



FRIENDS OF MINERALOGY NATIONAL NEWSLETTER

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January 2016

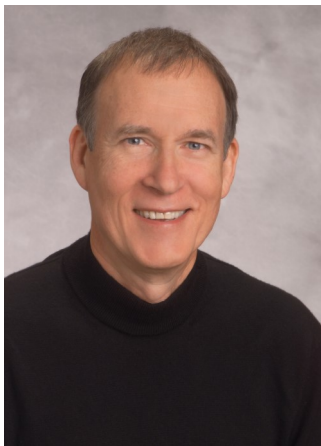
to promote, support, protect and expand the collection of mineral specimens and to further the recognition of the scientific, economic and aesthetic value of minerals and collecting mineral specimens.

Inside This Issue

President's Message	2
Officers	3
Elections	4-5
Annual Meeting and Board Meeting	5
Roebeling Purple Apatite	6-9
Wulfenite, San Francisco Mine	10-23
New Books	24-25
Upcoming Symposia	26-33
FM Chapter Updates	34-38
Changes in Exploration and Mining	39-40
Earth Science Week Resolution	41-42
Donate to the FM	42
Carbon Mineral Challenge	43
Carbon and Solar Cells	44
More Eye Candy	45
Our Affiliates	46



Daylight fluorescent hyalite opal (Electric Opal tm), Zacatecas Mexico. 5 cm, Peter Megaw specimen, Jeff Scovil photograph



President's Message

By Alex Schauss

As I come to the end of my first year as President, I'm humbled by all of the work of our chapters and the many activities our members do to support the organization's mission. Almost every day I find a moment to read our organization's mission, which defines what Friends of Mineralogy purpose is:

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.

Having had the opportunity in 2015 to attend mineral symposia in Tucson, Rochester, Dallas, Denver, and most recently, Socorro (NM), most of whom were co-sponsored by Friends of Mineralogy, I've come to realize how important these symposiums are in fulfilling a key objective of Friends of Mineralogy, that of supporting educational venues. I've also had the opportunity to field collect in mines and dumps, and trade specimens with fellow collectors. Field trips not only provide an opportunity to find specimens but also to build or maintain friendships that can last a lifetime.

Our membership is growing. With the help of new board member, Jim Houran, we have a new membership trifold brochure (if you haven't seen one, they are going out to all chapters this month, after a five-month trial run, or can be downloaded from our website). Our international membership has grown from members in five countries to fifteen in the last five months. It is apparent that our mission is shared by mineral collectors worldwide! We have a new newsletter Editor, Beth Heesacker, who has helped get us back on track since March to produce four issues a year, and increase content by over 100 pages, introduce new feature sections that keep us updated on current events, inform us about new books, provide details on future mineral shows, and give recognition to individuals who make a contribution to mineralogy and the geosciences.

There is so much more to do to fulfill our mission. I look forward to working with fellow officers, board members, the chapters, and our membership, in moving us forward so we can do more to fulfill our mission. Please be sure to vote for the slate of board candidates. Email your ballot early, so those elected can be installed during the annual business meeting of the board in Tucson in early February.

I want to wish peace, health and happiness to each of you and your families during the holiday season and throughout the New Year.

Alex Schauss, National Friends of Mineralogy President

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**Deadline for the next FM Newsletter is
March 29, 2016**

2016 Friends of Mineralogy Elections

The Friends of Mineralogy National Board of Directors is composed of twelve members chosen by the general membership to serve three-year terms plus the elected presidents of each local chapter. Each year, four Board positions are up for membership vote. A nominating committee chaired by Sue Liebetrau has placed four candidates on the ballot to fill this year's positions. (members also have the option of voting for write-in candidates.)

Nominated Candidates:

Virgil W. Leuth is Sr. Mineralogist/Economic Geologist and Director of the Mineral Museum at the New Mexico Bureau of Mines and Mineral Resources. He received his B.S. in Geology at the University of Wisconsin-Eau Claire and graduate degrees (M.S. and Ph.D.) from the University of Texas at El Paso. He has served on the Board of Directors of the Society of Mineral Museum Professionals, the New Mexico Geological Society, the NMGS Foundation, and the Friends of Mineralogy (2000-current). He has been adjunct Curator at the New Mexico Museum of Natural History and Science since 1994, and General Chair of the New Mexico Mineral Symposium 21 years. He was the recipient of the Honorary Award from the Rocky Mountain Federation of Mineral Societies for his service to the mineralogical community. He has published over 60 articles in scientific journals, textbooks and popular magazines. Dr. Lueth has also edited several award-winning guidebooks for the New Mexico Geological Society.

Robert (Bob) Meyer has been a member of Friends of Mineralogy and the Pacific Northwest Chapter of Friends of Mineralogy since 1984. He is a three time past president of PNWFM, a member of the Northwest Micro Mineral Study Group and the Fluorescent Mineral Society. Bob was the recipient of the 2015 Noble V. Witt award for Outstanding Service that is presented by PNWFM. Becoming interested in minerals at the age of 3, he has built a collection of about 12,000 specimens from world-wide localities, with a particular emphasis on specimens from the Western US, particularly those from his favorite locality, the Mammoth St. Anthony Mine at Tiger, Arizona. The mineral bobmeyerite from Tiger is named in his honor. He is an active mineral photographer, particularly on the micro level.

Linda Smith is a retired educator with a Bachelor in Science in Geology from the University of Washington. She started collecting minerals when she was 10, thanks to the generosity of relatives who worked in the Ray Mine, Arizona. It has been a lifelong passion that led her to affiliate with the local mineral community. She has been a member of the Pacific Northwest Chapter of Friends of Mineralogy for the past 10 years and currently holds the position of Treasurer. She is also a board member of the Great Basin Gem and Mineral Club and past Vice-President of the Issaquah Valley Rock Club. Her primary focus is minerals and mineralogy and she has been a serious mineral collector for 15 years.

Chris Whitney-Smith is a fourth-generation Arizona native with a lifelong passion for gemstones and minerals. He served in the U.S. Navy at Pearl Harbor, Hawaii, from 1991 to 1995 and is currently West Region Supervisor of Project Services for Business Interiors by Staples. His collection is composed of gemstones and micro- to décor-sized mineral specimens, with special interest in radioactive and fluorescent minerals. His current obsessions include collecting Arizona minerals and finding new ways to help others explore worlds that most people never knew existed. Chris is a currently President of the Mineral Society of Arizona and also

Curator of the MSA's mineral collection. He is a founding Board Trustee of the Earth Science Museum and a Board Trustee of the Flagg Mineral Foundation, as well as a member of the Friends of Mineralogy, the Tucson Gem and Mineral Society, and the Arizona Mineral Minions.

YOUR FOM BALLOT

Please take time to support Friends of Mineralogy by voting. You may vote for up to four positions from the nominated candidates or by writing in candidates of your choice who would be willing to serve. Ballots should be sent to Alex Schauss either by email at alex@aibmr.com or by postal mail at 10645 N. Oracle Road, Suite 121, Oro Valley, AZ 85737. Ballots must be received before the Board meeting to be held on the morning of Saturday, February 13, 2016.

Ballot for Friends of Mineralogy Board of Directors: Term 2016-2019

Vote for up to four positions.

____ Virgil W. Leuth

____ Robert (Bob) Meyer

____ Linda Smith

____ Chris Whitney-Smith

____ Write in _____

____ Write in _____

____ Write in _____

____ Write in _____

FRIENDS OF MINERALOGY

2016 ANNUAL MEETING

All Members Welcome

Tuesday, February 9, 2016, 4:00 pm

Hotel Tucson City Center Restaurant

475 N. Granada, Tucson, Arizona

Refreshments will be provided

FRIENDS OF MINERALOGY

2016 BOARD BUSINESS MEETING

Saturday, February 13, 2016, 8:00 – 10:00 am

Hotel Tucson City Center Restaurant

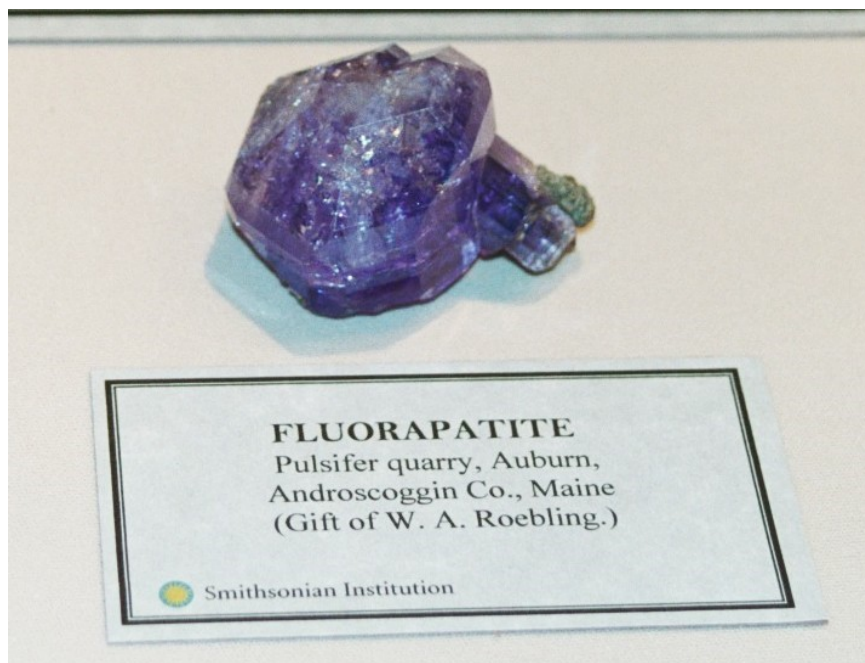
475 N. Granada, Tucson, Arizona

Board members, including local Chapter presidents are encouraged to attend this meeting to conduct the business of the organization. New board members will be installed and general business taken up. This is the most important meeting of the year to present and act upon business on behalf of Friends of Mineralogy.

The Roebling Purple Apatite, Pulsifer Quarry, Auburn, Maine

By Mark Ivan Jacobson

The finest purple apatite ever recovered from the Pulsifer quarry, Auburn, Maine was named the Roebling apatite, after the famous, top-quality New York mineral collector who obtained it (Wilson 1977). The crystal is 3 x 3.8 x 4.3 cm in size, currently in the Smithsonian collection and has frequently been displayed at mineral shows. The early day history of discoveries at the Pulsifer pegmatite, as well as the discovery of the Roebling apatite seems to have not been previously documented. The Lazard Cahn correspondence files in the Carnegie Library, Pikes Peak Library district, Colorado Springs has two letters that reveal this early day history.



