



Bulletin of the Mineralogical Society of Southern California

Volume 88 Number 3 - March, 2015

The 919th meeting of the Mineralogical Society of Southern California

With Knowledge Comes Appreciation

March 13th, 2015

7:30 P.M.

Pasadena City College

Geology Department, E-Building, Room 220

1570 E Colorado Blvd.. Pasadena

Program: European Museum Collections” Presented by Denise Nelson

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

About the Program: “European Museum Collections” Presented by Denise Nelson. A glimpse at the lesser known, yet surprisingly exquisite Mineral, Gem and Jewelry exhibits in European Museums. Trier, Freiberg, Munich and Ehrbach in Germany, York in England, and Vienna, Austria are some of the places which hold both ancient and modern treasures.

Denise Nelson is a Graduate Gemologist (GIA), Appraiser, and occasional Gem hunter. She started her own business, Inner Circle, a Fine Jewelry and Appraisal provider, over 23 years ago in Maryland. Her travels to mines and trade-shows have taken her to many different Countries like Brazil, Thailand, Malaysia, Japan, China, Germany, France and Argentina.

From the Editor: Linda Elsnau

Well, this has been an interesting month for me. My laptop died rather dramatically in the first week of February. I fussed with it for several days before I decided it was time to get a new one. I had been nursing it along for several months and just resisting the inevitable. I was using MS Vista and was quite happy with it and was resistant to switching to Windows8. We went shopping and purchased a new system but got stuck moving up to Windows8. Because to the damage within my old system, it has taken almost two weeks to get the new system up and running so I could get this bulletin out on time. I still have some data to work out of the old system, but I got enough to get going with and ... here's your March Bulletin!

On another topic, The February bulletin mentioned a March field trip to visit the oil seeps in Ventura County. Unfortunately, it has not been put together yet so unless I hear differently consider it rescheduled to a later date. If it is indeed to occur on March 28th as originally decided, I will email everyone with the specifics.

MEANDERINGS FROM THE PRESIDENT by Ann Meister

What a fantastically successful 50th Annual Pacific Micromount Conference on January 30 & 31 with a field trip on February 1. The attendance was surpassed last year (more than 55, don't have exact count) and included people from all over the US, Canada France and Belgium. Georges Favreau from France was the Friday night speaker. He showed us how dangerous field collecting can be in the Alps. On Saturday, Joe Marty from Utah and our own Paul Adams spoke on field collecting in the western US. Those who left before the “contributed talks” on Saturday night missed interesting presentations on collecting at the Champion Mine and collecting in the phosphate pits in Florida by attendees whose names I now can't find my notes on. Also Herwig Pelckmans from Belgium who last year spoke on crystal habits of fluorite showed illustrations from the **NEW BOOK** by Eddy Van Der Meersche, *Crystal Forms of Fluorite*. The book not only has drawings of the crystal forms, but the drawing match the photographs of specimens showing the forms so that you can see what Mother Nature has created. This is a “must have” for any fluorite collector and anyone interested in crystallography.

Thanks for such a successful 50th Conference go to Al Wilkens and Bob Housley who co-chaired the event, Gene Reynolds who provided an abundance of material on the give-away tables, Janice and Garth Bricker who watch over the sales table, Jim Kusely and Joanna Ritchey who attend to the registration table, myself for the food, and Julia Curtis who spoke on the history of the conference and her mother Juanita who was the founder of the conference. A good time was had by all. Even the Saturday morning blackout which delayed Joe's talk added to the aura and mystery by showing attendees what being underground in a mine is like when your lights go out. Planning is already started for next year. Come join us then at the San Bernardino County Museum in Redlands.

MINUTES of the February 20th, 2015 General Meeting

The **918th** meeting of the Mineralogical Society of Southern California (MSSC) was held Friday, February 20, 2015 at Pasadena City College, Geology Department. President Ann Meister called the meeting to order at 7:35 p.m.

New Business: Welcome guest Tessy Smith, Angie's sister.

Ann asked if there were any corrections or additions to the Minutes of the January, 2015 Annual Installation Banquet Meeting. Hearing none, she asked for a motion to approve the minutes as published in the February 2015 Bulletin. A motion was made to approve the minutes by JoAnna and seconded by Ahni. The vote was taken and the motion passed unanimously.

The next Board Meeting will be Sunday, March 1, 2015 at the Carter home. The meeting will commence at 1 p.m. Please advise any agenda items as soon as possible. Any and all members are invited to attend with notification in order to provide seating.

Dues were due January 1. If you have not received your most recent roster or Bulletin, we don't know if you've paid your dues

Deadline for the March Bulletin is Sunday, February 23, 2015. Please send your contributions to our editor, Linda Elsnau, by the deadline.

