PACIFIC NORTHWEST CHAPTER
FRIENDS OF MINERALOGY

APRIL 2010

PNWFM NEWSLETTER

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Pacific NW wins big: Al & Sue Liebetrau (L) and their Walt Lidstrom award; Alex and Laura Schauss with the Paul Desautels and Best in Show - Masters trophies. Photo by Mark Mauthner.

Tucson 2010

Many local PNWFM members made the trip to the Tucson Show this year and their presence and contributions were evident everywhere, perhaps nowhere more so than at the awards ceremony for case displays. It was a near sweep of the special awards, with local member Alex Schauss winning both the Masters Award and the coveted Desautel's award for the best case in the show with his outstanding case of thumbnail specimens. Al and Sue Liebetrau won the prestigious Lidstrom award for best single specimen in the show for their Chinese stibnite. Several other members also contributed beautiful, well received non competitive displays to the main floor show.

Members were also active on the commercial side of things. PNWFM member Dave Waisman organizes the Westward Look Show which has become the premier venue for the high end mineral dealers. His show annually features a display of a prominent private collector, this year Bill Larson, and an evening talk. Several local members are dealers at one or more of the motel shows. These include John Cornish and Bruce Wood.

The National Friends of Mineralogy holds its annual meeting at the Tucson Show and many local members are actively involved, serving as officers and Board members. See report on page 4.

PRESIDENT'S MESSAGE - Bob Meyer

Hi Friends,

What does it mean to be a friend of mineralogy? Can you describe the feeling you get when you look at a mineral specimen? Unlike sculpture, which is the result of finding form through the removal of chips from a whole, mineral specimens are chips finding form as components of a whole. Minerals are the children of geochemical processes; can you envision their emplacement, their formation—the gestalt? At times, random elements in the Earth's geological processes align to create special conditions, usually conditions trending away from entropy, or dispersal, to order, or concentration of scarce resources. At these special points, wonderful things happen, and lucky people harvest the best, save them, catalog them, trade them, or sell, sometimes not realizing that the specimens represent a larger whole than that which they immediately ponder. They are the produce of the Earth, the best it engenders. Is that why you are a friend of mineralogy?

A full season has passed since my last message to you. It is now spring, and I have had a chance to get my feet wet in my new role. As I mentioned in my last message, I served as president once before. My expectations of what I would find when I again stepped into this role were framed by my memories of that time. Interestingly, what I actually am finding is exceeding those expectations. For one, the people. While I have no complaints and every reason to be thankful for the help I received years ago, the people who are serving in various roles now are surprisingly knowledgeable, competent, and very dedicated to FM. They are willing to do their jobs and they do them—very well!

I want to single out the contributions of two individuals who have been of great help so far. However, in singling these two individuals out, I do not in any way want to diminish the work that has been performed by numerous other members. Every person I have corresponded with thus far has been very helpful and forthcoming, particularly the other officers and the symposium committee, and I am confident that we will be successful in our endeavors as we progress through the year and get closer to the symposium.

The first person I would like to mention is Allan Young, who is working hard to put together a great program of speakers and talks for the symposium. He also served as our chapter's representative at the National FM meeting in February. Allan has provided great input and advice, I have enjoyed working with him, and I feel very fortunate to have his help.

The second person I would like to mention is John Lindell, our newsletter editor. He is doing a wonderful job, and I am extremely proud of the quality of our last newsletter. John also serves as a mentor, and a bit of a prod, which is something I occasionally need. As John recently pointed out, he and I share the same mania. We both are wild for every type of mineral specimen, and rather than saying we have no collecting specialties, I would prefer to say that we both collect with no limitations.

The other thing that stands out from my expectations concerns my own role. So far, being president has taken a bit more time than I expected, but I am also enjoying it more than I expected. I am finding some excitement in this role, and that gives me confidence that I will be able to do an acceptable job.

Looking forward, I would like to encourage you all to attend our next general business meeting, held on May 22 in conjunction with the Seattle Mineral Market (details elsewhere in the newsletter). May the meeting serve as impetus for you to attend the Mineral Market, or may the Mineral Market serve as impetus to attend the meeting. Either way, here is your chance to attend two events you really should not miss.

As always, one of the best parts of this job is the opportunity to communicate with members. I encourage you to stay in touch via e-mail or telephone, and let me know what you are thinking about PNWFM.

Best regards,

Bob Meyer

Editor's note:

This is a club newsletter and as such should reflect as much as possible the entire membership. As an online publication it is not limited by size or picture restrictions. All content is welcome and encouraged. If you have a picture of a specimen or an outing, would like to write up a field trip, or have an unpublished article, let this be your place to publish it. Please e-mail any offerings to John Lindell, Editor at lindell4@aol.com. Newsletters will be produced roughly every three to four months.

PNWFM SPRING BUSINESS MEETING AT SEATTLE MINERAL MARKET

The next business meeting of Pacific Northwest Friends of Mineralogy will be held in conjunction with the third annual Seattle Mineral Market in Lake City, Washington on May 23. This one day event attracts dealers from all over the Pacific Northwest and many from outside the local area. It has become a must attend social event for the Northwest collecting community. In addition to the varied dealers the Mineral Market also features displays of specimens, art, photographs, and mining memorabilia and a mineral auction. Food is offered from a local caterer. PNWFM will hold its spring business meeting at 4pm in a separate room, provided courtesy of Bart Cannon, show organizer.