The Roebling apatite, as displayed at the 2005 Tucson Gem & Mineral Show

Wilson (1977) documented that the pegmatite was first recognized as containing valuable minerals in 1839. Pitt P. Pulsifer, a later owner, discovered his first purple apatites and other gemstones from the pegmatite in 1901. Lazard Cahn, the New York City mineral dealer, but who after 1885 lived most of the year in Colorado Springs, received a letter from Pulsifer in 1914. The letter stated:

Auburn May 17 -14

Lazard Cahn

Dear Sir

I have taken out this Spring the finest specimen of purple apatite that I have ever found. I think it would make all others look like thirty cents.

If you come east I hope you will come and see it.

Thanking you for past favors.

I remain

Yours

P. P. Pulsifer

This letter was Pulsifer being excited about what was to become known as the Roebling apatite. Cahn was sufficiently intrigued that he discussed the discovery in a typed letter to his sister. The italics in the letter are the author's to highlight the significant part that documents the purple apatite pockets that had been discovered.

The Sevilla, 117 West 58th Street
New York, May 25th, 1914.

My Dear Ida,

Your letter of May 19th enclosing excerpts from newspapers arrived duly and I thank you for your good wishes on the occasion of my 19th anniversary. Of course if I were thirty five, like my older sister, the birthday reminders would be less pleasant. Nevertheless I wish you many happy returns and I trust that for many years to come you may gain in strength, mental and physical.

I have only five days in which to pack five drawers of minerals, a number of large wall case specimens, my microscope, books, and other belongings, and to make four shipments abroad. While the time seems short it is ample if there is no dallying. *I have just received word from Auburn, Maine which excites my curiosity to a very great degree. In the neighborhood of that place, there have been found, in the past, some wonderful crystals and groups of crystals of phosphate of lime (apatite), having a superb royal purple color. The owner of the farm has found at various times "pockets" in which these crystal occur. He has encountered four productive ones covering a period of about ten years. The first pocket's contents was bought by Harvard for \$75.00, the contents of the second, which was much smaller, was bought by me for \$100, the contents of the third, which was better than the second but not so good as the first, was bought by Holden for \$500.0. Now there is a fourth to be disposed of. The owner wrote me to [to me in] Colorado Springs and the letter which was forwarded to me here gives this information "I have taken out this spring the finest specimen of purple apatite I have ever found. I think it will make all others look like thirty cents."*

In London, not long ago, a lilac apatite from the Tyrol was put up at auction, together with a number of other minerals. The British Museum wanted it and authorized a bid of twenty five pounds. Fleischmann, a customer of mine and, upon occasion, a patron of the museums, placed a bid of 30 pounds, Böhm raised it to 35 and it was knocked down to Henson for sixty two pounds. Our friend Drugman as well as Fleischmann wrote to me about this matter. Drugman said he would have considered the crystal fairly worth four or five pounds. Henson accepted a nominal profit from the museum on his investment, and the museum aided by Fleischmann, who supplied half of the purchase money, acquired the specimen. The Apatite from Maine should have greater value.

I am glad you had the opportunity of seeing the fine performance of "Les Misérables" produced for the screen.... The letter continues.

Thus, it is clear that this crystal was recognized immediately as being the most significant of all previous pockets.

Many years later, Cahn wrote to Louis Pope Gratacap, Curator of Mineralogy at the American Museum of Natural History in New York and mentioned what he knew about this crystal (Lazard Cahn papers). He wrote that

“...Petereit wrote to me regarding the apatite and wanted me to tell him what it is worth. It is a superb crystal and although not complete, one end having been cleaved off, it is doubt less one of the finest crystals in the world. Pulsifer offered me this crystal when I was at his place some years ago, asking \$500.00 for it. It is not worth anything like that, yet in these times of inflated prices it is possible some one may be found willing to pay a lot of money for it. It has been hawked about. Burrage and others have refused it. Harvard is entitled to it as Holden's heir. A year or two before his death, Holden, made a purchase of Pulsifer and in addition left a deposit with him of about \$150.00 to apply to the purchase of any new find. Entre nous, the crystal is worth \$125.00 or \$150.00...

Gratacap replied belatedly in September 12, 1917 with a list of all the mineral news within the mineral collecting community (Ford 1917). He commented that “...Prof. [William E.] Ford [of Yale University] has figured [on June 15, 1917] and described Petereit, a[n] apatite crystal and mentions its beauty with admiration...” Thus, it should be no surprise that Washington A. Roebling's wife purchased the specimen for her husband as a gift.



Lazard Cahn, circa 1928, from his passport photo. Courtesy of the Pikes Peak - Carnegie Library, MSS-70

References

Ford, William E. 1917. A remarkable crystal of apatite from Mt. Apatite, Auburn, Maine. *American Journal of Science*, v 44, p. 245-246.

Lazard Cahn papers. The Pikes Peak-Carnegie Library, Archives, MMS- 70, box 2, folder 138.

Wilson, W. E. 1977. Famous Mineral localities: The Pulsifer quarry. *The Mineralogical Record*, v 8:2, p. 72-77

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Pentagonite  
Wagholi Quarries  
Maharashtra, India  
25 x 20 x 15 mm  
©RPellar

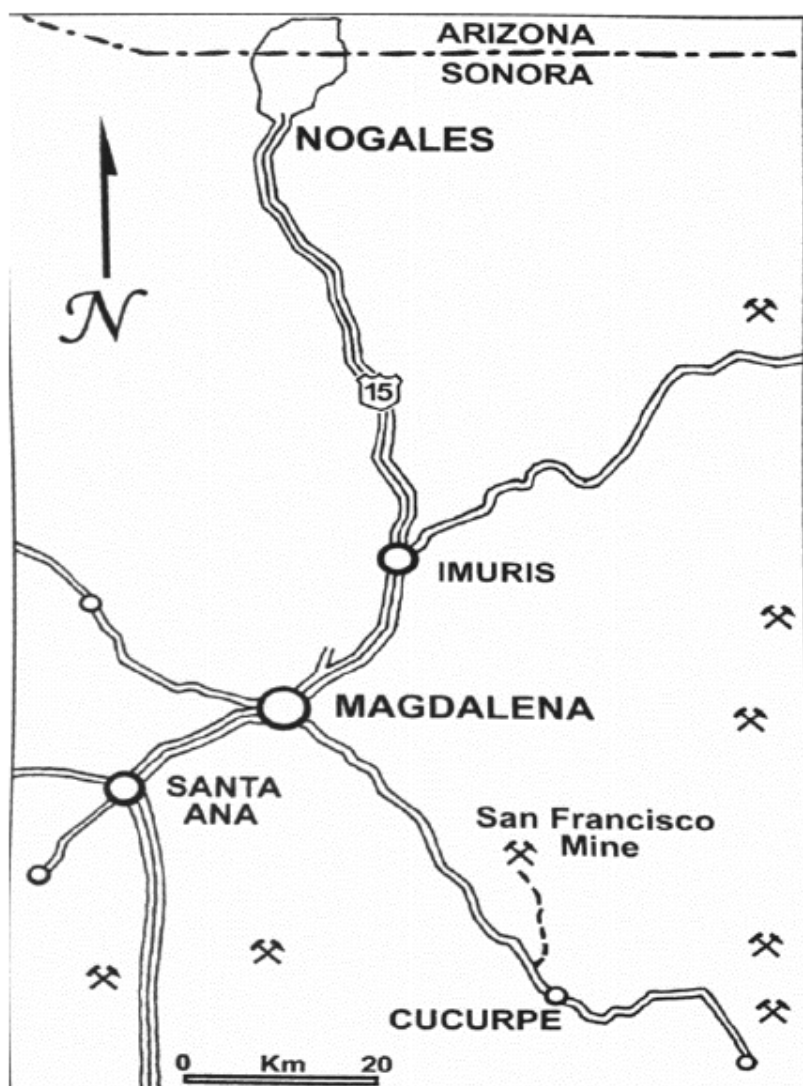
# **Late 20th Century Wulfenite Collecting in the San Francisco Mine, Sonora, Mexico**

**By Tony L. Potucek**

The San Francisco Mine, also known as Cerro Prieto, is located about 65 km (40 miles) east of Magdalena, Sonora Mexico in classic Sonoran Desert terrain. The closest municipality is Cucurpe, and the mine is located on Ranch Cerro Prieto property, owned by the Pedro Trelles family (Fig.1). While the mine is only a little over 100 km south of the USA-Mexico border town of Nogales, the trip can take a half day or more to get to the mine from Nogales due to customs, immigration, and poor roads (Fig 2).



**Figure 1. The San Francisco Mine, located on the Rancho Cerro Prieto, near Cucurpe, Sonora, Mexico.**



**Figure 2. Location map of the San Francisco mine, Northern Sonora, Mexico (Mineralogical Record map).**

The San Francisco Mine is a world famous classic locality for being one of the most prolific producers of wulfenite--yellow to orange, clear window panes of wulfenite to 18 cm, some with attached balls of red-orange to yellow mimetite. Many collectors consider their collections incomplete unless at least one San Francisco wulfenite graces their shelves.

On or around the end of the 1800's, the unexplored veins on Cerro Prieto were found to be enriched in gold. The Chenowith family began working the



mining property, and about 1900, a 20-stamp mill equipped for amalgamation of the ore was erected to treat the ores coming from workings near the top of Cerro Prieto. Today, large red open stopes testify to the size and amount of material worked during these early days (Figure 3). The rumor persists of a crew of miners buried forever within Cerro Prieto when a massive cave-in took place.



**Figure 3. Large open stopes testify to the size of early mining efforts at the San Francisco Mine during the very late 1800's and early 1900's.**

Frank Cox, a co-founder of Black Mountain Mining Company, purchased the San Francisco Mine about 1904. During this time, the Mine produced 0.10 ounces Au per ton (opt) and 2.1 opt of ore produced. Water was pumped from 5 km (3 miles) away to support mining and milling operations. By 1909, the mill was producing 100 tons per day. They operated the mine until 1912, when the Mexican Revolution curtailed further mining activity. Mining experts calculated that by the time of the Revolution, over 80% of the ore above the 800-foot level had been extracted and processed. Drilling by the



Anaconda company before 1912 showed a substantial decrease in Au content with depth, but Ag and Mo increased. In addition, there was an unsuccessful attempt to concentrate vanadium from the tailings in 1909.

The San Francisco Mine lay idle until an evaluation made by Anaconda personnel in 1934. The engineers reconfirmed the Au potential was exhausted, but there could be primary sulfide potential at depth. Another decade would pass before Anaconda tested their theory by conducting development work on the 1050-foot level and drilling inclined holes underground. Primary sulfides were not encountered and it was discovered that oxidation of minerals occurred as deep as 520 meters (1700 feet).