Other Business: The Pacific Micromount Conference was a tremendous success this year. Al Wilkins said he counted 35 microscopes and Ann had to order more food. Mrs. Bob Reynolds said the San Bernardino County Museum would like to see us back next year. And, next year part of the proceeds will be donated to them in the form of new tables and chairs. Power went out in a portion of Redlands but it was restored after about ½ hour. Attendees included people from Europe, Canada and the United States with about 50 registered plus various museum folks roaming in to participate. This conference was the 50th anniversary for PMC. Congratulations!

Announcements: Monrovia show will be 3/7 and 3/8 at the Los Angeles Arboretum from 9 a.m. – 4:30 p.m. There is admission charge to the Arboretum \$7 seniors and \$9 adults. The show is free, however.

Pasadena Lapidary show is Saturday, 3/14 from 10 a.m.- 6 p.m. and Sunday, 3/15 from 10 a.m.–5 p.m. at the Masonic Hall on Huntington in San Marino. Admission is free, parking is at a premium but they have a kitchen. They have different vendors than the Monrovia show so attend both shows!

Fallbrook club is having their “Rough, Cut and Carved” auction and sale of rough mineral material for lapidary and faceting projects, etc. The event will be March 21, 2015 starting with a silent auction beginning at 1 p.m.

13th Annual Sinkankis Symposium will be held in Carlsbad, CA on April 18 2015. Early registration now through March 17, 2014 is \$95.00 and \$105.00 thereafter. Seating is limited. The featured gem is opal. Dr. George Rossman, Cal Tech Professor of Mineralogy and MSSC Vice President, will speak with Dr. Eloise Gaillou of the LA County Natural History Museum on the topic: *Color in Opal*.

Other Announcements: None

Show and Tell: Ann's *Minerals in the News* segment is about a 17 pound gold nugget found by a herdsman in far western China! (The nugget is in the shape of China.)

Tucson: Angie reported she attended the Tucson Gem and Mineral show and saw many beautiful rocks, gems and minerals. A real jaw dropper! It was fantastic, there was gold, copper, garnets and other gems, minerals, wonderful exhibits, sale items and it was fun. [Note: There were so many vendors in the Convention Center and outside up and down streets, as well. One or two days are not enough time to see everything!]

BJ brought some items she collected at Yuha desert near El Centro including possible bone, “praying monk” suiseki viewing stone and another that she referred to George for identification.

Program: Ann turned the meeting over to Program Chair, Rudy Lopez, who introduced our speaker, Keith Krzywiec from West Covina Fossil Paleontology who will present Non Vertebrate Salad of the Puente Formation.

Keith provided some background of West Covina Fossil Paleontology, introducing the audience to his crew and his past experiences. He is a self-taught man dedicated to the study of prehistoric San Jose Hills Puente Formation. He volunteers at the Los Angeles County Natural History Museum (LACNHM) and would be willing to do a field trip to the fossil field in the local dig site area.

He began with the Puente Formation and the time line for fossils collected. Most of the fossils are between 11 million years ago (mya) and 8 mya. The area is a former deep ocean that was uplifted by tectonic activity all those years ago. Now, shell, leaf, wood and plant life fossil are found there.

The House Plot Project is comprised of 2 neighborhoods: (1) “Inseperation point” east and (2) the western house plots. These areas are apparently due for development but still hold a wealth of fossil including vertebrate whale and sardine fossils and non-vertebrate shell, petrified wood, seaweed and other plants fossils. The shale is inviting and waiting!

Combined with the three climates (sub-tropical low land, sub-tropical up land and semi- arid up land) the La Vida member (11 mya) of the Puente Formation is rich with terrestrial flora (white pine needles), salix willow leaf, sycamore leaf, oak leaf, manzanita (evergreen) leaf and even walnuts! West Covina Fossil Paleontology also found juniper petrified wood.

The Yorba member in this area yields clam shell fossil that have incredible detail. Shallow water shells are found in the Puente Formation, as well. Pecten shells are deep water, as are oyster shells with Mother of Pearl. It would be interesting to find a pearl fossil, which is rare.

Amazingly, there is the bean clam, Donax, from the *San Pedro* Formation (250 mya). There must have been a great deal of shifting for the Donax to end up in this area! Crab pincers (Cancer Crab) ¾” long, gastropods (muricidae), terebra turritella, fresh water snails, and on and on... Fossils one and all...

It’s exciting to discover a fossil new to the findings. These hills have a lot of them and Keith says he has boxes and boxes and could use some help, maybe do a workshop or field trip. Well, that concludes the presentation. Keith thanked MSSC for having him back as a speaker.

Questions: Are there fossils in South Pasadena? Not known at this time if there are fossils in South Pasadena. However, Azusa (Monrovia Nursery area) has the oldest fossil native at 16 mya, deep ocean tiny fish. Finally, there are fossils off the 60 Fwy in Montebello!