Preliminary Meeting Agenda

May 22, 2010
4:00 p.m
Meeting Facilitator: Bob Meyer

Call to order
Approval of minutes from last meeting
Open issues
- Treasurer's report
- Committee reports
  - ABC Mineral education program
  - Symposium
    - 2010 Theme: Minerals of Australia
      2010 Symposium Committee report
    - 2011 Theme: Minerals of Mexico
  - Purchase of video projector—one made available by Le Snelling
  - 2010 meetings, field trips, newsletters
  - Polo shirt
  - Hardcopy newsletters versus electronic versions

New business
- Work on Washington Pass mineralogy
- Locality registers
- Other new business

Adjournment

2009 Mineral Market, photos by Bob Meyer

NATIONAL NEWS

FRIENDS OF MINERALOGY-NATIONAL OFFICERS

OFFICERS:

President: Julian Gray
Vice-President: **Allan Young**
Secretary: **Mark Mauthner**
Treasurer: Regina Aumente
Past President: Virgil Lueth

COMMITTEES:

Webmaster: **Jim Etzwiler**
Publicity: Gloria Staebler
Symposium: Julian Gray
Newsletter: Vacant
Tucson Case: Virgil Lueth
Public Land Access: Nelson Shaffer, **Allan Young**

BOARD OF DIRECTORS:

2011: Ray Grant
Aaron Wieting
Allan Young
Nelson Shaffer
Gloria Staebler
2012: **Jim Etzwiler**
Jim Hurlbut
Mark Mauthner
Art Soregaroli
2013: Julian Gray
Virgil Leuth
Regina Aumente

TUCSON SHOW COMPETITIVE EXHIBITS 2010

Junior

Gordie Downs – Tucson, Arizona	1st Place and Best Junior
Clay Downs – Tucson, Arizona	2nd Place

Junior-Master

Erica Richardson – Phoenix, Arizona	1st Place and Best Junior-Master

Advanced

Kaye Thompson – Colorado Springs, Colorado	1st Place and Best Advanced

Master

Lauren Megaw – Tucson, Arizona	2nd Place
Gretchen Luepke Bynum – Tucson, Arizona	2nd Place
Danny Jones -	3rd Place
Alex Schauss – Tacoma, Washington	**1st Place and Best in Show**

Best of Theme

Thumbnail	Phosphophyllite, Bolivia	Paula Presmyk – Gilbert, Arizona
Toe-nail	Tanzanite, Tanzania	Paula Presmyk – Gilbert, Arizona
Miniature	Corundum, Sri Lanka	Robert Thacker – Houston, Texas
Small Cabinet	Elbaite on Albite, Brazil	Robert Thacker – Houston, Texas
Cabinet	Quartz var. Amethyst, Uruguay	Robert Thacker - Houston, Texas
Lapidary/Jewelry	Faceted Quartz, +/- 750 facets	Danny Jones –
Best Arizona	Beryl, Arizona	Barbara Muntyan – Tucson, Arizona

Special Trophies

Bideaux – For the best Arizona specimen entered in the competition
Steve Maslansky – Prescott, Arizona
Romero – For the best Mexican specimen on display in any of the exhibits
Scott Rudolph –
Lidstrom – For the best single specimen in a competitive exhibit
Al and Sue Liebetrau – Oregon
Desautels – For the best case of minerals entered in the competition
Alex Schauss – Tacoma, Washington

Local members in ***bold.***

Wulfenite, Rowley Mine, AZ
Collected and photo by John Lindell

LOCAL MEMBERS INVADE TUCSON

Rob Woodside gives Van King a traditional friendly greeting.
Photo by Jolyon Ralph.

Alex and Laura Schauss with the Paul Desautels and Best in Show - Masters trophies.
Photo by Mark Mauthner.

Rock Currier (R) accepts award from Allan Young (L) for best article in 2009 Mineralogical Record. Photo by Mark Mauthner.

Jim Robison, Jim Spann, and Al Liebetrau.
Photo by Gail Spann.

Alan Hart and John Cornish.
Photo by Gail Spann.

Bill and Diana Dameron in front of their display case..
Photo by Jesse Fisher.

ABC PROJECT IN ACTION

Friends of Mineralogy was well represented at the Everett Rock and Gem Show the weekend of Feb. 27th and 28th. Lorna Goebel set up a great ABC's display cabinet and oversaw the kid's mineral bingo activity both days. Linda Vanegas Smith helped man the table on Saturday. The show was well attended and there was a steady stream of kids at the table both days playing mineral bingo and earning their mineral samples. Thanks to all who contributed mineral specimens to this worthy kids outreach.

Sunset from camp at Vesper Peak garnet claim
Photo by John Lindell

HARVEY GORDON - 1935-2010

Harvey Gordon, long time supporter of PNWFM, died at home on January 26, 2010 after a long battle with cancer.

Harvey was born on January 20, 1935. He moved to Hawthorne, Nevada in 1942 and spent his school years there playing tackle on his high school football team. He attended the University of Nevada . While in college he met Lola Honey and married her on August 18, 1957. After receiving his Business Degree in 1958, he entered the US Army and served in Anchorage, Alaska from 1958 to 1960. He returned to Reno where he and Lola raised three children, Marvin, Cindy and Paul. Harvey worked as payroll manager at John Ascuga's Nugget.

In the 1970's Harvey turned to his true calling and formed Sierra Contact MineralBunkers, later changed to simply Harvey Gordon Minerals. He traveled, importing minerals from Mexico, mining for specimens and doing shows. He was a regular dealer at the PNW Friends of Mineralogy Symposium and received the Noble Witt Award in 2001 for his contributions to the group. Highlights of his mineral career included the handling of the Bunker Hill Mine pyromorphite find along with Ken Roberts and the marketing of much of the Meikle Mine barites. His mining ventures included the epidote digs on his Lola Claim near Hawthorne and the discovery of perhaps North America's best topaz crystals at his Zapot Claim.

Throughout his dealings he was an honest, gracious, generous man. He will be greatly missed in the mineral community.

Bart Cannon reflects on John C White 1932-2009

John Cummings White of Renton, Washington died late in the evening of October 23, 2009 of complications from lung cancer. He had been an inpatient at the Seattle Veteran's Administration Hospital for five weeks prior to his death.

John was an active member of the Friend's of Mineralogy from its inception until he drew away from active collecting in the 1980s. He was known to us as John C. White, and often pointed out that he was distinct from the more widely known mineralogist, John S. White.

On April 15th, 1932 John became the firstborn of John BeVier White and Carol Cummings. He is survived by his sister Susan Arrowood-Gerdes and brother Robert B. White. John was married from 1961 to 1967 to Harriet Jane Merwin who lives with their daughter Rachel Catherine Porras in Pleasant Hill, California, and her children, Robert and Alyssa.

