Bulletin of the Mineralogical Society of Southern California

Volume 87 Number 4 - April, 2014

The 908th meeting of the Mineralogical Society of Southern California

www.mineralsocal.org

With Knowledge Comes Appreciation

April 11, 2014 at 7:30 pm

Pasadena City College
Geology Department, E-Building, Room 220
1570 E Colorado Blvd., Pasadena

Program : "In A Dinosaur's Garden", *presented by Joan Licari*

In this Issue:

Remember: If you change your email or street address, you must let the MSSC Editor and Treasurer know or we cannot guarantee receipt of future Bulletins

About the Program: "In A Dinosaur's Garden" presented by Joan Licari

Ancient plants that were around to be munched on by dinosaurs are prominent in our gardens today. Which plants are so tough that they could survive from the Age of Reptiles and a major period of extinction to make it all the way to present day? Are some of those "dinosaurs" with us today? Join us to see if you have any ancient plants in your garden.

Our Speaker, Joan Licari has Bachelors and Masters degrees in paleontology from U.C. Berkeley. Doctorate in Environmental Science and Engineering (D.Env.) from UCLA. Masters degree thesis involved dating of insect-bearing amber deposits in Chiapas region of Mexico. Professor of geology and environmental science at Cerritos College for 37 years—now emeritus. Part-time teaching at Cal State Los Angeles. Worked for the U.S.G.S. as an Environmental Specialist in off-shore oil and gas operations and permitting.

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From the Editor: Linda Elsnau

Wow, April already! I hope everyone has taken care of their tax filings so that they can enjoy the month of April instead of "dread" it! Looks like we have a very interesting program this month…I'm really looking forward to seeing it and you on April 11th. I also know that our membership has decreased this year so we need help from all of you to bring in new members. The MSSC board is looking at ways to generate local interest, but the best advertising is "word of mouth". Tell your friends about the meetings and, better yet, bring them with you to the meetings. We love guests! Look for your club roster with next month's bulletin.

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MEANDERINGS FROM THE PRESIDENT by Ann Meister

Thank you Board Members and Committee Chairs for a constructive meeting! Important decisions for all MSSC members: the Annual Picnic/Swap will be held on August 10 repeating last year's success in the backyard of Bruce & Kathy Carter. Also, MSSC will have a table at the CFMS show in May/June which will need to be staffed. The PCC parking situation is being investigated by Bruce. We may get parking "passes" to put on the car dashboard identifying us as MSSC members and exempt from parking fees. More on this as things come to pass.

Please EXHIBIT at the CFMS Show! I would again like to encourage you to create a display of your mineral collection for the CFMS show May 30 - June 1 at the Fairplex in Pomona. Entry forms for both non-competitive and competitive exhibits (due April 14) are on the show website (www.cfms2014show.com/). What I have done in the past is select a "theme" and then choose items from my collection to illustrate the theme. It can be something like "mineral oddities," or calcites, or minerals that contain the element copper, or carbonate minerals, or minerals from one mine or state, or just "my favorite things" or whatever theme fits your interests and collection, such as "self-collected" which is always a favorite. Depending on what the theme is, I may include books on the topic or maps or crystal models or pictures. If you have the interest and energy, educational exhibits can be fun and challenging. That along with dozens of other classifications are available for competition. Take a look at the competition rules that are available through links on the CFMS website (www.cfmsinc.org). In the Quick Links on the left side, see "AFMS Uniform Rules" and CFMS Supplementary Rules-2014." If you have never looked at these or thought of competing, take a gander and see if it piques your interest. It is fun, but you must follow the rules! Excellent minerals have lost top prizes because the exhibitor did not follow the rules. This can be frustrating, but, as a former judge, I can attest to having made some heartbreaking decisions. Simple things such as improper labeling or misspelling or poor showmanship can cut your score. Creating a display, whether competitive or non, is a fun and fulfilling experience. Give it a try!

