Micromineralogists of the National Capital Area, Inc.

MNCA Website dcmicrominerals.org

# The Mineral Mite

Vol. 48 – No. 5 Washington D.C. – A Journal for Micromineralogists May 2015

## May 27 Time: 7:30 p.m. – 10 p.m.

**Long Branch Nature Center, 625 S. Carlin Springs Rd. Arlington, VA 22206**

## Program: Black Hills South Dakota Pegmatites & the Phosphate Minerals of the Tip Top Mine

By David Fryauff, Vice President

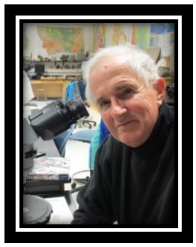
Dave will present the mineralization of the primary and secondary phosphate-bearing Tip Top granite pegmatite body. Note that many early reported phosphate species from this locality have been re-identified, particularly regarding manganese, iron, or magnesium end-members. Old references may be at variance with modern nomenclature. Both Campbell, T.J. and Roberts, W.L. (1986). Phosphate minerals from the Tip Top mine, Black Hills, South Dakota. Mineralogical Record. 17: 237-254.

## Photo of the Month

**Pyromorphite and Wulfenite**
Photomicrographer Bob Cook

## President's Message:

By: Dave MacLean



After reading the may 2015 list of EFMLS recognitions, I saw a lot of our names. there are a lot o passionate doers among us. Congratulations for Kathy Hrechka several times over for the Mite and articles therein and for articles by Sheryl Sims, Kathy Hrechka, David Fryauff,, George Loud, Peter Chin, Jim Kostka, Mike Seeds, and Steve Weinberger. We have a lot to be proud of. Let us all continue to follow our passions.

**Congratulations to Julia Hrechka who designed our club website. {www.dcmicrominerals.org} Julia received a third place award in the Eastern Federation Website contest for 2015.**

**Mrs. Kathy & Julia Hrechka hold their awards. Kathy also received 2nd place as editor**

## Previous Meeting Minutes: 4/22/15

By: George Reimherr, Secretary

Secretary George Reimherr opened the meeting at 8:20 p.m., as the other club officers - President, Vice President, and Treasurer - were not able to be present. Seven members were present. The minutes for the previous month's meeting were approved, as printed in the Mineral Mite. The treasurer's report, while not given at the meeting, had been e-mailed to the club members.

**Old business** -- The members discussed the recently concluded Atlantic Micromounters Conference. Kathy Hrechka, Conference Chair, said there were about 30 attendees, and she thanked the members for their assistance, which made the conference a success.

**New business** - On May 1, 2015, Kathy plans to consult with the hotel management about the rates for next year's conference.
The business meeting concluded at 8:25 p.m.

## Previous Program Reviewed 4/22/15

By: George Reimherr, Secretary

There were two presentations from the DVD titled "Dallas Mineral Collecting Symposium 2014". The first was titled "Gold Rush - Crystallized Gold Specimens from Classic California Localities". The second talk was titled "Gold Fever - Monster Gold Nuggets of Victoria's Golden Triangle".

## Micromount Trading Opportunity

By George Reimherr.

I have been contacted , via e-mail, by a couple of Belgian mineral collectors who would like to trade micromount specimens for their microspecimens, which are from European localities. I did do a trade -- Belgian miniature calcites for a Medford miniature calcite, 2 stellerites, etc. But their main interest is micromount specimens.

They came last September, and hit some of the commercial, etc sites, such as the Morefield mine.
Any person interested may contact the following:
Rene Allegaert
Rene Declercqlaan, 10
8530 Harelbeke, Belgium
e-mail address: Allegaert.rene@pandora.be

## Lens Turns Smartphone into a Micro-scope: Costs only 3 cents

Submitted by Erich Grundel
http://www.sciencedaily.com/releases/2015/05/150504113004.htm