Rocks consist of Lower Cretaceous-age Bisbee Group shales, limestone and arkosic sandstones and Lower Tertiary-age andesite - dacite flows, and silicic ash flow tuffs. The walls of a prominent north-northwest striking shear zone up to 30 m wide form what is called the East & West Veins. The dip is vertical to 80-90° easterly. The shear zone is traceable for a couple thousand meters on the surface. The shear zone shows movement, thus creating a complex series of parallel and horse-tailing faults within the brecciated interior underground.

Mineralization is very simple, consisting of wulfenite, mimetite, cerussite, anglesite, quartz, barite, hematite & calcite, with remnant galena and sphalerite. Rarely, visible gold can be seen without a hand lens. Mineralization (wulfenite) is restricted to the altered and brecciated Mn-rich oxides within the shear zone. Flexures (steepening/flattening) in the veins created open space to form the most productive & mineralized areas for pockets of crystallized wulfenite-mimetite.

Oroco, a Vancouver mining company, who conducted work on the San Francisco Mine in the 1990's, interpreted the mineralization "to be a strong mesothermal mineralizing system no older than Tertiary in age". They further suggested that a younger epithermal system "containing higher grades of gold was injected after the top of the older mesothermal system was eroded, accounting for the depth of significant gold mineralization found at Cerro Prieto, from surface down to 1050 Level...".

During the time from about 1950 until the late 1960's, small local operators occasionally worked the San Francisco Mine. However, specimen production, even by miners, appears to either be nonexistent, or nothing



survived. Alphonso Miranda, a local prospector, visited the mine in the late 1960's and explored the workings, and dug a small pocket of bright yellow wulfenites off the 1000-foot level. He gave a piece to a local ore buyer in Magdalena for his office ore collection, which was later seen by an expat named Joe Kovrig, also known as Joe Cobre (Copper). An arrangement was made, money changed hands and Kovrig and his partner, Bob James, began mining wulfenite.

Then, in 1971, wulfenite specimens started showing up at local Arizona mineral shows. Now well known mineral dealer Wayne Thompson (Fig. 4) saw the specimens, albeit they were in a sad state of damage. Wayne recognized the potential and followed up with Kovrig and James, arranging a digging agreement with them. Wayne began in earnest in early 1972 producing undamaged beautiful yellow wulfenite specimens from the 1000-foot level. However, the bar for world's great wulfenites changed in April 1972, when Wayne punched into a cavity over 2 meters long and a meter wide, with the back rising up to 2 meters. Here, he uncovered lemon yellow wulfenite crystals up to 9 cm on an edge with pale orange balls of mimetite on the wulfenites and on the matrix.

Unfortunately, Thompson could not finish the pocket, as he had promised James that he would explore other northern Mexico mineral properties with



Fig. 4. Wayne Thompson in 1972, who realized the potential of the San Francisco Mine holding a wulfenite from there (Wendell Wilson photograph).

James. The two took off upon his partners' insistence and while Wayne was away, the great pocket was hurriedly collected and, for the most part, ruined. Even worse, Kovrig "renegotiated" the contract and Wayne was cut out as a partner.

Specimens continued coming from the San Francisco, mostly going to Suzie Davis and Schlepp's Minerals, both in Tucson, AZ. Then, in May 1973, the best pocket that the San Francisco Mine ever produced was hit on the 1000-foot level. Although butchered by the collecting partnership, a few great specimens survive to this day and many significant smaller specimens of high quality. They consist of amber-orange clear wulfenites, fairly simple in habit with deep red to red-orange mimetites adhering to the wulfenite. Some show a distinctive six-sided barrel habit. Thompson estimates that only 25 specimens came out without significant damage (Fig. 5).



Fig. 5. Wulfenite and mimetite collected on the 1000 Level, San Francisco Mine, May 1973; 6.8 cm (Kristalle specimen and W. Wilson photograph).



Finally, in 1976, Kovrig released his hold on the San Francisco and Curt van Scriver and his father Brad picked up the lease with John Whitmire (Fig. 6). It didn't take very long before they encountered beautiful groups of yellow-orange wulfenite groups (Fig. 7) beginning on the 1000 level, and extending down to about the 1050 level by way of winzes and gopher holes (Fig. 8). The author, a very good friend of the team, assisted by mapping the workings with his future life partner, Marcie Greenberg. The wulfenite was so prolific that clots of pure wulfenite the size of soft balls were used to "surprise" each other when Curt and the author were deeply engrossed in digging. The offending mischievous "pitcher" would suddenly hurl a wulfenite mass at the wall directly above the other one working, creating an explosion of wulfenite slivers and shrapnel that would cover the victim. Obviously, this abuse was not done when specimen extraction was in process.



**Fig. 6. Brad and Curt van Scriver with Marcie Greenberg at the San Francisco Mine, 1976.**





The van Scriver-Whitmire partnership dissolved after only less than one year when it was discovered that the legality of claims to the mine were found to be in question. The van Scrivers walked away. A renewed mining effort driven by dealer John Seibel, Fred Libby and former mineral curator Bill Panczner took up the gauntlet and produced about 700 flats of very good wulfenite from November 1976 until numerous problems overcame the project. But not before Tucson of 1977, when collectors saw a goodly supply of wulfenites on the market from their efforts. Their partnership dissolved in March 1977.

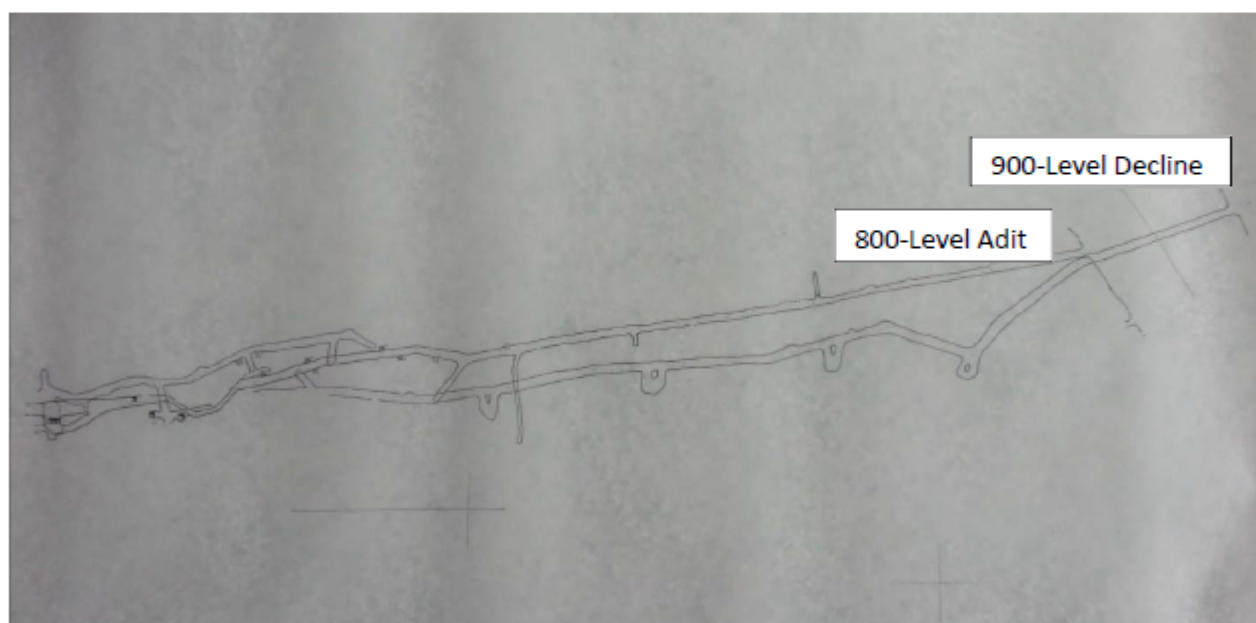
Attempts were made by several entities to re-open the San Francisco during the 1980's without success. Nothing happened to produce specimens, except for some occasional locals trying their hand at digging. It wasn't until late in 1990 that the team of Wayne Thompson, Ed Swoboda and James Horner put a 5-year contract together with Rosa Whitmire (the widow of John Whitmire) and Ruben Rodriguez. However, setting up the mining support and infrastructure took them well into 1991 before mining started on the 900-foot level in an old short adit started years before (Fig. 9).



Fig. 9. The 900-Level decline in 1992.



The author and others became involved with Wayne Thompson on the project in 1992 to continue to map the workings as he had done for Curt van Scliver. Over the course of the project, the author made over 16 trips to keep mapping up with the underground work led by Swoboda. The Thompson-Swoboda-Horner mining team had their mine plan in place of where to find wulfenite, using a spiral decline to gain depth and access wulfenite zones. The produced maps were used to identify where the crew was mining with respect to the mine workings identified and mapped in 1976, and earlier finds. Deviations away from the vein created economic and scheduling issues (Fig. 10), but the crew persevered. Rudimentary sounding methods to keep them on line without tape and Brunton was only partly successful when no one was there to map the progress.



**Fig. 10. Plan view of 900-Level Decline at the San Francisco Mine.**

About Thanksgiving (November) 1992, the older 1000-Level workings were breached while excavating a load-out station. The workings led into the old Cobre cutoff where Thompson had mined with success back in 1972. Driving the decline further north punched into a small drift driven by John Whitmire after the van Sclivers pulled out of the project late in 1976 (Fig. 11). Further mining in late 1992 revealed their first wulfenite pockets albeit they were only commercial in nature.

Throughout 1993, the decline was driven back to the south after encountering van Scliver's winze. A large solution cavity trending down, covered in mimetite and ragged white barite blades with vestiges of wulfenite, was encountered. Good wulfenite was lacking. Driving further



**Fig. 11. Breaching the van Scliver-Whitmire workings on the 1000 Level.**

south and then turning back north occupied most of 1993 with some commercial success but no great pockets. Then, in late January 1994 and just before the Tucson Show, Ed and his daughter Sumiya, who was visiting her father, were working a winze on the left side of the decline near the face. Ed was tracing a wulfenite-enriched zone in manganese oxides looking for pockets. His pick holed through into a pocket with 3.5-cm golden wulfenite blades enhanced with mounds of deep red-orange mimetites—payday had finally arrived.

The pocket continued producing after Tucson as the winze was advanced downward. While the miners continued driving the decline north, Swoboda worked the winze, and on March 12, 1994, while working a side of the winze,



he encountered orange, clear wulfenite blades to 4.5 cm “perched on salmon-pink mounds of mimetite” (Fig. 12). This pocket produced 7 flats of very fine specimens.

Further work revealed that the water table was less than one meter below them and after clearing the rubble, a grotto measuring 1.2 x 2 x 4 meters was revealed at the water table—snow white crystals of barite overgrowing highly lustrous golden yellow wulfenites. Many flats of fine specimens were



**Fig. 12. Wulfenite on salmon-pink mimetite on the 1080 Level.**

produced from this area, but it also carried an ominous prediction: encountering the water table meant that the inflow of groundwater would require pumping to keep the deeper workings dry. Ultimately, the inflow ( $\geq 758$  Liters per minute, or 200 gallons per minute) caused the suspension of specimen mining just below the 1100 Level of the San Francisco Mine later in 1994. By the time the mining crews reached those lower levels, the wulfenite pockets not only decreased in number but also the vein became tighter. However, great specimens were produced during the waning stages of specimen mining (Fig. 13). A good diagram showing wulfenite-producing areas created by Wendell Wilson is shown in Figure 14.

