



FRIENDS OF MINERALOGY NATIONAL NEWSLETTER

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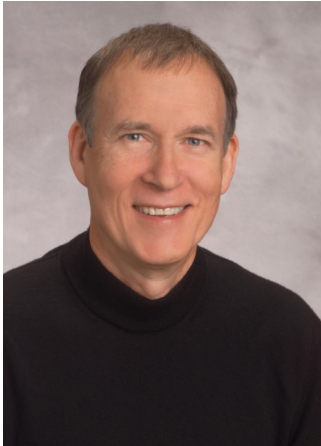
to promote, support, protect and expand the collection of mineral specimens and to further the recognition of the scientific, economic and aesthetic value of minerals and collecting mineral specimens.

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Calcite var. Cobaltan, Kolwezi, Katanga, Zaire, 2.9 x 2.5 x 2.3 cm,
Alex Schauss Collection, Mark Mauthner photo



President's Message By Alex Schauss

With the summer behind us, hopefully you've had an opportunity to get out and do some collecting. Or possibly visit one or more gem and mineral shows. Or keep up with recent issues by mineral publications. Or found a good book or two to read about minerals.

We now have a new Membership Application tri-fold brochure. PDFs of the brochure will be sent to officers of every chapter, and to any at-large member upon request. We'll also be distributing them to mineral museums and at symposiums, as well as gem and mineral shows. Already the Rice Museum in Oregon has placed them on their entry's counter.

The response to the new brochure has been very positive, reflected by the growing number of new applications that have been received to join in the last few weeks. Membership in Friends of Mineralogy in the last month has expanded from five countries to 15. This growth is a testament to the international communities support for the objectives of Friends of Mineralogy namely, *to promote, support, protect and expand the collection of mineral specimens and to further the recognition of the scientific, economic and aesthetic value of minerals and the collecting of mineral specimens.*

This issue of the newsletter includes: chapter reports; information about future gem and mineral shows; the second notable contemporary contributor to mineralogy selection; sapphire mining in Madagascar; plans to open a new Yale University Mineral and Gem Museum in 2016; a report on three mineral shows held during the fall 2015 Denver Gem and Mineral Show; the winners of the "best educational exhibit" by an institution and by an individual at the Denver show; recent studies that predict the number of mineral species on Earth yet to be discovered; the availability of a toolkit for educators created by the American Geosciences Institute (AGI), an affiliate of Friends of Mineralogy, for students to use during Earth Science Week in mid-October; and, the first of a two-part series on the history of Mindat.org, an affiliate member of Friends of Mineralogy, beginning with its creation and first ten years of development.

Unfortunately, this issue also includes two tributes, upon learning of the deaths of two highly respected and appreciated "giants" of the mineral collecting and mineralogy community, Dr. Peter Bancroft and Rock Currier. Both died within days of each other in mid-September.

(continued on page 4)



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**Deadline for the next FM Newsletter is
December 22, 2015**

Such sad news reminds us of the important contributions we can all make in our life-time to inspire, mentor, educate, and encourage others to appreciate the amazing world of minerals and the science of mineralogy.

This issue's selection of Pam Wilkinson, as a Notable Contemporary Contributor to Mineralogy, is a prime example of the influence and impact one individual can have. As you will learn, she has educated over 35,000 students in the space of just a few years on the important role that the mining industry plays to meet the demands imposed by modern society. Hopefully, her achievements and program will be an inspiration to others.

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Bismutotantalite, Manoel Baldonio, Junco do Serido, Paraiba, Brazil, 2.0 x 2.6 x 2.2 cm, Alex Schauss Collection, Mark Mauthner photo

## Peter Bancroft (1916 – 2015)

Friends of Mineralogy received sad news on September 16<sup>th</sup>, upon learning of the death of Peter Bancroft, in his home in Fallbrook, California, at the age of 99. An obituary will appear in the *San Diego Union*.

Peter was born on May 5, 1916, in Tucson, Arizona. According to the *The Mineralogical Record*, some time around 1930 he met with another local collector, Edward “Ed” Swoboda (who died in 2013 at the age of 96), where upon they teamed up to collect minerals in California.

Besides numerous papers and publications on mineralogy, Bancroft is known for authoring two “coffee table” type mineral books found in many mineral libraries.

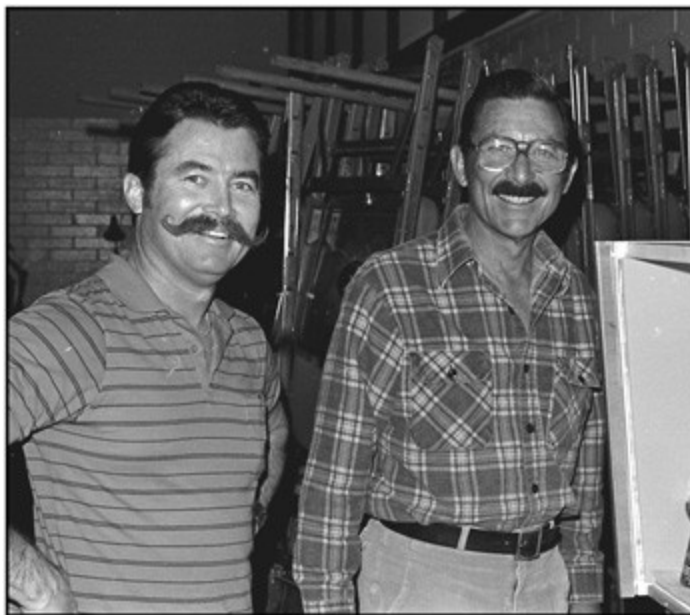
The first, *The World’s Finest Minerals and Crystals*, was published in 1973. The second book, *Gem and Crystal Treasures*, published in 1984, which took Peter 11 years to complete, was hailed for its exceptional photos of not only minerals, but the many local inhabitants and miners he met visiting over 100 mines around the world.

In the 1984 book, co-published by Western Enterprises in Fallbrook, California, and *The Mineralogical Record*, the publishers wrote:

*In contrast to many “armchair authors” who merely recycle what has appeared in other books, Dr. Bancroft has spent years traveling the world like a modern-day Herodotus, visiting hundreds of remote and fascinating mineral and gem deposits, and interviewing miners and local inhabitants.*

A former member of Friends of Mineralogy, Peter earned his undergraduate degree at the University of Southern California, and went on to do graduate studies at the University of California at Santa Barbara, and Stanford University. He studied geology and mineralogy under C.D. Woodhouse. He earned his doctorate in Education Administration from Northern Colorado University in Greeley in 1957, as he spent years working in education.

He was a Curator of Mineralogy at the Santa Barbara Museum of Natural History, and Director of Collections for the San Diego Gem and Mineral Society. During the mid-1970s he was Marketing Director at Pala International. In 1984, Peter was made an Honorary Awardee for the American Federation of Mineral Societies’ Scholarship Foundation.



Peter Bancroft (right) with his son, Ed Bancroft, at the 1985 Tucson Show.  
Courtesy of Mineralogical Record

In the preface to his 1984 book, which should be in every mineral library, Peter wrote:

*As a small boy I sometimes sat before glowing coals in the fireplace of our darkened living room listening to my father and two uncles spin yarns of the old days. Ours had been a mining family. A great grandfather was chief carpenter and a great uncle was superintendent of the Sutro Tunnel in Virginia City, Nevada. An uncle was paymaster for copper mines in Jerome, Arizona. Another uncle owned the La Noria silver mine in Michoacan, Mexico, and my father had surveyed the Tonopah-Tidewater Railroad into Death Valley, California.*

Given his family history, its not surprising that he found collecting minerals a life long passion. In speaking to his wife, Helen "Sweetener" Officer, to express Friends of Mineralogy's condolence, I asked her what was the one thing she felt people would remember Dr. Bancroft for. Her answer, "he was such a humble man."

Despite his death, expect another publication of another future classic work in mineralogy to appear in 2016 authored by Peter Bancroft. The new book will include "100 of the worlds finest gem and crystal deposits." Plans were to release the book next year in celebration of Peter Bancroft reaching the century mark.

- Alex Schauss

## Rock Henry Currier (1940-2015)

It is always difficult to learn of the death of a friend in the mineral community and a member of Friends of Mineralogy. Rock Currier, passed away on September 25, 2015, just five days after the close of the Denver Gem and Mineral Show. His death is a great loss to the mineral collecting community as well as the thousands of people he inspired, mentored and influenced over his lifetime.

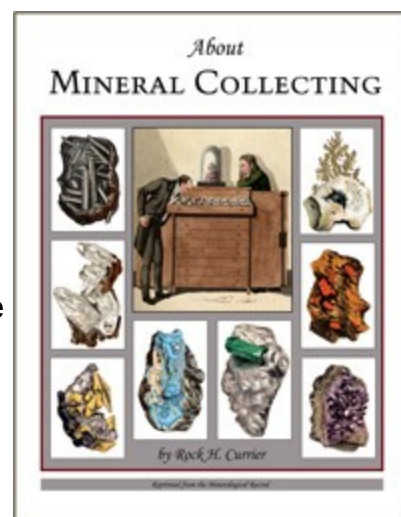
One only has to read the pages of condolences and memories posted by people on Mindat.org to appreciate the impact he had on others. During the formative years of the Tucson Show, when I'd run into Rock at the old Desert Inn hotel. He'd go out of his way to show me a mineral specimen. Then explain the specimen's attributes.



Gene Schlepp, who shared a room with Rock, urged me to acquire some of the zeolites from India that Rock sold. Rock shared his knowledge of zeolites inspiring me upon my return to Washington state to make arrangements with Ray Lasmanis, the state's geologist, to take students on trips to select zeolite-collecting locations in the Cascades. Eight of those students went on to earn degrees in geology, several of who became mineralogists. None of that would have happened had Rock not taken the time to educate me about these marvels of nature. There are probably hundreds if not thousands of stories like this about Rock.

There is no way to pay adequate tribute to this giant in the mineral community. *The Mineralogical Record* posted a biography of Rock Currier. It is well worth reading to appreciate his history and the impact he has had over decades as a collector, dealer, and most of all as a friend to the mineral community. <http://www.minrec.org/labels.asp?colid=768>

Anyone who met Rock was touched by him in many ways. His knowledge of mineralogy was enormous. He wrote many articles for mineralogical publications. One of my favorites was *About Mineral Collecting* published by *The Mineralogical Record* in 2009. In this 48-page, color-illustrated masterpiece, he shared with the readers his "personal observations, ruminations, reflections, reminiscences, ramblings, digressions, grumblings, approbations, wisdom and advice" gleaned from 50 years of experience collecting around the world and dealing in minerals.



