

Bulletin of the Mineralogical Society
of Southern California

Volume 82 Number 9 September 2011

The Meeting of the Mineralogical Society of Southern California

**Program: Mineral Colorants Used In Decorative Glass
by Walt Lombardo**

**Friday, September 9, 2011 at 7:30 pm
Geology Department, E-Building, Room 220
Pasadena City College
1570 E Colorado Blvd., Pasadena**

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September Program: Mineral Colorants Used In Decorative Glass by Walt Lombardo.

Walter Lombardo is a geologist with over 30 years experience related to mining and mineral exploration. For 16 years, he managed the Las Vegas Office for the Nevada Division of Minerals. He has also worked for several mining and exploration companies, most recently managing the North American exploration program for a Canadian junior mining company. Walt's expertise is mineralogy and geologic information.

Walt has over 30 years experience selling, collecting, and purchasing mineral specimens and related earth science materials and books. He now manages the retail store full-time (Nevada Mineral & Book Company, 342 S. Tustin Street, Orange, CA 92866, Ph 714-633-549).

MEANDERINGS FROM THE PRESIDENT by Ann Meister

The picnic on August 20 with the Fallbrook Gem and Mineral Society was a rousing success. Many MSSC members were there to enjoy the camaraderie as well the swap and sales following the potluck picnic. The food was delicious and plentiful as always. Thank you Janice Bricker for the coordination. Former MSSC member, Mike Evans, who is now a member of the Fallbrook Society, gave me a guided tour through the Museum which has a fantastic exhibit of San Diego County pegmatite minerals. What's great is that the exhibits change to show all of their collection and Mike was showing off an interesting new display of mica varieties from around the world.

The MSSC annual banquet is not that far off, so don't forget to set aside items for the silent auction which is our fund raising activity for the year until we get ambitious enough to try another show. We have some of Bill Moller's books that were set aside before others were offered for sale at the picnic. There's also some books donated by Janet Gordon. Think minerals, mining memorabilia, and other items of interest to us.

Let's not forget the 70th Annual Gem-O-Rama sponsored by the Searles Lake Gem and Mineral Society on October 8-9, 2011. Though not an "official" MSSC field trip, it is a highlight of the collecting year. You always find something even though they are saline minerals that are water-soluble and at least the pink halite is colorful. You can find hanksite in various forms, halite, trona, and borax as well as more rare minerals such as sulphohalite. It's the most fun collecting ever, even if you may have to discard your clothes and shoes after visiting the mud for hanksite clusters and the brine ponds for pink halite. I believe that Searles Lake was the first MSSC field trip that the Meister family went on. I have fond memories of many years collecting there. Much has changed, but much has stayed the same. I even used to have an educational hanksite exhibit that was displayed at various shows. Check the club webpage for additional information. (www1.iwvisp.com/tronagemclub/ or do a Google search for Searles Lake)

Thank you Elizabeth Moeller

Elizabeth donated a number of books and magazines from Bill Moeller's library for the club to sell. The first stop in Fallbrook was the Fallbrook Library where their Librarian went through the offerings looking for additions to their library. That paid the fee for the Swap Meet. Then Ann Meister went through what was left and took those items she thought would do well at the Silent Auction part of the January Banquet. We set all the remaining books, magazines, pamphlets, calendars out. By the end of the day all were sold. We were thrilled to help Elizabeth do some "cleaning" by taking the books.

by Jo Anna Ritchey

Minutes of August 2011 Meeting. There was no meeting in August. We had an Activity instead and went to Fallbrook for a Pot Luck and Swap Meet.

Board of Director's Meeting MSSC Board Members, we need to schedule a board meeting for October that doesn't interfere with the Searles Lake field trip.

Online Mineral Museum at All Minerals/John Betts-Fine Minerals
<http://www.johnbetts-fineminerals.com>

Mineral Cleaning for Amateurs

By John Betts. All rights reserved. Reprinted with permission of the author.

Many specimens collected in the field do not look like the ones that dealers are selling. Most collectors become discouraged or frustrated. These articles will give a few simple techniques clean the pieces you collect.

Mechanical Methods

This month we are reviewing mechanical methods of cleaning and preparing mineral specimens. By mechanical we mean using force of some sort to remove unwanted minerals or encrustations. Obviously this method has the potential of damaging the specimen by scratching or fracturing the crystals. As usual, care should be taken to test the methods on lesser specimens to see if there is any damage resulting from the process.

