are also hoping to team with other Friends of Mineralogy regional chapters on some efforts related to updating our internal organizational procedures, and promoting social media and educational outreach. So, in short—lots of exciting opportunities are starting to shape up for our community, and we'd love to see you all join in. Have a great spring, and see you at SMM!

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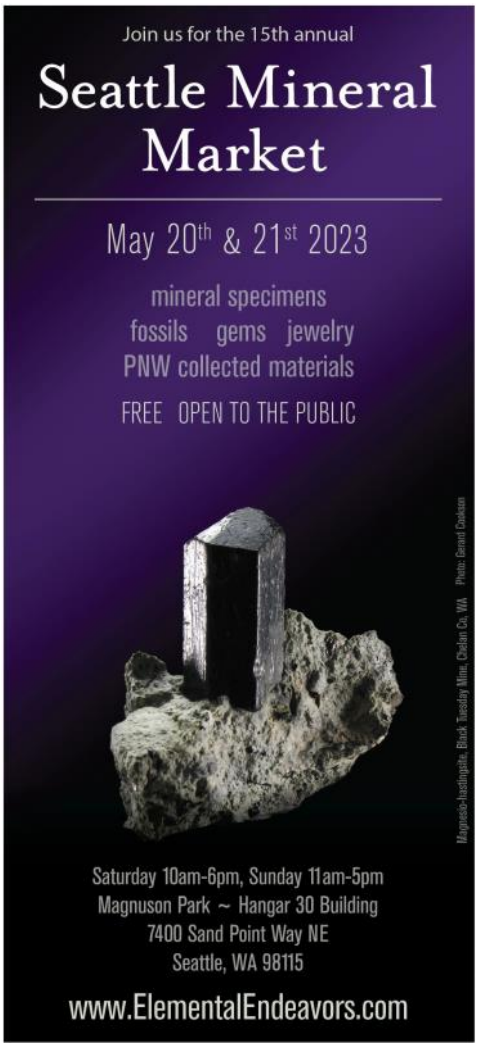
Seattle Mineral Market



In an effort to showcase minerals, educate the public about minerals, and promote our club and annual symposium, we will be more involved at the annual Seattle Mineral Market. We will have displays, offer silent auctions, run a concessions table, and provide fun activities for the kids. In order to do this successfully, we need club members to donate specimens for the auctions, and/or volunteer a few hours of your time on Saturday, May 20, and/or Sunday, May 21.

Our plan is run a silent auction every half hour. This would include a small area for kids to bid without adults overbidding them. We will bring some of the auction material that is in storage and hope that you will be generous and bring us many donations to add to our stock.

In addition to the general silent auctions, PNWFM members have offered to run a single, curated silent (bidding) starting at noon (12:00-12:30) on Saturday. The silent auction will feature items (mineral, historical, and ephemera) grouped by theme. The current, tentative themes (with possible donation ideas- this could be you!) are: **The Lapidarist** (polished slabs and cabs of PNW mineral interest, historical items, faceted PNW stones), **Beginning Mineral Collector** (classic mineral books, 2# sledge-hammer w/ chisel/collecting kit, loupe, geology hammer, labeled PNW classic minerals), **Advancing Mineral Collector** (4# hammer, chisel/collecting sets, Dana/ crystallography texts, microscope, micro or strange or oddity PNW minerals), **UV Mineral Collector** (lamps, local UV-reactive minerals/rocks, books/ephemera), **The Historian** (older, classic PNW books, photos, ephemera), **Connoisseur- Dark colored PNW minerals** (labeled, better minerals specimens), **Connoisseur- Light colored PNW minerals** (labeled, better mineral specimens), **Homage to the Recently Deceased** (Bart and Rudy, etc. related items). Donators will be listed with the item(s) or anonymous. If you feel like you might want to donate to either of these curated efforts, please contact Sal Noeldner at sal.noeldner@gmail.com. (Donations may or may not be advertised ahead of the auctions. Themes may change depending on level of donation interest.) Confirmed donors so far include John Cornish Minerals, Mazama Mine Co., Way Too Cool LLC, and Crystalholics Anonymous.