Bob Cook, Photomicrographer; Photo of Month

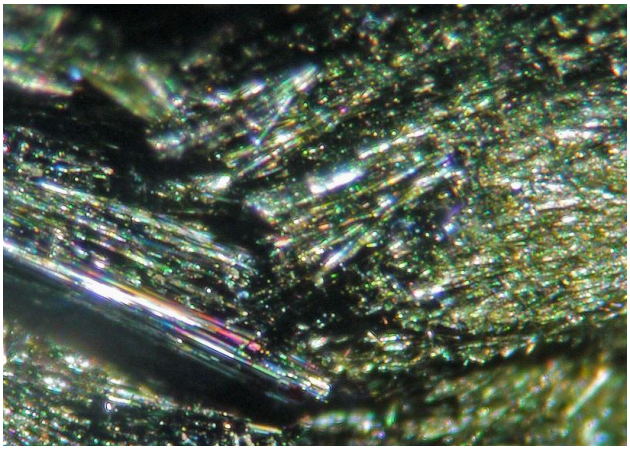
# Strange Vanadium Minerals

By Michael Pabst, Treasurer

**Bariandite**

Bariandite is a vanadium mineral that would probably be beautiful, if only I could find a tiny enough crystal to show its true color. However, my specimen, like most, is a thick mass of crystals that appear black. There is one photograph on Mindat that suggests that Bariandite might really be green, www.mindat.org/photo-331731.html. If you look at my close-up photo, you might imagine a greenish color in the fine needles.

**Bariandite from Mounana Mine, Franceville, Haut-Ogooué, Gabon.Above: field-of-view is 17 mm. Below: close-up of the same specimen with field-of-view 2 mm.**



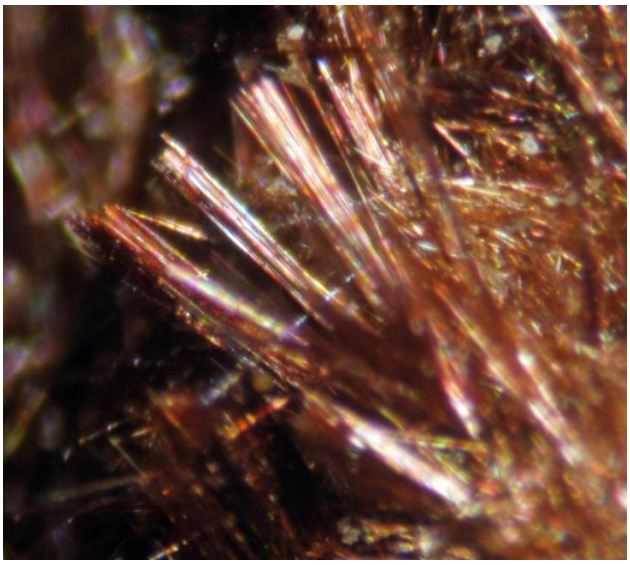
Bariandite is an oxide that has both $V^{4+}$ and $V^{5+}$ in its composition: $Al_{0.6}(V^{5+},V^{4+})_8O_{20}\cdot 9H_2O$. (I suppose that the 0.6 subscript for Al is designed to accommodate the variable charge in the vanadium. But the formula seems to suggest dividing an atom, which, like dividing a child, is a little unsettling.) About 25% of the vanadium is in the $V^{4+}$ oxidation state. Bariandite is monoclinic prismatic 2/*m*, $\beta$ = 101.5°.

Bariandite was named for Pierre and Nelly Bariand, who worked at the Sorbonne in Paris, and who described and photographed minerals from Mounana, Gabon, among many other localities. The photos of Nelly Bariand were among the first that showed me that mineral photos could be true works of art. I described their work in an earlier article in the April 2014 issue of the *Mineral Mite*, which is available online on our website, dcmicrominerals.org. It seems unfair that these masters of colorful mineral photography should be honored with a black mineral.