Today, the San Francisco Mine is held by the Goldgroup, a Vancouver mining company, who has successfully conducted leach tests for Au and Ag in 2014. No specimens are known to have been produced since 1994.



**Fig. 13.** A chicken box full of wulfenite and mimetite specimens produced from the 1080-1100 Levels of the San Francisco Mine in 1994.



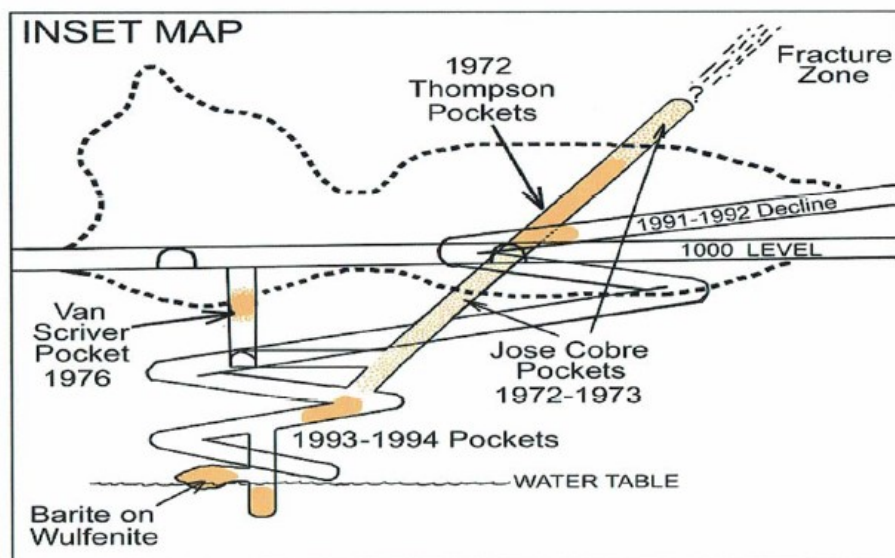


Fig. 14. Diagram showing locations of exceptional wulfenite pockets found in the San Francisco Mine during 1972-1994 (Wendell Wilson, Mineralogical Record).



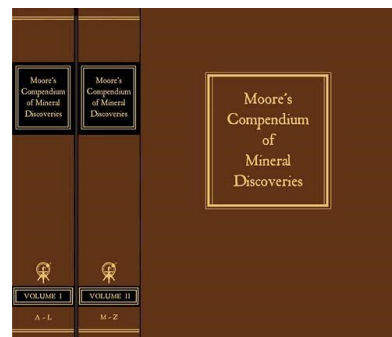
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Mont St-Hilaire  
Quebec Canada  
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## New Books

### Moore's Compendium of Mineral Discoveries 1960-2015

*The Mineralogical Record* is taking orders for the limited printing of *Moore's Compendium of Mineral Discoveries 1960-2015*, considered by many to be one of the most important publications for mineral collectors since the publication of *Dana's System of Mineralogy*.



The two-volume, 1,644 page compendium, provides detailed information on mineral specimen discoveries made worldwide since 1960 gleaned from every major mineral collector magazine published in English, German, French, Spanish and Italian, as well as, books, mineral dealer catalogs and unpublished manuscripts – all meticulously referenced. The vast majority of the publications have never been indexed and are not available online, so this information has been inaccessible to collectors lacking a personal library that includes such journals and have the ability to read five languages.

The description of each occurrence covers as many aspects as possible, beginning with the general appearance and style of specimens; the sizes, morphologies and habits of major crystals; associated species; geological settings; the histories of the localities; the circumstances of the discoveries, including the names of collectors; interesting or amusing collecting stories; marketing information (i.e. where, when and how specimens have been offered for sale); and whatever else may seem in some way noteworthy.

*The Mineralogical Record* Editor, Thomas P. Moore, draws on the resources of the extensive 3,200-volume Mineralogical Record Library. He spent 14 years compiling this unique and invaluable reference, which includes information from state, national and international sources in Maine, New York, Pennsylvania (Chester County), Arkansas, Idaho, Iowa, Washington, Colorado (two), New Mexico (the Bingham Canyon mine), Nevada, Arizona (two), Mexico, Brazil, Northern England, Cornwall and Devon, Ste-Marie-aux-Mines, East and West Germany, Switzerland (three!), the Hohe Tauern of Austria, Příbram in the Czech Republic, the Carpathian Mountains region, Laurium, Morocco, Namibia (two), Tsumeb (two), Southern Africa and the Kalahari Manganese Field, the Lovozero Massif in Russia, China (two), Broken Hill in Australia, and Tasmania.

Other more general books consulted include *Minerals and Their Localities*, *American Mineral Treasures*, *Masterpieces of the Mineral World*, Kievlenko's *Geology of Gems*, *The F. John Barlow Mineral Collection*, *Zeolites of the World*, and, of course, Sinkankas's *Gemstones of North America*. In addition to all of these resources, the Mineralogical Record Library provided various printed lists and catalogs produced by mineral dealers. Tom also scoured the Mindat.org database, as well as, mineral dealer websites.

Information gathered has been restricted to specimens with crystals 1-cm or larger, discovered since 1960, representing a remarkable 1,079 mineral species. The two volumes of text (no illustrations), amount to roughly ten times the amount of locality-specific mineral information that was included in Dana's *System* or Sinkankas's *Mineralogy for Amateurs*. The fact that it covers discoveries made only during the last 55 years rather than all of human history is eloquent confirmation of the current "Golden Age."

Information on each species is organized geographically under the following major headings: the US and Canada, Latin America, Europe, Africa, the former Soviet Union, Asia, Australia and Antarctica. Under each of these headings are sub-headings for states and countries, and within those the localities are arranged alphabetically. Full discussions are included for each find.

You will refer to this hardbound reference work countless times in your life as a mineral collector, checking out the background of nearly every mineral specimen you contemplate buying. But the press run will be limited, and the Mineralogical Record cannot guarantee that they will ever print another run. Hence, order your copy now, to be sure of obtaining one. Delivery is expected around the time of the 2016 Tucson Gem and Mineral Show in February. To order a copy:

<http://mineralogicalrecord.com/bookdetail.asp?id=130>

### Drawings of Mineral Masterpieces

To the extent that intent is intrinsic to art, natural mineral specimens, though evocative, are no more works of art than are sunsets. In the hands of a master, however, a crystal, a scene, or a moment can inspire art. German artist, Eberhard Equit is one such master. Working in watercolor and colored pencils, Mr. Equit creates realistic, finely detailed mineral portraits on a 1:1 scale. Using very fine, specially made brushes, it takes him about a day to meticulously paint a postage-stamp sized area.

Mr. Equit has published two books of mineral art that are now highly sought after collector editions: *Meisterwerke Sächsischer Minerale* (1994) and, *The World's Mineral Masterpieces* (2002), both of which have long been out of print.

During the October 2015 Munich Show, Mr. Equit released his third book of mineral art: *Drawings of Mineral Masterpieces*. This magnificent 350-page volume includes 115 plates depicting 150 specimens.

But it's not just the art that will make this book a classic, it's the 22 chapters authored by some of the world's experts in mineralogy and mineral collecting. The range of topics is worldwide, and provides previously unpublished details about minerals known or unknown to most collectors.

The limited leather edition is already sold out, while a few of the linen clothbound edition with slipcover may still be available. Each book is numbered. The author will autograph a copy if requested. 300 copies of the clothbound book were printed. The books will be shipped directly from Germany. Publisher: Eberhard Equit Verlag, Berlin, Germany. ISBN: 978-3-00-050424-2. To order a copy: <http://www.strahlen.org/forum/index.php?topic=16458.0>



## Meetings and Symposia of Interest

2016 starts the year for thousands of mineral collectors, mineralogists and curators from around the globe as they head to sunny Arizona to partake in the largest gem and mineral show in the world.

Running from mid-January to mid-February, the biggest show in the world ends with the "Main Show", the **Tucson Gem & Mineral Show (TGMS)**. This show is preceded by over 40 gem, mineral, and fossil satellite shows scattered throughout metropolitan Tucson, Arizona. At last count over 50 shows will be held within a span of four weeks!

Information on all shows scheduled by early December is available through several websites. However, some shows and symposiums focus more on minerals for collectors, so these receive particular attention.

While in Tucson, be sure to visit the **University of Arizona Mineral Museum** at the Flandrau Science Center on the university's campus. A new special exhibit will open for the public on February 6, 2016, featuring minerals from the Harvard University Mineral Museum collection, that ends in early December 2016. In addition, the UA Mineral Museum has added a gem stone collection and new displays making a trip to the museum a must when in Tucson.



Starting off 2016 is a less well known gem and mineral show held in Mesa, Arizona, adjacent to Phoenix, that will be celebrating its 44<sup>th</sup> year, sponsored by the Flagg Mineral Foundation.

January 8–10

### **Annual Flagg Mineral Foundation, 44th Gem and Mineral Show**

Mesa Community College, 1833 West Southern Avenue, Mesa, Arizona.

Contact: Dana Slaughter, ([dsminerals@aol.com](mailto:dsminerals@aol.com)) or visit [www.flaggshow.info](http://www.flaggshow.info) or <http://flaggmineralfoundation.org>

This year's theme is "Arizona Silver." One goal of this show is to increase the interest of children in rocks, minerals, geology, and science. It was Arthur L. Flagg's hope that by providing such a forum for children they would become interested in science through minerals, crystals, and fossils. This show encourages their interest. Several groups will have free samples for children and for teachers along with other free activities.

*The flagg show tradition continues!*

**44<sup>TH</sup> ANNUAL FLAGG  
GEM & MINERAL SHOW**

*Arizona Silver*

JANUARY 8-10, 2016 9AM TO 5PM  
MESA COMMUNITY COLLEGE  
NE CORNER OF US 60 & DOBSON ROAD

SPONSORED BY  
FLAGG MINERAL  
FOUNDATION

FOR MORE INFORMATION:  
FLAGG MINERAL FOUNDATION  
P.O. BOX 9784  
MESA, AZ 85204  
WWW.FLAGGSHOW.ORG

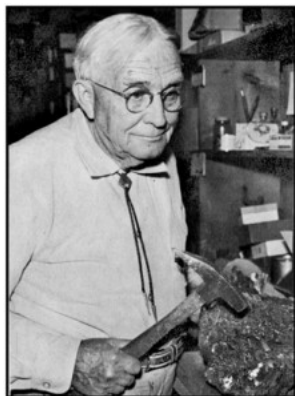
*Free Admission \* Free Parking \* Free Samples For Kids*



Some background about the Flagg Foundation is in order.