A geologic extravaganza, *Pompeii* – the movie – was recently released and may have already departed the theater circuit (with a 25% Rotten Tomatoes rating). It features the great eruption of Mount Vesuvius in 79 A.D. with the smothering burial of Pompeii and surrounding cities. Rosaly Lopes, a volcanologist at JPL who has been a speaker at MSSC, has commented that the filmmakers captured the earthquakes, followed by explosions, and then ash flows quite well, but that the depiction of lava bombs raining down on the city is not accurate, nor is the giant tsunami in the harbor that carries a ship through the streets. The area is still in danger; Mt Vesuvius

is an active volcano densely surrounded by people (see Feb. 2013 *MSSC Bulletin* for NASA image). However, after the earthquake debacle that charged a group of Italian scientists with manslaughter for not properly assessing the risks prior to the 2009 L'Aquila earthquake, would Italian scientists be willing to speak out on a potentially imminent threat from Mt Vesuvius? Or has Italian jurisprudence endangered the Italian people and the many visitors to this area?

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MINUTES OF THE MARCH 14, 2014 GENERAL MEETING

The 907th meeting of the Mineralogical Society of Southern California (MSSC) was held on Friday, March 14, 2014 at Pasadena City College's Geology Department. The meeting was brought to order by President Ann Meister.

Call To Order: The meeting was called to order at 7:35pm. A warm welcome to the 907th Membership Meeting to all in attendance was given by President Ann Meister with a "*Happy Pi Day"!***.**

Minutes: There was a motion from the floor by D. Trent and seconded by Joanna Ritchey to approve the Minutes of the February 2014 Membership meeting, as published in the March 2014 Bulletin. The membership vote was unanimous to approve.

Announcements: The following announcements were made:

- Membership dues are due now; if you haven't paid, your last Bulletin is March 2014;
- The deadline for entries into the next Bulletin is March 25, 2014;
- There will be a Board Meeting Sunday, March 23, 2014 at 1pm. Please r.s.v.p. if you will attend. Forward any items you would like placed on the Agenda to Ann;
- Bruce Carter will collect and turn in all parking citations (received at the February meeting) to the campus security on Monday, March 17, 2014, he will also provide us with phone numbers for Security in case we need to call them;
- There is a JPL Von Karman Lecture Series event tonight, so parking tonight is free;
- There will be a Watson lecture at Caltech Beckman Auditorium on March 19, 2014;
- The 12th annual Sinkankas Symposium will be held April 5, 2014 at Gemological Institute of America (GIA) headquarters in Carlsbad, CA.;
- California Federation of Mineralogical Societies (CFMS) will have their show on May 30, 31 and June 1, 2014. The show will be held at Pomona's Fairplex. It would be nice to see an MSSC exhibit there. Non-competitive deadline is April 14th;
- More door prizes tonight: calendars and various publications compliments of tonight's speaker, Diane Nelson;
- No show and tell from the members.

There was discussion about huge amethyst geodes from Argentina, Uruguay and So. Brazil: yes, they are real

Program: Ann Meister turned the meeting over to Programs Chair, Rudy Lopez. Rudy introduced our speaker, Denise Nelson. Denise has been a gemologist for over 20 years and is an importer of items from Asia, Africa and other parts of the world. She is a jeweler and a GIA appraiser. Rudy brought copies of this week's articles pertaining to diamonds: a 2.89 carat diamond found in Arkansas and the other about rare diamonds.

Denise commented on the huge amethysts of Brazil and conveyed how, on her visit to a mine (at basalt layer 5), the walls are drilled and they put a laser cut, insert a camera and look inside to see the best crystals to cut out. And, they are huge!

Denise offered us a rare look at DeBeers' actual mining operations in South Africa and Namibia. She went to the Cullinan Mine (owned by Petra Diamonds) and spent several days in the "forbidden zone", and saw the pocket-beach mines of Namibia. She also told of her helicopter adventure flight on to one of eight ocean dredging ships that "mine" diamonds.

Cullinan Premier Mine, located east of Pretoria in South Africa is a huge underground diamond mine owned by Petra Diamonds. The mine was opened in 1902 and refused to join the DeBeers cartel (see below). Denise's photo of Cullinan showed how the open pit (1,000 m in length, 500 m wide and 450m deep) has encroached on the town surrounding it. At one time, it was the largest open pit mine in the world. Occasionally, a house will sink into the hole and the company will buy it. This mine was originally mined by individual miners by hand. In the mid-1900's the pit was becoming so dangerous that they began going underground. Kimberlite, laid at an angle, known to contain diamonds, was drilled in the mine. Kimberlite is quite ugly and when wet becomes muddy, like quicksand. There is a lot of water in the mine and it is pumped out constantly.