There were also letters to editors on myriad subjects related to mineralogy, such as the Collector's Note column, in which he reminisced on an article about "Leadhillite from Tsumeb" published in *Rocks & Minerals*, in which he shared his experience in Tsumeb "when it was producing mineral specimens and [one could] buy whatever I could afford." Or the articles in the same publication on "Calcite and marcasite specimens from the Brushy Creek mine: Reynolds County, Missouri", or "Amethyst, agate, and calcite 'skunks' from Uruguay."

Rock traveled the world to visit mines, meet with miners, establish relationships with other dealers and numerous collectors, and in the process ship back to the United States tens of thousands of specimens for collectors and dealers.

He was known for his generosity, especially when given the opportunity to chat with someone new to the hobby, a youngster, or someone contemplating becoming a dealer. Evidence of his generosity can be seen on his Mindat.org home page where he uploaded 8,041 mineral photos, 2973 locality photos, 150 other photos, and nine articles. One of those articles is about cleaning quartz mineral specimens, which has been viewed more than 150,000 times! <http://www.mindat.org/user-2982.html> One will also find information on his home page about his background and how he got interested in minerals and eventually became a President of the Mineralogical Society of Southern California, a graduate gemologist of the Gemological Institute of America, a manager with Mindat.org. He donated over 5,000 minerals and rare species – a systematic collection – to the University of Arizona.

Rock is a giant in the mineral community. For some, he was a teacher, for others a mentor, or mineral supplier, or combination of all three, but most of all, an honorable man, admired by those fortunate enough to know him.

His passing is a great loss for the mineral collecting community, his family and friends. His eloquence, intelligence, mineral knowledge, and especially, sense of humor, will be missed.

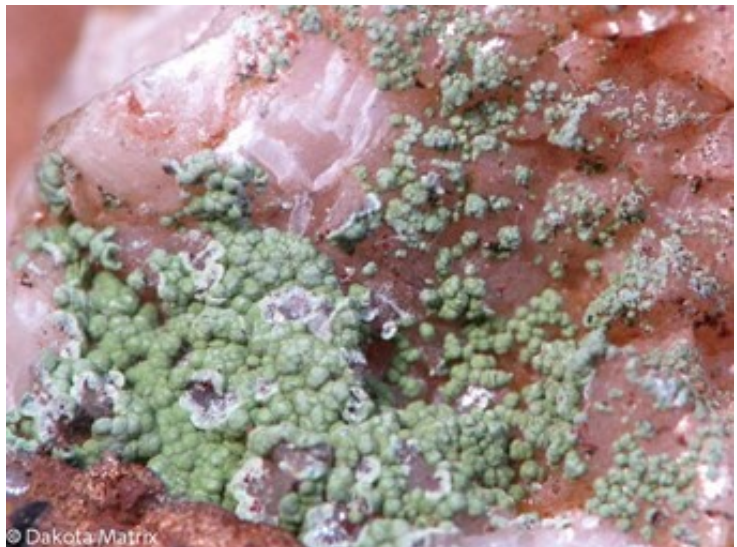
- Alex Schauss

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Boelite, Amelia mine, Boleo,
Santa Rosalia,
Baja California, Mexico
Tom Loomis photo,
Dakota Matrix Minerals

Cobaltaustinite on Dolomite from
Bou Azzer dist., Anti-Atlas, Morocco
Tom Loomis photo,
Dakota Matrix Minerals



To see and download the new FM membership guide:

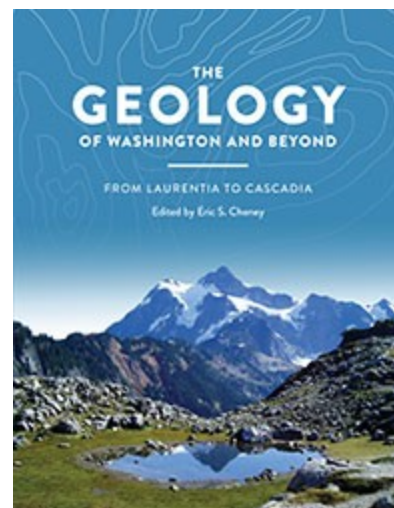
<http://www.friendsofmineralogy.org/joinFM.html>

New Books About Minerals/ Mineralogy

The Geology of Washington and Beyond From Laurentia to Cascadia

Edited by Eric S. Cheney

Covers new advances in recent research on the geologic history of Washington State using sequence stratigraphy, identification and matching of terranes, and neotectonics, as well as breakthroughs in technology such as lidar mapping, paleomagnetism, and new methods of radiometric dating



A Big THANK YOU ! !

We thank the Publisher, Tony Nikisher, Publisher, and Editor, Mitchell Portnoy, for including the new Friends of Mineralogy ad in the July 2015 issue of their fine publication, Mineral News.

- Alex Schauss



**Brazilianite from Corrego Frio, near
Linopolis, Minas Geras, Brazil
Tom Loomis photo,
Dakota Matrix Minerals**



Fall 2015 Colorado Mineral & Fossil Show, Denver Fine Mineral Show, and Denver Gem and Mineral Show by Alex Schauss

Until recently, the first place mineral enthusiasts would go to when they arrived days before the main Denver Gem and Mineral Show at Denver's Merchandise Mart, hosted by the Denver Gem & Mineral Club, was the Colorado Mineral & Fossil Show at the Ramada Plaza Hotel, just down the street from the Mart, conveniently located near the two major interstate highways. This year's show ran from September 11th to the 18th. Now two major mineral shows precede the "main show", the CMFS show, and the Denver Fine Mineral Show (DFMS).

The CMFS show, which ran from September 11th to the 18th, had mineral (and a few fossil and meteorite) dealers from around the world displaying their merchandise on virtually all of the first three floors of the hotel, spilling over in the hotel's entrance lobby area, as well as its banquet rooms. The CMFS is often the place to find what's new, meet dealers, run into other collectors, and chat with miners.

Managed by Marty Zinn Enterprises, the CMFS show is a must if your looking to build a mineral collection, especially given the wide range of prices offered for quality mineral specimens brought to Denver from around the world. Even a few steals if you know your "rocks." Noticeable were the number of collections for sale, part of the recycling of collections that goes on as mineral collections and specimens are transferred to the next generation.

With clear blue skies during the day, and the first indications of fall in the evening, the CMFS, as always, was a winner.

Two days after CMFS show started, the Denver Fine Mineral Show (DFMS) began at the Denver Marriott West hotel, in Golden, Colorado. Held from September 12th and continuing through the 15th, some refer to it as the "high end" show", although one can find minerals priced well below a hundred dollars, in order to cater to all tastes and pocket books. With 102 mineral dealers registered, some sharing rooms together, this show is becoming a major event for mineral collectors visiting the Denver area during "Denver Week", even though the show is only in its second year.

With an emphasis on offering opportunities for dealers and collectors to socialize during the show, Dave Waisman, the show's founder and manager, included a theme party that focused on "What's New", this year. And unlike the first year's show in 2014, the show also introduced a series of educational sessions befitting the theme of "What's New."

Presentations were made in the Vail Room of the hotel under the banner, "Hear it from the Experts", that started at 2 pm each day of the show. The speakers included: James Hagdorn, PhD, a scientist at the Denver Museum of Nature and Science, spoke on "Colorado Volcanoes-From Earthquakes to Minerals"; John Cornish on "Upside down and in the Future, Mining Tasmania's Adelaide Mine", highlighting recent discoveries of new crocoite's from the Red Lead mine; Graham Sutton on "The Chinese Mineral Market-10 Years of Progress"; and, Kystle Dorris, of the Weather Channel's "Prospectors" fame, on the "Filming of *Prospectors* and Recent Dorris Family Discoveries." During Graham Sutton's presentation, he explained the 10-year evolution of Chinese minerals, their quality and increasing value, along with some "Indiana Jones"-style stories while living underground for days and eating some "very strange foods" to survive while chasing after great mineral specimens.



Dr. James Hagdorn giving his talk during the DFMS



An example of "what's new" is found in the adjacent photo of the large quartz scepter held by Joe George, known as "Jacob's Hammer", collected by Paul Geffner, Rick Kennedy, Joe, and Ian Merkel, at Peterson Mountain, near Hallelujah Junction, not far from Reno, Nevada, on the California side of the border with Nevada on highway 395. <http://wheretofindrocks.com/quartz-collecting-in-peterson-mountain/>

In another adjacent photo is a remarkable hopped octahedral gold specimen from Russia that was on display owned by Marcus Budil that is currently under study.



With plans for next year's CMFS and DFMS already under way, this gives collectors two good reasons to come to Denver next year, along with the "main show", which ends "Denver Week" with a treasure trove of exhibits, dealers, and presentations.

This year's main show them was "American Minerals of the Southwest". September 18th to the 20th. 2015 marks the 48th year of the DGMS show. The show, hosted by

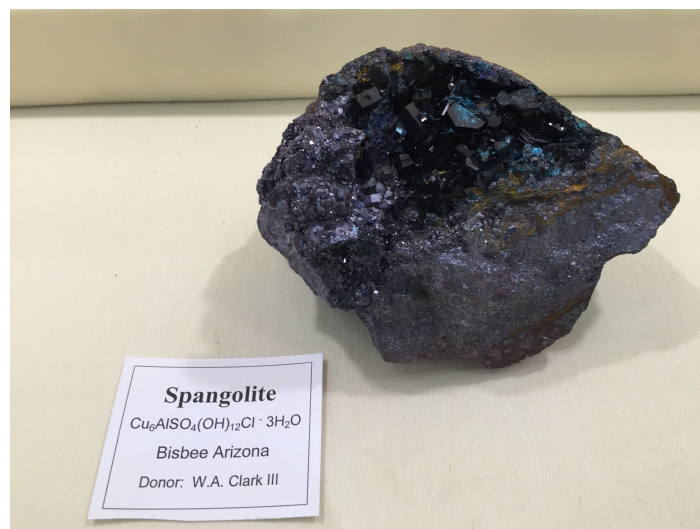
the Greater Denver Area Gem and Mineral Council, a non-profit corporation, is a not to be missed show as it has something for everyone.