The Flagg Foundation was formed in 1962. With a membership of approximately 400 that annually organizes the A.L. Flagg Gem and Mineral Show in the Phoenix area, and the Minerals of Arizona Symposium to be held in 2016 in April.

Arthur Flagg possessed a connoisseur's eye for the beauty of minerals and a missionary's zeal for interesting others in the fun of mineral collecting. His special interest was in teaching children and young people the economic importance of minerals as well as the fun of mineral collecting. He gave away many thousands of specimens to rock hounds, both young and old, and in all parts of the world. At every meeting of the Mineralogical Society of Arizona, he could be seen handing out carefully wrapped specimens to members, especially juniors. These were passed out almost surreptitiously, as he neither asked nor wanted public recognition of his gifts. The presents were of a size and quality to fit the collector's interests and advancement.



Arthur Flagg was also a founder and active member of several mining and mineralogical groups, among them the following: The Mineralogical Society of Arizona, The Small Mine Operators Association, The American Federation of Mineralogical Societies, and the Rocky Mountain Federation of Mineralogical Societies.

January 29-February 10, 2016

**Pueblo Gem & Mineral Show**

777 W. Cushing Street,  
Tucson, Arizona

The "Pueblo Show" as its known, is located at the Riverpark Inn. Started 35 years ago, it has grown to become known for its assortment of international gem, mineral and fossil dealers, jewelry designers. The show includes mineral dealers who are found in the International Fine Mineral Building, the Mineral Pavilion, Main Entrance Pavilion, and rooms that surround the pool and courtyard in Building's A, B, and Court Pavilion. Large displays of minerals are generally found near the lobby entrance by the Riverpark Room. A floor plan is found at: <http://www.pueblogemshow.com/about-us.aspx>

The 2016 Tucson Mineral Lecture Series during the Pueblo Show will be held on Tuesday, February 2<sup>nd</sup> starting at 7:45 pm with presentations by:

Dr. Raquel Alonso-Perez, Curator of Harvard University's Mineralogical & Geological Museum, speaking on: "The Harvard Collection: Highlights and Future."



Christiano Ferraris, Curator of the Museum National D'Histoire Naturelle in Paris, France, on: "The new mineral exhibit of the Paris Museum of Science and Natural History: A look to the future of mineral sciences." A article on the new hall at the Paris museum was published in *Rocks & Minerals*, 2015, Vol. 90(4), and can be obtained at <http://www.tandfonline.com/doi/abs/10.1080/00357529.2015.1034495?journalCode=vram20>

[https://www.researchgate.net/profile/Cristiano\\_Ferraris](https://www.researchgate.net/profile/Cristiano_Ferraris) ]

On Friday, February 5<sup>th</sup>, the Lecture Series continues, with presentations by:

Alan D. Hart, Curator, Natural History Museum, London, England, on: "The British Museum: A personal reflection, past to present" starting at 7:45 pm, following by,



Federico Barlocher, renowned videographer from Switzerland based in Mogok, Myanmar, on: "The Secrets of the Mogok Ruby Mines."

A hosted wine & cheese reception will be held from 6:30 pm – 7:30pm, along with door prize drawings from 9:30 pm to 9:45 pm.

For information on the Lecture series, call 213-926-2412, or visit: <http://www.pueblogemshow.com/show-events.aspx>

January 30-February 13, 2016

**Arizona Mineral and Fossil Show (Tucson)**

Hotel Tucson City Center, 475 N. Granada, Tucson, and  
Ramada Hotel, 665 N. Freeway, Tucson, Arizona

Held annually at the same two hotels in Tucson. Over 400 dealers will be at the hotels from all over the world. Although most are mineral dealers, one will also find book sellers, suppliers of earth science related equipment and materials, and fossil and meteorite dealers. The show charges no admission fee and pre-registration is not required. An Artists' Gallery of 20 artists featuring earth science-related sculptures and paintings will also be attending the show. For more information contact: Martin Zinn Expositions: 505-867-0425 ([mzexpos@gmail.com](mailto:mzexpos@gmail.com)), or visit [www.mzexpos.com](http://www.mzexpos.com)

February 2-7, 2016

### **AGTA GemFair™ Tucson**

Tucson Convention Center  
260 South Church, Tucson, Arizona

This show is the world's leading annual colored gemstone and cultured pearl tradeshow, organized by the American Gem Trade Association. This year's show will include special exhibits from the Smithsonian Institution along with 28 free seminars. Exhibitors must be members of AGTA. Attendance requires meeting certain admission requirements, as this is a trade show that allows only qualified professionals who purchase wholesale for the purpose of resale to attend.

For more information, visit: <http://www.agta.org/tradeshows/gemfair-tucson.html>



February 5-8, 2016

### **Westward Look Show**

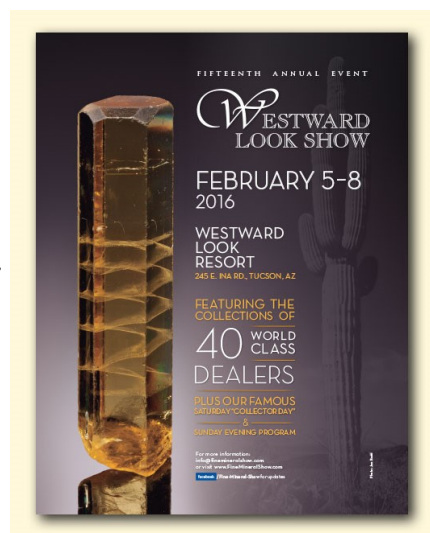
Westward Look Wyndham Grand Resort and Spa  
245 E. Ina Road, Tucson, Arizona

This show brings together 40 world-class dealers, sometimes referred to as the “high-end” of dealers among mineral dealers. Nevertheless, prices for minerals span a wide range. The show features a special invited mineral collector display in the hotel lobby known as Collector Day, an all-day event from 10 am to 4 pm. This year's collector is Evan A. Jones' award winning Arizona Collection.

The Sunday Evening Program, in the Sonoran Ballroom, is titled, “Capturing the Minerals”, with special guests speaking on the subject: Joaquim Callen, Mark Mauthner, and Tom Spann.

Before the evening presentation begins, the winner of the 2016 American Mineral Heritage Award will be announced. The award is given to a field collector whose personal discoveries in the Americas have contributed most significantly to the cumulative heritage of aesthetic and/or scientific mineral specimens preserved in museums and private collections worldwide. A panel of fifteen prominent mineral collectors, museum curators, and mineral dealers, under the direction of panel chairman Gene Meieran, select the recipient of the award.

For more information on the show or to have your name added to the show mailing list, visit: <http://www.westwardminerals.com>, or contact Dave Waisman at 509-458-2331, or his email: [SVL-Dave@aol.com](mailto:SVL-Dave@aol.com)





February 11-14, 2016

# **Tucson Gem and Mineral Show™**

SMG-Tucson Convention Center, 260 South Church Avenue,  
Tucson, Arizona

This show, called the “Main Show”, is the highlight dozens of satellite shows that precede it, bringing an end to four weeks of gem and mineral events held throughout metropolitan Tucson, attended by over 100,000 visitors and participants.

2016 marks the 62<sup>nd</sup> Annual Tucson Gem and Mineral Show (TGMS), which started in 1954 at an elementary school, eventually growing into the largest mineral show in the world. TGMS was founded in 1946, to further the knowledge and appreciation for mineral collecting and lapidary.



of

To obtain tickets in advance (\$13 per adult, children 14 and under free with paying adult; reduced on Friday for active & retired military, and senior citizens) visit: <http://static1.squarespace.com/static/535eb676e4b091cbee171902/t/565fa6ace4b071e0f8a6eada/1449109164112/Ticket+info.pdf>

For additional information contact Patricia McClain, Executive Manager, TGMS, at 520-322-5773, ([tgms@tgms.org](mailto:tgms@tgms.org)) or visit <http://www.tgms.org/show-2015/>

Considered the largest gem and mineral show in the world, this year's TGMS Show theme is **“Shades of Blue: Minerals of the World.”** Expect to see an extraordinary number of blue minerals on display brought to Tucson by collectors, dealers, and museums from around the world.

The show's theme begins on Thursday, February 11<sup>th</sup> with a presentation on “Royal Blue – Famous Blue Minerals from the United Kingdom”, in the Turquoise Ballroom at the Convention Center, followed on Friday and Saturday with the 41st TGMS Mineral Symposium, organized since 1974 by Friends of Mineralogy and the Mineralogical Society of America (MSA), presenting an exceptional lineup of speakers.

The Symposium on Friday, February 12<sup>th</sup>, will include the much anticipated presentation by Ghulam Mustafa, from Pakistan, speaking on, “Minerals of Pakistan and Afghanistan” from 12:30 pm to 1:30 pm; followed by Robert Cook and Julian Gray on “Minerals of Georgia”, at 2:00 pm; and, ending the day with Robert Weldon's Geo-Literary Society Meeting's talk on, “Rediscovering the Chivor Emerald Mine: In the Footsteps of Peter W. Rainier.”



Ghulam Mustafa

Also being held on Friday, February 12<sup>th</sup>, is the Arthur Roe Memorial Micromount Symposium, with talks on: “The Pleasures of Micromounting”, by Quintin Wright; “When Rock Burns: Minerals from the Shale Fire in Northern Ohio”, by Dr. Peter Richards; and, “Minerals of Franklin Mining District, Franklin, New Jersey”, by Van King. This symposium starts at 10 am, and ends at 12:15 pm, followed by “tables, socializing, and a specimen trading session.”

## Something New for the 2016 TGMS Show: “Certified Fresh”

For the first few decades of the Tucson Gem and Mineral Show<sup>®</sup>, dealers were known to save their best specimens for the TGMS show, and collectors/buyers came to the show expecting to purchase from that select pool.

With the proliferation of satellite shows, some starting as early as mid-January, the Tucson Gem & Mineral Society's Show Committee has been hearing show attendee's question the “freshness” of dealers' stock at their show. TGMS didn't like hearing comments like: “After two weeks of motel sales everything good has already been seen/sold, so why stick around for the TGMS Show?”

Enter “**Certified Fresh for TGMS**” (CFFT), a voluntary pilot program that will verify that a certain amount of stock set aside by dealers at the TGMS show will be left untouched until the show begins. The pilot program will have different levels of participation, from 100% fresh (TGMS only), to as low as, 20% fresh specimens. The dealer alone decides how much and what to set aside.