The mechanical cleaning of minerals ranges from a toothbrush to dental picks to ultrasonic cleaners to water guns to sand blasting. I am not going to discuss the more ordinary use of chisels and saws to trim a specimen.

Brass brush and Dental Picks

The first thing we do after a field trip is to wash the specimens and pray that they will cleanup like the minerals sold by dealers. And they never do. Dirt and pocket mud are often very tenacious and require more than running water. The first mechanical tool to try is a brass brush. They are available in hardware stores for use as a cleaning tool and for wood refinishers. Make sure you get brass bristles because brass is softer. Brass is between 3.5 and 5 on Moh's scale of hardness. In theory, you can scrub a specimen of any mineral harder than 5 and not damage the specimen. In reality though,

you should always perform a test to make sure. I have used brass brushes on quartz successfully for many years without any damage. Occasionally on etched crystals a burnished appearance results but this usually disappears in later chemical treatments.

With this first wash there will always be sand and dirt deep in the crevices between crystals. these can be loosened with a set of dental picks. They come in a variety of shapes and sizes. Often a friendly dentist will give away his old ones. If you are not friendly with your dentist (who wants to be friends with their dentist?) and you cannot find them at your hardware store you can purchase them mail order from Woodworkers Supply (1-800-645-9292) item no. 862-028, set of four utility picks for \$8.95. These picks are steel and therefore harder. So be careful not to use a scratching stroke. Just loosen the dried, caked dirt in the crevices.

Ultrasonic Cleaner

Obviously with delicate crystals scratching is not the problem, they will simply break off from the force. With delicate specimens we need to use an ultrasonic cleaner. These are simple stainless steel basins with piezoelectric drivers attached to the bottom. They often have built in timers and heaters. When turned on they vibrate the solution at ultrahigh frequency causing cavitation, the formation and collapse of bubbles. This cavitation scrubs off dirt and soluble minerals very fast without damaging delicate crystals. I can hear the skeptics out there saying that some minerals can be damaged, like herkimer diamonds (after all, aren't we supposed to pack them in temperature shielding sand or sawdust). Well this may be true, but in my experience (and this article is nothing more than one persons methods learned through trial and error) I have only had one herkimer diamond damaged. (There was a large stress fracture in a 2" crystal that "popped" during cleaning.) But in terms of odds, I have cleaned thousands of herkimers and only that one broke.

The ultrasonic cleaner is the best way to clean zeolites from New Jersey. Especially delicate natrolite sprays or terminated pectolite. Unfortunately they are expensive. If you shop around for the best price you will pay around \$150.00 for every quart of capacity. I have a three quart unit that is

more than adequate. Unless you collect a lot of large specimens, then a 1-1/4 quart unit will suffice.

I highly recommend getting a built-in heater. It is well worth the extra expense. It will heat the solution to just below boiling and keep it at that temperature. That is perfect for cleaning with oxalic acid (see Part I). The heat accelerates the action of the acid, but prevents the acid from boiling.

Sand Blasting

Sand blasting sounds exotic but is more common than you would think. All of the pink tourmaline in purple lepidolite sold has been sandblasted to expose the harder tourmaline. The sand blasting removes the softer lepidolite very quickly and leaves a more natural appearance than chisels or scrapers. The new pink chalcedony from New Mexico being sold by Ray DeMark is all sandblasted. In its natural state it is rough and encrusted. A quick sandblast and only the harder quartz chalcedony remains. Amazonite from Colorado is also cleaned with sand blasting. These crystals often have a late growth without the blue-green amazonite color. The outer coating is blasted off with glass beads and then the surface is "polished" by sandblasting with a soft limestone powder.

A sand blasting unit is not expensive. The basic setup can be purchased for around \$50.00. However the air compressor to drive the sand blaster is expensive. Unless you already have access to a 3.5 HP air compressor, then sandblasting is not for you. There are many different media that you can use in a sandblaster. Anything the consistency of table salt can be blown through the gun, wet or dry. Glass beads are readily available and are the hardness of quartz. But you can purchase many different hardnesses down to 3.5 on Moh's scale. The goal is to choose a media softer than the mineral you want to keep but harder than the mineral you want to remove.

I have found it works great for removing schist matrix from almandine garnet and staurolite crystals. There has been much discussion regarding the effects of sandblasting minerals including an article in *Rocks and Minerals*. The article points out that chalk dust with a hardness (H) of 3 has been found to abrade periclase (H: 5.5). The article points out that the force that

you drive the media can result in damage to the specimen and recommends testing on a sample until you get the right balance of air pressure and correct media hardness.