We will be setting up starting around 7 am on Saturday morning. Please join us if you can. On Saturday and Sunday we would like 2 - 3 volunteers to manage the tables (concessions, auction, and kids activities) in two hour shifts. Then on Sunday at 5 pm, we will need volunteers to help with take down. Please contact Karen Hinderman at khinderman79@gmail.com or Jessica Robertson at jrobertson@geoengineers.com

Saturday shifts:

- 7 am until ready Setup
- 10 am to Noon
- Noon to 2 pm
- 2 pm to 4 pm
- 4 pm to 6 pm

Sunday shifts

- 10:45 am to 1 pm
- 1 pm to 3 pm
- 3 pm to 5 pm
- 5 pm until finished Take Down/clean up

Thank You ! ! !

From the Friends of Mineralogy - Midwest Chapter Newsletter
January - February 2023

How Ultraviolet Radiation Reacts with Calcite and Celestine from Maybee, Michigan
by Calvin Harris

Introduction

A large number of mineral collectors are familiar with calcite ($CaCO_3$) and celestine ($SrSO_4$), from Maybee, Monroe County, Michigan. Some collectors know that these minerals may exhibit fluorescence and phosphorescence. There are publications that describe the luminosity of these minerals, but they include a large number of mineral species and by necessity, descriptions are brief. This paper supplements the basic descriptions by including the fluorescent and phosphorescent color responses and intensities, as well as, phosphorescent duration when four wavelengths of ultraviolet radiation effect certain specimens from this locality.

Geological Setting

Maybee, Michigan is located in Southeastern Michigan and the geology of this area consist largely of carbonate rocks and sandstone that formed during the Silurian and Devonian periods. The area of interest is the Detroit River Dolomite of the Middle Devonian period, which consists of brown and gray limestone with small vugs. Dolomite is also present and shares the same descriptive qualities, but has a dense microcrystalline texture. Calcite and celestine form within vugs and sulfur has been reported to form in fractures within the deposit.

Mineral Description

Specimen A is composed of transparent low steeped rhombohedron calcite crystals measuring 1mm. These crystals are scattered throughout the surface of the specimen. Additionally, opaque, poorly developed sulfur crystals measuring 3mm-19mm are located on the periphery of the specimen. The calcite and sulfur crystals rest on a light gray limestone or dolostone matrix. The specimen measures 15.7cm×11.5cm×5.7cm.

Specimen B consists of translucent, light blue, tabular orthorhombic celestine crystals with light beige calcite crystals. The celestine crystals measure 4mm-40mm. The calcite crystals were too small to measure using as 30cm ruler. All crystals have glassy luster. This specimen measures 8.3cm×7.3cm×5cm.

Specimen B Daylight

Specimen C is made of a large cluster and smaller calcite crystals. The crystals range from 1.2cm to 2.2 cm. These crystals are light brown, translucent prismatic forms with glassy luster. The celestine consists of dark beige micro-crystals with a dull luster. The matrix is a light gray limestone or dolostone material. This specimen measures 12cm×8.3cm×5.2cm.

Specimen D Daylight

Specimen D (Obverse) is comprised of light tan, translucent low steeped translucent rhombohedron calcite crystals measuring 5mm-23mm on edge. In addition, some tan colored, glassy, opaque celestine microcrystals and minor amounts of white opaque celestine crystals are present. The celestine crystals measure 12mm-15mm on edge.

Specimen D (Reverse) is comprised of white, opaque platy celestine crystals. They measure 10cm-20mm on edge. These crystals are located on one side of the specimen. Minor amounts of celestine are located on various areas of the specimen. The crystals are perched on a gray-tan limestone or dolostone matrix. The specimen measures 12.2cm×6cm×4.6cm.

Test Procedures

The procedures allow collectors to carefully determine fluorescence and phosphorescence in the field and under controlled conditions. They are easily repeatable and provide consistent results.

Three, SuperBright II lamps and one SuperBright III lamp were the sources of ultraviolet radiation. The SuperBright II lamps emit wavelengths measuring 254nm (shortwave), 312nm (mid-wave) and 351nm (longwave), while the SuperBright III lamp emits a longwave wavelength of 370nm. Fluorescence and phosphorescence are determined by placing the lamps from the specimens 3-4 inches and 2-3 inches, respectfully. A 10-second exposure time was used to produce phosphorescence. Between testing, a delay of two minutes allowed phosphorescence to dissipate and prevent misleading results caused by subsequent exposure. An AC electric source was used to operate the ultraviolet lamps.