A major feature of the DGMS show is the presentation by speakers on a wide range of subjects. Held in the Rhodochrosite Forum 3 Lecture Room at the Merchandise Mart starting on day one of the show and ending on the third day, the presenters and topics included:

Jeff Scovil, speaking on his "Photo Gallery of Southwest Mineral Specimens";
 Tony Potucek, on "Four Decades of Collecting in the Southwestern United States";
 Phil Richardson, on "Contemporary Utah Mineral Collecting";
 Terry Wallace, on "Uranium Minerals of the Colorado Plateau";
 Peter Larson, on "The End of the Age of Dinosaurs";
 Peter Modreski, on "Starting a Mineral Collection";
 George Witters, on "The Comstock Lode, Nevada";
 Graham Sutton, on his experience of "30 Years Collecting in the Southwest";
 Scott Wershky, on "Round Mountain Mine Gold, Nevada";
 Virgil Lueth, on "A Mineral Collecting History of New Mexico";
 Eric Fritz and Shelly Sargent, on "Native American Jewelry Materials";
 Bill Gardner, on "Fluorescent Talk – Purple Passion Mine"; and,
 Lori Coleman, on the "Lava Cap Thunder Egg Deposit".

The DGMS also featured competitive and invited exhibits, including over 30 institutions, along with dozens of cases related to the show's theme. Two hundred dealers attend the main show displaying specimens and Earth sciences related products.

If one had to pick a single mineral on exhibit at the main show that caught everyone's eye it had to be the remarkable spangolite from Bisbee, Arizona, shown in the adjacent photo, named after the noted American collector, Norman Spang (1889-1954). This complex copper sulfate is a secondary mineral found in the oxidization zone of hydrothermal copper deposits. It may not be the most aesthetic specimen, but for its sheer size and exceptional quality, this rare species caught anyone's attention who knew their "rocks."



Spangolite
 $Cu_2AlSO_4(OH)_{12}Cl \cdot 3H_2O$
 Bisbee Arizona
 Donor: W.A. Clark III

Next year's theme for the 49th Denver Gem and Mineral Show, scheduled for September 16-18, 2016, is "Gems & Minerals of Africa." For information about exhibitors, speakers, and visitor information contact:

www.denvermineralshow.com or dgmspub@gmail.com



Denver Winners by Alex Schauss and Mark Jacobson

September 19, 2015

Denver, CO. – Friends of Mineralogy announces the winners of the Best Education Exhibit displayed by an institution and by a private exhibitor during the 48th Annual Denver Gem & Mineral Show.

The theme of this year's show was "Minerals of the American Southwest." Each year a panel of judges, selected by Friends of Mineralogy, determine each year's winners based on specific criteria, including the ability to attract the viewer; expand the viewer's knowledge of the subject; readability; aesthetic presentation; quality of specimens; and, accuracy of information.

Out of 37 educational exhibits, the panel of jurors determined that 17 institutional/museum, and six private or club exhibits, were eligible for consideration. Based on the judge's rankings, the 2015 Denver Gem & Mineral Show award for "Best Education Exhibit by an Institution" went to the Colorado School of Mines Geology Museum, for their display of minerals of the southwestern United States. The exhibit also received the Donna Chirnside Memorial Award for Best Educational Case from the Denver Gem & Mineral Show.



The 2015 award for the “Best Education Exhibit by an Individual” went to Evan Jones of Phoenix, Arizona, for his exhibit of Arizona native copper’s derived from 9 mines in the state, including several world-class crystallized copper specimens from the New Cornelia mine, the Ray mine, and the Warren (Bisbee) Mining District.



The awards were presented by Mark Jacobson, President of the Colorado Chapter of Friends of Mineralogy, during the Denver Show’s annual awards banquet, held on September 18, 2015.



Beryllonite from Mont Saint-Hilaire,
Rouville Co., Quebec, Canada
Tom Loomis photo,
Dakota Matrix Minerals



Notable Contemporary Contributors to Mineralogy—A Series

Pam Wilkinson, M.Sc.

by Alex Schauss

She arrives toting a backpack, loaded with the gear and tools of the miner's trade -- hard hat, safety glasses, orange vest, compass, rock hammer, sample bag, notebook, hand lens -- and invites one lucky student to suit up. She scatters ore around the playground for students to scoop up, take home, and identify the minerals within. She engages students in educational, hands-on activities, including mining gold, silver and copper beads from birdseed and chocolate chips from cookies. Then she teaches them that in a miners' world cleaning up during and after mining -- reclamation -- is very important.



Pam Wilkinson with students looking at mineral samples

About Pam Wilkinson before being introduced to receive the 2014 Prazen 'Living Legend' Award from the National Mining Hall of Fame and Museum in Leadville, Colorado.

Pam's mining education outreach is about what one person can do to educate middle and high school students, their teachers and others about minerals, mineralogy, and mining, as she travels throughout the state of Arizona.

Pam earned her undergraduate degree in geology at the College of William and Mary, in Williamsburg, Virginia, and her Masters of Science degree in geology at Eastern Kentucky University, in Richmond. Her thesis was on the "Petrology of some Metagabbro bodies in the Mars Hill Quadrangle, Western North Carolina."

The education programs she created and for which she is being recognized by Friends of Mineralogy began in 2009, when the Mining Foundation of the Southwest (MFSW) (<http://www.miningfoundationsw.org/>) funded the position of Education Outreach Curator at the Arizona Department of Mines and Mineral Resources (ADMMR). Unfortunately, the ADMMR was defunded in 2011 during the state's fiscal crisis. After the ADMMR had been defunded, Pam continued her outreach work through the Arizona Geological Survey.

In 2011, she found a more compatible affiliation and accepted a position as Education Outreach Coordinator with the Lowell Institute for Mineral Resources, at the University of Arizona, which continues to this day, while the MFSW continues to fund Pam's program.

In her position as Education Outreach Coordinator, she handles the development and delivery of outreach programs on modern mining delivered to middle- and high-school students and

adult groups. But that's just part of the work she does around the state to education students and the public on these subjects. Her reach has become national in scope.

Since the program's inception she has provided presentations and hands-on activities to over 35,000 Arizona students and their teachers in classroom settings, to help them appreciate the importance of the mining industry in the state and the minerals they extract to produce products needed by our society.

Pam helped developed the MineZone program, an after-school program funded by Freeport-McMoRan Copper & Gold, Inc., started as a model program in the Paradise Valley (AZ) Unified School District in Phoenix. 250 students attending 21 of the district's schools participated in the program. The following year it was implemented in over 60 schools throughout the state, due to the enthusiastic reception the program received in its first year.

MineZone was a six-week program, offered one hour each week. The first 20 minutes were an on-line, live-stream interaction that occurred in the classroom. As the host, Pam introduced the topic for the week. Students got an opportunity to watch a short video, such as footage from one of the Freeport McMoRan mines, after which she interviewed an expert from Freeport responsible for that part of the mining process. At the end of the interview, students could ask questions and receive immediate feedback from the mining expert. The final 30-40 minutes of the program took place in the classroom, where teachers guided the students through a hands-on activity related to the topic of the week.

This year the focus of the program is to describe the variety of engineering positions available in the mining industry.

On a Saturday, after students complete the MineZone program, the Arizona Science Center in Phoenix opens its doors to families of their students for free. All kinds of hands-on activities is provided at the Center during the day, so students can show their parents what they have learned. Plans are to make the MineZone program available to all students by offering it during regular school hours, not just as an after-school program.



Pam Wilkinson with a Boy Scout troop from California at the San Xavier mine south of Tucson

In June 2013, Pam organized and implemented the first "Mining Your Future" program, a week-long summer camp for 24 high school students offered by the College of Engineering at the University of Arizona.

Additional activities Pam has innovated include: organizing and implementing a mining engineering summer camp for high school students; attending the National Boy Scout Jamboree to introduce a new Mining in Society Merit Badge developed by The Society for Mining, Metallurgy and Exploration (SME), and the creation of the "Imagine Engineering" program for Girl Scouts. Together, these activities had by 2014 introduced over 2,500 students and adults to information about the mining industry.

Pam has defined numerous goals for the program in the future, including:

Educating K-12 students and instructors about the uses of mineral resources and the mining process from exploration, through development, to production and reclamation.

Creating activities that will educate students and adults regarding the formation, uses of, and extraction processes, needed to extract minerals for industry and consumer goods.

Training teachers regarding activities and materials available to them regarding the minerals and mining industry.

Encouraging students to pursue careers in the minerals industry and, in particular, educate them regarding the mining, geology and mineralogy programs available at universities to continue their education.

Collaborating with the University of Arizona's SME Student Chapter Outreach program.

Working with national and state organizations to facilitate the formation of K-12 outreach programs, particularly through the Society for Mining, Metallurgy and Exploration, the Arizona Science Teachers Association, and the Arizona Department of Education.

Since starting MineZone and other educational programs, Pam's accomplishments can be partially summarized as follows:

- 1) 30 Girl Scouts have participated in leaching copper out of copper oxide ore and plating it out by using electrolysis.
- 2) Produced STEM events related to mineralogy and mining for 324 middle school girls in Casa Grande, AZ.
- 3) Creation of a Math and Science Experience at Cochise Community College, where some 1,000 4th and 8th grade students tried their hand at birdseed mining, to learn what is involved in mining and mineral extraction (<http://www.coaleducation.org/lessons/wim/1.htm>).
- 4) Handed out materials to over 400 teachers at the Arizona Science Teacher's Association meeting.
- 5) Presentations at clubs and churches to 60 adults around the state.
- 6) Served as Vice-chair and Chair of the newly created Minerals Education Coalition division of SME to help oversee the creation of new classroom materials for K-12.

- 7) Co-chaired the committee for the Mining Education Coalition (MEC) booth at the National Science Teachers Association. Some 300 teachers received rock and mineral kits with accompanying activities at the booth they can provide their students. For more information on MEC, go to: <http://www.mineralseducationcoalition.org/sites/default/files/uploads/MEC%20article%20September%202014%20ME.pdf>
- 8) Supervisor for the Rocks and Minerals Event at the 2012 AZ Science Olympiad.
- 9) Arranged and participated in a tour of the Miami Mine for over 20 students and their professor from the College of William and Mary Geology Department.
- 10) Participated in the Arizona Broad-based committee on evaluating the Next Generation Science Standards (Arizona is one of only 26 states participating in evaluating new standards in science.)
- 11) Participated in a "Family Day" excursion to the Pinto Valley Mine in AZ so participants can engage in bird seed mining activities.
- 12) Introduced 240 Boy Scouts to the study of rocks and minerals, to help them earn their geology merit badge.
- 13) Attended the 2013 National Boy Scout Jamboree to advertise the new 'Mining in Society Merit Badge.
- 14) Designed with Freeport workshops where 113 Scouts to date have received their Mining in Society Merit Badge.