Air Scribe

This is a miniature reciprocating impact chisel commonly used by fossil preparers to expose fossils. ARO air scribe Model 8315 costs \$289.00 and comes with a medium carbide tip. Additional tips are available in fine to coarse for \$31.00 each. from Main Tool Supply, 55 Lafayette Ave., North White Plains, NY 914-949-0037 These tools reciprocate at 36,000 cpm and are very efficient at locally removing matrix. Fluorescent collectors find these are the best tools for removing calcite from willemite specimens because acid will etch willemite.

Water Gun

Similar to a sand blaster, the water gun is used in the dry cleaning industry as a stain remover (they blast cleaning agent right through the fabric). The Krebs 5000 cost \$350.00 and is available from Aurora Mineral Corp. at 516-623-3800.

The action is a combination of sandblasting and ultrasonic. The gun creates a fine, high powered jet of water that will loosen most clays or dirt. It is very forceful though and not suitable for delicate minerals. The advantage is that you can put solutions other than water in the gun. In theory you could shoot oxalic acid through it. But since oxalic acid requires time to work the value is questionable. And remember the toxicity of oxalic acid, the last thing you should do is create a fine mist of oxalic acid that you could accidentally breathe.

A simpler and cheaper alternative to the water gun is to take your minerals to a do-it-yourself car wash. Lay out all of your minerals and for \$1.75 in quarters you can blast away almost anything with the water gun can, plus you can get a hot wax at the same time.

In conclusion, you do not have spend lots of money to clean your minerals. In many cases the brass brush is all that you need. Remember also that

these mechanical methods are often the first in a many step process. You may start with brass brush then use hydrochloric acid and finish with oxalic acid.

References

Hansen, Mogen, Cleaning Delicate Minerals, Mineralogical Record, March-April 1984, pg. 103

Part 1: Oxalic Acid

Part 2. Muriatic Acid

Part 3 Mechanical Methods

Part 4 The "Waller" Solution

This article and others can be found at Mr. Betts web site:

<http://www.johnbetts-fineminerals.com>". Reprinted with permission of the author

MSSC is not responsible for any problems that may result from the use or misuse of these instructions.

False Clues

by Betsy Oberheim, Central Pennsylvania Rock and Mineral Club

From: Ruck Buster News, 4/08

(8th Place - AFMS Adult Poetry)

Near Scranton, on a backwoods logging road

I saw an interesting fossil lode!

On a big flat rock dino tracks glint

No, only 4 wheeler tire prints.

Digging at Herkimers in July

A bit of sparkle caught my eye,

I dove and dug and scrambled some...

My prize: foil wrapping from chewing gum!

On the shore, at Michigan's bitter beach
 A flash of copper, just out of reach.
 I waded in, gasping at each cold swell
 To reach, achieve, a shotgun shell.

While digging in Arkansas' steamy mine
 A cluster of crystals, I'm sure this time.
 I moved debris and picked it up,
 A clear and crumpled plastic cup!

Please don't be so careless, sloppy and cruel
 And leave debris for a rockhound fool.
 You can come and go without leaving a trace
 Or you're going to find me right in your face!

WEST COAST - FALL GEM & MINERAL SHOW

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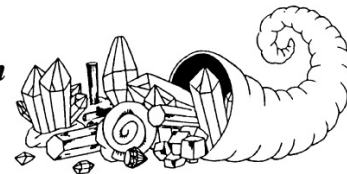
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California State Mining and Mineral Museum

This is one of the 70 museums slated for closing. Last month we had a plea to write to our legislators and Governor Brown in Sacramento along with a sample letter. This month I want to let readers know a bit more about the museum. In May of 2002 this was a feature of California's Golden Parks with Huell Howser. This video, 28.59 minutes, is available for free from the web site http://www.parks.ca.gov/default.asp?page_id=588 (I just put mining museum, ca in google and chose the correct site). The best pictures are found in their five page brochure. This is a small museum located in Mariposa, California (gateway to Yosemite) that houses a few very nice minerals (Benitoite, The Fricot Nugget, 13.8 lbs of crystalline gold).