Thanks, Keith, for an interesting presentation and for bringing fossil specimens.

Drawing: Two items tonight: (1) Shark tooth donated by Keith was won by Rudy Lopez who gave it to guest Tessy Smith and (2) the second drawing was a door prize item won by Pat Caplette.

Angie brought cards and note pads from Tucson. Ann will put them with door prizes.

Adjournment: The meeting was adjourned at 8:55 p.m.

Respectfully submitted by Angie Guzman, MSSC Secretary

List of Upcoming MSSC Events : Mark your Calender!

Event	Date	Comments / Scheduled Program (if known)
Meeting Dates:	April 10, 2015	Justin Zzyzx: Palos Verdes, Barite, Mines and History
	May 8, 2015	Gabriel Masosson: African Opals, Welo Opals from Ethiopia
	June 12, 2015	Justin Zzyzx: Palos Verdes, Barite, Mines and History
Board Meeting	March 1, 2015	Board Meeting at Bruce Carter’s house

Note: Dates and programs shown above are subject to change. Check your bulletins to confirm final information each month.

MINUTES of the November 16th, 2014 MSSC Board Meeting

1. Call to Order and Roll Call: The Board meeting was called to order at 1:01 p.m. by Board President Ann Meister. After Ann’s welcome, the Roll Call of Board members was made. Those present were Ann Meister, George Rossman, Jim Kusely, Angie Guzman, Bruce Carter, Jo Anna Ritchey, Geoffrey Caplette, Pat Caplette, Leslie Ogg, Pat Stevens, Linda Elsnau, Rudy Lopez and Cheryl Lopez. Excused were Bob Housley and Al Wilkins. Thank you to Bruce and Kathy Carter for again hosting the meeting.

2. Minutes: There was a **motion** from the floor by George Rossman and seconded by Angie Guzman to approve the September 14, 2014 Board Meeting Minutes as published in the November 2014 Bulletin. The motion was voted on and passed unanimously.

3. Old Business
3.1 President’s Report: Ann expressed her appreciation for our participation on the Board and said how happy she is that we are all willing to put in another term. She mentioned that she is really concerned

that we may suffer burn-out and people will start to drop out. We will need to discuss how we can get more people involved.

Congratulations and thanks to Rudy on an excellent meeting (Mars Rover).

Ann discussed how we can “advertise” our meetings and perhaps build membership. There is a blog in Altadena and she made a posting. She commented on the attendance at the November Membership meeting (Mars Rover) and was pleasantly surprised at the high turnout (85). She has also distributed flyers of our meetings. There was discussion concerning wider participation, where we can place flyers and other means to broadcast MSSC. For instance, websites, collecting field trips, possibility of Publicity Chair or public relations person, etc. Ahni was able to have something published in PCC’s publication. How do we reach people who have an interest in minerals and geology?

The San Gabriel Mountain National Monument did go through and will be run by the U. S. National Forest Service who is currently running the Angeles National Forest. There is still another 3 years to develop the final management plan but don’t know yet if we can actively participate with that. There is a map showing an awful lot in the front that did not get included that they thought would...that leaves Cascade Canyon and other places that are not part of it. Not sure about gold panning. Discussion on the matter followed with mention of John Martin CSFM Vice-President and Shirley Leeson, President of American Land Association as persons to contact or who have been contacted.

3.2 Treasurer’s Report: Jim Kusely reports that overall, MSSC is doing well. We hold the same position as this time last year. The PNC income offsets the honorarium for speakers. No problems expected. We may be able to spend more toward expenses (travel, etc.) of the speakers.

There was lively discussion regarding MSSC promotion and advertising for mineral collectors and others. Topics covered offering expert opinion of the collector’s rocks and minerals, having microscopes available, using Facebook to advertise, doing a survey among the members to see what their specific interests are, etc. This should be under Meetings and Membership category so we will go there before Federation report.

3.3 Federation Director Report: deferred to after Membership Chair Report and Program Chair Report

3.4 Membership Chair Report: Cheryl Lopez reports that there are only 2 responses for the banquet so far. There was some confusion in the Bulletin regarding Banquet details which was followed by Board discussion on when and how to announce it in the future; No new members to report; No response to brochures handed out at the November special meeting.

3.5 Programs Chair Report: Rudy Lopez, Chair, reports that (1) George Rossman is our next speaker and would like his bio for the introduction; (2) We have speakers until September 2015. As far as getting speakers, the last Micromount Conference was a good source, JPL Speaker Series has an application (given to Ann) that we can cultivate, the projector screen at the school (PCC) needs to be adjusted so we have full view from all areas in the room for presentations, (3) We have a flyer for the Banquet, (4) spreadsheet for the Banquet, (5) Network whenever you can so we’re all working to get speakers, (6) February 2015 presentation will be on mineralogy of the surface of Mars given by Bethany.