Denise had opportunity to tour of the mine, which is difficult to come by and must be set up months in advance. One can actually go down into the mine with the miners. It is necessary to "gear up", sign disclaimers, get safety equipment and wear a 25 lb oxygen battery pack (½ hour life) around the waist. Her tour went down 763 meters, so that was way below the open pit mine part. The tunnels are large enough to drive a car through! In fact, large equipment is run in the mine underground. All of the tunnels have proper ventilation and there is a large safe room with first aid and communication connections to the top, if needed. The entire operation is well organized and safe.

After the tour, visitors are required to return all equipment, including overall outfits and boots! Security is tight, no samples or souvenirs.

The 3,106 carat Cullinan Premier Diamond is white, 621.2 grams in weight (1.37 lbs) and was found close to the surface in the wall close to a Kimberlite belt. The stones from Cullinan are large and very clean (desirable in diamonds). Another famous diamond came out of this mine. It is the Centenary Diamond, which took 4 years to cut.

Cecil Rhodes (1854-1902) was sent to Africa for his health when he was a young man. Eventually, he'd become a millionaire in the diamond fields and begun acquiring small mines in surrounding areas. Controlling 90% of the world's diamonds production, he was very powerful and created the DeBeers consortium. He also served as Prime Minister of South Africa. He died at 48.

Namibia is on the Southwest Coast of African. It's largest city and its capital is Windhoek. Having been a German Imperial protectorate in 1884 and until the end of WWI, their influence is still seen today and, German is among the languages spoken. Namibia is a wonderful collecting place and many locals sell rocks along the road, mostly quartz, though.

Etosha National Park is one of the most exquisite national parks on the continent.

The unique thing about this park is that they have beautiful seating. One can sit there all day long and the animals come to you. They do so because there is only one watering hole and all the animals come to the watering hole. It's a wonderful experience to watch them.

The other thing about Namibia is the coast line, stretching south to north the length of the country. It has one of the most wicked coasts, called the Skeleton Coast because the unbelievable winds cause many shipwrecks. The water is ice cold coming up from the Antarctic.

Namibia has Petersite, which looks like Tiger's Eye; the Orange River Quartz is a bi-colored quartz. Goboboseb/Brandberg Amethyst crystals are world famous. What is unique about them is that they have phantom crystals inside of clear quartz: citrine colored, smoky quartz and purple amethyst making three colors inside one natural crystal. Also, colored Fluorite, Mandarin Garnet, colorless Topaz and other gems come from Namibia. There are dealers selling these gems in the towns, theirs are better stones then the ones the children try to sell along the roads. Namibia also has a uranium mine, which we wanted to stay away from. There was a short visit the Fluorite mine.

Windhoek, Namibia's capitol, has a mineral museum that has the world's largest crystal cluster while Kolmannskuppe is a ghost town that is so windblown sands fill the abandoned houses. There was a mine that only mined gravel and left Topaz behind!

The Forbidden Zone: Luderitz near Chameis Bay to Oranjomund in the south, is Mining Area 1 belonging to DeBeers. In the early days around 1919, the diamonds could be picked up off the ground, literally. There is the Orange River mine and the Pocket Beach mine. This area is approximately the size of Belgium.

Mine workers in Oranjomund are hired for life, live in a closed company town. The workers children grow up there (if problems, the teenagers are sent to private school), they have libraries, restaurants, swimming pools and other benefits. There are posted rules everywhere and the rules must be followed. So, gates, paperwork, security and more all are important to protect the owner's diamonds.

People who go into the mines (workers and visitors) must pass through ultra security that uses x-Rays (in and out). Visitors must pass through various checks months ahead of time, including scrutiny by the Namibian government, the police, including background checks and DeBeers. A guest pass contains all personal information and is used for entry and exit as well as housing. The DeBeers tour lasted about 4 or 5 days for the party of 8.

The workers do not touch or handle the diamonds bare handed. X-Rays are used in diamond grinding and analysis. There is a tube/canister system and closed glove box area where the workers processed rough gems; no temptation, preserves integrity of sampling.

DeBeers also does marine mining of diamonds. The *Debmar* ship was the same vessel that Jacques Cousteau visited some years back. A helicopter transported the tour group to the *Debmar*. On this occasion, the sea was ice cold, choppy with whitecaps and waves 6 meters high. The offshore dredging operations were very successful 1961-1970 netting 1.5 million carats at 20 meter depths. The offshore operations continue to be successful. DeBeers has 8 vessels for offshore dredging with shifts at 28 days on and 28 days off.