On arrival in Tucson, TGMS volunteers will go to participating dealers, count their set-back flats and seal them with tamper-proof CFFT tape. (TGMS is not certifying quality and will not look in the flats). The same team will visit the dealer at set-up, verify that the right number of flats is present in their booth and the seals remain intact. Assuming all is correct, the participating CFFT dealers will receive a sign indicating their percentage of participation, which they can prominently display on the case(s) or near the flats that contain CFFT specimens. To help buyers navigate directly to dealers with fresh specimens, TGMS will highlight the participating dealers on signs in the lobby and highlight the CFFT program in the show's advertising. □

It will be interesting to see how this works out and what the response will be in terms of participation, along with reaction to the program by both dealers and buyers.

April 2, 2016

### **Tellus Mineral Symposium**

Tellus Science Museum,  
Cartersville, Georgia

Pegmatites are a fascinating geologic subject and the Tellus Mineral Symposium's topic for 2016. To register for the symposium, contact: Sarah Timm ([saraht@tellusmuseum.org](mailto:saraht@tellusmuseum.org)) 770-606-5728; or, Adam Wade ([adamw@tellusmuseum.org](mailto:adamw@tellusmuseum.org)) 770-606-5713, or visit <http://tellusmuseum.org/mineral-symposium/.org>



Presentations will be given by: Dr. Mike Wise of the Smithsonian National Museum of Natural History; Joe Dorris of the famous Smoky Hawk Claim in Colorado; Dr. Sam Swanson of University of Georgia; Dr. Robert B. Cook of Auburn University; and, Dr. David London of University of Oklahoma. The symposium requires pre-registration <http://tellusmuseum.org/mineral-symposium/> Registration includes a breakfast bar and lunch buffet.



**Dr. London** will discuss geochemical experiments to understand the properties of felsic silicate melts and how those melts crystallize to generate the complex textures and zoning that are the hallmarks of granitic pegmatites. In his presentation, he will outline some of the key features of pegmatites and will offer answers toward those ends based largely on his experimental programs. The author of *Pegmatites*, a reference work, he'll be signing copies of his book at the symposium.



**Dr. Wise** is engaged in pegmatite research in the Department of Mineral Sciences at the Smithsonian Institution. He and colleagues are focusing their research on three broad, but closely linked disciplines necessary for a full understanding of the pegmatite-generating process: crystal chemistry and crystal structures of pegmatite minerals, petrology and geochemistry of pegmatites, and the evolution of granite-pegmatite systems. In his presentation, Dr. Wise will build from these to discuss classification of granite-pegmatite systems based on their composition and history of evolution. One can see Dr.

Wise talk about pegmatites in a 40-minute webcast, aired on April 16, 2015, on "Mineral Dependence – Gemstones to Cellphones", found at: <http://qrius.si.edu/explore-science/webcast/mineral-dependence-gemstones-cellphones>



**Dr. Cook** is currently working on sinkhole remediation near carbonate quarries; rare Earth exploration; and petrography of American Indian pottery. In addition to his diverse research, he is also a go-to authority on Georgia minerals, and in his presentation he will be discussing the history and importance of Georgia pegmatite deposits. He is the co-author of *Minerals of Georgia*, a new reference book that will be coming out in early February 2016, and sign copies of during the symposium.



**Dr. Swanson** has studied the mineralogy of pegmatitic systems in Alaska (tin granites of the Seward Peninsula), Georgia (Stone Mountain, Elberton) and North Carolina (Spruce Pine and Kings Mountain). The Spruce Pine pegmatites are important historically for their mineral resource and their influence on early pegmatite studies by Jahns, Cameron, and others. Spruce Pine is a deep pegmatite system that lacks the crystal-lined open cavities of shallow gem pegmatites. Dr. Swanson's talk will review the mineralogy of the Spruce Pine pegmatites and present a model for the development of pegmatitic textures in mid-crustal granitic rocks.



**Joe Dorris** has been collecting and studying pegmatites, particularly NYF amazonite producing ones for over 40 years. He has discovered some of the world's best amazonite and smoky quartz specimens, including the Smoky Hawk King, the world's largest re-created amazonite and smoky quartz plate.



April 15-17, 2016

### Minerals of Arizona Symposium

Clarion Hotel at the Phoenix Tech Center,  
Phoenix, Arizona

Speakers have yet to be announced. The Flagg Mineral Foundation sponsors the annual Minerals of Arizona Symposium. This symposium is usually held in either March or April and features a variety of presentations on minerals, mineral collecting, new and classic localities, and mining history. In addition, the symposium includes a mineral sale/silent auction where collector quality specimens and other items are available to attendees.

For more information contact: Chris Whitney-Smith, President, Mineralogical Society of Arizona at: [Ask.ChrisWS@yahoo.com](mailto:Ask.ChrisWS@yahoo.com) or visit: <http://flaggmineralfoundation.org/home/minerals-of-az-symposium/>

### MINERALS OF ARIZONA TWENTY-THIRD ANNUAL SYMPOSIUM



Sponsored By  
Flagg Mineral Foundation  
March 27-29, 2015  
Co-Chairpersons  
Phil Richardson - Chair, Flagg Mineral Foundation  
Ray Grant - Vice Chair, Flagg Mineral Foundation

May 21-22, 2016

### Seattle Mineral Market 2016

10 AM to 6 PM

Lake City Community Center,  
12531 NE 28th Ave NE, Seattle, WA 98125



Quartz v. Pseudocubic scepter  
Entia Valley  
Harts Range,  
Northern Territory, Australia  
23.9 x 13.4 x 13.3 mm  
©RPellar

## **FM Chapter Reports**



### **MIDWEST CHAPTER UPDATE**

#### **President's Message**

Happy New Year to all of you. Another year has passed and I will soon have another birthday. If I'm lucky, I will have another 20; if I'm unlucky, I'll have another 30.

The Chapter is in the best financial condition it has ever been. Last year's slate of officers was reinstated during the annual November business meeting. To avoid the problem of not having a voting representative at the National business meeting in February, our First Vice-president, Randy Marsh was appointed as the chapter representative. He and I will be flying out to Tucson together for the National meetings and the annual Tucson mineral gala.

The board has agreed that we need to develop additional contacts with local universities for additional meeting places and to expand relations with academia. If you know any mineralogy professors that might be amenable to hosting a meeting, I'd appreciate hearing back from you.

I was informed, by the president of FM National, that the response to the call for FM chapters to display minerals at the TGMS show in 2016 was insufficient; therefore, the planned exhibit is cancelled. National will try again in 2017, and with the show theme being "Midwest Minerals," it will be an opportunity for us to really shine and reflect well on the chapter (pardon the pun). Julian Gray is the FM National seminar chair and is responsible for selecting speakers and moderating the Saturday seminar. However, because I'm wearing a couple different hats, I'll have some responsibility for making it happen. To that end, I'd like to put out a call for volunteers to give a 30 minute presentation in Tucson on the Saturday of the main show. Please get back to me if you are willing to participate and I will pass on your offer to Julian. PowerPoint slides would be the preferred method of presentation.

Reggie Rose, Scott Kell, and I attended the annual Ohio Aggregates and Industrial Minerals Association (OAIMA) annual meeting and convention in Columbus in mid-November. We talked briefly with Tim Renneker, of Jurgensen Aggregates, about how to get official recognition from MSHA for the hazard and safety training developed by Scott Kell. We picked up one new member as a result of the event.

The following Saturday, Randy Marsh, Tom Bolka and I checked out the Plano Quarry near Williamsport to see how the collecting would be. While there was a lot of marcasite, it was unstable and generally in various stages of decomposition. It is not suitable for a future chapter field trip.

We have an informal understanding with OAIMA to help support their new educational outreach program. If you are a teacher, or former teacher, and would like to participate, please let me know. At least start thinking about how you might contribute to the project.

I just received a notice from a friend, Dr. Henry Barwood (known as "Bumpi" to his close friends) of Troy University (AL):

*"The University of Manitoba, Canada has decided to defund and close one of the only x-ray mineralogy labs in the world capable of critical analysis and resolution of microscopic particles, and one of the finest x-labs for minerals of any class. For over 20 years this lab has served mineralogists around the world, and has played a critical role in not only mineralogy, but any science depending on fine-particle identification."*

Lastly, Randy has obtained a new banner for the chapter for use at events. You will probably have your first chance to see it if you attend the March symposium at Miami University.



## NEW JERSEY CHAPTER UPDATE

### NEW JERSEY CHAPTER UPDATE: DECEMBER 2015

As 2015 winds down to a close, the New Jersey Chapter continues to make strides in developing into a prominent and respected mineral society in the state of New Jersey.

Currently, we have twenty-two adult members and two junior members. We have had hosted a few field trips whereby we also invited members from the North Jersey Mineralogical Society to join in on the fun. We both share the same individual as field trip chair and decided to have an "open" attendance agreement on field trips, thus cutting down the contact work and opening up more sites to collecting.

During one such field trip in the Spring, one of our members discovered a mineral not formerly recognized as found at the location visited. This was the CK Williams Quarry in Easton, Pa.

We are currently drafting up a report which will be submitted to Jolyon Ralph so that the mineral database in Mindat can be updated.

In August, the organization held an impromptu swap/sell at the home of the chapter president which was well attended by many New Jersey collectors and plans are to hold this every year in order to foster the old system of barter and for the enjoyment and socializing of mineral collectors.

During our business meeting in September, we changed our fiscal year to run from September first through August thirty-first. In addition, we added a second meeting place due to a variety of reasons which has been successful in improving meeting attendance.

We will have a presence at the upcoming New York/New Jersey Mineral Show held in April 2016 in Edison, New Jersey for the purpose of continuing our recruitment of future members.

In addition, the president of the chapter has volunteered to attend Marty Zinn's Springfield Show in August of 2016, promoting the Friends of Mineralogy and seeking to see if we can encourage the mineral collecting community to form new chapter/s in the New England area.

WE hope that all in the family of Friends has an enjoyable Christmas and wish all of you a Happy New Year and remind you to stop in and say hello if you come east in 2016.