The effects of various ultraviolet wavelengths are provided below:

Results of Specimen A

Wavelength	Fluorescence	Phosphorescence
254nm (Shortwave)	**Calcite**: Light blue, moderate-bright intensity.	**Calcite**: Lime-green, bright intensity, 9-second duration.
312nm (Mid-wave)	**Calcite**: Similar to Shortwave, except less color saturation.	**Calcite**: Color similar to Shortwave, except less saturated; bright intensity; 10-second duration.
351nm (Longwave)	**Calcite**: Color similar to shortwave; moderate-bright intensity.	**Calcite**: White with lime-green tint; bright intensity; 8-second duration.
370nm (Longwave)	**Calcite**: Similar to Shortwave.	**Calcite**: White coloration; moderate intensity; 8-second duration.

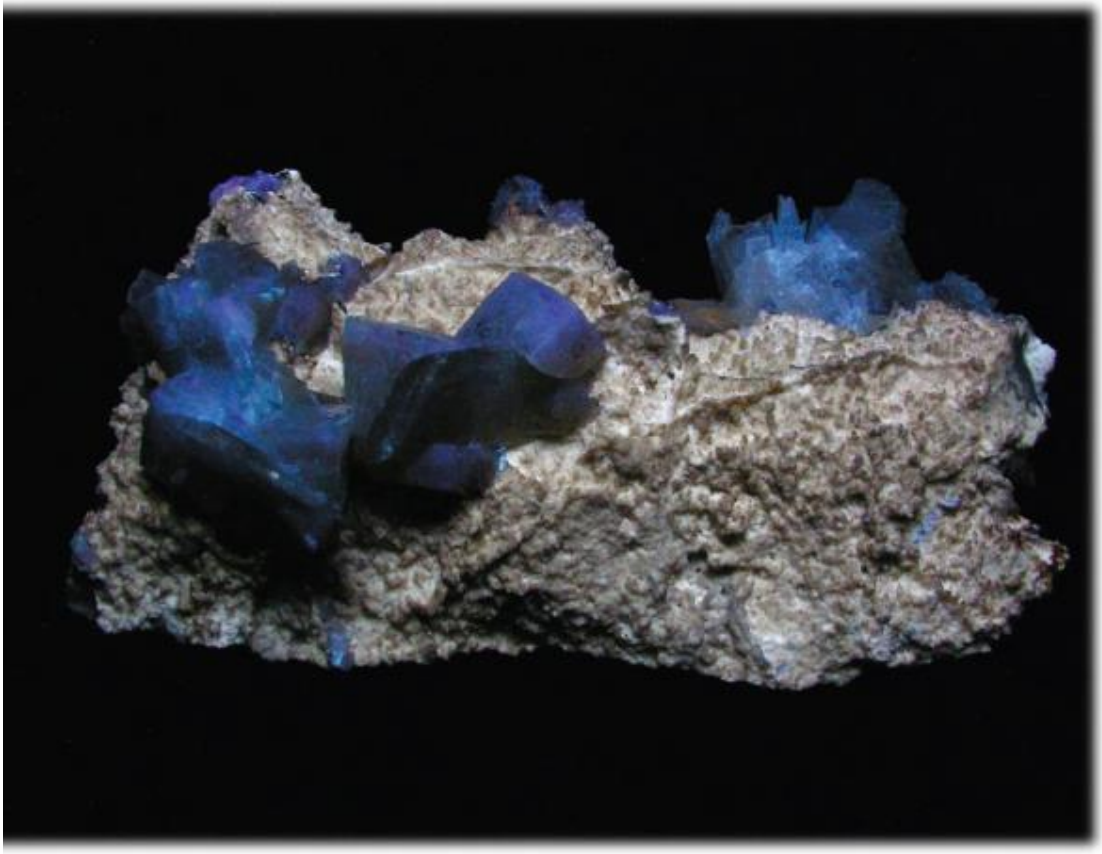
Results of Specimen B

Wavelength	Fluorescence	Phosphorescence
254nm (Shortwave)	**Calcite**: lime-green, bright intensity. **Celestine**: brown, moderate-low intensity.	**Calcite**: yellow, bright intensity, 13-second duration. **Celestine**: lime-green bright intensity, 13-second duration.
312nm (Mid-wave)	**Calcite**: Similar to Shortwave. **Celestine**: Similar to Shortwave, except slightly brighter,	**Calcite, celestine** similar to Shortwave.
351nm (Longwave)	**Calcite**: yellow, bright intensity. **Celestine**: tan, moderate intensity.	**Calcite**: pale yellow, low intensity, 8-second duration. **Celestine**: gray, low intensity, 8 second-duration. intensity; 8 second duration.
370nm (Longwave)	Similar to Longwave 351nm.	Similar to Longwave, 351nm.