Denise also describe areas north of the Forbidden Zone including Elizabeth Bay Mine which has windblown deposits of diamonds that are small, < 10 points, and told us how the Pocket Beach mines are operated.

Denise thanked her sponsor and fellow tourists/guests: Dr and Mrs LeBerge, Mr Kakia, Dr Anthony Kampf among others. Wow! Thank you, Denise Nelson and husband for an informative, historic presentation.

Drawing: There were 9 drawings for door prizes! Again, thanks to Denise Nelson for her contributions to the drawing.

Adjournment: The meeting was adjourned at 9:17pm Refreshments were served in the office following the meeting.

Respectfully submitted, Angie Guzman, Secretary

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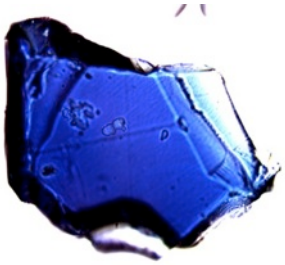
What Is Ringwoodite? and Why Do I Care? by Ann Meister

Ringwoodite was found as a tiny blue inclusion in a rare diamond that came from the Earth's mantle, but surfaced in Brazil in riverbed gravel in Mato Grosso. Ringwoodite is a high-pressure polymorph of olivine with a spinel structure. It is of interest because it confirms a theory that the Earth's mantle holds an ocean's worth of water. This is not liquid, but tied up in the crystal structure of the ringwoodite as hydroxide ions. Tests have found that about 1.5% of its weight is water.



Ringwoodite crystal approx. 150 micrometers across synthesized at 20 GPa and 1200°C. *(Photo courtesy Joseph Smyth, via Wikipedia Commons authorization -Photomicrograph taken at University of Hawaii)*

Scarred diamond from the Earth's wet zone in which the ringwoodite was found. *(Photo use courtesy of Richard Siemens/ University of Alberta)*

The research was done by Graham Pearson,

a geochemist at the University of Alberta in Canada and his colleagues. It was published in the journal *Nature* on March 12, 2014. While looking for a means of dating the sample, the discovery if ringwoodite was accidental and attributed to careful sample preparation (and luck). Usually the heat from polishing the sample causes the olivine to change back to a lower-pressure form. Scientists had suspected that ringwoodite might make up much of the deep earth, but this was the first time that it was found.

News stories about the find have headlines such as "Rough diamond hints at vast quantities of water inside Earth," or "Rare diamond reveals Earth's interior is all wet." Well, we're talking about the transition zone of the mantle at about 250 to 400 miles beneath the surface (410 to 660 km). So it's not like we're going to drill down there and recover the water. But it does perhaps create weak spots for volcanoes or lubricate plate tectonic movement. Maybe the plates really do float?

Apart from the mantle, natural ringwoodite has been found in many shocked chondritic meteorites, in which the ringwoodite occurs as fine-grained polycrystalline aggregates. It has also been synthesized in the laboratory.

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Part II: Golden State Quicksilver: The Origin of Silica-Carbonate Hg in California

by Kyle Beucke ***Part 1 can be found in your February, 2014 MSSC Bulletin***

What does the data suggest about the genesis of the deposits?

The available age constraints and the observed association with high-angle faults suggest that silica-carbonate mercury deposits in the California Coast Ranges were formed, in Miocene and later times, by thermal fluids that were channeled by the San Andreas fault system. Tertiary volcanism in the California Coast Ranges is also related to the San Andreas fault system and displays a northward younging. This volcanism, which is thought to be related to the passage of the Mendocino Triple Junction, could have played a role in the silica-carbonate mercury mineralization, although these deposits often have no apparent connection to volcanism (McLaughlin et al. 1996; Moiseyev 1971).

I will now review several models of silica-carbonate mercury deposit formation and later I will discuss current spring activity that may represent present-day analogues to these deposits.

Silica-carbonate mercury deposit models

Numerous authors have discussed the geology of silica-carbonate mercury, although they do not always recognize them as a distinct type of mercury deposit. Models of varying detail have been proposed for their genesis (for example, Dunning et al. 2005, Peabody and Einaudi 1992, Pickthorn 1993, Rytuba 1995, Rytuba and Kleinkopf 1995, Smith 2010, and Studemeister 1984).