John's interest in minerals developed while he was a boy in Arkansas in the post WW II era. He and his father Colonel John BeVier White often travelled the countryside in Arkansas, and collected at all of the famous mineral localities in that state. The family moved back to John's birthplace of Portland, Oregon in the 1950s where he attended Reed College until he enlisted in the U.S. Navy as a radio engineer in the SW Pacific. After his tour of duty he returned to Reed College where he obtained a degree in Physics and Math.

John specialized in electronics design and was a meticulous engineer in that discipline at the Boeing Company, the University of Washington Zoology Department, and eventually as a private consultant operating as White Electronics. John operated White Electronics until he became ill in 2009. John's hand drawn electronic schematics were, in my opinion, the ninth Wonder of World, It would take an observer close scrutiny to discover that the schematics were hand drawn. This meticulous nature was readily observed in John's study and collecting of minerals, particularly in his mineral specimen labels, all 4,000 of which were created on identically sized 1" x 2" slips of paper and notated in 4 point fountain pen ink. The complete history of each specimen was included on the labels. Sometimes that amounted to a hefty paragraph.

I met John at the 1969 Seattle Regional Gem and Mineral Show. We were both at a back table in Walt Lidstrom's booth where I was trying to sell Cleveland Mine hemimorphites to Walt. John remarked with enthusiasm that my flats looked like a suite of Junior Mapimi material and wanted in on the action. I told him that I couldn't sell to him because we were in Walt's booth. That was the first of many times in which I inadvertently annoyed John throughout the rest of his life mostly due to my various intellectual shortcomings. He was often aghast at the shortcomings of my education. It was John who pointed out that the front page of my 1975 book, "Minerals of Washington" contained an unforgivable error. Instead of the word "species" I had ignorantly used the word "specie" which means money, not nomenclature.

John bought many mineral specimens from me and was an important source of income for me until I shifted my business over to mineral analysis using electronic instruments. At that point, he became an even more essential part of my life since he routinely helped me repair my electron microprobes and my x-ray diffractometer. The repairs were often directed over the phone and always resulted in John becoming annoyed because I couldn't remember how to orient a diode or a transistor.

John was the first systematic or species collector I ever met. He had acquired 1,300 species by 1982. There never was any doubt that minerals were a passion for him, but I had no idea how deep it was until John decided that I was obliged to buy his books and minerals from him in early 2009. His book collection was extremely scholarly, and not limited to English editions. John could actually read his Russian, French and German texts. Throughout his life, John's minerals went directly into flats, and were never on display for much longer than it took to unpack them onto his desk and to meticulously record their data into his unique log books. It was only once I began the re-organization of his collection did I realize the care and industry associated with his love of minerals. I also learned that a near lifetime of chain smoking hand rolled Bugler tobacco cigarettes can tint the color of 4,000 mineral specimens after only a short exposure in an open flat. The cleaning product known as "Krud Kutter" is the only way to remove such nicotine stains. John was superior to the typical species collector. He wanted good examples of each species, not just a checklist "sample". He was also a locality collector and often had a dozen examples of the same species.

John was feeling well enough last May to attend the Seattle Mineral Market where he enjoyed seeing some old friends and watching the flurry of interest develop around the disbursement of parts of his mineral collection. He became aware that a "John C White" label on a mineral specimen added to its value and appeal.

Reader's Digest once had a regular section known as "My Most Unforgettable Character".
John is mine.

We will all miss you, John. That includes my electron microprobe.

Bart Cannon

Rachel Porras, and Harriet Merwin composed parts of this obituary.

The Micro Mineral Collector

Article and photos by Bob Meyer

Copper Chrysanthemum—A Spring Blossom of Linarite. Sharp electric-blue crystals of Linarite forming a rosette 1.5 mm across. From the Eaglebrook Mine, Nant-y-Moch Reservoirarea, Ceredigion, Wales, UK.

Ex: Richard Barstow collection.

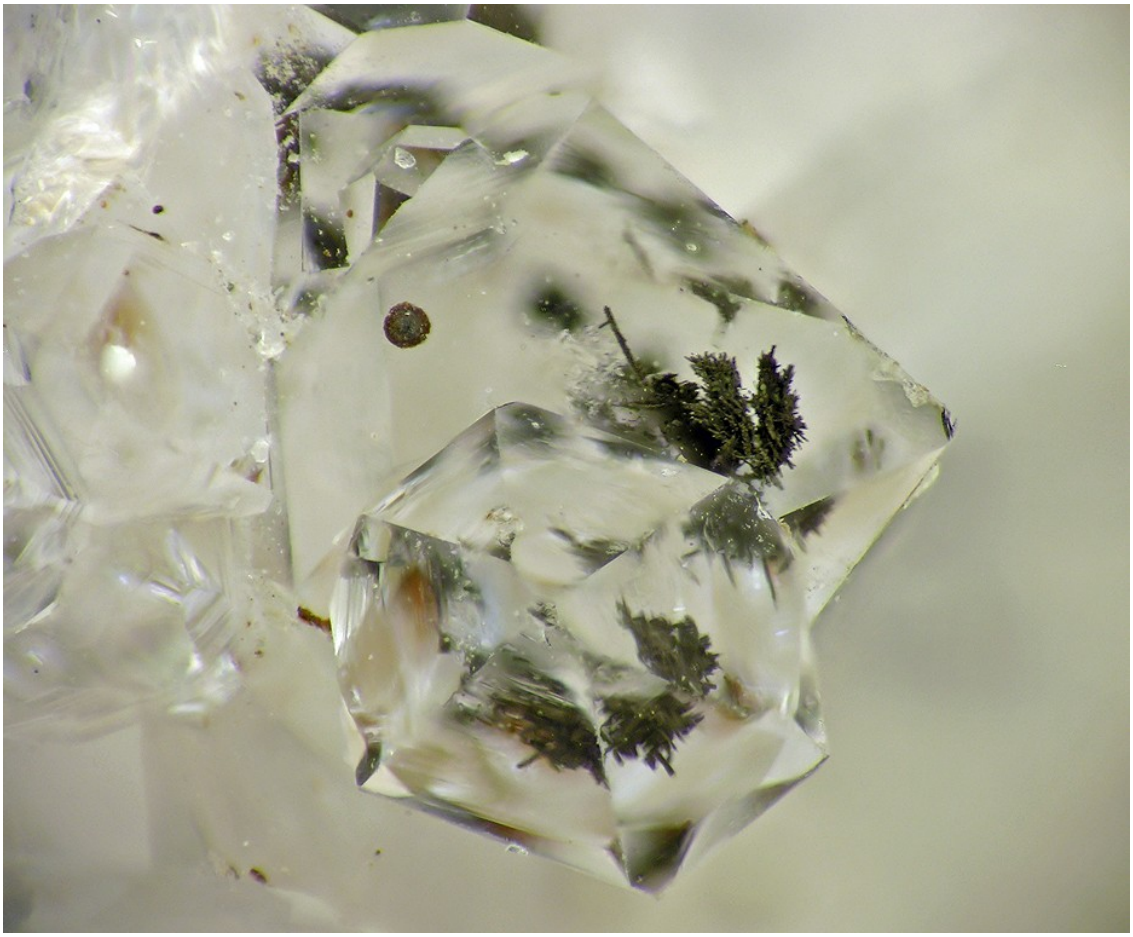
Buy and Use a Good Microscope—*adopted from Neil Yedlin*