Benitoite: California State Gemstone

Why Micromounts?

by David Brand New York Mineralogical Club
From: Bulletin of the New York Mineralogical Club, 7/08
(6th Place - AFMS Original Adult Articles)

Many amateur mineralogists begin their interest in collecting as a hobby by being fascinated by a beautiful crystal. Maybe it was a hand-held specimen of Arkansas quartz that could be taken home and shown to admiring friends and relatives. Curt Segeler, a noted NYMC micromounter, once remarked that only about 400 out of the total of over 4,000 known mineral species are

available in hand-sized specimens. The opportunity to collect good specimens in the field has been limited. Many localities have been denuded of fine specimens or have been closed to collector's because of liability concerns. It has become an expensive investment to obtain hand-held or cabinet-sized specimens. Not so with micromounts. They offer a less expensive alternative means of collecting and offer a greater variety of minerals to collect.

What is a micromount? Neal Yedlin, another NYMC micromounter, defined them as "any specimen which requires magnification to see it properly." Smaller crystals have a better chance of achieving perfect crystallization in the more common minerals, as well as the rarer mineral species. In addition to their beauty there is the benefit of saving space. Many micromounters might add to that definition by pointing out that the specimen fits or is made to fit in small paper or plastic boxes. Typically these boxes are an inch or less square; however, the size of the box, paper, or plastic is a matter of personal preference. By using one-inch boxes, 144 specimens will fit into a square foot. So even a very large collection can be stored in a relatively small space. Another big advantage is that the many specimens can be purchased at prices that won't strain the pocketbook.

The major deterrent that keeps collectors from becoming micromounters is the high cost of a stereo-binocular microscope. Initially, a magnifying glass or jeweler's loupe will suffice, but the investment in a good scope with zoom lenses and good illumination becomes a necessity. Used scopes are available, but are still relatively expensive. With the high resale value, the expense of a microscope can be justified as an investment. Another Curt Segeler quote: "The pleasure derived from its (microscope) use will repay the buyer many times over. One look at a good micromount usually makes a convert." The savings in buying smaller and cheaper crystal specimens will make the collector an enthusiast.

Part of the joy in collecting micros is concentrating on minerals of a particular theme. There are collectors specializing in collecting all species, just zeolites, or just sulfides. Others collect lead or silver minerals, or they might select a particular locale such as Franklin, New Jersey, or Tsumeb, Namibia, or New York State. To some enthusiasts, collecting type localities

or just trying to accumulate as many specimens of a particular species that become available can be a goal. It was reported that Lou Perloff, a NYMC micromounter, had 1400 diamond mounts in his collection. The point is that by collecting small specimens, many common or obscure species become available from a variety of localities. Many micromount collectors may be pursuing one or more themes in their collections at any given time.

You don't often see micros for sale at mineral shows because they are too inexpensive. It would be difficult for a dealer to cover his initial expenses at setting up his display at mineral shows. Micromounters have their own meetings, symposiums, or workshops where mounts are freely traded or are available at little cost. There is also an "International Directory of Micromounters" published by the Baltimore Mineral Society. It is complete with names and addresses of individual collectors from every state and from over 30 countries. Many of the individuals listed are more than willing to swap specimens via the mail.

Micromounters have their own "Hall of Fame." It was organized and is still run by the Baltimore Mineral Society. Its purpose is to honor those who have served this hobby to the highest degree. They may have built up large collections, but more importantly, have earned and deserve a worldwide reputation among micromounters. Some familiar names of NYMC members in the Hall of Fame include Lazard Cahn, Clarence Bement, Lou Perloff, Neal Yedlin, and Curt Segeler.

A comedian once noted about food that rice is great when you are hungry and want 2000 of something. Well, collecting microminerals is a great hobby when you feel like collecting a lot of something. Micromounting opens the way for the greater enjoyment of collecting by offering a huge variety of minerals from many localities. With the lower acquisition cost of micromount specimens, a beginner can compete with the expert on an equal footing in building an extensive and varied collection.

Note: Go to the following web site to see if you recognize some of the people in the Hall of Fame: <http://www.baltimoremineralsociety.org/halloffame.html>

1987 William Wise

2000 Sugar White

There may be others that are current or former members of the MSSC, but these are the ones I recognize.



From MSSC Archives

How to Tell Your Adit from a Hole in the Ground

by Walt Margerum

MSSC July 2005 Bulletin

If you are like me you come across mining terms all the time and sometimes you wonder what they mean. I have therefore compiled a short list of terms with their meanings to assist and edify everyone.