Hopefully, more states and universities will support similar programs throughout the country to help the public appreciate the vital role mines play and the minerals they extract to meet society's needs. Just learning that the car one drives contains on average of 80 pounds of copper helps to sensitize the student's and public's appreciation for the role mines and their minerals play to support the demands of the modern world.



Agardite - (Ce) from Majuba Hill
mine, Pershing Co., Nevada,
United States
Tom Loomis photo,
Dakota Matrix Minerals

Our Affiliates— A Series

Mindat.org, A History (part 1)

By Jolyon and Katya Ralph
Courtesy of Mindat.org



Today, 10th October 2010, is the 10th anniversary of the public launch of the mindat.org website. Although the mindat project dates back to late 1993, it was on October 10th 2000 that I first announced the website to the world.

The first announcement was made on Usenet (which was the way things were done back in those days), in the group sci.geo.mineralogy.

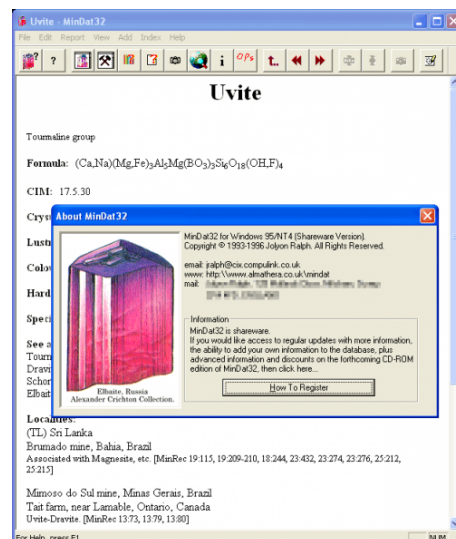
1993 to 2000

Before mindat.org was a website, it was a personal computer database project I'd written from scratch using the C++ programming language. It ran as a DOS application (but I also compiled a version for my Amiga computer). The only person who ever used this was me. But with this program, the basic concepts of the mindat.org database, localities and minerals, were in place, and the data that I entered in this program became the core of the database when it was launched in 2000 as a website.



When Windows 95 came out in 1995, I rewrote mindat into a Win32 application, and for the first time the information within my database could be searched and viewed in a more structured visual way. A few copies of this were given out online, but probably no more than about 50 people worldwide ever used a copy.

But the big problem was still that all data had to be entered by me, by hand; the other users of the software could not contribute. For several years I looked at different solutions to this problem, but it was only in 2000 that I came up with the plan to convert it into a website and program that so that others could edit. This was, by the way, a year before Wikipedia was launched.



2001

By 2001, the website was well established and popular, with photos and data being uploaded by members and with the familiar mindat.org menu bar which we still have today.

In the early days I was helped significantly by the generosity of both John Betts and John Veevaert in allowing me to use their photographs on mindat.org.

During these early days I received lots of emails. Many of them were highly complimentary, but others were not - several people emailed me to say that I was doing everything wrong, that I didn't understand the science, that my database was full of errors. I wrote back, politely, and asked if they would be prepared to help

2002

By 2002 the page is evolving and we had our first news section online.

For those interested in the technical information, at this point mindat.org is running from a server we (my friend Jon Westgate and myself) built from spare parts - a 333Mhz Pentium II processor, 256Mb of RAM and a 10Gb hard disk!

2003

As the site develops I experiment with the home page. Note at this point there are still no adverts on mindat.org. During all this time the mindat.org server had been hosted by a local company (one of my clients) as a favor. I did accept donations at this time, but that never reached more than a hundred dollars or so a year.

2004

During 2004 the web page design becomes closer to what we have today.

In late 2004 we are asked to plan towards moving our server out of my clients office as they are closing down the office and selling off the company! We had some time to plan for this, so at this point we start accepting mineral dealer adverts on mindat.org.

The image shows three screenshots of the mindat.org website at different stages of its development.

- 2001 Screenshot:** The top navigation bar includes 'Main Menu', 'Log In', 'Identify', 'News', and 'Books'. Below it are 'Register', 'Element Search', 'Statistics', 'Links', and 'Thanks to'. The main content area features a 'Welcome to Mindat.org' message, a 'Newest Minerals' list (including Little Falls Diamond, Middleville Diamond, Cape May Diamond, Binghamite, Arkansas Candle, Sceptre Quartz, Apricotine, Blue Jasper, Blood Jasper, and Bloodstone), and a 'Newest Localities' list (including Cape May, New Jersey, USA; Mojave, California, USA; Ojo Laguna, Chihuahua, Mexico; Schmidtmannshill, Aachenleben, Germany; Ilmen Mt., Russia; Andilama, Toamquina, Madagascar; and Lane's Quarry, Westfield, Massachusetts, USA). There are also search boxes for minerals and localities, and an Amazon.com search box.
- 2002 Screenshot:** This view shows a 'Chemical Index of Minerals Groups' with 25 numbered categories (e.g., 1 Elements and alloys, 2 Carbides, nitrides, silicides and phosphides, etc.) and a 'Photographs' section displaying images of minerals like Sphalerite, Cassiterite, Topaz, Kunzite, Benitoite, and Aquamarine, each with a copyright notice to John H. Betts.
- 2004 Screenshot:** The interface is more complex, featuring a 'mindat.org - The Mineral Database' header, a 'Welcome to mindat.org' message, and a 'Photo Gallery' with images of Pyrite and Olivine. It also includes a 'Mineral Search' box, a 'Location Search' box, and a 'Help Mindat.org' section with a donation link.

2005

In early 2005 disaster strikes - the hard disk in the mindat.org server fails, and we find out that additionally our backups have failed for two weeks without us being alerted.

I buy a new server, for the first time a dedicated server with dual processors, dual hard disks, and 2Gb of ram. More reliable but also very expensive!

While I'm busy walking and chatting with Bryan Lees (who is taking me to introduce me to the first time to Rob Lavinsky), I saw someone walk past in the opposite direction wearing a mindat T-Shirt! I do a double-take, but he's gone, vanished into the crowds at Munich. Now, the mindat T-Shirts were one-of-a-kind creations made by hand and posted as gifts to mindat managers for their hard work in helping to run the site. Later on, I catch up with the wearer of the shirt, none other than Alfredo Petrov.

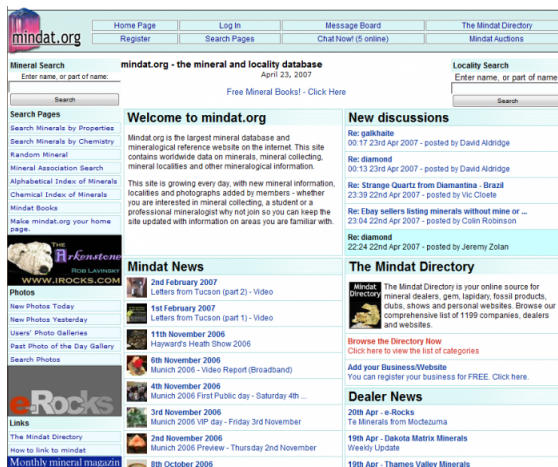
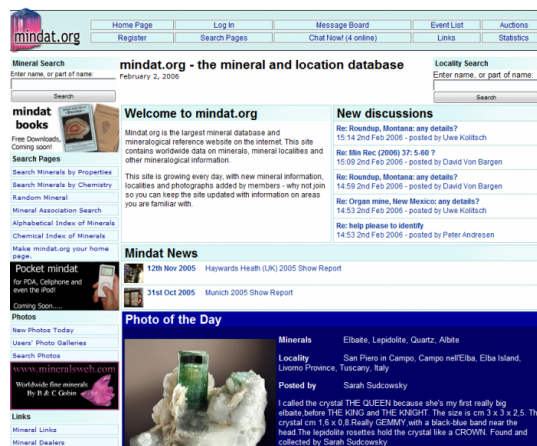
2006

During 2006, the layout we now recognize takes shape, and features such as "Photo of the Day" are launched. The first Photo of the Day was shown on the 1st of February, 2006 .

A very important development for both mindat.org and me personally was in 2006. I visit the Tucson Gem and Mineral shows for the first time. And the travel didn't stop there. Wayne and Dona Leicht invited us to go to the Tokyo mineral show in the summer of 2006. Mindat Books, offering free download PDF versions of mineral books, was also launched in 2006. Munich 2006 was an opportunity for mindat.org to have a promotional booth for the first time.

2007

2007 was a more difficult year for me personally, my internet business Mysterious Ways closed down in early 2007, which meant I was unable to go to Tucson that year. The advertising money meant that mindat.org was unaffected, and continued to operate without interruption despite the problems I was having.



2008

2008 started with my return to Tucson, just in time for the best Tucson display of a generation, the "American Mineral Treasures" exhibits. Another trip to the US in June, this time to Dallas, where I am invited by the Mineralogical Association of Dallas to speak about mindat.org.

2008 also saw the launch of a special version of mindat.org for the iPhone/iPod Touch - which can be found by visiting <http://www.mindat.org/i.html> and adding it as a bookmark on your phone/pod.

2009

2009 meant another visit to Tucson. This time, we had the first flight of "Air Mindat", a collecting trip to two exciting local localities by helicopter. This was arranged by the late Roy 'Digger' Lee. When I wasn't up in the air, I was promoting mindat.org in a booth in the main hall at the TGMS, kindly sponsored by Kristalle and Crystal Classics.

The Tucson trip was followed soon after by another trip to the US for the Rochester Symposium, where I gave a talk about mindat.org. One of the things I showed at the symposium was my very first specimen, a rather poor quartz crystal in matrix from Tintagel, Cornwall. I found it when I was five years old, and it sparked my whole interest in minerals.

I was able to give another presentation about mindat.org in September 2009, at the Fersman Mineralogical Museum in Moscow, mostly to professional mineralogists from the various museums, institutes and universities in Moscow.

2010

2010 starts, of course, with another trip to Tucson. This year the display was Gem minerals. Mindat.org has a booth at Tucson again this year, again sponsored by Crystal Classics and Kristalle, and we give out a sticker book for kids and stickers for them to stick into it, each sticker is one of the Mohs hardness minerals.