Hello fellow mineral enthusiasts. Since the first installment of this column, at least one reader was inspired to begin a search for a microscope. Out of that search came a natural question: ***how does one find a good microscope?*** While the author does not claim to be an expert on this subject, it seems worthwhile to set down some basic factors to consider when trying to locate a quality microscope.

Select the right microscope for you. There are a large number of microscope makes and models. Since most micro mineral collectors spend significant time looking through their microscopes, eye comfort and the ability to discern detail is quite important. Additionally, people's eyes differ, and what is comfortable for others might not be as comfortable for you. In general, high quality optics and large lens elements aid in gathering more light and producing high quality images, both of which tend to result in more comfort. One of the best things you can do in selecting a microscope is to try it before buying. This could mean visiting a retailer with a storefront, but such retailers are limited. You could also attend a micro mineral meeting and ask the attendees for a chance to look through their scopes to get an idea of what models work best . If purchasing a microscope through on on-line retailer, make sure to reserve the right to return the scope if it does not suit you. Remember, though, that microscopes are heavy, and you will generally be expected to foot the bill for freight both ways should you decide to return one. Thus, it is best to know in advance what to expect and to get all relevant questions answered before purchasing on-line.

Use your network and the Internet to learn about microscopes. Become an expert on the various microscope makes and models both new and used. Discover which scopes to look for and which to avoid. There are websites dedicated to this topic. It is good to spend some time following the on-line market for new and used microscopes. Additionally, you can get involved in one of the mineral-oriented discussion forums, such as on Mindat, and learn what other collectors think.

Since for most collectors a microscope represents a substantial investment, the temptation is to purchase one that is inexpensive, such as one of the cheap and plentiful non-branded imports. However, this is one area where it is wise not to scrimp. Unless you have loads of cash, you should strive to purchase the best microscope you can afford, and, if you cannot afford a good quality scope, it is best to wait and save up until you can afford one.



Marcasite inclusions in Quartz. Parc Mine, Llanrwst, Conwy, Wales, UK.

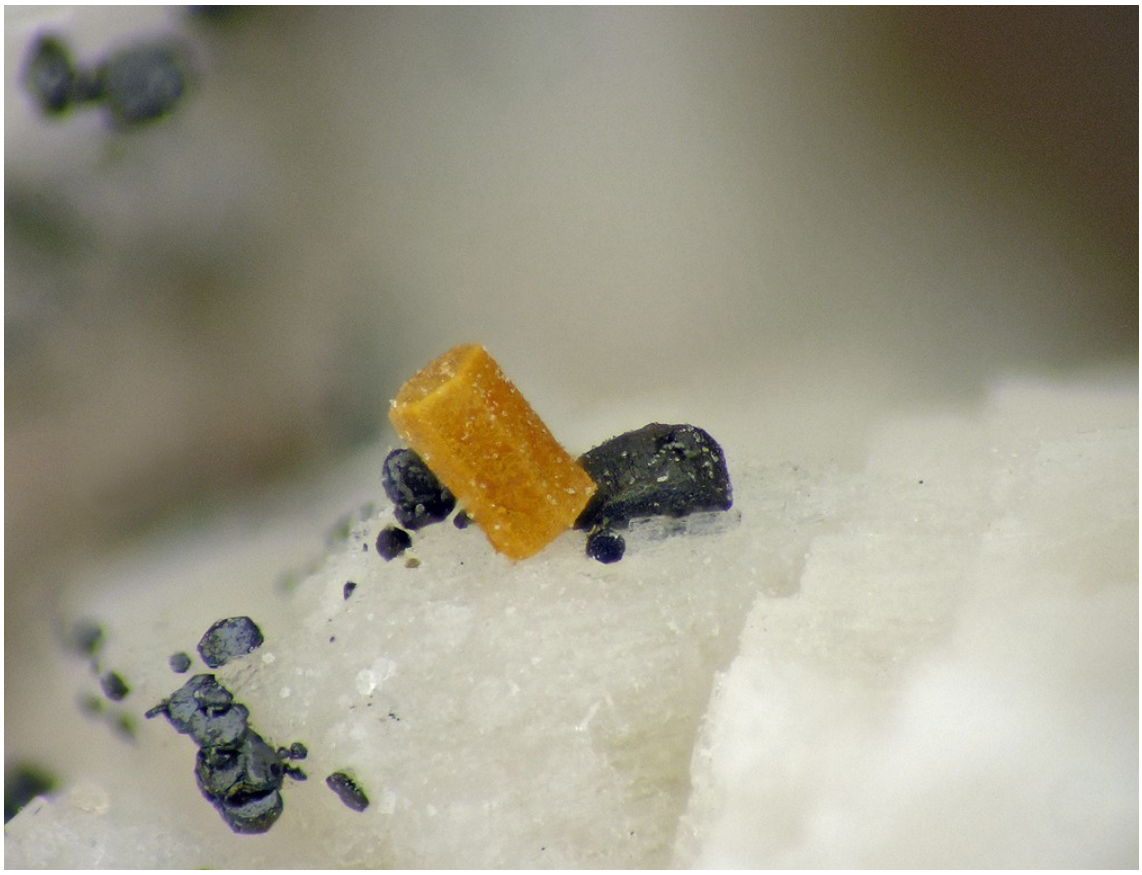
Odd filaments and brassy aggregates in stubby Quartz crystals.