Most of these models involve a gas-rich fluid containing mercury and hydrocarbons rising up through high-angle faults. The mercury and hydrocarbons are usually considered to have been volatized from deep sedimentary rock, such as the Franciscan complex. These fluids are thought to include connate and/or metamorphic water. Moiseyev (1971), Rytuba and Kelinkopf (1995), and Studemeister (1984) recognize the potential importance of brittle serpentinite serving as a conduit for the flow of the mineralizing fluids through less permeable sedimentary rock. The fluids altered the serpentinite to silica-carbonate rock and deposited mercury. None of these models imply separate silica-carbonate and mercury phases. The models differ in the significance of magmatism and the source of the water and heat.

First, a word about water. The four major classes of subsurface waters are meteoric, magmatic, connate, and metamorphic (American Society of Civil Engineers 1996). Meteoric water is of surface origin. Magmatic water is derived from cooling magmatic bodies. Connate water is ancient sea water that was trapped in marine sediments and later expelled, through pressure or other means. Metamorphic water is generated through the transformations that minerals undergo as they are progressively buried and become hotter; these reactions "produce substantial volumes of metamorphic water in the mid- and lower-crust." (Robb 2005) It would appear that the subduction-related sedimentary rocks of the California Coast Ranges could have supplied connate and/or metamorphic fluids for the formation of silica-carbonate mercury deposits.

I will now summarize the key points of the models; the models are listed in order of decreasing importance ascribed to magmatism:

Rytuba (1995) and Rytuba and Kleinkopf (1995):
*Deep magmatism (resulting from the passage of the Mendocino Triple Junction) volatizes carbon and mercury from sedimentary rock and powers the hydrothermal system.
*Fluids are connate.

*Silica-carbonate mercury deposits are succeeded by shallow volcanism, and finally by other hydrothermal systems (such as epithermal gold-silver deposits).

Dunning et al. (2005):
*Focused on Clear Creek mine (New Idria District, San Benito County, California).
*Heat source was volcanic activity.
*Fluids could have been connate or metamorphic.

Smith (2010):
*Fluids were mixtures of connate and meteoric water, and were 50-150° Celsius.
*Epithermal gold-silver deposits in the Coast Ranges, such as the McLaughlin deposit, formed from higher-temperature and more concentrated connate fluids.

Peabody and Einaudi (1992):
*Studied the Culver-Baer silica-carbonate mercury deposit, which is the basis for their model.
*At depth, heated sedimentary rock undergoes metamorphic reactions, releasing fluids (metamorphic and/or connate) and gases, including hydrocarbons.
*Heat source not specified (could be magmatism or subduction-related).
*The gas phase (critical component of this model) scavenges and concentrates mercury from the sedimentary rock, and rises, eventually leaving the fluids behind.
*The gases reach the surface and mix with groundwater. This fluid and gas mixture alters serpentine to silica-carbonate rock and deposits mercury and hydrocarbons.
*As evidence for the importance of the intermediate gas phase, Peabody and Einaudi cite the fact that mercury and hydrocarbons are essentially the only components introduced into the mineralized rock; both of these are effectively transported in a gas. For example, hydrocarbons and mercury are present in the steam of the Geysers geothermal field (Fruchter and Ludwick 1977 and Moore et al. 2001).

Moiseyev (1971):
*Focused part of his work on the mercury deposits of the California Coast Range, most of which are of the silica-carbonate type (although he did not distinguish among different "types" of mercury deposits).
*Recognized the lack of a strong apparent relationship between the mercury deposits and volcanism and proposed that the mercury may have been derived from sedimentary rock.
*Cenozoic intrusions provided the heat necessary for the volatilization of the mercury and driving the hydrothermal fluid.
*As support for the importance of magmatism, he pointed out that both volcanic activity as well as mercury deposits are absent in the Coast Ranges north of Clear Lake, California.

Studemeister (1984):
*Fluids were connate and/or metamorphic; "expulsed from Mesozoic sediments" as a result of both prograde metamorphism and Cenozoic intrusive activity.
*Preferential concentration of mercury (with little other metallic mineralization) explained by low salinity fluid and the transport of the mercury in a vapor phase.

Pickthorn (1993):
*Subducted rock undergoes prograde metamorphism, producing (metamorphic?) water and volatiles.
*Mendocino Triple Junction passes, change from compression to transform faulting and dilation, results in tectonic release of the fluids along faults.
*Model does not rely on magmatism; Pickthorn rejects importance of magmatism, pointing out apparent scarcity of volcanic activity in parts of the Coast Ranges with abundant silica-carbonate mercury deposits.