There are other minerals that contain a mixture of $V^{4+}$ and $V^{5+}$. These include Kazakhstanite, $Fe^{3+}{}_5V^{4+}{}_3V^{5+}{}_{12}O_{39}(OH)_9\cdot 9H_2O$, which is brown, and contains 20% $V^{4+}$, see http://www.mindat.org/photo-629842.html. There is also another new mineral with 20% $V^{4+}$, Bluestreakite, $K_4Mg_2(V^{4+}{}_2,V^{5+}{}_8)O_{28}\cdot 14H_2O$, which is named for the Blue Streak Mine. The Bluestreakite article is *in press* in *Canadian Mineralogist*, and I cannot find a mention of the color, so I assume it is some version of black. There are a number of other similar mixed vanadium minerals, including the charmingly named Packratite, which contains arsenic. Since $V^{4+}$ tends to be blue or green, and $V^{5+}$ tends to be orange or red, it is perhaps not surprising that when $V^{4+}$ and $V^{5+}$ are mixed, the result tends toward brown-green or black.

**Barnesite and Hewettite**

A chemically similar group of vanadium minerals is the Hewettite group, which includes Hewettite and Barnesite. This group is also known as the Vanadium Bronzes. They contain vanadium in the $V^{5+}$ state, although some members of the group have a small percentage of $V^{4+}$. They contain complex sheets of vanadium and oxygen, with the general formula: $M_x(V_6O_{16})\cdot nH_2O$. The term "phyllovanadates" has been used, a term that reminds me of baklava, with the sheets of pastry (phyllovanadate) interspersed with nuts and honey ($Na^+$,$Ca^{2+}$ ions and water). Barnesite is $(Na,Ca)_2(V_6O_{16})\cdot 3H_2O$. Hewettite is $Ca(V_6O_{16})\cdot 9H_2O$. Like Bariandite, Barnesite is monoclinic prismatic 2/*m*, $\beta = 95.03°$, and Hewettite is monoclinic prismatic 2/*m*, $\beta = 97.24°$. Because $V^{5+}$ is not mixed with a significant amount of $V^{4+}$ in the Hewettite group, the colors are brighter than that of the blackish Bariandite, including bronze-red and red. Some Barnesite is a stunning red: see www.mindat.org/photo-488698.html. Hewettite is also often a bronze red, so at times it would not be easy to distinguish Barnesite from Hewettite by visual inspection.



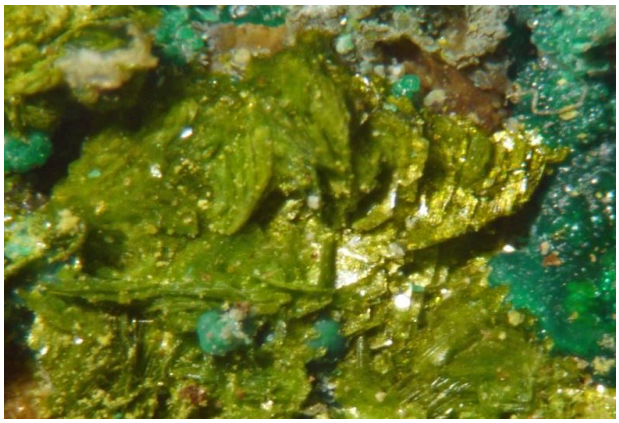
**Above: Hewettite from Grants district, McKinley County, New Mexico. Field-of-view 2 mm.**
**Below: Hewettite from Post, Crook County, Oregon. Field-of-view 5 mm.**

**Barnesite from Cactus Rat Mine, Grand County, Utah. Field-of-view 1.5 mm.**

**Volborthite and Vésigniéite**

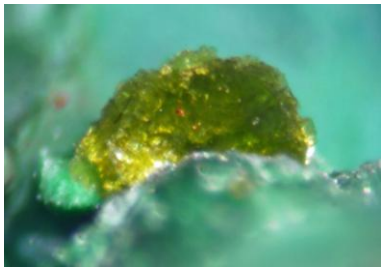
In vanadium minerals, we have encountered the orthovanadate ion $(VO_4)^{3-}$, as in Vanadinite or Sengierite, and the sheet-type structure $(V_6O_{16})$, as in Barnesite, and the mixed oxides, as in Bariandite. Another variation is the $(V_2O_7)^{4-}$ ion, or the pyrovanadate ion, which involves two orthovanadates that share a common vertex. In all these situations the vanadium itself is in the $V^{5+}$ oxidation state. A good example of the $(V_2O_7)^{4-}$ ion at work is the copper vanadate, Volborthite, $Cu_3(V_2O_7)(OH)_2 \cdot 2H_2O$.