The field of view is 2.5 mm.

A good quality used microscope can be far preferable to a low quality new scope, but with each opportunity, you should perform a cost-benefit analysis. Weigh the potential risks associated with buying a used scope versus the potential savings over a new one. Ask many questions about a used microscope. The better informed you are about a particular scope, the better your position will be when it comes to making a purchase. One might also consider purchasing a refurbished microscope. A number of companies refurbish used microscopes, and buying from a trusted refurbisher is one way to mitigate some of the risks associated with used scopes.

Don't scrimp on the lighting. Now that you have spent what undoubtedly seems an inordinate amount of money on a microscope, you are faced with a decision on what sort of illuminator to buy. If you have come this far and done your research, you will have noticed that microscope illuminators are downright expensive. However, just as it is advisable to buy a good quality microscope, it is also advisable to spring for a good quality illuminator, which generally means fiber optics. Your eyes will thank you if you have a source of bright daylight-balanced light. One factor to consider when choosing an illuminator is the bulb. Some illuminator bulbs have short life spans, and they are all typically expensive. One hint about replacement bulbs, though. Microscope illuminator manufacturers make illuminators, not bulbs, so buying the proper bulb from an on-line bulb reseller rather than from the manufacturer will typically reap substantial savings.

Minerals of Washington Pass—Part One



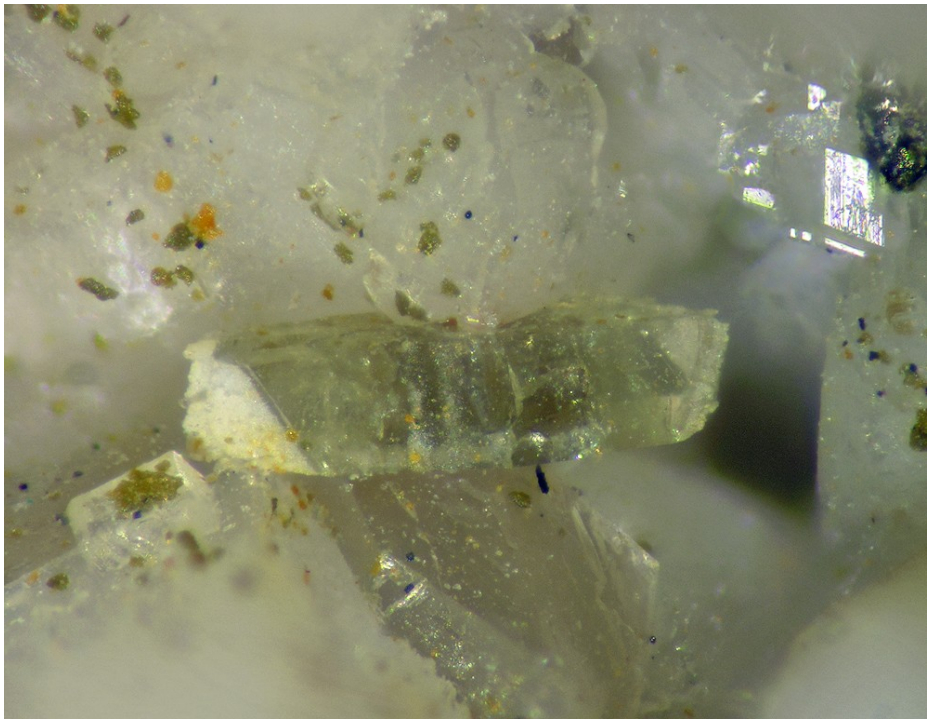
Parisite-(Ce), a sharp orange-brown hexagonal prism measuring 0.4mm in length, with blades of hematite on pale pink highly altered granite.

For a micro mineral collector in the Pacific Northwest, very few localities can compare with the Washington Pass area, or more specifically, the suites of rare minerals that occur within miarolitic cavities and pegmatites in the alkaline granitoids of the Golden Horn batholith. The area has produced three new mineral species, Zektzerite, Calciohilairite, and Okanoganite-(Y), and there are further opportunities for observant micro mineral collectors to add to that list. The area has great potential in the area of new discoveries and additions to the understanding of the mineralogy there, but frankly, there has been a limited amount of any real scientific work on the minerals of Washington Pass in recent years.

On page 17 in this newsletter is a report on an existing controversy concerning Fergusonite, one of the mineral species found near Washington Pass. This report will explore some of the minerals that can be found there, serving as a sort of photographic tour. Hopefully, these reports can help to renew interest in the mineralogy of the Golden Horn batholith among PNWFM members.

Gagarinite-(Y). Remnants of pale pink crystals from "the roadcut," collected in 2008. Gagarinite is typically found as altered crystals such as these within pegmatites and miarolitic cavities in the Arfvedsonite granite at Washington Pass. In this case, either the interiors of the crystals have been etched away, or the entire crystals are missing, with relict caps of what is possibly another mineral still in evidence as casts after the Gagarinite. In any case, the pink material visible in the bottom of the photograph shows that at least some Gagarinite is still present. The group is 3.5 mm long.

Kainosite-(Y). A 1.2 mm long pale-yellow doubly-terminated crystal of Kainosite-(Y) perched on the end of a Quartz crystal with rosettes of golden-brown Chamosite. Note the inclusions of Riebeckite variety Crocidolite asbestos in the Quartz. Collected from border granite on Liberty Bell.