Specimen B LW 351nm

Results of Specimen C

Wavelength	Fluorescence	Phosphorescence
254nm (Shortwave)	**Calcite**: Sky-blue color, moderate-bright intensity. **Celestine**: Yellowish-tan, bright intensity.	**Calcite, celestine**: sky-blue, bright intensity, 9-second duration.
312nm (Mid-wave)	**Calcite**: Pale-blue, violet, bright intensity. **Celestine**: Yellowish-tan, moderate-bright intensity.	**Calcite**: Sky-blue, moderate-bright intensity, 5-second duration. **Celestine**: Yellowish-tan, moderate bright intensity, 13-second duration.
351nm (Longwave)	**Calcite**: Similar to Mid-wave, except no violet, moderate intensity. **Celestine**: Similar to Mid-wave, except moderate intensity.	**Calcite, celestine**, similar to Shortwave, except moderate-bright intensity, 8-second duration.
370nm (Longwave)	**Calcite, celestine**: Similar to Mid-wave. Except moderate intensity.	**Calcite, celestine:** Similar to Shortwave, except moderate-low intensity, 7-second duration.



Specimen D MW 312nm

sults of Specimen D (Obverse)

Wavelength	Fluorescence	Phosphorescence
254nm (Shortwave)	**Calcite**: bluish-gray, moderate-low intensity. **Celestine**: Canary-yellow, bright intensity.	**Calcite**: Undeterminable. **Celestine**: Lime-green, moderate-bright intensity, 13-second duration.
312nm (Mid-wave)	**Calcite**: Bluish-gray, moderate intensity. **Celestine**: Canary-yellow, bright intensity.	**Calcite**: Undeterminable. less saturated. **Celestine**: Canary-yellow, bright intensity, 10 second duration.
351nm (Longwave)	**Calcite**: Similar to Mid-wave. **Celestine**: Similar to Mid-wave, except greater color saturation.	**Calcite**: Undeterminable. **Celestine**: Pinkish-gray, low intensity, 8-second duration.
370nm (Longwave)	Similar to Longwave 351nm.	Similar to Longwave 351nm, except 7-second duration.

Results of Specimen D (Reverse)

Wavelength	Fluorescence	Phosphorescence
254nm (Shortwave)	**Celestine**: Blue-gray, moderate-low intensity.	**Celestine**: Sky-blue, moderate-low intensity, 6-second duration
312nm (Mid-wave)	**Celestine**: Same as Shortwave, except moderate intensity.	**Celestine**: Same Shortwave, moderate intensity, 6-second duration.
351nm (Longwave)	**Celestine**: Blue-violet, low intensity.	**Celestine**: Same Shortwave, low intensity, 5-second duration.
370nm (Longwave)	Same as Shortwave, low intensity.	Blue-gray, very low intensity, 4-second duration.

Discussion

- The results show diverse responses, which is interesting considering the specimens originated from the same locality. The responses indicate that different activators were involved.
- The ambiguity among the results can be resolved by testing a large number of specimens. An in-depth study to identify the type and role of the activators should help explain any unexpected results.
- The phosphorescence of calcite in Specimen D (Obverse) was undetermined due to celestine's bright response.
- A supplementary article to this essay will describe how *flash* or phosphorescence characterized by bright intensity and brevity, will offer some information about inorganic and organic activators related to these specimens.

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What Is New At The Rice Museum

ONLINE BENEFIT AUCTION
MARCH 30 - APRIL 8

The Museum has once again partnered with Dr. Rob Lavinsky and Mineral Auctions for an online auction to benefit the Rice Museum. **Bidding opens March 30th and closes April 8th. We will send a link once it is posted.** Proceeds will go directly to support the care of our collections.

The online event features fabulous lots, including museum-quality mineral specimens, some of which were once part of the Rice Family Collection.

Registration is required to bid. Payment information is required to activate accounts, but this information is not saved or stored on the site. Winners will receive a personal invoice after the auction with shipping and insurance costs added.