Ann Meister offered the following: The recent lecture (Mars Rover) was great and a wonderful outreach tool. We need to think about the next one. Ann suggests Tony from Los Angeles County Museum of Natural History (LACMNH) could do a talk on the minerals at the museum, a topic to attract the general public. Board discussion and suggestions followed including field trip to back room of the museum, Eloise (LACMNH) could speak on opals, diamonds and other precious gems, etc. Cheryl suggested slides or sign on screen before actual presentation. Linda Elsnau mentioned a questionnaire “How did you hear about us” so we can track which advertising method is working. Rudy says the presenters are asked to bring a flash drive as a just-in-case situation.

Forms for items for the Banquet Silent Auction handed out by Ann. Do this in advance so we can see what comes in. Some items may be appropriate for the Micromount auction or for door prizes or...

3.3 Federation Director Report (out of order from above): JoAnna Ritchey reports that Tony Fender was voted in as Treasurer of CFMS for 2-year term then will advance up the line. The 1st Vice President resigned and John

Martin has taken his spot. The 2015 show will be in Lodi in June. (Note: Ray had a stroke in September. He's doing better now.) And, finally, JoAnna will write a report for the Bulletin. Linda asked questions regarding the CFMS field trip program and wondered if it was still viable. JoAnna explained that she wondered the same and check

3.6 Bulletin Editor Report: Linda Elsnaun announced that the deadline for submissions for the next Bulletin is Friday, November 21, 2014. Bulletin printing expenses are below \$15 per month since almost everyone is now receiving the Bulletin via e-mail and the discount coupon from the print shop. Regarding Bulletin Exchange of CFMS, should we be putting the logos of AFMS and CFMS in our Bulletin? If so, we need the digitized version. Linda will check with Pat LaRue of CFMS for further information.

3.7 Webmaster Report: Leslie Ogg asks you to "Like" us on Facebook. The webpage numbers are up! We have over 2,000 visitors, with view time 0-30 sec. Those who view between 30sec to 2min are only a few people.

3.8 PMC Chair Report: Ann Meister reports for Al Wilkins that speakers are set for the Pacific Micromount Conference (PMC) to be held last weekend in January 2015 at the San Bernardino County Museum. Al has been checking into San Bernardino Valley College campus, a larger venue, for future PMC's. Finally, a registration form should be inserted in the Bulletin for convenience.

3.9 Old Business: Field trip with Steve Mulqueen to oil seep areas and the oil museum in Santa Paula. Rudy will do a follow up. The Board discussed the Boron show and visits to mine.

4.0 *New Business:*

E-mail received from a past member who wants to sell off his collection. He is willing to rejoin the club and give members first choice. Can we sell at meetings at PCC? We can suggest open house and sale at his house (Mt Washington). Or, he could bring items to the next picnic. Board discussion continued on this topic. Jim will follow up with membership form and other suggestions.

Member Roster comes out in February 2015 with member cards.

4.1 *Activity Proposals:*

Items for further Action:

- Rudy follow up with Steve Mulqueen;
- Ann follow up with registration things to Rudy for PMC;
- Linda follow up with Pat LaRue for logos;
- Jim follow up with field trip (Red Neck Alley).

Next Board meeting will be March 1, 2015 at 1 p.m. Bruce and Cathy Carter's home.

Adjourn 2:30 p.m.

Respectfully submitted, Angie Guzman, Secretary

Cleaning Quartz by Rock Currier Part 2

Editor's note: This article is being used with Rock Currier's permission and is as it was published in mindat.org. (<http://www.mindat.org/article.php/403/Cleaning+Quartz>) However, as we needed individual permission for each photo, I exchanged some of the pictures to those I have permission to use. Same location, same mineral, different photographer

4. Ultrasonic Cleaners

Before the advent of fabric guns, ultrasonic cleaners were often the cleaning device of choice to clean specimen. These cleaners come in various sizes from those that hold a small cupful of cleaning solution, usually water with a little detergent soap in it, up to giants you could almost take a bath in. Usually they are made from stainless steel and are driven by transducers of piezoelectric materials like lead zirconate titanate (PZT), barium titanate, etc) but are sometimes made from magnetostrictive materials glued to the exterior walls of the tanks. They strongly vibrate the cleaning solution and this causes tiny bubbles to form (cavitation) and the collapse of these micro bubbles creates a lot of energy and cleaning action. In the larger, more powerful models, the water will heat up as you use the device and this also enhances the cleaning process. The material to be cleaned is suspended in the tank. If you

put specimens on the bottom of the tank, this will often reduce the cleaning effect, sometimes dramatically, because it reduces the amount of cavitation and therefore the cleaning efficiency of the unit. Often cleaning will take place within a few minutes. This device, however, is usually not very good at cleaning a lot of dirt out of deep cracks or below overlapping crystals or specimens with a lot of dirt or well consolidated dirt. Also, larger units are sometimes quite noisy and some emit a high pitched squealing sound that is quite penetrating. The good units, and those large enough to hold larger specimens can cost several hundred to several thousand dollars each. We quickly discontinued the use of these units soon after we got our first fabric guns.