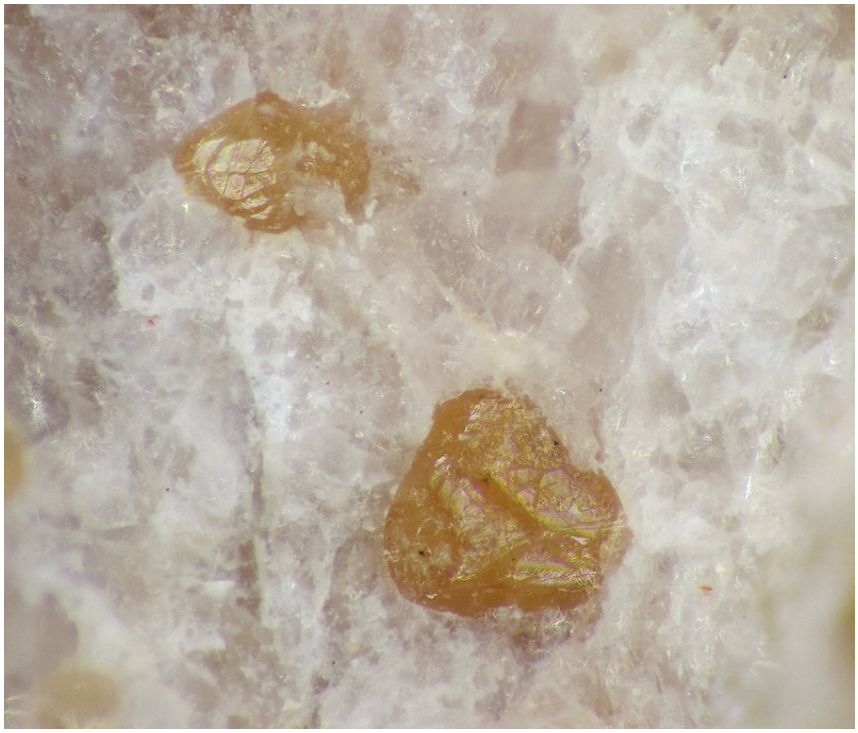


Kainosite-(Y). A 1.0 mm long pale yellow doubly-terminated crystal of Kainosite-(Y) from an unusual granite phase near milepost 164. The granite at this locality exhibits traits of both the Arfvedsonite granite and the border granite, but seems to have its own unique mineralogy. Crystals of Kainosite-(Y) are very rare from this granite phase, with only a few specimens known.

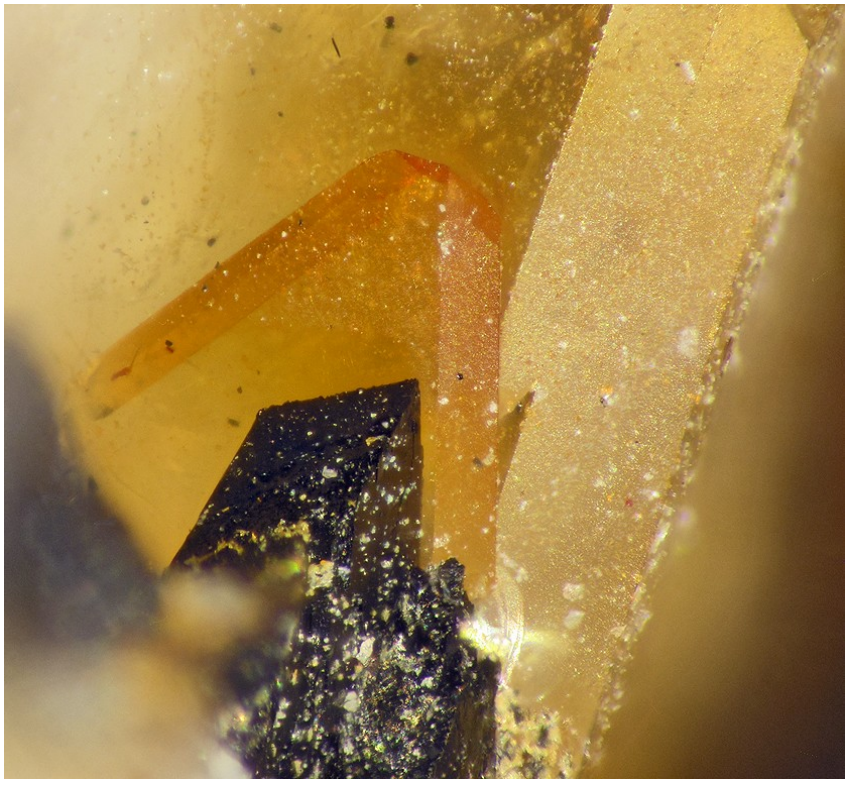
Allanite-(Ce). A combination specimen from the border granite on Liberty Bell. A black Allanite-(Ce) crystal on colorless Kainosite-(Y), associated with two purple Fluorite crystals, orange brown Chamosite, and a pale yellow Zircon on the right. The field of view is 3.2 mm.

Allanite-(Ce). A 1.8 mm crystal from Liberty Bell. Allanite is a member of the Epidote group. Imagine an Epidote where some cerium substitutes for the calcium and you have Allanite.