Interestingly, Pickthorn also proposed that mesothermal gold veins (perhaps similar to those in the Sierra Nevada foothills) might lie beneath silica-carbonate mercury deposits. He speculated that the Los Burros gold district (Monterey County) could be a rare example of this deeper gold mineralization in the Coast Ranges. Groves et al. (1998) also suggested that silica-carbonate mercury deposits could be the surface expression of deeper orogenic gold systems, citing the similar tectonic setting of a convergent plate margin and the possibly similar low salinity, high carbon dioxide ore-forming fluids that were expelled from sedimentary rock. They also point out that many orogenic gold systems evidently formed in association with periods of magmatism and higher temperatures that could coincide with the termination of subduction activity; this would be compatible with a hypothesis of silica-carbonate mercury deposits forming in response to the termination of subduction and passage of the Mendocino Triple Junction, which might have resulted in greater thermal input.

Current spring activity: ues for analogsilica-carbonate mercury deposits?
The abundance of carbon dioxide-rich springs in the Clear Lake area, often in close proximity to silica-carbonate alteration, and the evidence that similar fluids are responsible for silica-carbonate alteration have led to speculation that some of the current spring activity may be a continuation of that which caused the alteration and mercury mineralization (Barnes et al. 1973a; Sherlock et al. 1993). The chemistry and oxygen isotopes of these spring waters have been studied for decades. The isotopic signatures of the waters separate them into meteoric and non-meteoric waters; the latter group has an isotopic signature that reflects rock-water interaction and could include connate and metamorphic waters (Donnelly-Nolan et al. 1993). The carbon in the carbon dioxide gas appears to have an organic source, possibly an organic-rich sedimentary rock, such as the Franciscan formation (Barnes et al. 1973b; Goff and Janik 1993).

As stated above, some workers have suggested that the present day spring activity may be analogous to that which altered the serpentinite to silica-carbonate. Evidence from well-studied hydrothermal systems indicates that these systems are dynamic and evolve over time. Not only could the fluids currently issuing from silica-carbonate-associated springs be different from those that caused the alteration, but the mercury mineralization may have been yet another phase with fluid characteristics very different from those that were responsible for the silica-carbonate alteration.

An excellent example of such a changing hydrothermal system is the McLaughlin mine. In this deposit (and several nearby silica-carbonate mercury deposits), all hydrothermal activity was focused through the Stony Creek Fault. An initial phase of silica-carbonate alteration of serpentinite was followed by a gold-silver hot spring system, as evidenced by an observed cross-cutting relationship. The later precious metal stage possibly developed as a result of near-surface volcanic activity, higher temperatures, and a greater volume of fluid. The latest, and still ongoing, activity is a warm spring depositing carbonates, barite, and various sulfides (Rytuba et al. 1993). Hydrothermal activity at McLaughlin spans at least 750,000 years (Tosdal et al. 1993).

Evidence cited earlier in this paper suggests that silica-carbonate mercury deposits may have had a similarly dynamic history. Although some workers have proposed that silica-carbonate alteration of serpentinite could be caused by cool fluids similar to those issuing from mineral springs in the Coast Ranges, there is evidence that the water involved in mercury mineralization was thermal (Peabody and Einaudi 1992). It is possible that the mercury mineralization could be a sporadic, higher-temperature event occurring within a longer, lower-temperature silica-carbonate alteration process, as proposed by Barnes et al. (1973a). If this is indeed the case, what could have caused the difference in temperature in the two phases? Perhaps the silica-carbonate alteration is caused by tectonic release of lower-temperature metamorphic or connate fluids, and mercury mineralization results from a higher thermal input (but the same fluid source) from magmatism; both of these hydrothermal phases would have been dependent on the propagation of the transform fault system.