Two trips to Poland later in the year to help towards the planning of the start of our next 10 years of mindat.org, with July 2011 being the date for the first international Mindat conference, to be held in Lwówek Śląski, Lower Silesia, Poland. Three days of field trips followed by three and a half days of conferences and workshops.

[To be continued in the next issue]

Upcoming Mineral Shows and Symposia

**41st PNWFM Annual Symposium,
Northeast USA and Fluorescent Minerals
October 9-10, 2015, Kelso, WA**

Contact Bruce Kelley, bruce.kelley@gmail.com.
There is more information at
<http://www.pnwfm.org/symposium.html>

**The Munich Show (Mineralientage München),
World of Minerals, Gems, Jewellery & Fossils
October 30 – November 1, 2015, Munich, Germany**

This year's 52nd Munich Show – Mineralientage München - begins with the show opening ceremony to be held on Friday, October 30th at 9 am, at the Munich Trade Fair Centre. Together with an expected turnout of 40,000 visitors, more than 1,250 exhibitors from 60 nations will be exhibiting, as host to one of Europe's largest shows for minerals, fossils, gems, and jewelry.

This year's special exhibitions will feature: "The Ice Age"; "Precious Stones"; and "Precious Stones from Lost Civilizations." Show chair and CEO, Christoph Keilmann, promises the exhibits will be some of "most impressive and best preserved original exhibits related to each subject."

The show runs from October 30th to November 1st. More details about the show are found on its website: www.munichshow.com

**Southern California Friends of Mineralogy and San Bernardino Valley College
October 17, 2015, San Bernardino Valley College, Physical Sciences Building**

Regional Geological Setting of Crestmore & Other Historic Quarries in Northern Peninsular Ranges Batholith! Lectures and field trip (Cal Portland Quarry).

8:00 am: Registration in PS-228: Field Trip \$5.00, an additional \$15 fee for SCFM Membership is required for insurance purposes for all field trip participants - will include 2016 membership if not a current member. Sign waivers; arrange carpooling, initiate Silent Auction review.

The Pacific Northwest Chapter of the Friends of Mineralogy
and
The Fluorescent Mineral Society
will co-host the

41st Annual Symposium and Mineral Show

October 9-11, 2015

Red Lion Inn, Kelso, Washington

**Symposium Theme: Minerals of the
Northeast United States and Fluorescent Minerals**

-- Featured Speakers --

Jeff Post: *Highlights and Stories from the Smithsonian Gem and Mineral Collection
Fluorescence in Gemstones*

Richard Bostwick: *Minerals and Mines of Franklin and Sterling Hill, Sussex County, New Jersey
Franklin and Sterling Hill: The Fluorescent Mineral Capital of the World*

Tom Moore: *Classic Mineral Localities of Southeastern Pennsylvania
The Phoenixville and French Creek Localities, Chester County, Pennsylvania*

Albert Liebetrau: *Common Minerals, Exceptional Fluorescence*



**2015 AFMS/SCFMS Convention and Show
October 23rd - 25th, 2015**

Doubletree Inn, 6505 North Interstate Highway 35, Austin, TX 78752

Show Location:

Palmer Events Center, 900 Barton Springs Road, Austin, TX 78704-1169

For more information: <http://www.amfed.org/show2015.htm>

**Pennsylvania Annual Symposium
November 7-8, 2015
Symposium on Recent Advances in Mineralogy:
Pennsylvania and Universal Applications
Franklin & Marshall College
Lancaster, Pa.**

Mineral collectors in attendance on Saturday will meet in the Hackman Physical Sciences Building at Franklin & Marshall College, Lancaster, PA., to hear five talks by experts on minerals, geology and mining in Pennsylvania and beyond. On Sunday, a field trip for those registered for the symposium will provide an opportunity for mineral collecting.

The program planned for the symposium includes these presentations:

Michael Stefanic, PG: Phosphate Minerals in Pennsylvania

Bill Stephens, PG: Preliminary Evaluation of the Mount Pleasant Mills Wavellite Occurrence

Ron Sloto, PG: The Geology and Mineralogy of the Grace Mine

Ian Saginor, PhD: Volcanic Evolution of Central America

Stan Mertzman, PhD: Mineralogy of the Surface of Mars

The mineral collecting field trip on Sunday is planned for a location where a variety of minerals may be available. Details will be given at the symposium. The trip is open only to symposium registrants. Safety equipment will be required.

Web Site: <http://www.rasloto.com/FM/>

Contact: Joe Marchesani e-mail: Jmarch06@comcast.net phone: 609-433-5129

**The 36th Annual New Mexico Mineral Symposium
November 14-15, 2015, Socorro, New Mexico**

This year's symposium will be held at the New Mexico Institute of Mining & Technology, sponsored by five mineral and geology societies, Friends of Mineralogy, and the City of Socorro. The 2015 symposium will consist of a day and a half of formal papers presented in 30-minute time blocks. Papers will focus on mineral occurrences from New Mexico and adjacent states, as well as Mexico. A few selected papers may be presented from other parts of the world.

An informal pre-symposium social and tailgating session will be held at local motels beginning on Friday, November 13, 2015 and will last through the weekend. No formal field trips are planned.

The symposium allows all to share their cumulative knowledge of mineral occurrences and provides stimulus for mineralogical studies and new mineral discoveries. This event is sponsored by the Albuquerque Gem & Mineral Club, Chaparral Rockhounds, Los Alamos Geological Society, NM Geological

Society Fundation, Grant County Rolling Stones, Friends of Mineralogy, and the City of Socorro.
Featured Speaker/topic: Robert Cook – An overview of five great American gold specimen locations.

Other speakers/topics:

Les Presmyk - 50 shades of blue, Arizona style.

Terry Huizing - Why would anyone collect calcite? It's so common.

Joe Dorris - Amazonite pegmatites on the Smoky Hawk Claim, Lake George District.

Tom Rosemeyer - Memories of the San Juans.

Robert E. Walstrom – Skarn minerals of the Victorio Mountains, Luna County, New Mexico.

Tony Potacek – Late 20th century wulfenite collecting in the San Francisco mine, Sonora, Mexico

John Rakovan – Mineralogy and cultural history of the Naegi Pegmatite District, Nakatsugawa, Gifu Prefecture, Japan

Peter Megaw – Smithsonite and other secondary zinc oxides of the Santa Eulalia District, Mexico

Ray DeMark – Minerals of the Questa Moly mine, Taos County, New Mexico.

Mark Jacobson – Quartz Creek pegmatite field, Gunnison County, Colorado.

Wolfgang Mueller – Arizona gemstones with a few from New Mexico.

Nathalie Brandes – The famous silver mines of Kongsberg, Norway.

Fred Hurd – Mines, minerals & history of the Lordsburg Mining District, Hidalgo County, New Mexico.

Contact: Virgil W. Lueth (vwlueth@nmt.edu) or 575-835-5140.

Other meetings of interest: 2015

Oct. 5–6 in Indianapolis, IN. 14th Annual Indiana State Museum Fossil, Gem, and Mineral Show, 650 W. Washington Street, Indianapolis, Indiana. Contact: Peggy Fisherkeller at 317-232-7172, (pfisherkeller@indianamuseum.org) or www.indianamuseum.org

Oct. 9–11 in Hillsboro, OR. 35th Annual Portland Regional Gem & Mineral Show Association Show, Washington County Fair Complex, 873 NE 34th Avenue, Hillsboro, Oregon. Contact: L. Smith at DealerChair@gmail.com or www.PortlandRegionalGemandMineral.com

Oct. 10–11 in Trona, CA. 74th Annual Searles Lake Gem & Mineral Society's Gem and Mineral Show, Lapidary and Show. 13337 Main Street, Trona, California. Contact: Jim or Bonnie Fairchild, 760-372-5356, or www1.iwvisp.com/tronagemclub/

Oct. 16–18 in Fort Wayne, IN. 54th Annual Three Rivers Gem & Mineral Society's Gem, Mineral, Fossil, Lapidary, and Jewelry Show and Sale, Allen County Fairgrounds, 2726 Carroll Road, Fort Wayne, Indiana. Contact: Russell Greim and Marilyn Russell, 260-403-0450 (3riversshow@gmail.com) or http://members.tripod.com/3riversgem_mineral/annualshow-sale/

Oct. 17–18 in Bristol, CT. 43rd Bristol Gem & Mineral Club Gem and Mineral Show, Beals Community Center, 240 Stafford Avenue, Bristol, Connecticut. Contact: Bristolgem@hotmail.com or www.bristolgem.org

Oct. 17–18 in Hermiston, OR. Hatrockhounds Gem & Mineral Society's "Natures Treasures Under Foot," Hermiston Conference Center, 415 South Highway 395. Contact: Mike Filarski at 541-571-2593 (stonemorlin1@netscape.net)

Oct. 17–18 in Lewiston, ID. 49th Annual Hells Canyon Gem Club Gem and Mineral Show, Nez Perce County Fair, 1229 Burrell Avenue, Lewiston, Idaho. Contact: Dan Cease, 509-254-1720 (rockmangem@q.com) or www.hellscanyongemclub.com

Oct. 23–25 in Austin, TX. This is the American Federation of Mineral Societies (AFMS) National Show. Hosted by the Austin Gem & Mineral Society, at Palmer Events Center, 900 Barton Springs Road, Austin, Texas. The show theme is Gem Capers, featuring pegmatites. Contact: Susan Postlethwait at 512-458-9546 (showchairman@austingemandmineral.org)

Oct. 24–25 in Canby, OR. 51st Clackamette Mineral & Gem Show, Clackamas County Fairgrounds, 694 NE 4th Avenue, Canby, Oregon. Contact: Beth Heesacker, heesacker@coho.net

Oct. 30 to Nov. 1 in Plant City, FL. 56th Tampa Bay Mineral and Science Club's Gem and Mineral Show, Strawberry Festival Expo Center, 2301 West Oak Avenue, Plant City, Florida. Contact: www.TampaBayRockClub.com

Nov. 13–15 in Santa Ana, CA. Martin Zinn Exposition's West Coast Gem & Mineral Show, Holiday Inn, Orange County Airport, 2726 South Grand Avenue. Contact: 505-867-0425 (mzexpos@gmail.com) or www.mzexpos.com

Nov. 14–15 in New York, NY. The 2015 New York Mineralogical Club's New York City Gem and Mineral Show, Holiday Inn Midtown, Manhattan, 440 W. 57th Street, New York, New York. Contact: Tony Nikischer, 434-964-0875 or www.excaliburmineral.com

Nov. 14-15 in Socorro, NM. 36th Annual New Mexico Mineral Symposium, Macey Center, New Mexico Institute of Mining & Technology, Socorro, New Mexico.