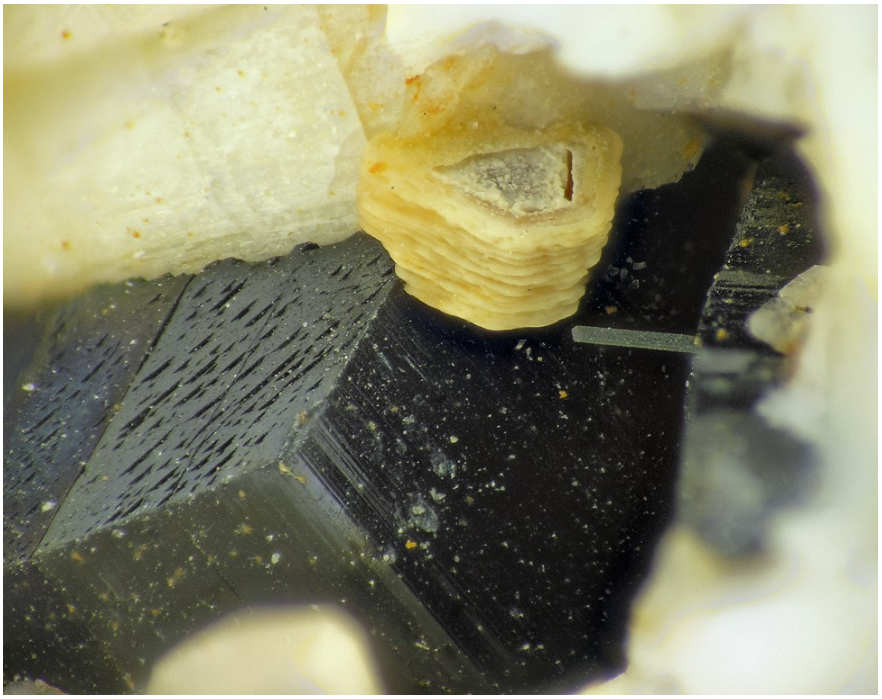
Okanoganite-(Y). Exquisite sharp orange twinned crystals of Okanoganite-(Y) associated with purple Fluorite from the Arfvedsonite granite. The field of view is 1.5 mm. One of the three species for which Washington Pass is the type locale.



Hundholmenite-(Y), orange-brown crystals in yttrian Fluorite from Hundholmen, Tysfjord, Norway. This relatively new mineral species is isostructural with Okanoganite-(Y) and is shown here to illustrate that relationship and point out the potential for new discoveries in the Golden Horn. Collected by Stein Rørvik in 1990.



Euxenite-(Y). One of the more uncommon species seen in the Arfvedsonite granite. An orange 1.7 mm long crystal associated with Quartz and Arfvedsonite.



Bastnäsite-(Ce) & Synchysite-(Ce). Some of the rare earth carbonates in the Golden Horn batholith are zoned like this, and collectors refer to them as Bastnäsite/Synchysite polycrystals in reference to a supposed intergrowth of these two species. A yellowish Bastnäsite/ Synchysite polycrystal on black Arfvedsonite that displays unusual terminal pit features, with a single dark green Aegirine crystal jutting into the pocket. The field of view is 4.0 mm.

Calciohilairite. A 2.0 mm group of white to cream-colored crystals with brown Chamosite from the border granite on Liberty Bell. One of the three species for which Washington Pass is the type locale.

Zektzerite. A group of crystals, 9.0 mm across, with abundant inclusions of fibrous Astrophyllite. The consistency of the re-entrant angles suggests that these are twinned crystals. Zektzerite was the first of the minerals to be described first from the Golden Horn. It remains quite rare worldwide, with only three localities known. This specimen was collected by Kristin Lindell in 2009.

A Controversy at Washington Pass

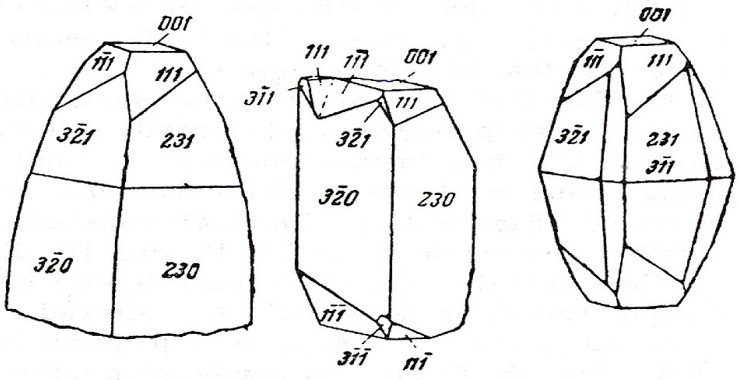
By Bob Meyer

Fergusonite-(Y), sharp, somewhat curved, tan-colored crystals, measuring 0.8 mm in length and possibly twinned, on Microcline, collected from near Washington Pass.

The Golden Horn batholith, located near Washington Pass in the North Cascades, is among Washington State's most fascinating mineral locales. A number of suites of uncommon to very rare species occurs there, hosted by miarolitic cavities and pegmatites within the granite types (Boggs, 1984). The Golden Horn batholith is the type locale for three species, Zektzerite, Okanganite-(Y), and Calciohilairite, and has the potential to produce additional new mineral species. Additionally, Washington Pass has special significance to members of the Pacific Northwest Chapter of the Friends of Mineralogy (PNWFM). Many past and present PNWFM members were instrumental in first describing the mineralogy of this area, and current members continue to this day to aid in our understanding of the locality. Each year in early August PNWFM hosts its annual clean-up and field collecting trip in conjunction with the National Forest Service.

The basis for much of the current scientific understanding of the mineralogy of the area is Dr. Russell C. Boggs' *Mineralogy and Geochemistry of the Golden Horn Batholith, Northern Cascades, Washington*, published in 1984 as his doctoral dissertation. Boggs spent years studying the mineralogy of the area, analyzing the species, and describing the mineralogical associations and paragenesis. Since then, this work has stood essentially unchallenged. Recently, however, the identity of β-Fergusonite-(Y), one of the rarer species at Washington Pass, has been questioned by a number of individuals, most notably Pavel Kartashov of the Institute of Geology of Ore Deposits (IGEM RAN) in Moscow. These individuals assert that the β-Fergusonite-(Y) at Washington Pass is actually Fergusonite-(Y).

Fergusonite occurs in miarolitic cavities within various border granite phases in the Golden Horn batholith. The crystals are typically elongated to needle-like, often somewhat curved, with the elongation occurring along the b-axis. The crystals often show some roughness on the faces and their color ranges from golden to grayish-brown (Howard, 1990).



Crystal Drawings of Fergusonite from Vlasov. Crystals from the Golden Horn are typically more elongated.

The controversy began after three PNWFM members, the author Bob Meyer, Saul Krotki, and Doug Merson, posted a number of photographs of β-Fergusonite-(Y) on Mindat. All three members were contacted about the identity of this material, and based on the arguments presented, all three members have currently changed the identity listed on the photographs under the belief that the preponderance of the evidence now supports an ID of Fergusonite-(Y) over β-Fergusonite-(Y).