Watch for Part III in a future Bulletin. If you can wait, check out the entire article on www.mindat.org :

Editor's Note: My thanks to Kyle Beucke for his generous permission to use his article and pictures in our bulletin. If you would like to see the article in its' original format, please visit:
http://www.mindat.org/article.php/1683/Golden+State+Quicksilver%3A+The+Origin+of+Silica-Carbonate+Hg+in+California

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Calendar of Events:

Only local area shows are listed here. Other CFMS Club shows can be found at: http://www.cfmsinc.org/

APRIL, 2014

*** April 11 - 13: VISTA, CA**
Vista Gem & Mineral Society
Antique Gas & Steam Engine Museum
2040 North Santa Fe Avenue
Hours: 9 - 5 daily
Website: www.vistarocks.org

*** April 26 - 27: THOUSAND OAKS, CA**
Conejo Gem & Mineral Club
Borchard Park Community Center
190 Reino Road (at Borchard Rd.)
Hours: 10 - 5 daily
Website: www.cgamc.org

MAY 2014

*** May 3 - 4: ANAHEIM, CA**
Searchers Gem & Mineral Society
Brookhurst Community Center
2271 W. Crescent Avenue
Hours: Sat 10 - 5; Sun 10 - 4:30
Website: www.searchersrocks.org

*** May 3 - 4: YUCAIPA, CA**
Yucaipa Valley Gem & Mineral Society
Scherer Senior Center
12202 First Street
Hours: Sat 10 - 6, Sun 10 - 4
Website: www.yvgms.org/wiki

*** May 10 - 11: LANCASTER, CA**
Antelope Gem & Mineral Society
Lancaster High School
44701 - 32nd Street West
Hours: 9 - 5 daily
Website: www.avgem.weebly.com

*** May 30 - June 1: POMONA, CA**
2014 CFMS Show and Conference
Fairplex, 1101 W. McKinley Ave
POMONA, CA
hosted by the **Pasadena Lapidary Society**
Show Website: www.cfms2014show.com

*** May 31 - June 1: ESCONDIDO, CA**
Palomar Gem & Mineral Club
California Center for the Arts
1340 N. Escondido Blvd.
Hours: Sat 10 - 5; Sun 10 - 4
Website: www.palomargem.org

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Featured Mineral: **Wulfenite** **Formula:** $Pb(MoO_4)$

Crystal System: Tetragonal

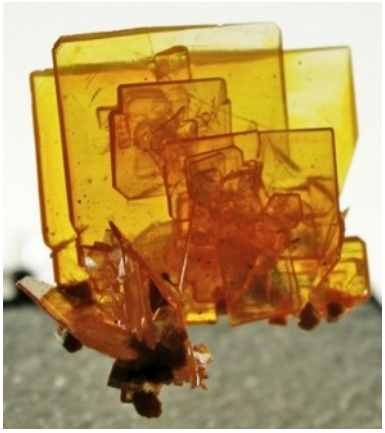
Name: Re-named in 1845 by Wilhelm Karl von Haidinger in honor of Franz Xavier von Wulfen [November 5, 1728 Belgrade, Serbia - March 16, 1805 Klagenfurt, Austria], botanist, mineralogist, alpinist and member of the Order of the Society of Jesus (Jesuit). Wulfen authored a monograph on the lead ores of Bleiberg, Austria. This mineral was originally named "plumbum spatosum flavo-rubrum, ex Annaberg, Austria" in 1772 by Ignaz von Born. In 1781, Joseph Franz Edler von Jacquin called the mineral "Kärntherischer bleispath". Other names were later proposed.

irocks.com photo

Wulfenite $Pb(MoO_4)$
Locality: Red Cloud Mine, Silver District, Trigo Mts, La Paz Co., Arizona, USA
3.2 cm x 2.2 cm x 0.8 cm

irocks.com photo

Wulfenite : $Pb(MoO_4)$
Mimetite : $Pb_5(AsO_4)_3Cl$
Locality: San Francisco Mine (Cerro Prieto Mine), Cerro Prieto, Cucurpe, Mun. de Cucurpe, Sonora, Mexico
4.5 cm x 4.4 cm x 4.2 cm



irocks.com photo

Wulfenite : $Pb(MoO_4)$,
Vanadinite : $Pb_5(VO_4)_3Cl$
Locality: Rowley Mine (Rawley Mine; Reliance Mine; Reliance Copper Mine; Rainbow Mine; Theba Mine; San Carlos patented claim #4524), Theba, Painted Rock District, Painted Rock Mts, Maricopa Co., Arizona, USA
1.8 cm x 1.8 cm x 1.1 cm

irocks.com photo

Wulfenite : $Pb(MoO_4)$,
Mimetite : $Pb_5(AsO_4)_3Cl$,
Calcite : $CaCO_3$
Locality: Ojuela Mine, Mapimí, Mun. de Mapimí, Durango, Mexico
8 cm x 4 cm x 2.5 cm

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Ride Share Listing

Can You Provide A Ride?
Would You Like Company On The Drive To Meetings?