Chemical Cleaning

Perhaps the most common reason people want to clean quartz is to remove brown “iron stains”. These “iron stains” are caused mostly by two iron oxide minerals: hematite and goethite. They are usually a rusty brown color but can manifest a range of colors from black to red; term limonite is often used to name them collectively. There are a number of other minerals that lie in that color range and may require chemical treatments other than those discussed below. A lot of this offending material can be removed by mechanical means, often easily with high-pressure water or by use of an air abrasive tool. But if the collector does not have access to these devices he often hopes for some magic liquid that he can dip his specimen into that will remove the offending material. I think that the success of some commercial cleaners like Tarnex (a silver cleaning solution) where the user dips tarnished silver into the solution and, magically, the silver becomes bright, is the root cause of this desire. For cleaning quartz, no such magic solution exists.

If you have “iron stained” quartz crystals, blasting them with high-pressure water and/or an air abrasive tool will remove a lot of the iron staining, but almost certainly some of the staining will remain down in the cracks. To completely or almost completely remove it, you will need to use chemicals. Before you use chemicals, I would suggest you clean the specimen as well as you can with the above methods. This will allow you to chemically clean your specimens more quickly and use a smaller amount of chemicals to do so. There are three main ways to chemically remove “iron stains” from quartz. They are by the use of: 1. A Waller solution (Iron Out), 2. Oxalic acid, or 3. Hydrochloric acid. These three chemical methods will remove “iron stains”: (hematite & goethite). I should state that at this point that it is almost impossible to remove well-developed crystals of hematite and goethite with the chemicals discussed below as these chemicals are effectively only in removing the fine-grained equivalents of these minerals.

These three chemical reagents are helpful in removing hematite (iron oxide) and goethite (iron hydroxide) specifically, so if your “iron stains” are caused by other minerals, these three chemical methods may not work for you. If you know exactly what offending minerals are on your quartz specimens and have some knowledge of chemistry, then the choice of chemical cleaning agents is much more clear-cut. Ideally, a person wanting to clean some quartz specimens would analyze the offending “dirt” and find out exactly which mineral(s) comprise the “dirt” and would then pick the appropriate chemical cleaning method. In practice it is usually easier to experiment with easily available chemicals than go to the trouble of doing the required analysis that is often not simple or straightforward, especially when dealing with fine-grained mixtures of various minerals. So, since the nature of what you want to remove may be in doubt, the best advice I can give you is to try one of these three chemical reagents on a not very valuable specimen and see if the reagent you choose will accomplish what you want.

5. Waller Solution (Iron Out)

If you decide to use chemicals to clean your quartz, I would definitely recommend that you first try using a Waller solution because (1.)the chemicals in this solution are usually not difficult to obtain at least in the United States and more importantly (2.)are generally less harmful than oxalic or hydrochloric acid. The Waller solution is a buffered solution of sodium dithionate. Easier than buying the chemicals and mixing them yourself, you can buy a product from Wal-Mart called Super Iron Out. You buy it in plastic bottles. It is a fine white powder and you mix it in water according to the directions on the bottle. If you don't have a Wal-Mart near you, have someone who does buy some and send it to you. You can also Google the name, Iron Out, or use <http://www.summitbrands.com/summit/> and buy some through the mail.

Sometimes "iron stains" work their way deeply into cracks in quartz, and you may have to soak your specimen for days or weeks for solutions of chemical reagents to dissolve and remove the stains. There may be the rare case where you are unable to remove them all. A solution of sodium dithionate is not very stable because it reacts with

atmospheric oxygen. Therefore you should not expect it to be useful after a few days. We have switched over to this method of removing iron stains almost exclusively from other chemical methods because it is quick and easy and we do not have to neutralize it when done and disposal problems are minimal.

Franklin Roberts, from Austin, Texas, a knowledgeable Mindat regular provides us with the following useful information for people who wish to make their own Iron Out solution. This may prove especially useful for those who live in countries where it is not possible to buy a commercially available cleaning product like Iron Out or Super Iron Out.

Recipe for making a Waller solution:

33g sodium dithionite also known as sodium hydrosulfite

28 g NaHCO₃ (sodium bicarbonate)

59 g sodium citrate

Add about 800 cubic centimeters/milliliters of water, swirl it around until the chemicals dissolve and add enough water to make up a liter in volume.

If you would rather make a gallon of the solution, just multiply everything by four. It works slowly at room temperature and faster if heated, but don't go beyond 60 °C. The other compounds beside the dithionite are for buffering/complexing reasons and may prevent precipitation of a dark greenish black coating (pyrite) on your specimen(s).