A MESSAGE FROM THE BOARD OF DIRECTORS

We are pleased to announce the appointment of Kimberly Vagner as the museum's new Executive Director. With a strong knowledge of gems and minerals, and a background in museum operations and management, Kim is charged with creating a plan for the museum that includes updating content and galleries, expanding outreach to the Hillsboro community, and aligning with STEM education initiatives. The board recognizes the vital role the museum plays inspiring visitors to appreciate the wonder and complexity of our earth, and is excited to create a new vision with the the director.

Kim comes to us from the Perot Museum of Nature and Science in Dallas, Texas, where she served as the Director of the Gems and Minerals Center of Excellence. Prior to this role, she also worked for the Gemological Institute of America (GIA), and credits her start in the profession with volunteering in the mineral sciences department of the Smithsonian's National Museum of Natural History. She has a Masters Degree in Decorative Arts & Design from Parsons School of Design, and has a Graduate Gemologist diploma from GIA. Having grown up in Bellevue, Washington she is thrilled to back home in the Pacific Northwest.

Aurore Giguet, past Executive Director, has taken a position at Reed College in Portland. We thank Aurore for her leadership through the challenges faced by the museum over the past few years. Her contributions have positioned us well for the future.

WINTER MUSEUM HOURS:
Wednesday -Sunday 10:00 am - 4:00 pm

23685 NW Groveland Dr.

Hillsboro, OR

From the British Micromount Society Newsletter
October 2016 (used with permission)

We have not had a poem in the Newsletter for a long time and the current editor fell out big time with Shakespeare's sonnets many years ago. But first our President proffered one and then another was slipped to me in a sealed brown envelope at the Symposium so I will test the water – I am looking for a flurry of response via email to david@d-roe.freeserve.co.uk – Poems: For /Against!

The Micromounter

Roy Starkey

I am a micromounter, I like my minerals small
The bright blue and green ones, I like them best of all
But sparkling colourless crystals, contrasting matrix too
The striking visual impact, that's what creates an "Ooh"!

Pinacoids and prisms, pyramids and planes
The bewildering variety of nature in all its forms
Crystallographic perfection is what we're all about
Damaged, dirty or dull, better throw 'em out

The fabulous diversity and hidden treasure within
Means the micromounter will toil through thick and thin
No matter what the weather, or distance travelled too
Bring back some rock to crack, then hours a happy few

Hand-sized, cabinet or thumbnail, all have their devotees
But the true aficionado can be brought to their knees
By a glimpse through the magnifier, or down the stereo mike
Of crystals, formed in cavities, we've not seen their like

The special thrill and excitement of tiny sparkling faces
You can keep your "high-end" museum pieces and all their airs and graces
I am a micromounter, I like my crystals small
No matter what the colour, in love with them I fall.

Rock Chippings

Cannonite – first UK occurrence

I have been keeping my head down during the summer while working on a very small "finger tip" close to Fowey Consols for the last couple of months. It provided all the usual stuff – cassiterite and chalcopyrite – but it was interesting because there were also the occasional small pieces of bismuth, bismuthinite {Bi_2S_3} and bismutite {$(BiO)_2CO_3$}. In some of the matrix I had noticed small translucent to white bladed radiating sprays of crystals growing on bismuthinite crystals and passed them off as perhaps gypsum or similar type of dump growth. Indeed this was the comment made by several other collectors when they saw it.

Cannonite from near Fowey Consols
FOV 8 mm Photo Peter Trebilcock

However when I showed them to Mike Merry, things got interesting for he wasn't so sure and offered to send a sample over to Stefan Weiss for Energy-Dispersive X-ray spectroscopy (EDX) testing and that provided me with some quite exciting news. It seems that I have found the UK's first occurrence of an unusual bismuth oxy sulphate mineral called cannonite {$Bi_2 O (SO_4) (OH)_2$} and indeed it turns out that it is pretty uncommon at other locations worldwide.

Stefan is going to write it up as a technical article in the Lapis magazine in the near future.

I have also recently made another find at the same location. It consists of stacked spheres of a yellow bladed mineral closely resembling cacoxenite and this will also require some analytical attention. I will keep you posted!

Contributor – Peter Trebilcock

Bayldonite – The Australian connection

John Haupt

It was a pleasure to meet John at the Symposium and we are grateful for his permission to use his article giving an Australian perspective on both bayldonite and John Bayldon and also his friend Arthur Church – who gave his name to churchite. It certainly provides an inspiration to dig out those old time Penberthy specimens again and maybe try our hand with our new found photographic skills.