1. **Adit**- An almost horizontal tunnel from the surface to where you hope the ore is. Sometimes the adit is dug primarily for haulage of the ore from the vein to the outside so it can more easily be put on the dump. In this case it is called a haulage adit.

2. **Decline**- A tunnel dug at too steep an angle to easily walk. When you are at the bottom it is called a X%^&\$ incline.

3. **Drift**- A horizontal or nearly horizontal tunnel that usually does not intersect the surface, but hopefully follows the ore. If it intersects the vein it is called a cross drift. If it passes through the vein it is called a X%^&\$ drift.

4. **Dump**- The large pile of useless rock you spent many hours removing from the mine to get to the ore. Quite often everything from the mine.

5. **Foot Wall**- The lower wall of the vein. The one you try to stand on that is usually steep enough so that you slide down it to the vein.

6. **Head Wall**- The upper wall of the vein. The one you bang your head on.

7. **Mine**- A usually valueless hole in the ground into which otherwise intelligent individuals are willing to spend all of their money.

8. **Ore**- The material removed from the mine that is sold in a vain attempt to make a profit.

9. **Raise-** A vertical or almost vertical shaft dug after you discover the vein is above the location of your tunnel.

10. **Shaft-** A vertical or almost vertical hole dug from the surface either along the vein or to where you hope the vein can be found. It is used to extract the ore until you decide it is easier to dig an adit for that purpose. This decision is usually made long after common sense dictates that is how you should have done it in the first place.

11. **Stope-** A large hole dug to extract the ore. If the ore falls on your head as you remove it it is called an overhead stope. If you have to bend over to dig the ore it is called a back ache.

12. **Tunnel-** A drift or adit. The term is usually used when you get lost and do not either intersect the surface or the ore.

13. **Vein-** The body of rock that contains mostly gangue, and a small amount of ore.

14. **Winze-** A hole dug to intersect the ore after you discover the vein is below the level of your tunnel.

I hope you will find these definitions useful.



Calendar of Events

Septemeber 2-4—SANTA BARBARA, CALIFORNIA:

Wholesale and retail show; Gem Faire Inc.;
Earl Warren Showgrounds
3400 Calle Real;
Fri. 12-6, Sat. 10-6, Sun. 10-5; adults
\$7 weekend pass, children 11 and under free

September 10-11: DOWNEY, CA

Delvers Gem & Mineral Society
Woman's Club of Downey
9813 Paramount Blvd.
Hours: Sat 10 - 6; Sun 10 - 4

September 18—DENVER, COLORADO:

Wholesale and retail show;
Eons Expos RLLLP; Denver Coliseum,
4600 Humboldt St
Sat. 9-6, Sun. 9-6, Mon. 9-6, Tue. 9-6, Wed. 9-6, Thu. 9-6, Fri. 9-6,
Sat. 9-6, Sun. 9-4; free admission;

September 14-18—DENVER, COLORADO:

Fall wholesale/retail show, "Colorado Mineral & Fossil Show";
Martin Zinn Expositions; Holiday Inn – Denver Central, 4849 Bannock
St.;
Wed. 10-6, Thu. 10-6, Fri. 10-6, Sat. 10-6, Sun. 10-5; free admission;

September 16-18—DENVER, COLORADO:

Show, "Colorado Fossil Expo";
Martin Zinn Expositions
Denver Merchandise Mart Plaza Annex
451 E. 58th Ave.
Fri. 9-6, Sat. 10-6, Sun. 10-5

September 16-18—DENVER, COLORADO:

Annual show, "Minerals of Russia"
Greater Denver Area Gem & Mineral Council
Denver Merchandise Mart
451 E. 58th Ave. (I-25 Exit 215)
Fri. 9-6, Sat. 10-6, Sun. 10-5

September 23-25: SAN BERNARDINO, CA

Orange Belt Mineralogical Society
Western Regional Little League Park
6707 Little League Dr.
Hours: 9 am to Dusk daily