We have heard from several of our members that they would like to ride-share with someone to the meetings. We will list the names, general location and either a phone number or an email address of anyone who would like to connect for a ride-share. If you would like to catch a ride or would like company for the trip, let me know at msscbulletin@earthlink.net and I'll put the information in this section of the bulletin. After that, any final arrangements made are up to you. Also, If you make a connection that works for you, let me know so that I can remove your information from the bulletin. The Editor

Looking for	Who	Where	Contact at
A ride	Richard Stamberg	North Orange County, near Cal State Fullerton	
A ride	Catherine Govaller	San Bernardino, CA	

MSSC Advertisement Policy:
Mineral-related ads are allowable in the MSSC bulletin. Below is the price per month

Business Card	$5.00
1/3 page	$10.00
1/2 page	$20.00
Full Page	$35.00

In addition, any advertiser who purchases 12 months of space in advance will receive a discount of 12 months for the price of 10 months. The copy for the ads should be mailed to the editor at bulletin@mineralsocal.org and the payment should be sent to the **MSSC Treasurer 1855 Idlewood Road, Glendale, CA 91202**

2014 MSSC Officers:

OFFICERS		
President	Ann Meister	president@mineralsocal.org
Vice President	George Rossman	vicepresident@mineralsocal.org
Secretary	Angie Guzman	secretary@mineralsocal.org
Treasurer*	Jim Kusely *	treasurer@mineralsocal.org
CFMS Director	Jo Anna Ritchey	
Past President	Geoffrey Caplette	
DIRECTORS		
2013--2014	Bruce Carter	
2013--2014	Bob Housley	
2013--2014	Leslie Ogg	
2014-2015	Pat Caplette	
2014-2015	Pat Stevens	
COMMITTEE CHAIRS		
Bulletin Editor	Linda Elsnau	bulletin@mineralsocal.org
Hospitality	Laura Davis	
Membership	Cheryl Lopez	membership@mineralsocal.org
Micro Mount Conf. Chairman	Al Wilkins	
Program and Education	Rudy Lopez	programs@mineralsocal.org
Publicity	Linda Elsnau	bulletin@mineralsocal.org
Webmaster	Leslie Ogg	webmaster@mineralsocal.org
* Treasurer	Jim Kusely –proviso due to surgery, mid-year, Ahni Dodge and Laura Davis to assist while Jim convalesces	

About the Mineralogical Society of Southern California

Organized in 1931, the Mineralogical Society of Southern California, Inc. is the oldest mineralogical society in the western United States. The MSSC is a member of the California Federation of Mineralogical Societies, and is dedicated to the dissemination of general knowledge of the mineralogical and related earth sciences through the study of mineral specimens. The MSSC is a scientific non-profit organization that actively supports the geology department at Pasadena City College, Pasadena, California. Support is also given to the Los Angeles and San Bernardino County Museums of Natural History. The Bulletin of the Mineralogical Society of Southern California is the official publication of the Mineralogical Society of Southern California, Inc.

The MSSC meetings are usually held the second Friday of each month, January, February and August excepted, at 7:30 p.m. in Building E, Room 220, Pasadena City College, 1570 E Colorado Boulevard, Pasadena, California. The annual Installation Banquet is held in January, and the annual Picnic and Swap Meeting is held in August Due to PCC holidays, meetings may vary. Check the Society website for details.

The Society also sponsors the annual Pacific Micro mount Symposium held at the San Bernardino County Natural History Museum during the last weekend of January.

Annual Membership dues for the MSSC are $20.00 for an individual membership, $30.00 for a family membership. Bulletins are delivered by email, there is an additional annual $20.00 fee if you prefer paper bulletins mailed to your address. The Society's contact information:

Mineralogical Society of Southern California
1855 Idlewood Rd.,
Glendale, CA 91202-1053
E-mail: *treasurer@mineralsocal.org*

Website: ***www.mineralsocal.org*** **The Mineralogical Society of California, Inc.**

MSSC Bulletin Editor
3630 Encinal Ave.
Glendale, CA 91214-2415

To:

With Knowledge Comes Appreciation

Your MSSC Bulletin Is Here!