Volborthite is easily confused with either Vésigniéite, $BaCu_3(VO_4)_2(OH)_2$, and or with Tangeite, $CaCu(VO_4)(OH)$, both of which feature the more common orthovanadate ion. Volborthite and Vésigniéite are monoclinic prismatic 2/*m*, with β = 95.04° for Volborthite, and β = 116.42° for Vésigniéite. Tangeite (formerly known as calciovolborthite) is orthorhombic. All three of these vanadium minerals commonly occur as diaphanous yellow-green rosettes, which are impossible to distinguish visually.



**Volborthite, two specimens from Monument #1 Mine, Monument Valley, Navajo Co., AZ. Above: field-of-view 3 mm; Below: fov 4 mm.**

**Vésignéite from New Cliffe Hill Quarry, Stanton-under-Bardon, Leicestershire, England. fov1 mm.**



**Chervetite**

As a final example of a pyrovanadate, there is Chervetite, a lead pyrovanadate, $Pb_2(V_2O_7)$, found at the Mounana Mine in Gabon. Yes, that famous locality means that Nelly Bariand took the best picture of the best specimen of Chervetite. This picture is found in their book "World Treasury of Minerals in Color", by Pierre Bariand, published by Galahad Press in 1976. Note that this wonderful photo was taken before digital photography and before stacking software. You can see what I meant earlier when I wrote that Nelly Bariand's photographs are works of art. Several copies of this book are currently available on Amazon for 1 cent!

**Chervetite from Mounana Mine, Franceville, Gabon. The bright yellow crystals may be either Francevillite, $(Ba,Pb)(UO_2)_2(VO_4)_2 \cdot 5H_2O$, or Curienite, $Pb(UO_2)_2(VO_4)_2 \cdot 5H_2O$. Field-of-view is 4 mm. Photo by Nelly Bariand.**

I hope that everyone enjoyed this excursion into strange vanadium minerals. Next time, good old familiar Vanadinite will be featured.

**American Federation of Mineralogical Societies**

**AFMS)**
www.amfed.org

**Eastern Federation of Mineralogical and Lapidary Societies**

**(EFMLS)**
**www.amfed.org/efmls**

**Communication and Involvement Are the Keys to Our Success!**

## American Federation Mineralogical Societies Show
## October 23-25, 2015 Austin, Texas

Purpose of the AFMS: To promote popular interest and education in the various Earth Sciences, and in particular the subjects of Geology, Mineralogy, Paleontology, Lapidary and other related subjects, and to sponsor and provide means of coordinating the work and efforts of all persons and groups interested therein; to sponsor and encourage the formation and international development of Societies and Regional Federations and by and through such means to strive toward greater international good will and fellowship.

## AFMS Club Library by John Washburn

We have 3 DVD presentations by notable scholars for a mere $20 dollar donation for each to go to the MWF Endowment Fund. The three presentations were given at the 2012 Geo-fair in Cincinnati, Ohio. Not only are the scholar's great speaker's they are also nationally known.
**Jeff Scovil** for his photography and a collector of minerals.
**Dr. Carl Francis**, Harvard Museum's former mineral curator.
**Dale Gnidovec**, well known Ohio paleontologist.

All the titles of these DVD's are as follows: "The Beauty of Carbonates" by Jeff Scovil "Teeth Jaws and Claws" by Dale Gnidovec "Collectable Carbonates" by Dr. Carl Francis.

Send your request to MWF Endowment Fund Treasurer Alan Hukill 15785 Park Lake Road, East Lansing MI 48823. Please make the check payable to 03903074MWF Endowment Fund. Please enclose an additional $3.00 for postage for each.