Other meetings of interest: 2016

Jan. 8–10 in Mesa, AZ. 44th Annual Flagg Mineral Foundation's 44th Gem and Mineral Show, Mesa Community College, 1833 West Southern Avenue, Mesa, Arizona. Contact: Dana Slaughter, (dsminerals@aol.com) or www.flaggshow.info or <http://flaggmineralfoundation.org>

Jan. 30 to Feb. 13 in Tucson, AZ. Martin Zinn Expositions' Arizona Mineral and Fossil Show, Hotel Tucson City Center, 475 N. Granada, Tucson, Arizona. Contact: 505-867-0425, or (mzexpos@gmail.com) or www.mzexpos.com

Feb. 5-8 in Tucson, AZ. Westward Look Mineral Show, 245 E. Ina Road (and Westward Look Road), Tucson, Arizona. Feb. 7th, meet Raquel Alonso-Perez, the curator of the Harvard Mineralogical and Geological Museum presenting, "Over 200 Years of the Harvard Mineral Collection." Sunday Evening Program - Fine Mineral Collecting and the Second Generation. Contact: Dave Waisman, 509-458-2331 (Dave@FineMineralShow.com) or <http://www.xpopress.com/tucson-westward-look-fine-mineral-show.html>

Feb. 11-14 in Tucson, AZ. The 62nd Annual Tucson Gem and Mineral Show, Tucson Convention Center, 260 South Church Avenue, Tucson, Arizona. Show theme, "Shades of Blue: Minerals of the World." Contact: Patricia McClain, 520-322-5773 (prmccclair@tgms.org) or tgms@tgms.org or <http://www.tgms.org/show-2015/>

How Many????

Washington, DC—New research from a team led by Carnegie's Robert Hazen predicts that Earth has more than 1,500 undiscovered minerals and that the exact mineral diversity of our planet is unique and could not be duplicated anywhere in the cosmos.

Minerals form from novel combinations of elements. These combinations can be facilitated by both geological activity, including volcanoes, plate tectonics, and water-rock interactions, and biological activity, such as chemical reactions with oxygen and organic material.

Nearly a decade ago, Hazen developed the idea that the diversity explosion of planet's minerals from the dozen present at the birth of our Solar System to the nearly 5,000 types existing today arose primarily from the rise of life. More than two-thirds of known minerals can be linked directly or indirectly to biological activity, according to Hazen. Much of this is due to the rise of bacterial photosynthesis, which dramatically increased the atmospheric oxygen concentration about 2.4 billion years ago.

In a suite of four related, recently published papers, Hazen and his team—Ed Grew, Bob Downs, Joshua Golden, Grethe Hystad, and Alex Pires—took the mineral evolution concept one step further. They used both statistical models of ecosystem research and extensive analysis of mineralogical databases to explore questions of probability involving mineral distribution.

They discovered that the probability that a mineral “species” (defined by its unique combination of chemical composition and crystal structure) exists at only one locality is about 22 percent, whereas the probability that it is found at 10 or fewer locations is about 65 percent. Most mineral species are quite rare, in fact, found in 5 or fewer localities.

“Minerals follow the same kind of frequency of distribution as words in a book,” Hazen explained. “For example, the most-used words in a book are extremely common such as ‘and,’ ‘the,’ and ‘a.’ Rare words define the diversity of a book’s vocabulary. The same is true for minerals on Earth. Rare minerals define our planet’s mineralogical diversity.”

Further statistical analysis of mineral distribution and diversity suggested thousands of plausible rare minerals either still await discovery or occurred at some point in Earth’s history, only to be subsequently lost by burial, erosion, or subduction back into the mantle. The team predicted that 1,563 minerals exist on Earth today, but have yet to be discovered and described. The distribution of these “missing” minerals is not uniform, however.



The mineral hazenite, named after Robert Hazen, which is only found in one locality, Mono Lake, California. The image is courtesy of Hexiong Yang.

Several circumstances influence the likelihood of a mineral having previously been discovered. This includes physical characteristics, such as color. White minerals are less likely to have been noticed, for example. Other factors include the quality of crystallization, solubility in water, and stability near the surface of the planet.

As such, Hazen and his colleagues predicted 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, magnesium, and copper minerals have not been discovered. Further expanding the link between geological and biological evolution, Hazen's team applied the biological concepts of chance and necessity to mineral evolution. In biology, this idea means that natural selection occurs because of a random "chance" mutation in the genetic material of a living organism that becomes, if it confers reproductive advantage, a "necessary" adaptation.

But in this instance, Hazen's team asked how the diversity and distribution of Earth's minerals came into existence and the likelihood that it could be replicated elsewhere. What they found is that if we could turn back the clock and "re-play" Earth's history, it is probable that many of the minerals formed and discovered in this alternate version of our planet would be different from those we know today.

"This means that despite the physical, chemical, and biological factors that control most of our planet's mineral diversity, Earth's mineralogy is unique in the cosmos," Hazen said.

The four papers are published in *Canadian Mineralogist*, *Mathematical Geoscience*, *American Mineralogist*, and *Earth and Planetary Science Letters*.

Courtesy of the Carnegie Science website: <https://carnegiescience.edu/node/1870>

Here are links to two of the papers

Hystad G, Downs R T, Hazen R M (2015) Mineral species frequency distribution conforms to a Large Number of Rare Events model: Prediction of Earth's missing minerals. *Mathematical Geosciences* DOI 10.1007/s11004-015-9600-3 <http://www.geo.arizona.edu/xtal/group/pdf/MG1874-8961.pdf>

Hystad G, Downs R T, Grew E S, Hazen R M (2015) Statistical analysis of mineral diversity and distribution: Earth's mineralogy is unique. *Earth and Planetary Science Letters* 426, 154-157 http://www.geo.arizona.edu/xtal/group/pdf/EP426_154.pdf

FM Chapter Reports



MIDWEST CHAPTER UPDATE

SOMETIMES SMALL IS GOOD

There is a cliché that says "bigger is better." Usually, that is the case for mineral collectors. We would all prefer to look over blast piles that extend for a long distance rather than only have a small amount of blast rock to peruse. Before the trip, we had nine cancellations which reduced our number to 20. So our group was smaller than first anticipated.

When we arrived at the quarry for our July 25th visit, it turned out that GLA was working that day, so our group would be restricted to part of the middle bench. As we descended down the ramp, I was concerned that there would not be enough rock to inspect. But delightfully, I left with a different impression. The small area in which we worked had enough to keep us busy. The neatest combination specimen that I was privileged to see was a calcite-celestine specimen collected by Dave Esch (Ann Arbor, MI). South Rockwood, and in fact this whole area in southeast Michigan, is and has been known for its celestine deposits. Mike Royal (Defiance, OH) can confirm that history since two years ago he ran into some deep-blue crystal clear celestine, and this year took home a 4" celestine crystal in matrix. As it turned out, there was plenty of rock to inspect, and we all kept busy. But more importantly, we still are finding enough time to socialize and to get better acquainted. In the collecting department, this author even came away with a celestine cluster in matrix; a 2 inch, white, stout blade with two 1.5 inch little brothers. No one wanted this specimen because the biggest celestine crystal was cracked. By the time I pared the boulder down to portable size, the biggest crystal fell apart. Once I got it home, Weldwood contact cement (available at Walmart) came to the rescue. Sticking with (no pun intended) the theme of "bigger is better", our host Bill Begley has a great big heart for our cause, which is a love of minerals and all we can learn about them. When we emphasize the educational nature of our trips, he gets it. By going to quarries, we learn more about the specimens we collect, and in turn can teach others about the wonderful world of minerals. I have for a long time believed that I would rather have a nice \$5 specimen that I collected rather than a \$20 specimen that is given to me. Here's why. The celestine specimen I collected at South Rockwood needed repair, and is of little commercial value, so it is one which may not interest most purist collectors. It does mean something to me because it is a memory of a trip where I was privileged to collect with the best collectors in this region, all of you.

Reggie Rose

Below – celestine, Mike Royal's (left) and Reggie's (right)





NEW JERSEY CHAPTER UPDATE

The New Jersey Chapter began its second full year of operations at our September meeting where we changed our fiscal year to run from September 1 through to August 31st of the following year. This change has allowed us better management in our recruitment strategy for new members and is easier for us to dispense monies owed for dues and insurance premiums.

We are now at about 25 adult members having lost a couple but, have had an increase in participation in that we have filled all officer positions of our Executive Committee. Our presence on Facebook is ongoing and we are revamping our web site to be more relevant and updated monthly.

We continue to offer a discount towards adult dues by giving a two dollar discount on annual dues to a member who recruits a new member into the ranks. We expect we can grow our membership by at least 10% annually by doing this.

We have had a few successful field trips and this summer, hosted the Greater New Jersey Mineral/Fossil swap at the residence of the society's president. We will continue this in 2016 and cordially invite any member of the family of the Friends to stop in if in the area. I do expect a name change to this event to "The Fellowship of the Rock" - a two and one half day "FREE" event for any one interested in minerals and fossils with a chance to attend and clean out the garage or basement and just have a good time. Admission requires a food item to help feed the masses!

We are encouraged by the efforts put forth by the current National Executive Committee with the publishing of four newsletters a year, expanded articles and updates to the Facebook page as seen recently. Praise is certainly due to president Alex for the "press" given in the September/October issue of the Mineralogical Record and look forward to seeing a picture of his world class anhydrite specimen! Our sincere wishes for a speedy recovery go out to Dave Bunk for his continual recovery and also, want to express our deepest sympathy to the family of Rock Currier.

KC Dalby



Jamborite from Castelluccio di
Moscheda, Modena prov., Emilia-
Romagna, Italy
Tom Loomis photo,
Dakota Matrix Minerals



PENNSYLVANIA CHAPTER UPDATE

Pennsylvania Geological Survey Photograph Collection Going Online

Pennsylvania Geology magazine online (v. 45 no. 2) announces that "Our library personnel have started scanning the Survey's photograph collection, and we are making it available online at <http://contentdm1.accesspa.org/cdm/search/collection/spgsl-photo>."



"Middle Hill" pit, Cornwall. 1922 photo by George H. Ashley, from Pennsylvania Geological Survey historical photograph collection online.