## MIDWEST CHAPTER UPDATE

FRIENDS OF MINERALOGY MIDWEST CHAPTER  
4<sup>th</sup> ANNUAL MINERALOGICAL SYMPOSIUM  
(SPONSORED BY THE KARL E. LIMPER GEOLOGY MUSEUM)



### MIDWEST FLUORITES



Clay Center, Ohio



Auglaize, Ohio



Cave-in-Rock, Illinois

**DATE:** Saturday March 12, 2016

**TIME:** 9:30 AM – 6:30 PM

**LOCATION:** Shideler Hall, Miami University, Oxford, Ohio

**CONTACT:** Randy Marsh, VP Programs, FM Midwest Chapter (marsh.rg@pg.com or 513-515-7890)

#### DETAILED AGENDA:

- 9:30-10:00 FM Midwest Chapter Meeting (open to all)
- 10:00-11:00 *Fluorite* – Arvid Pasto
- 11:00-12:00 *Midwest Fluorite* – Jeff Scovil
- 12:00-1:00 Lunch Break and Viewing Time for Specimens
- 1:00-1:30 *Fluorite in Mississippi Valley Type Deposits* – John Rakovan
- 1:30-2:00 *The Significance of Ultramafic Rocks Underlying the Illinois-Kentucky Fluorspar District* – Brett Denny
- 2:00-2:30 *Investigating the Nature of the Primary Ore Forming Fluids in the Illinois-Kentucky District* – Stuart Kenderes
- 2:30-2:45 Break
- 2:45-3:15 *Findlay Arch Fluorites* – John Medici
- 3:15-3:45 *The Many Faces of Midwest Fluorites* – Nelson Shaffer
- 3:45-4:15 *Crystallography of Fluorite* – Pete Richards
- 4:15-4:30 Break
- 4:30-5:00 *Fluorite Deposits of Kentucky* – Alan Goldstein
- 5:00-5:30 *Selecting Fluorite Specimens & Building a Fluorite Collection: A Mineral Collector's Perspective* – Jim Gebel
- 5:30-6:30 Tour of Facility and Viewing Time for Specimens



## COLORADO CHAPTER UPDATE

Greeting members.

This year has been another successful year, with only one major challenge ahead. The good news first. We held 5 meetings where we had talks given by Ian Merkel, Dan Kile, Mandi Hutchinson, Dennis Beals and Dan Wray. Ian Merkel spoke on his recent collecting experiences in the amethyst region of Ontario, above Lake Superior. Dan Kile the following month talked about the historic, 1980s experiences of amethyst collecting in the same area as well as some information on amethyst crystallography and coloration patterns. Mandi Hutchinson spoke on carbonatites and why they are interesting. Dennis Beals spoke on the raspberry grossular from northern Mexico with pictures of the locality and his experiences of mining there. Our last speaker of the year entertained us with 3D pictures of calcite and aragonite from inside Colorado and adjacent caves.

We continue to try to provide mineralogical talks that have not been already heard in the Denver area by speakers who are not as well known as speakers. Next year we will also hear about a new museum that opened in Farmington, New Mexico.

Our Chapter website continues to be kept up-to-date on our monthly activities with historic newsletters being added as possible. We already have online the first newsletters from 1978 to 1982.

We also held our successful May silent auction which was a financial success, thanks to donations from many dealers and the soliciting efforts of Larry Havens and Bill Hutchinson. FMCC has also agreed to support with people and financially the planning and execution of the Second Eugene Foord pegmatite symposium in July 2016. This two day presentation symposium with two days of up to 14 accompanying field trips we hope will allow participants to visit pegmatites that have not been seen in decades.

Executing this symposium will be a challenge and the outcome is not certain. Manpower is our major shortage. The major task for the field trips will be finding field trip leaders and trip planners. Each field trip will have no more than 20 people, with non-Colorado attendees having priority. The Friends of the CSM Geology Museum and the Denver Region Exploration Geologists are co-conveners for this event to be held in Golden, Colorado on the campus of the Colorado School of Mines. Housing will be available both in adjacent, walk-able hotels and in College single-room dormitories. Food will be available either in the College Student union building or in adjacent central Golden, which is directly adjacent to the school.

Our newsletter editor, Pete Modreski has continued issuing an excellent newsletter with local news stories, keeping everyone informed of all geological, paleontological and mineralogical meetings and events in the Four Corners region.

Our challenges are that although we are financially stable, are not losing money and have some cash reserves, as a chapter organization we have lost the ability to stage events ourselves or to find members for officer positions. Some of our current officers and board members have been loyally and proudly serving in these positions for decades. They have more than earned the right for a rest. We must once again replace our treasurer, and we should recycle some of our officer positions (including myself) with new people who will take us in new directions. Without new people, FMCC will have to change directions and plan a different future.

Mark Ivan Jacobson. President



## PACIFIC NORTH WEST CHAPTER UPDATE

The Pacific North West Chapter held their annual meeting during their symposium in October. The following is a report on the meeting. For additional information including 40 pages of reports on all the talks presented during the symposium please go to <http://pnwfm.org/newsletters.html> . The newsletter is in 3 parts due to the size of the files. Please check out all three parts.

Headed up by our President, Bruce Kelley, Sunday got off to a great start. Many thanks were given to the volunteers, exhibitors, dealers and participants.

The NE specimen contest winner was announced: Douglas Merson for a Thomsonite – CA, Datolite, Phrenite from Upper New Street Quarry, Passaic Co., NJ. Best Fluorescent Specimen went to Al Liebetrau for a Halite from Inowrack Mine, Poland. The winners of the mineral id contest were: Master, Robert Meyer and Expert, Randy Gage.

The regular approval of minutes and the Treasurer's report followed. In old business it was noted that the new wireless microphone system that the club purchased worked out well throughout the whole symposium.

We need some volunteers to take on the creation of the registration packet including stuffing the envelopes. There was also discussion about how to get more participation in the mineral id contest and in bringing displays for the cases and their brand new liners. Also please note that the cases entered do not have to fit within the theme of the show. Some problems with the setup of the Paypal account did not allow its use this year. We hope to have it ready by next year.

Under new business the theme for 2016 will be Butte and other copper minerals. And for 2017 the theme will be Morocco. The actual titles for these shows will be announced later. Under discussion was the need for a field trip coordinator and concerns for safety while up at Washington Pass. We also need a college outreach coordinator. Free admission to the Rice Museum was mentioned as a benefit of membership in the PNWFM and we are hoping to get a discount somewhere for mineral analysis which would also be of benefit to the members.

Symposium restructuring to assist our room dealers, separating the banquet as an add-on, breaking the bond between the oral auction and the banquet and a more structured social time did not get full time for discussion. They will be on the agenda at the Seattle Mineral Market meeting.

Election results were announced. Bruce Kelley is again our President, Secretary is Karen Hinderman, Treasurer is Jim Etzwiler. Thank you to them for volunteering for these positions.



## From Mississippi to the Democratic Republic of the Congo: Changes in Exploration and Mining

By Alex Schauss

What an intriguing title, one that encouraged me to attend a lecture held at the University of Arizona, on October 23, 2015.

The lecture was presented by William H. Wilkinson, PhD, Vice President African Exploration, Freeport-McMoRan Exploration Corporation, and the recipient of the Tenth W.C Lacy Distinguished Lecture Award. The Lacy Lecture series is in tribute to Dr. Willard C. Lacy (1916-2014), the first head of the combined Department of Mining and Geological Engineering at the University of Arizona, and 1993 American Mining Hall of Fame Medal of Merit Recipient. Prior recipients of the Lacy Award have included top executives at Rio Tinto, Newmont Mining, Nautilus Minerals, Peabody Energy, CIC Resources, Resource Capital Funds, and GoldCorp.

The lecture delivered by Dr. Wilkinson, who was born in Mississippi and traveled the world as an accomplished exploration geologist, will be published in 2016. An avid mineral collector who began his first collection in the 4<sup>th</sup> grade under the tutelage of his mother, his interest in rocks and minerals led him to major in geology in college and follow up with his exploration career. A Certified Professional Geologist, he earned his Bachelor's in Geology at the New Mexico Institute of Mining and Technology in 1970, and Master's in Geology at the same institution in 1976, followed by a PhD degree in Geosciences from the University of Arizona, in 1981. In 1997, he attended the Phelps Dodge/Thunderbird Business Management Program, American Graduate School of International Management, and served as past President of the Society for Mining, Metallurgy and Exploration. His 37 years of experience in minerals exploration, with an emphasis on copper, gold, silver and molybdenum in a variety of environments, includes: porphyry copper, skarn, sediment-hosted gold, volcanic-associated massive sulfide, and sediment-hosted base metal deposits. He also spearheaded new technologies, especially deep-sea mining of seabed sulfide deposits.

During his lecture, the audience was particularly drawn to the greenfields exploration process map he presented of a Freeport-McMoRan project seen in Figure 1. See image on next page.

The slide illustrates the remarkable time between finding a potentially viable copper ore deposit to reaching feasibility for mining to begin, using the Kisanfu project in the Democratic Republic of the Congo, as an example. As the slide shows, the stages a greenfields project of this nature needs to go through to reach the point at which mining might finally begin, can vary anywhere from seven to as long as 20 or more years. During all this time, the company is investing tens of millions of dollars without any return in investment.

Non-geologists might ask, what does "greenfields" mean? In exploration geology, there are two types of fields: greenfields and brownfields. Greenfields exploration refers to exploration in new areas or projects that do not have any development. Brownfields, in contrast, refers to exploration around existing mines or around past producing mines.



|                                 |                                        |                              |                                         | RESOURCES (MINERALIZED MATERIAL)                 |                                                     |                                                                      | RESERVES                                                            |
|---------------------------------|----------------------------------------|------------------------------|-----------------------------------------|--------------------------------------------------|-----------------------------------------------------|----------------------------------------------------------------------|---------------------------------------------------------------------|
|                                 |                                        |                              |                                         | INFERRED                                         | MEASURED & INDICATED                                |                                                                      | PROVEN & PROBABLE                                                   |
| FLOW OF FUNDS, MANAGEMENT       | EXPLORATION FUNDS AND MANAGES          |                              |                                         |                                                  |                                                     |                                                                      | EXPLORATION FUNDS, ENGINEERING MANAGES                              |
| PHASE                           | CONCEPT, AREA SELECTION                | PROSPECTING                  | TARGETING                               | INITIAL DRILL TEST - DISCOVERY                   | DELINEATION - SCOPING STUDY                         | PRE-FEASIBILITY                                                      | FEASIBILITY                                                         |
| STAGE                           | 1                                      | 2                            | 3                                       | 4                                                | 5                                                   | 6                                                                    | 7                                                                   |
| EVALUATION OBJECTIVES           | Decide what to look for, where and how | Locate and confirm anomalies | Property acquisition, target definition | Discovery and confirmation of a MINERAL DEPOSIT. | Establish geometry, distribution, mineralogy, grade | Planning and parameters for mining, milling, environment protection. | Complete project review. Decision on basis of NPV and risk factors. |
| GLOBAL MARGIN OF ERROR          |                                        |                              |                                         |                                                  | ±50%                                                | ±25%                                                                 | ±15%                                                                |
| RESULT                          |                                        |                              |                                         | Mineral Deposit                                  | Resource                                            | Defined Deposit                                                      | Mineable Deposit                                                    |
| NUMBER PER DEVELOPED MAJOR MINE |                                        | 5,000                        | 1000                                    | 350                                              | 12                                                  | 4                                                                    | 2                                                                   |
| PROBABILITY OF SUCCESS          |                                        | 0.0002                       | 0.0010                                  | 0.0029                                           | 0.0833                                              | 0.2500                                                               | 0.5000                                                              |

← Greenfields: 7-20+ years, avg 10 →

1

Going back to the slide, give particular attention to the bottom horizontal line, “Probability of Success.” When exploration geologists prospect for mineral deposits of potential commercial value, statistically it requires evaluating 5,000 prospects in order for one to reach the feasibility stage - - that is *two ten-thousandths of one percent!* As the flow of funds invested in further exploration of promising sites continues, and the process of property acquisition begins, and initial drilling takes place, along with delineation-scoping studies, just consider the myriad pre-feasibility issues a mining company needs to consider to improve the odds it might have a feasible mine site able to make a profit. As shown in the slide, by the time feasibility is determined, those 5,000 prospects have been reduced to two, a process that takes an average ten years, or may take more than double that time before earnings roll in.