## Geology Events:

### May

**May 18 – 24: Wildacres 2015 EFMLS Workshops**
Bob Jones, Sr. Editor for Rock & Gem Magazine. Check EFMLS website; Tab Wildacres for complete details. Little Switzerland, NC; Cost $390 plus supplies. Steve Weinberger, Wildacres Committee Chair.

**18: NVMC "Geology Show & Tell"** club member mineral collecting sharing. Long Branch Nature Center, Arlington, VA 7:45 - 10 pm.

**27: MNCA: Black Hills, SD Pegmatites & the Phosphate Minerals of the Tip Top Mine**

**30: 26th Annual Chesapeake Gem & Mineral Show; Chesapeake Gem & Mineral Society** Ruhl Armory, I-695 exit 26 south, Towson, Maryland Sat 10–4; Free admission & parking

### August

**Aug. 24-30:Wildacres; 2015 EFMLS Workshops**
Denise Nelson, jewelry appraiser and designer will be the fall speaker. Check EFMLS website; Tab Wildacres for complete details. Little Switzerland, NC; Cost $390 plus supplies. Steve Weinberger, Wildacres Committee Chair.

### September:
**26–27: 59th Annual Franklin-Sterling Gem & Mineral Show**; Franklin Mineral Museum; Franklin School, 50 Washington Ave, Franklin, NJ; Sat 9–5, Sun 10–4; Outdoor Swap: Sat 7:30–6, Sun 10–5; adults $7, children 6–16 $4

## Congratulations MNCA Members!

## Eastern Federation Bulletin Editors Advisory Awards 2015

***Mrs. Kathy & daughter Julia Hrechka received awards at the AMC on April 11, presented by Carolyn Weinberger, who was in attendance.***

### Web Page Design
*Julia Hrechka, 3rd place

**Small Bulletins** *Kathy Hrechka, 2nd place

**Original Educational Articles -**
*Kathy Hrechka, 10th place (Wankel T-Rex)
*Kathy Hrechka, Honorable Mention (Blue Diamond)
*Kathy Hrechka, Honorable Mention (Denver Museum)

**Original Non-Technical Educational Articles**
*David Fryauff, 2nd place (Field Trip Write Up)
*David MacLean, 8th place (Weinberger HOF induction)
*George Loud, Honorable Mention (Colorado Rambling)

**Written Features**
* Peter Chin, 7th place (Geo-Daffinitions)
* Mike Seeds (My First Micromounts)
*Sheryl Simms (One Man's Stash)

**Micromineralogists of the National Capital Area**
Meeting: The 4th Wed. of each month 7:30 -10 p.m.
Long Branch Nature Center, (Except Easter & Dec.)
625 S. Carlin Springs Road, Arlington VA 22204

**MNCA Purpose:** To promote, educate and encourage interest in geology, mineralogy, and related sciences.

Pres: Dave MacLean, dbmaclean@maclean-fogg.com
Vice Pres: David Fryauff, fryauffd@yahoo.com
Secretary: George Reimherr, greim@cox.net
Treasurer: Michael Pabst, Michaeljpabst@yahoo.com
Editor/ Historian: Kathy Hrechka, kshrechka@msn.com
Website: Julia Hrechka, dcmicrominerals@gmail.com
Conference: Kathy Hrechka, kshrechka@msn.com

**The society is a member of:**
* Eastern Federation of Mineralogical and Lapidary Societies (EFMLS) www.amfed.org/efmls
*American Federation of Mineralogical Societies (AFMS) www.amfed.org Affiliation

**Dues:** MNCA Membership Dues for 2015
$15 (single) or $20 (family)
**Payable to MNCA - Michael Pabst, Treasurer**
**270 Rachel Drive**
**Penn Laird, VA 22846**

### Editor's Note:
**by Kathy Hrechka**
Send your articles and photos to your editor.
**Club Article Deadline is 10th of each month.**
***The Mineral Mite* will be emailed on 15th.**
**No newsletter July/August**

## AFMS Editor's Award
## First Place 2011 - Mini Bulletins


**May Inputs:**
***Michael Pabst**
***Erich Grundel**
***George Reimherr**