October 2: FALLBROOK, CA

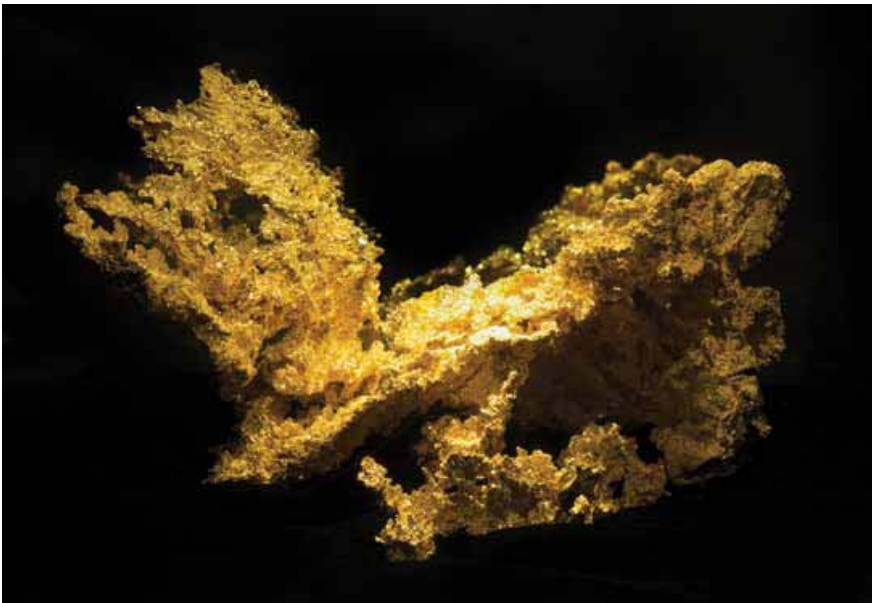
Fallbrook Gem & Mineral Facility
123 W. Alvarado St, Ste. B
Hours: 10 - 4

October 8-9: TRONA, CA

Searles Lake Gem & Mineral Society
13337 Main Street
Hours: Sat 7:30 - 5; Sun 7:30 - 4

November 11-13—SANTA ANA, CALIFORNIA

Wholesale/retail show, "Fall West Coast Gem & Mineral Show"
Martin Zinn Expositions
Holiday Inn-Orange County Airport
2726 S. Grand Ave.
Fri. 10-6, Sat. 10-6, Sun. 10-5; free admission



The Fricot Nugget, CA Mining & Mineral Museum

Society Contacts for 2010

OFFICERS

President	Ann Meister	<i>president@mineralsocal.org.</i>
Vice President:	Bruce Carter	<i>programs@mineralsocal.org</i>
Secretary:	Bob Griffis	<i>secretary@mineralsocal.org</i>
Treasurer	Jim Kusley	<i>treasurer@mineralsocal.org</i>
CFMS Director:	Jo Anna Ritchey	<i>bulletin@mineralsocal.org</i>
Past President	Geoffrey Caplette	

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2009-2010	Leslie Ogg	<i>webmaster@mineralsocal.org</i>
	Geoffrey Caplette	
	Linda Elsnau (acting)	
	Fred Elsnau:	

COMMITTEE CHAIRS

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<i>Membership</i>	Jim Kusley	See Treasurer
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<i>Webmaster</i>	Leslie Ogg	<i>webmaster@mineralsocal.org</i>
<i>Bulletin Editor</i>	Jo Anna Ritchey	<i>bulletin@mineralsocal.org</i>

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 and collecting 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 web page 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.

The Society's contact information::

Mineralogical Society of Southern California

1855 Idlewood Rd.,

Glendale, CA 91202-1053

E-mail: bgbrdpen@earthlink.net

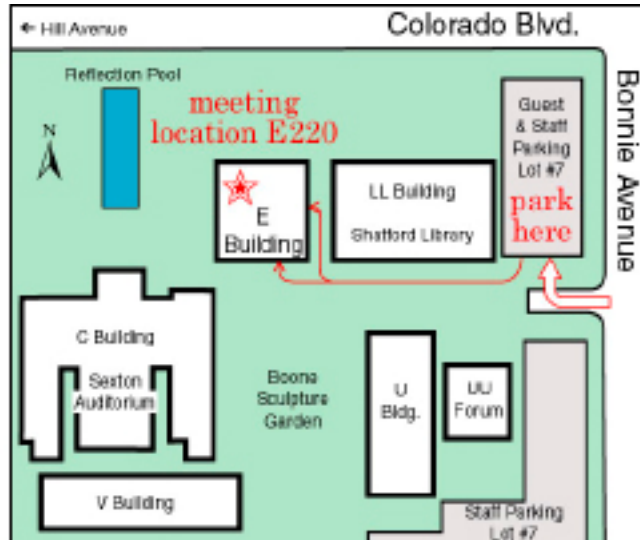
Web: <http://www.mineralsocal.org>

The Mineralogical Society of California, Inc.

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Smithsonite (from Smithsonian Museum)