The MSDS (Material Safety Data Sheet) lists the active ingredients of Super Iron Out as:

Sodium Metabisulfite 20-65%

Sodium Hydrosulfite 20-65%

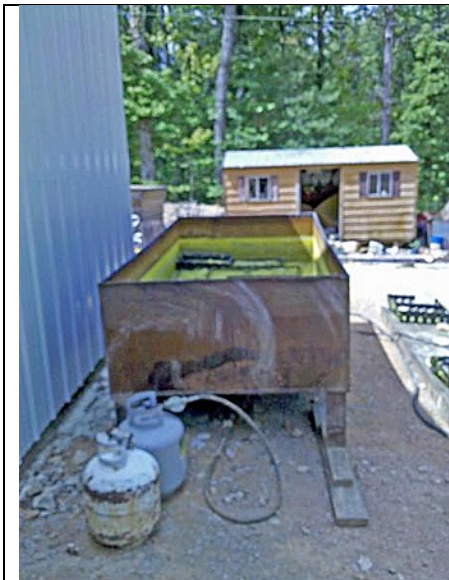
In this case, the prefix "meta" which is Greek for "after" refers to the fact that the metabisulfite is the species that comes after sodium bisulfite (dithionite) in the chain of oxidation products going from sodium dithionite -> sodium metabisulfite -> sodium dithionate. These three compounds are also known as sodium hydrosulfite, sodium pyrosulfite and sodium bisulfate, respectively. Pretty confusing, isn't it? The reason that super iron-out lists a wide range of percentages for the two ingredients isn't because they don't want you to know how much of each is in their product; it's because they don't know themselves. The actual ratio is a moving target. Remember, pure sodium dithionite is a potent reducing agent capable of snatching two atoms of oxygen from the air, water or anywhere else it can get them. As soon as it snatches the first oxygen, it becomes sodium metabisulfite and can only grab one more oxygen atom before becoming the fully-oxidized sodium dithionate, which is useless as an iron oxide reducing agent. However if you have a swimming pool, it is great for lowering the pH. Products such as super iron-out usually are made from industrial grade chemicals that contain a lot more impurities than the reagent or high-purity grades. The reason for using this feedstock is that the industrial grade chemicals sell for a few dollars a ton, while the pure stuff can cost a few dollars a pound. If all you want to do is remove iron stains from your driveway (or your minerals) industrial or technical grade will work just fine. The feedstock used to make super iron-out probably started out as a moderately pure sodium dithionite (hydrosulfite), but during manufacture and storage, it gradually absorbs oxygen from the air and some of it is oxidized, becoming sodium metabisulfite (pyrosulfite). Since the pyrosulfite is still a good reducing agent, it's OK to leave it in the mix, but it's nearly impossible to get an accurate estimate on the proportions. As time goes by, more of the dithionite will transform into the metabisulfite and then to the dithionate. Eventually, the entire batch will degrade into a solution of sodium dithionate and its days as a stain remover are over. That's why it's so important to keep the container sealed and away from the air as much as possible.

6. Oxalic Acid

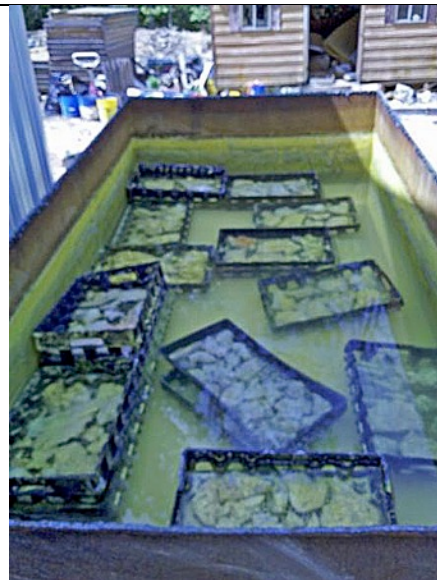
The use of oxalic acid in cleaning quartz crystals.

Whatever you do, I would advise you to use Iron Out as described above before you use oxalic acid. Oxalic acid is a poisonous white crystalline powder that is dissolved in water and has the ability to dissolve various fine grained iron minerals and clean your brown quartz. Oxalic acid is the toxic substance that makes rhubarb leaves poisonous to eat. For many years it was, and sometimes still is, sold in hardware stores for various purposes, perhaps the most common of which was to bleach wood. When you work with this chemical you should wear plastic gloves and make sure not to inhale its dust or get any in your mouth. Don't leave solutions of this material lying around