From a mineral collector’s standpoint, and given all of the environmental constraints imposed on opening a mine, is it any wonder that mineral specimens obtained from new mines are so scarce? Especially considering the restrictions imposed by mining companies today, because of warranties, safety regulations and liability issues, to name a few. Unfortunately, most mining operations around the world will not allow the collecting of mineral specimens any more. This will have a significant impact over time in providing enough mineral specimens to satisfy growing demand for specimens.

## House Resolution 472—Earth Science Week

Expressing support for designation of the week of October 11, 2015, through October 17, 2015, as 'Earth Science Week'.

### IN THE HOUSE OF REPRESENTATIVES

October 8, 2015

### RESOLUTION

Whereas this year marks the 18th annual international Earth Science Week, designated by the American Geosciences Institute to help the public gain a better understanding and appreciation for the earth sciences and to encourage stewardship of the Earth;

Whereas the theme for 2015, 'Visualizing Earth Systems', promotes better public understanding of Earth's natural systems by showing data and observations in an illustrative manner;

Whereas the study of earth sciences leads to an improved understanding of the Earth's natural systems and the interplay between human society and these systems;

Whereas the earth sciences are integral to the discovery, development, and conservation of energy, water, and natural resources and to the safe disposal of waste products;

Whereas the earth sciences provide the basis for mitigating natural hazards such as droughts, earthquakes, floods, coastal erosion, hurricanes, and landslides;

Whereas understanding earth science is essential to the design and safe construction of buildings and infrastructure;

Whereas earth scientists study and interpret the Earth, the ocean, its environment, and life as they have changed through time;

Whereas the earth sciences enhance our understanding of current and past global conditions, and offer a basis for anticipating future conditions;

Whereas the ocean covers 71 percent of the Earth's surface and provides 99 percent of the Earth's habitat, more than 50 percent of the United States population is found within coastal counties, and earth scientists working in marine environments contribute to the understanding of our global ocean and river systems enabling advancements in food management, national security, energy resources, transportation, economy, and recreation;

Whereas the earth sciences support our ability to manage healthy and productive soils and ocean and river waters and fisheries, the foundation for our Nation's food supply;

Whereas the earth sciences contribute to our understanding of Earth as a planet in our solar system and the universe;  
Whereas earth science research leads to the development of innovative new technologies and industries that fuel the American economy and improve our quality of life;

Whereas earth science researchers and educators drive creativity and passion for the Science, Technology, Engineering, and Mathematics (STEM) fields among students of all ages through diverse and innovative education and public outreach efforts;

Whereas geological aspects of resources, hazards, and environment are vital to land management and land use decisions at local, State, regional, national, and international levels;



Whereas geoscientists and researchers in our Nation's labs, universities, research institutions, and Federal agencies, including USGS, NASA, NOAA, NPS, NSF, and DOE, continually push the frontiers of human knowledge of the world around us, help develop and incubate the concepts and programs that keep United States companies and industries at the innovative forefront of the world's economy, and inspire future generations of researchers, scientists, and informed citizens; and

Whereas the earth sciences make vital contributions to our understanding of and respect for nature and our home planet:  
Now, therefore, be it

Resolved, That the House of Representatives--

- (1) supports the designation of 'Earth Science Week';
- (2) expresses strong support for the goals and ideals of Earth Science Week and its aims to increase understanding of and interest in earth science at the local, State, national, and international levels;
- (3) recognizes the importance of education and public outreach efforts to ensure the United States public gains a better understanding and appreciation for the impact of the earth sciences on their daily lives;
- (4) encourages K-12 students to participate in local, State, and national events in connection with Earth Science Week and to get involved in the celebration by exploring artistic and academic applications of earth science; and
- (5) encourages the people of the United States to observe Earth Science Week with appropriate activities to gain a better understanding and appreciation for the earth sciences and to encourage stewardship of the Earth.

## Consider a Donation to Friends of Mineralogy



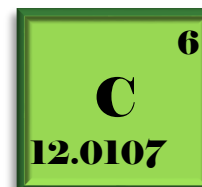
On December 18, 2015, President Obama signed into law a bipartisan measure that extends the IRA Charitable Rollover. It allows anyone age 70 ½ and older to make a tax free donation of up to \$100,000 from their Individual Retirement Account (IRA) to support the work of Friends of Mineralogy and any of its chapters. The tax-deductible gift can be restricted to a specific program or area of your choosing.

Donations to Friends of Mineralogy help us to extend support to mineral symposia, including efforts to increase the number of symposiums, chapters, and our ability to provide financial support for undergraduate and graduate students to attend symposia and present their research.

We hope you'll consider donating to Friends of Mineralogy. It does make a difference.

## Carbon Mineral Challenge: A Worldwide Hunt for New Carbon Minerals

The Carbon Mineral Challenge sets the stage for both professional and amateur mineral collectors to make their mark by discovering never-before described minerals. Researchers predict at least 145 of Earth's carbon-bearing minerals remain undiscovered. How many can collectors find by 2019?

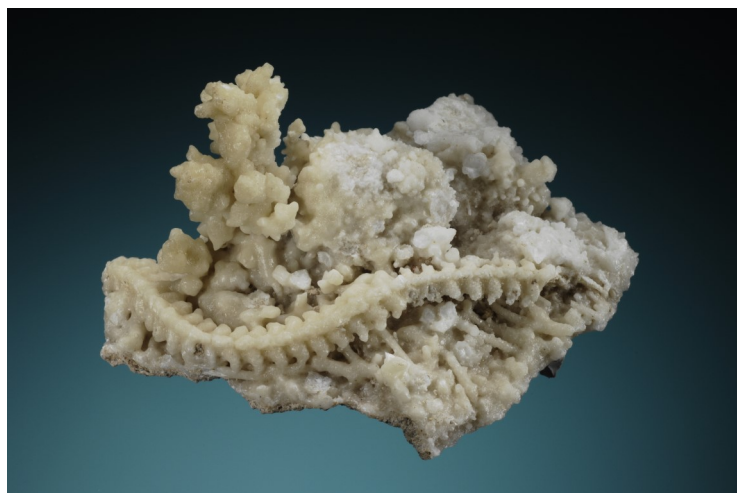


The Carbon Mineral Challenge is the brainchild of Robert Hazen, Robert Downs, Daniel Hummer, and colleagues, and is conducted in collaboration with the Deep Carbon Observatory. Hazen and colleague's new paper, "Carbon mineral ecology: Predicting the undiscovered minerals of carbon", is currently in press at the *American Mineralogist*. However, you can obtain a pre-publication print copy by going to this link: [http://www.minsocam.org/msa/ammin/AM\\_Preprints/5546HazenPreprintApr.pdf](http://www.minsocam.org/msa/ammin/AM_Preprints/5546HazenPreprintApr.pdf)

An exceptional 1 minute and 35 second explanation about the Carbon Challenge can be seen at: <http://mineralchallenge.net>

The Deep Carbon Observatory Science Network points out the unparalleled role carbon plays in our lives: as the element of life, as the basis of most of our energy, as the backbone of most new materials, and as the central focus in efforts to understand the Earth's variable and uncertain climate. Yet in spite of carbon's importance, scientists remain largely ignorant of the physical, chemical, and biological behavior of many of Earth's carbon-bearing systems.

The subject of carbon was also featured in a 700-page special issue of *Reviews in Mineralogy and Geochemistry* called Carbon in Earth, Volume 75, which comprises 20 chapters by more than 50 researchers in nine countries. The book-sized volume of the journal integrates a vast body of research in physics, chemistry, and biology and the Earth and space sciences. The volume is Open Access -- free to all readers due to the generous funding from the Sloan Foundation and Deep Carbon Observatory, and can be found at: <http://rimg.geoscienceworld.org/content/75/1/iii.1/suppl/DC1>



Aragonite coated snake skeleton, Santa Juliana Mine, East Camp, Santa Eulalia District, Chihuahua, Mexico. 9 cm, Peter Megaw specimen, Jeff Scovil photograph

## Solar Cells that Can Face in Almost Any Direction and Keep Themselves Clean Using a New Carbon Form

Already a new form of carbon has just been discovered by scientists in the USA.

The new phase of solid carbon, called Q-carbon, is distinct from known phases of graphite and diamond and can be produced at ambient pressure under laser action. A team at North Carolina State University suggests that the most likely place this phase would form in the natural world is at the core of some types of planet. Q-carbon is harder than diamond, is ferromagnetic, and glows when exposed to even low levels of energy. According to the university lead scientist, they can now create diamond nano-needles, micro-needles, nano-dots, or large-area diamond films, with applications for drug delivery, industrial processes and to create high-temperature switches and power electronics.

Most impressive, in terms of improving energy production from the sun, the use of carbon nano-dots can be incorporated in solar cells that are able to face in almost any direction while keeping themselves clean. The researchers developed a glass coating that incorporates ultrathin nano-rods and honeycomb nano-walls that can help underlying solar cells harvest sunlight from multiple angles. The cell efficiency can be boosted by 5.2 to 27.7 percent, depending on the angle of the light, and the efficiency enhancement can be up to 46 percent during long-term use. The material was also found to be able to repel dust and pollution that would otherwise block some rays from getting absorbed and converted to electricity. The new glass coating kept panels working outdoors at optimum levels for six weeks while the efficiency of panels with an unmodified coating dropped over the same period.



To learn more about this breakthrough and discovery, read the December 16, 2015, news release issued by the American Chemical Society at: <http://www.acs.org/content/acs/en/pressroom/presspacs/2015/acs-presspac-december-16-2015/multi-directional-solar-panels.html>

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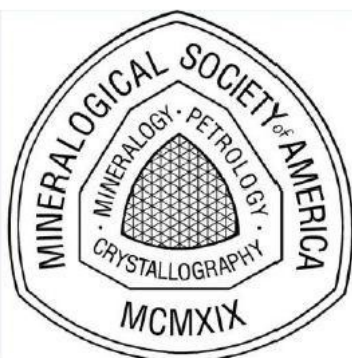


FM AFFILIATES



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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