The mineral bayldonite was first identified in 1865 by Arthur Herbert Church. The specimen he examined and tested was provided by the mineral dealer Richard Talling, who had supplied Church with a number of new species from Cornwall. The specimen came from the Penberthy Croft Mine, with the type specimen being held by the Natural History Museum in London. {The locality of the specimen that was provided by Talling was vague, but recent analysis has attributed it as coming from Penberthy Croft (Betterton, 2000)}. In his description of the mineral, Church said *"I may state at the outset that I propose the name 'Bayldonite' for this species, in honour of my friend and former colleague, Dr John Bayldon."* (Church, 1865).

John, the son of Richard and Harriet Bayldon, was born on 10th June 1837 at Barnsley in Yorkshire. He studied medicine at the University of Edinburgh and in 1860 he graduated with honours in both Medicine and Science at the University of London. In the late 1850s Bayldon was lecturer of botany at the Royal College of Surgeons at Edinburgh and whilst there he published observations on geological and botanical subjects.

Spherical aggregates of bright green bayldonite up to 0.4 mm across from the Penberthy Croft Mine.
(Richard Bell collection) *Photo: David Green*

In October 1861 he replaced James Buckman as botanist at the Royal Agricultural College, Cirencester, where his position was listed as Professor of Botany and Materia Medica. The replacement of James Buckman was controversial, as he was a scientist who was conducting experiments on hybridising plants based on Charles Darwin's theory of evolution (he was amongst the first to scientifically hybridise plants) (Torrens, 2009).

Pseudocubic bayldonite crystals to 0.25mm on iron stained quartz from the Penberthy Croft Mine. John Betterton collection. Photo: David Green

In 1866, Bayldon emigrated to Australia for health reasons, arriving at Melbourne on the ship Lincolnshire on the 30th April 1866. He married Rosetta (Rose) Ternouth in Sydney on the 16th November 1867. He became surgeon and medical officer to the Melbourne Benevolent Asylum, and from 1870, the Melbourne Lunatic Asylum at Yarra Bend. For a short time before his death he was the acting Superintendent of the Ararat Lunatic Asylum.

The Argus dated the 22nd April 1872 contained the following item: *'It is with regret that we record the death of Dr John Bayldon, acting superintendent of the Ararat Lunatic Asylum. Dr Bayldon was a man of very rare attainments. He was bachelor of medicine and bachelor of science of the University of London, and licentiate of the Colleges of Physicians and Surgeons of Edinburgh. In 1860, when he passed his first M.B. examination, he not only graduated in honours, but obtained the exhibition in anatomy and physiology and the gold medal in the same subjects. Indeed, as a physiologist, he was rapidly obtaining distinction in the old country, quite at the outset of his career in the profession, when the malady to which he eventually owed his death commenced to trouble him, and, acting under advice, he came to this colony in the early part of 1866. By the large circle of private friends who now regret his loss, his death will be deeply felt, for no member of the medical profession was ever more thoroughly liked or more deservedly respected. Dr. Bayldon leaves a widow, but no children.'* Dr Tom Darragh, currently curator emeritus at the Melbourne Museum, is credited with uncovering John Bayldon's link with Australia.

Bayldonite from the Kintore Opencut, Broken Hill. FOV 4mm Photo . John Haupt

Bayldonite, the mineral that bears his name, is a lead copper arsenate, $PbCu_3(AsO_4)_2(OH)_2$. It is a relatively uncommon secondary mineral occurring in oxidised zones of polymetallic deposits. The type locality, the Penberthy Croft Mine in Cornwall has produced excellent bayldonite

specimens. Other notable localities are Tsumeb, Namibia and Falgayrolles and Cap Garonne, France. In Australia, fine bayldonite specimens occurred in the Kintore Opencut at Broken Hill and the New Cobar Mine, Cobar, NSW. Other Australian localities listed on MINDAT are the Mt Bonney Mine in the Northern Territory, the Bali Lo Deposit on the Ashburton Downs Station in Western Australia and the Mt Malvern Mine in South Australia.

And what of his erstwhile friend and colleague Arthur Herbert Church? He was born in London on 2nd June 1834. He was educated at King's College London and Lincoln College Oxford, going on to a renowned career as a material scientist with a great interest in the decorative arts. His interests were broad, and he published on porcelain (of which he was a collector), food grains (he worked at the Royal Agricultural College in Cirencester) and minerals, and had been president of the UK Mineralogical Society.