To elaborate further, both Fergusonite-(Y) and β-Fergusonite-(Y) are Yttrium Niobates of identical ideal composition and differ in that Fergusonite-(Y) is tetragonal, while β-Fergusonite-(Y) is monoclinic. In practice, the two species are very difficult to distinguish, due to a number of issues relating to these species. For one, the angle of inclination for β-Fergusonite-(Y) is close to 90°, [(85°,30') (Vlasov, 1966), (92°, 30') (Howard, 1990)] and it was commonly assumed among students of Washington Pass mineralogy that the β-Fergusonite-(Y) from there essentially mimicked a tetragonal habit. Secondly, Fergusonite, in common with other "rare earth" minerals of the alkaloid granitoids, is not found in examples with ideal composition. Instead, Fergusonite typically possesses a whole host of rare earth and other chemical elements in small percentages (Vlasov, 1966; Boggs 1984). This is significant in that the radiation from small percentages of elements such as thorium, which is typically present in Fergusonites, will destroy over time the orderly arrangement of atoms within the mineral, a process known as metamictization (Wikipedia, 2010). Such minerals are referred to as metamict, and because they no longer have a crystal structure, they cannot be identified as-is using X-Ray diffraction (XRD) methods. Therefore, it is routine practice for analysts to heat-anneal metamict crystals in order to recrystallize them. Unfortunately, Fergusonite behaves strangely when heated. If either Fergusonite or β-Fergusonite-(Y) is heated to 800-1200° C and allowed to slowly cool it will change to the monoclinic [β-Fergusonite-(Y)] form (Vlasov, 1966). This makes the possibility of an erroneous identification of β-Fergusonite-(Y) quite likely. To get a tetragonal XRD pattern on actual Fergusonite-(Y), the analyst must either heat the material to a lower temperature of 450-750° C (Vlasov, 1966), or the material must be cooled quickly from the higher temperature, which does not allow for the gradual change to the monoclinic form (Kartashov, 2009).

In his 1984 dissertation, Dr. Russell Boggs states that "Golden Horn beta-fergusonite is non-metamict or only partially so and gives an X-ray powder diffraction pattern that compares favorably with synthetic monoclinic $YNbO_4$." This seems straightforward, but missing from Dr. Boggs' dissertation are any records of his techniques in analyzing the Fergusonite. The primary objections to the identification of this material as β-Fergusonite-(Y) raised by Kartashov include the following: 1) nothing in Dr. Boggs' dissertation indicates that he did not heat the material prior to performing the powder XRD analysis; 2) if you heat-anneal metamict Fergusonite-(Y) to 1000° C or more, it recrystallizes to the tetragonal alpha phase, but if it is allowed to cool slowly it will transform into a monoclinic phase identical with β-Fergusonite-(Y); 3) such heat-annealing is common lab practice, and this subtle recrystallization issue was not widely known until recently; 4) the presence of substantial ThO_2 (3.5-4.5%) (Boggs, 1984) in the Golden Horn Fergusonite makes it hard to accept that material of this age 46-48 m.y. (Boggs, 1984) could be non-metamict; and 5) the form and appearance of the Golden Horn material is consistent with Fergusonite-(Y) from other, similar, deposits.

One major weakness in Kartashov's reasoning surfaced during the preparation of this report. Vlasov, in the 1966 *Mineralogy of Rare Elements,* clearly describes this recrystallization problem and Boggs extensively used this work in preparing his dissertation. Thus, Kartashov's assertion that this property was not really understood until recently does not hold water.

Without the possibility of contacting Dr. Boggs, or subjecting the material to additional analysis, there is still a substantial possibility that this material is Fergusonite-(Y) and not β-Fergusonite-(Y). It will be interesting to address this controversy in the future and settle the matter. PNWFM can be instrumental in that effort. What is needed for a start are several samples of Fergusonite from Washington Pass that can be spared. This is a difficult proposition, because Fergusonite is quite rare from Washington Pass and the crystals are quite small. Nevertheless, PNWFM members are encouraged to contact the author in this effort.

References:

Boggs, R. C. (1984). *Mineralogy and Geochemistry of the Golden Horn Batholith, Northern Cascades, Washington*, Santa Barbara: University of California.

Howard, D. G. (1990). The Golden Horn Batholith, Part I. *The Microprobe.* VII (1), 4.

Kartashov, P. (2009). *Personal communication*. E-mail received 11 Oct 2009.

Vlasov, K.A. (Ed.). (1966). *Geochemistry and Mineralogy of Rare Elements and Genetic Types of Their Deposits, Volume II, Mineralogy of Rare Elements*. Jerusalem: Israel program for Scientific Translations.

Quartz, Denny Mountain, Washington

Watercolor by Kendra Sermersky

Amethyst scepter collected in the summer of 2009 by Joe George on his Purple Hope Claim at Green Ridge, King County, Washington. Photo by Joe George.

This 8 inch tall Spruce Claim specimen sold for $53,775.00 at the May 2009 Natural History auction at Heritage Auction Galleries, Dallas, Texas (www.ha.com). Photo by Mark Mauthner for Heritage Auctions.

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PNWFM CALENDAR

May 22 - PNWFM General Meeting held at **Seattle Mineral Market**, Lake City, WA

Aug 6-8 - Annual **Washington Pass Cleanup** and collecting fieldtrip

Oct 15-17 - 36th PNWFM Symposium, *Minerals of Australia*, Kelso, WA

Oct 14-16, 2011 - **37th PNWFM Symposium**, *Minerals of Mexico*, Kelso, WA

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We currently have 107 members paid up for 2010. The chapter's fiscal year runs from July 1 through June 30. Dues are $15 annually, of which $6 goes to the National FM. If you have paid dues since July 1, 2009 please do NOT pay again. Also note we cannot accept 2011 dues until July 1.

Otherwise, you can send your dues to me at any time before June 30, 2010 using the form below. Ask me if you don't know your dues status: mailto:baritebill@aol.com.

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