because they are poisonous. Before you start, go to Wikipedia on the net and read what it has to say about oxalic acid. Be sure to use technical or industrial grade because it is much cheaper than purer grades and will work just fine for cleaning your crystals. It is best that this chemical is used in plastic or ceramic containers and not metal ones, because the oxalic acid will attack most metals. You can get away with using an iron container like a 55 gallon drum, but the acid will gradually eat it up and generally make a mess. To give you a good idea what you are faced with, a pound to a pound and a half of oxalic acid in a five gallon bucket of water will make a good solution for cleaning quartz. The oxalic acid will take a few minutes to dissolve and you must keep stirring until it does. If you use warm water it will dissolve faster. Oxalic acid was used for many years to clean quartz in Arkansas and is still the chemical of choice among the miners who clean large amounts of quartz. They use big steel tanks made from T1 steel that they heat with gas burners, almost to boiling. In this way they can clean large quantities of quartz crystals overnight though sometimes the specimens need a second run through the acid to clean them completely. They buy their oxalic acid (mostly of Chinese manufacture) in big bags by the pallet full. This has proved to be the most economical way they have found to clean their quartz.



Here we see an Arkansas quartz cooker. Notice the propane tanks in front of the cooker. These are used to feed gas to the burners beneath the tank to heat it.
Photo © Rock Currier



Here is an Arkansas quartz cooker full of plastic trays full of quartz specimens. These should have been removed as soon as the "cook" was finished. Some of these specimens will need to be run through the "cooker" again.
Photo © Rock Currier

Most small time diggers who need to remove iron stains from specimens have switched over to high-pressure water and Iron Out. When you have finished cleaning your specimens with an oxalic acid solution you should not throw it down the drain. You can neutralize any remaining oxalic acid in solution with limestone chips, which will produce a white relatively insoluble precipitate of calcium oxalate, one of the components of many kidney stones. Most people who use this chemical just keep the used solution around to use again and occasionally add more oxalic acid as needed. Some let it evaporate to dryness. I have used oxalic acid on many occasions to clean "iron stains" from quartz crystals and crystals of the blue variety of microcline called amazonite. If you want you can heat it up and this will cause your specimens to be cleaned faster. I have done this in crock pots and stole the first one from my kitchen! An alternative to applying electric or fired heat is that you can put the oxalic acid solution in black containers or cover the containers in black plastic and let the sun heat the solution for you. If you use a plastic container you can heat these to about 55 degrees centigrade before they soften and start to deform. Fifty five degrees centigrade is just about as hot as you hand can stand and still remain on the plastic without undue pain. Covering them with black plastic in the sun should not cause them to deform. A rule of thumb for chemical reactions is that for every 10 degree centigrade increase in temperature, the reaction rate will double. When your specimens are clean, you should rinse them off and let them soak in clean water for a few hours. You may want to repeat this rinse process several times. Soaking overnight is good. Sometimes, if your quartz specimens have

calcium or iron bearing minerals on them, or the water you are using has a lot of calcium or iron in it, it will cause calcium or iron oxalate to precipitate out of solution and coat your specimens with more crud you will then have to clean off with hydrochloric acid.

7. Hydrochloric Acid

Hydrochloric acid, or muriatic acid or “pool acid” is hydrogen chloride gas, HCl, that has been dissolved in water. It is sometimes been used to clean quartz, but the methods above are better, safer and less trouble. But if you don't have them, you can use hydrochloric acid. Before you try and use this acid, go to Wikipedia on the net and read what it has to say about this acid. http://en.wikipedia.org/wiki/Hydrochloric_acid You can buy this acid in hardware stores and in places like the home depot. When you handle hydrochloric acid, you should use rubber gloves and eye protection and should NOT use it in a confined area like your home or garage. There should be plenty of ventilation. You should also have a garden hose handy that you can use to flood any accidentally spilled acid with lots of water. Hydrochloric acid is a strong acid and must be treated with respect. The concentrated hydrochloric that you get at the hardware stores is rated at about 32% and gives off a strong acidic vapor. Do NOT stick your nose into the mouth of the bottle and try and smell this. You will smell enough of it just pouring the concentrated acid out of the bottle. Holding your breath is a good idea. Use a plastic or ceramic container to clean your quartz. Plastic is much better because it is not as breakable. Make sure you have a tight fitting cover for your container. Do not use metal containers when working with this acid. Put your quartz crystals in the container and pour in hydrochloric acid to cover them. Because of the fumes this acid gives off, make sure you cover your container. Periodically examine your quartz crystals to see if they need to remain in the acid longer. It is not advisable to heat this solution because of the fumes this will cause. **BE SURE NOT TO USE YOUR BARE HANDS AND USE EYE PROTECTION.** When it looks like your quartz crystals are clean, remove them from the acid and rinse them off with water. Then put them in another container of clean water and let them soak for an hour or two. Soaking them overnight will not hurt them and is a good idea. You do this to remove any acid that may have been trapped in the cracks of the specimen. If the specimen has many cracks or is composed of a porous material, you may have to leave the specimen in the rinse water for several days, and soak it several times in clean water so that all the acid has been removed from the specimen. If you do not completely remove the acid from your specimen, it may turn yellow at a later date and you will have to repeat the acid treatment and the neutralization. When you are done you can store the solution for future use or neutralize it. You will not want to store hydrochloric acid or solutions of hydrochloric acid long term in your garage or anywhere near metal. Plastic bottles of hydrochloric acid have a habit of eventually cracking and leaking. The solutions tend to give off hydrogen chloride which is hard to contain and it will rust up every bit of iron anywhere near the stuff. I would recommend not storing it more than a week or two if you can help it. You can use limestone or marble chips to neutralize the acid. When you put limestone or marble chips (calcite) in the acid, it will bubble and froth while carbon dioxide gas is liberated. When you add more limestone and no more bubbling happens, then the solution is neutralized and you can dispose of it. Dilute hydrochloric acid is what your stomach uses to digest food. If you spill some acid on the floor or your clothes, just flush the area or your clothing with lots of water and, just to be sure that the acid is gone, you can pat down the area with bicarbonate of soda. If no fizzing takes place or the fizzing stops, then you have successfully neutralized the acid. When working with this acid and accidentally spilling some on my hand or skin I will flush the area with lots of water and then taste the area. If there is any acid left on your skin, you skin will taste sour. If it does you will need to wash the area some more and perhaps pat it down with bicarbonate of soda to ensure neutralization. Tasting of other chemical reagents is definitely not recommend because they can be poisonous or even deadly. Old chemical texts used to tell you what various chemicals tasted like because this was a very fast and easy way to give you an idea of what chemical you had. Some chemists poisoned themselves.