Churchite-Y (white sprays) with chalcosiderite-turquoise from the Kintore Opencut, Broken Hill. FOV 3 mm Photo: John Haupt.

Church had discovered in Cornwall the cerium phosphate mineral churchite. The original chemical analysis of churchite (1865) indicated 51.87 wt.% of Ce_2O_3 with some didymium. Charles H. Greville Williams named the mineral in Church's honour.

Church was also the first to examine absorption spectra of gemstones for identification purposes. He was a chemist and mineralogist. He wrote five books and was an authority on a variety of fields including paint chemistry, porcelain, and organic/agricultural chemistry. He named several mineral species. An early exponent of archaeological science, he was honorary curator at the Cirencester Museum of Roman Antiquities. He later lectured at the Royal Academy of Arts.

His interest in the chemistry and characterisation of pigments came to fruition in his books, 'The Chemistry of Paints and Painting', first published in 1890 and running to four editions. Church was an accomplished amateur landscape painter, and had exhibited in the Royal Academy Summer Exhibition of 1854. He struck up friendships with the artists of the day, including Frederic, Lord Leighton to whom he dedicates the painting manual. He also published a book on colour theory in 1907. Of particular note was his involvement from 1894 with the restoration of the frescoes in the Palace of Westminster, developing analytical and practical methods that were an enormous contribution to art conservation and restoration at that time. Church was knighted in 1909. He died, aged 81, in Kew, England on 31st May, 1915.

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The above was originally published in the *Mineralogical Society of Victoria Newsletter* 231

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Smithsonite (fov 1.5 mm)

Tsumeb,
Oshikoto Region,
Namibia, Africa

Beth Heesacker collection

Ex Allen and Barbara Lundgren collection
Purchased from Michael Shannon in Tucson, 2020.
Photo by Beth Heesacker
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The discovery of väyrynenite from Chitral, Pakistan.

Richard S.W. Braithwaite

Colleen Thomson's recent article in the Newsletter on the pegmatites of Pakistan (Thomson, 2016) prompted me to recall the curious story of the first discovery of the väyrynenite found there.

Professor Werner Paar of the University of Salzburg paid a short visit to Chitral in the early 1970's. Looking at specimens of rocks and minerals on tables in the bazaar he noticed a few small pink crystals which he could not identify by sight. On being asked what they were and where they came from the seller merely shrugged his shoulders and indicated that they came from somewhere up in the mountains. Werner purchased all 13 of the crystals he could find and took them back to Salzburg to investigate them.

Richard returns to väyrynenite and gives a us a glimpse of one of the original crystals

Chemical analyses, crystallographic, optical and specific gravity measurements and X-ray diffraction (Meixner and Paar, 1976) showed them to be väyrynenite, $BeMn(PO_4)(OH)$, which at that time had only been known since 1954 as small pink patches and very poorly developed crystals, with few distinct faces, embedded in a pegmatite at Viitaniemi in Finland. In contrast Werner's crystals vary from 4 to 17 mm in length, most being less than 10 mm, and the majority being singly terminated. The largest two crystals are rather flawed, the others being gem-clear.

Väyrynenite crystal, 10 mm long Chitral, Pakistan. RSWB collection 80-192 Photo Richard Braithwaite

After detailed studies were completed, the largest crystal went to the École des Mines in Paris, and the second, pictured in Colleen's article in the last BMS Newsletter, went to the National History Museum in London. The third largest, 10 mm long and clear, but not well terminated is in the present author's collection and is shown here.

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Hopeite (fov 4 mm)

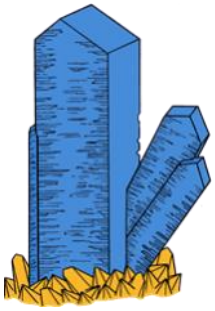
Kabwe District, Central Province, Zambia

Beth Heesacker collection

Ex Allen and Barbara Lundgren collection
Purchased from Michael Shannon in Tucson, 2020.
Photo by Beth Heesacker

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

The next deadline will be June 14, 2023



Interested in a wonderful resource for teaching children about minerals?

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http://www.diamonddanpublications.net/

PACIFIC NORTHWEST
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MINERAL MEETING CALENDAR

2023:

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

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

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

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

2024:

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

Stay Safe and Healthy!