SOUTHERN CALIFORNIA CHAPTER UPDATE

Our upcoming symposium and field trips are scheduled for Oct 17th. The original location and program announced in our June Newsletter has been radically changed in the last 3 weeks due to Martin Marietta Corp selling the Riverside Cement Plant facility where the old Crestmore quarry resides. The world class metamorphic quarry is now off limits as of Oct 1st and we have had our tour of the Riverside Cement Plant canceled and the collecting there at Crestmore denied.

We have created an alternative symposium with alternative field trips to three different quarries in the Northern Peninsular Range Batholith in the last 3 weeks and sent out a MLS-10-15 flyer in the last few days to all SCFM membership.



COLORADO CHAPTER UPDATE

The Grossular Locality at Sierra de Cruces ("Lake Jaco"), Coahuila, Mexico by Dennis Beals



The Sierra de Cruces in Northwest Coahuila, Mexico has been known as a source for large pink and green grossular garnet and vesuvianite for many years. Unfortunately they were labeled by the original buyer as coming from Lake Jaco, Chihuahua, Mexico, a salt playa.

In 1995, Benny Fenn began mining for a bright red grossular commonly referred to as "Raspberry" garnets. Production of these continued until 2000. In 2010 the quarry was reopened and new mining was started by Dennis Beals.

The unusual color and fluorescence has prompted a great deal of research. New research into boron rich vesuvianite from the locality is ongoing but hampered by the confusion over locality labeling.

“Raspberry” colored grossular garnet in rhyolite from the Sierra de Cruces, Coahuila, Mexico. Photo and specimen from the Uncarved Block. 4.3 x 3.2 x 3 cm.



“Raspberry” colored grossular garnet in rhyolite from the Sierra de Cruces, Coahuila, Mexico. Photo from MineralAuctions.com, also known as the Arkenstone, Dr. Robert Lavinsky. 5.0 x 4.4 x 1.8 cm

More about the Sierra de Cruces red grossular. This abstract by Virgil Lueth, from the November, 2002 New Mexico Mineral Symposium, was written before the best name for the actual location of the garnet locality was clarified.

RED GARNETS FROM LAKE JACO, MEXICO, AND THE CHEMICAL CONTROLS OF COLOR IN GARNET, by Virgil W. Lueth, New Mexico Bureau of Geology & Mineral Resources, New Mexico Institute of Mining & Technology, 801 Leroy Place, Socorro, NM 87801

A recent find of garnets from the famous grossular garnet locality near Lake Jaco, on the Chihuahua–Coahuila border is unique for the bright red color exhibited by the specimens. The geology of the area and petrology of the rock types involved are not exceptionally unique for skarn-type garnets of the grossular-andradite (grandite) series. These garnets typically exhibit colors ranging from pure white (grossular) to dark brown (andradite). Most grandite garnets are typically greenish in color and intermediate in composition. Some of the andradite garnets are black (a variety known as melanite) when they contain significant amounts of titanium. Red colors are typically observed in pyropealmandine-spessartine (pyralspite) series garnets and until now, never observed in the grandite series. Pyralspite series garnets are never observed in skarn environments. A detailed geochemical study of the garnets was undertaken to determine the cause of the red coloration using petrography and electron microprobe microanalysis. The cores of the garnets are typically black and contain elevated concentrations of titanium (as much as 4.5 wt %) consistent with the andradite (Ad15–29) variety of melanite. The immediate layer adjacent to the black core is white grossular. Minor variations in calcium and iron indicate increasing amounts of andradite component outward from the core. The red coloration in the Lake Jaco garnets is due to elevated concentrations of manganese from 1.0 to 1.7 wt % (Sp 1.6–3.7) in the latest stage of garnet growth with a distinct change toward more grossular-rich compositions. Geiger et al., 1999, determined the red coloration in these garnets is due to the presence of Mn³⁺ in the octahedrally coordinated silicate site using spectroscopic analysis. They postulate that the color is derived from a similar mechanism that causes the red color in the mineral piemontite of the epidote group.

Reference

Geiger, C. A., Stahl, A., and Rossman, G. R., 1999, Raspberry red grossular from Sierra de Cruces Range, Coahuila, Mexico: *European Journal of Mineralogy*, v. 11, pp. 1109–1113.



Ralstonite from Ivigtut Cryolite deposit,
Ivigtut, Arsuk Fjord, Sermersooq,
Greenland
Tom Loomis photo,
Dakota Matrix Minerals



Visualizing Earth Systems Kits Available by Alex Schauss

Earth Science Week 2015 will be held October 11-17. To help people get involved in this national celebration of the Earth sciences, the American Geosciences Institute, in collaboration with its society members, including Friends of Mineralogy, have created an impressive *Earth Science Week 2015 Toolkit* to promote awareness of the dynamic interactions of the planet's natural and human systems.

The key materials in the *Toolkit* include:

Earth Science Activity Calendar. This is designed to run from August 2015 to July 2016, featuring over a dozen classroom activities, important geoscience information, and dates of major events and Earth science milestones.

Visualizing Earth Systems. This is a new poster, with an activity that engages young people and others in ways of seeing and visually representing natural phenomena.

An overview of geoscience resources from the U.S. Geological Survey (USGS) that includes:

- two posters on geologic and air resources from the National Park Service;
- a DVD on visualizations from NASA;
- Esri material on GPS science;
- a flyer on mapping and more from Google;
- a Geologic May Day poster;
- climate science material from the Department of Energy;
- GPS Adventures material from NOAA;
- a poster on the Anthropocene from the Howard Hughes Medical Institute,
- a SSSA resource on soils;
- and much more!

These materials provide members of your education or outreach committees, and local community, chapter, or club members numerous ways to plan events related to the Earth sciences, including mineralogy. You might consider contacting the science curriculum coordinator in your local school district to let them know the materials are available for their classroom colleagues.

To order a *Toolkit*, contact AGI's Geoff Camphire at info@earthsciweek.org or call 703-379-2480, ext. 216. You can also order *Toolkits* at www.earthsciweek.org.

New Yale University Mineral and Gem Museum to open in 2016 by Alex Schauss

The Yale Peabody Museum of Natural History received a \$4 million gift from David Friend, founder and executive chair of Carbonite, to renovate the museum's auditorium into a state-of-the-art mineral and gem gallery and multipurpose programming space. Friend also established an endowment to support the displays and programming within the space. The project's completion is timed to coincide with the Peabody's 150th anniversary in 2016.



David Friend '69 B.S. (center) is pictured with Peabody Museum Director David Skelly (right) and Professor Jay Ague, the museum's curator of mineralogy.

Photo courtesy of Yale News

According to a *Yale News* press release of June 16, 2015, the donor became interested in minerals as a child while exploring a construction site for I-95 near his home in New Rochelle, New York. He discovered a pocket of mica and quartz crystals in recently blasted rock. The beauty and complexity of the specimens sparked an interest in chemistry and crystals, which in turn led to a general interest in science and, eventually, a career in engineering, says Friend. He received his B.S. in engineering from Yale in 1969. He is also a member of a newly established museum mineral council, a small group of distinguished mineral enthusiasts and collectors across the United States that will advise Professor Jay Ague, the Peabody's curator of mineralogy, on developing the museum's collection.

The Peabody houses one of the nation's oldest collections of gems and minerals. The collection originated with Yale geologist and mineralogist Benjamin Silliman, whose pioneering teaching of chemistry, mineralogy, and geology was largely responsible for the preeminence of Yale in 19th-century scientific education. Silliman's mineralogy and geology collection predated the Peabody but came under its care after the museum was established.

In an article on the anticipated new museum in *Rock & Gem* (Jones B. 2015, 45(8): 52-55, 68) a problem was identified by the staff at the Peabody Museum when they discovered that "many of the early acquisitions cannot be matched to the old collections from which they came." As a result, "Only those that have been identified will be exhibited."

This stresses the importance of keeping evidence related to provenance, such as labels and invoices, associated with mineral specimens found in any collection.

Mineral Theft

Colleagues

I have been asked to post this on behalf of Olivier Rabeau, curator of the René-Bureau Museum of Geology.

Hello,

I am the curator of the René-Bureau Museum of Geology at Laval University in Quebec city. A robbery was perpetrated last week end at the Museum. The lock on four display cases were cut and eleven mineral specimen have been taken. These specimen include samples of tourmaline (dravite, rubellite), rhodocrosites, phosgenite, Bismuthinite, anxinite and two high quality pieces that seem to have been selected by robbers with great knowledge in mineralogy. I am sending out pictures of these two samples in the hope that they may turn out somewhere. The first is a cubanite specimen from the Henderson 2 mine in Chibougamau (Qc), it an exceptional specimen and the first to be identified from this locality. It has a sample number glued on it : 2.6.6.2 and may show traces of silicone on its back. The second is an opal specimen form Australia, sample number 51.5.11.

Thank you for sending out the information to your contacts. Please inform me if any of you have recommendations concerning measures that could be taken to help find these specimens.

Sincerely, Olivier Rabeau olivier.rabeau@ggl.ulaval.ca

I hope someone may be approached or hear something to enable the recovery of these specimens.

Best wishes, **Penny Williamson**, Curator



Opal

Cubanite

Courtesy of Diggin' Deep (used with permission) USDA Forest Service Minerals & Geology Management Program



Figure 1. Upper left: Hand Sample of pegmatite containing smoky quartz and aqua blue amazonite feldspar. Upper Right: Solitary smoky quartz crystal. These crystals can range from mm scales to more than a foot long. Bottom: Shallow Mirolitic Cavity filled with smoky quartz and amazonite.