8. Phosphoric Acid

You can also use phosphoric acid to clean out iron stains, but usually the cost of this acid is greater and it takes a bit longer. I don't recommend you use this method. Sometimes using this method will cause phosphate minerals to precipitate on your specimens, and those are often very difficult to remove.

To Be Continued.....

Featured Mineral: Marcasite

Formula: FeS₂

Crystal System: Orthorhombic



irocks.com photo

Marcasite : FeS₂, **Galena** : PbS,
Sphalerite : ZnS

Locality: Olkusz, Olkusz District, Małopolskie, Poland 8.5 cm x 7.2 cm x 4.1 cm



irocks.com photo

Marcasite : FeS₂
Locality: Rensselaer Quarry, Pleasant Ridge, Jasper Co., Indiana, USA

3.8 cm x 3.3 cm x 2 cm

Name: Named in 1845 by Wilhelm Karl von Haidinger after an Arabic or Moorish name applied to pyrite and similar metallic bronze colored minerals. Johnathan Hill used the same name in 1771, but his usage was indiscriminate and was a term for any massive "pyrites" or mundic.

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	

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	Business Card	\$5.00	
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	1/2 page	\$20.00	
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*Cobaltian Calcite- Morocco
Photo by Joe Budd©*

Calendar of Events:

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

MARCH 2015

March 7 - 8: ARCADIA, CA

Monrovia Rockhounds

Los Angeles Arboretum

301 Baldwin Avenue

Hours: 9:00 - 4:30 daily

Website: www.Moroks.com

March 7 - 8: VENTURA, CA

Ventura Gem & Mineral Society

Ventura County Fairgrounds

10 West Harbor Blvd.

Hours: Sat 10 - 5; Sun 10 - 4

Website: www.vgms.org

March 13 - 15: VICTORVILLE, CA

Victorville Valley Gem & Mineral Society

Stoddard Wells Road & Hwy 15

Hours: 9 - 5 daily

Website: www.vvgmc.org/tailgate

March 14 - 15: SAN MARINO, CA

Pasadena Lapidary Society

San Marino Masonic Center

3130 Huntington Drive

Hours: Sat 10 - 6, Sun 10 - 5

Website: www.pasadenalapidarysociety.org

March 21 - 22: LEMOORE, CA

Lemoore Gem & Mineral Society

Trinity Hall

470 Champion Street

Hours: Sat 10 - 6; Sun 10 - 4

March 28 - 29: TORRANCE, CA

South Bay Lapidary & Mineral Society

Torrance/Ken Miller Recreation Center

3341 Torrance Blvd (off Madrona Ave.)

Hours: Sat. 10 - 5; Sun. 10 - 4

APRIL 2015

April 18 - 19: THOUSAND OAKS, CA

Conejo Gem & Mineral Club

Borchard Park Community Center

190 Reino Road at Borchard Road

Hours: 10 - 5 daily

Website: www.cgamc.org

April 10 - 12: 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 25 - 26: LANCASTER, CA

Antelope Valley Gem & Mineral Society

Lancaster High School

44701 - 32nd Street West

Hours: 10 - 5 daily

Website: www.avgem.weebly.com

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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, except January, February and August, 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:

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