Non-commercial (Hobby) Mineral Collecting on the White Mountain National Forest

By Jennifer Cramer, Geological Society of America
GeoCorps Intern, White Mountain National Forest

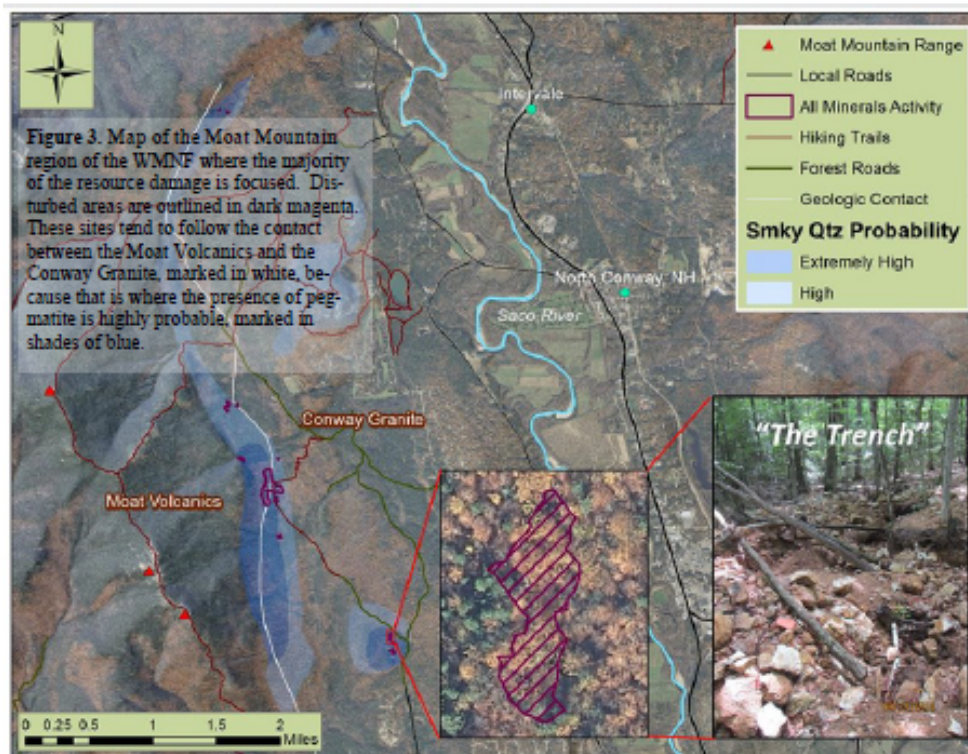
The White Mountains of New Hampshire have a long history of mineral collecting thought to have been born after the hurricane of 1938, which uprooted trees that exposed bedrock and loose crystals in the soil. The White Mountains are the result of Jurassic age volcanism and magmatism associated with the rifting of the supercontinent Pangaea. Volcanic rock filling collapsed calderas, syenite ring dikes, and granitic plutons can all be found within the White Mountain National Forest (WMNF). The interaction of these units during formation along with the nature of the magma allowed for the abundance of semi-precious and gem quality crystals that are of great interest to avid mineral collectors, or "rockhounds." The rock that yields these large crystals is known as pegmatite. Many of these pegmatite areas are located on the WMNF where visitors are allowed to collect, as long as the rules of collecting are followed. In general, the standards and guidelines state: no diggings over one cubic yard; holes

must be filled in at the end of the day; no digging under trees or other features that would create a hazard; and only use of small hand tools. These rules are in place to prevent the degradation of land and ensure the safety of all who visit the Forest. However, a small but impactful minority of mineral collectors, who go beyond recreation and are seeking to make a profit from the mineral resource, are ignoring the standards and guidelines and creating large scale resource damage within the collecting sites as well as across the forest where these pegmatites can be found.

There are a variety of minerals that can be found on the WMNF, including smoky quartz, amethyst, amazonite, mica, and topaz. One of the most popular places to find smoky quartz is the Moat Mountain collecting area (Figure 1, left). These quartz crystals originate in pockets, which are abundant at the contact along the base of the Moat Mountain range between the Moat Volcanics and Conway Granite. As the magma that would later form the Conway Granite intruded, the Moat Volcanics acted as a cap and trapped the pockets of gas, at its base. Once the magma began to crystalize, these pockets that are known as Mirolitic cavities, provided the open space needed for smoky quartz crystals and other minerals to grow. The locally famous mineral collector, Peter Samuelson, discovered pockets containing the largest smoky quartz crystals ever found on the Forest. Samuelson then released a book journaling his decades of finds on the Forest, inspiring even more rockhounds. Most recently the premiere of the show Prospectors on the Weather Channel, featuring miners trying to strike it rich, has caused a spike in mineral collecting on the WMNF. Nearly every rockhound encountered has admitted to being a fan of that show. Although an increase mineral collecting as a recreational activity is a good thing, it also means there will be an increase in disturbance to the land. The Moat Mountain (the Moats) collecting area has seen some of the most significant and active resource damage in recent years (Figure 2, below). The collecting site, originally 4 acres, has experienced a sprawl to about 12 acres from collectors pushing the boundaries. Even beyond the collecting area, there are sites all over the base of the Moat range that are growing in size and number.



Figure 2. Time lapse photos of erosion over 9 month period at a site known as The Tymon Pit. The pipe lying on the ground in the first image can be seen sticking out of the root of the tree in the second image. This could mean a mineral collector used it to speed up erosion by prying the tree down. Left image: GeoCorps™ intern, Jennifer Cramer, assessing the site.



brought in a GeoCorps intern to assist her. This summer (2015) another GeoCorps intern was brought on to continue the work of monitoring through field visitation and documentation. In addition to pictures that give a good visual for the amount of resource damage and erosion that has occurred over the years, GPS data is taken in order to put the location of these sites on a map in ArcGIS (Figure 3, above). Data that has been recorded by Elaine and last year's GeoCorps, Kaitlyn, is compared with present data in order to determine the increase in number of sites and the increase in area of disturbance at existing sites. This information will be a useful tool for reference while planning the future of mineral collecting on the White Mountain National Forest. ■

Further down the line it has been suggested that some of these sites, since they are already disturbed, be designated as mineral materials sites and close the area outside the boundaries to collecting. One site that has potential for this is known as The Trench, named for the linear trench-like shape it takes from minerals collectors "chasing" the quartz vein. It is a very geologically unique area. Milky quartz veins radiate throughout the granite with other uncommon minerals present, likely formed from fracturing associated with either a fault or hot fluids forcing their way through the cracks. This would be an ideal spot to develop into a day-use site with an interpretive plaque for the geology. Additionally, since the slope is a shallow grade to the access road, it could be a potential Americans with Disabilities Act (ADA) compliant collecting area. The Trench has had a steady influx of commercial collectors over the years. This required FPOs and Law Enforcement to regularly visit the site as well as for the placement of surveillance equipment. If this site was opened to the public, there would be less need for surveillance because the public would do its own policing. Many commercial mineral collectors like to be away from the crowds, but if all of their favorite spots are opened for public use, it will further discourage them from destroying the landscape.

In order to make a plan that will work and be in the best interest of the collectors while also preserving the land, the mineral collecting activity has to be monitored, thus the importance of the Minerals Program on the WMNF. For over 10 years, Elaine Swett has been a one woman show monitoring and maintaining these sites as well as collecting valuable information on other active areas by making contacts with collectors and mineral clubs. Last summer (2014) the Minerals Program on the WMNF

Want a GSA GeoCorps Intern?

Looking for assistance with your summer geological resource fieldwork? Think about mentoring a GeoCorps Intern next summer!

The GeoCorps America Program is a cooperative program funded by the Geological Society of America (GSA), the Forest Service, the National Park Service, and the Bureau of Land Management through official agency agreements. Through the GeoCorps Program, GSA places all levels of geoscientists—university students, professionals, and retirees—in temporary positions on federal lands at minimal cost to the agency.

The Forest Service has participated in this program under a master participating agreement with GSA, with more than 154 participants since 2000, with as many as 17 interns placed per year. More than 20 forests and grasslands have participated, and two regional offices. Summer projects offer professional work experience and mentoring to university students and entry-level geoscientists, and in return, we receive high quality professional technical services in geology, hydrogeology, paleontology, mapping, GIS, minerals, soils, glaciology, geohazards, karst and caves, and geoscience interpretation. Look for more information and the official call for GeoCorps project proposals later this fall.



GIA®

Sapphire Mining in Madagascar by Alex Schauss

The Gemological Institute of America (GIA) released a documentary showing the reason Madagascar is the leading source of sapphires in the world today.

The documentary filmed in July-August 2010 and August 2012, was led by expedition leader, Vincent Pardieu, a geologist who looked at the Ilakaka-Sakaraha deposit that has become the largest sapphire producer in the world since 1991.

Sapphire ($\alpha\text{-Al}_2\text{O}_3$) is an aluminum oxide variety of corundum. Typically blue, its hardness of 9.0 on the Mohs scale lends itself to be used in jewelry. Sapphires also are used for non-ornamental purposes, such as in infra-red optical components, wristwatch crystals and movement bearings, super thin electronic wafers, and as a component in insulating substrates used in solid-state electronics.

The first discoveries of rich deposits of sapphires in Madagascar occurred in 1998, close to Ilakaka Be, near national highway Route 7, that links the national capital city, Antananarivo, to the port city, Toliara. The gem bearing areas are found in alluvial deposits along the Taheza basin, south of Manombo, near Vohimena.

The method of extracting the gravel to sort for stones is truly worth watching, particularly near Sakalama, where some 200 people work inside a large pit removing overburden. The need to use manual labor to move large amounts of earth in a mine is necessitated by government restrictions against mechanized mining. Nevertheless, some mechanized mining does occur. For example, a Thai operation, Pardieu found that uses excavators and a washing plant, near Ankaboka Ambinany.

The geology in the region is dominated by limestone-, basalt, and gabbro-rich areas, in which water carried the gems down rivers, some of whom vanished thousands of years ago. To reach the gemstones, miners dig some 50-60 meter down narrow holes to reach the riverbeds. In other areas, such as along the Benahy River near Sakameloka, the water flow is sufficient enough to allow sifting and sorting of the sapphire-rich gravels to occur.

By 2012, an estimated ten to twenty thousand miners and several hundred buyers had descended on the region.

To view the 13-minute documentary, go to: <https://www.youtube.com/watch?v=34KPJE1tn4k>



FM AFFILIATES



The Friends of Mineralogy is a long-time affiliate of The Mineralogical Record magazine. The magazine was founded in 1970 by John White, who was at that time a curator in the Mineral Sciences Department of the Smithsonian Institution. With the initial help of a financial backer, Arthur Montgomery, White succeeded in launching and bootstrapping the fledgling publication to the point where it was marginally self-sustaining. After seven years as editor and publisher, White stepped aside for a new Editor, Wendell Wilson.

Since then the Mineralogical Record has grown steadily in size, quality and prominence, thanks to the contributions of over 700 authors, photographers, artists, advertisers and donors. It has become a collective labor of love on the part of the entire mineralogical community worldwide. It is the only journal to have a new mineral species named in its honor (minrecordite), and it is the only journal to have received the Carnegie Mineralogical Award. Subscriptions, back issues, books and a variety of free databases are available online at www.MineralogicalRecord.com.

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