The Opal Express

American Opal Society
P.O. Box 4875
Garden Grove, CA 92842-4875

Volume #35 Issue #8
August 2002

In This Issue:

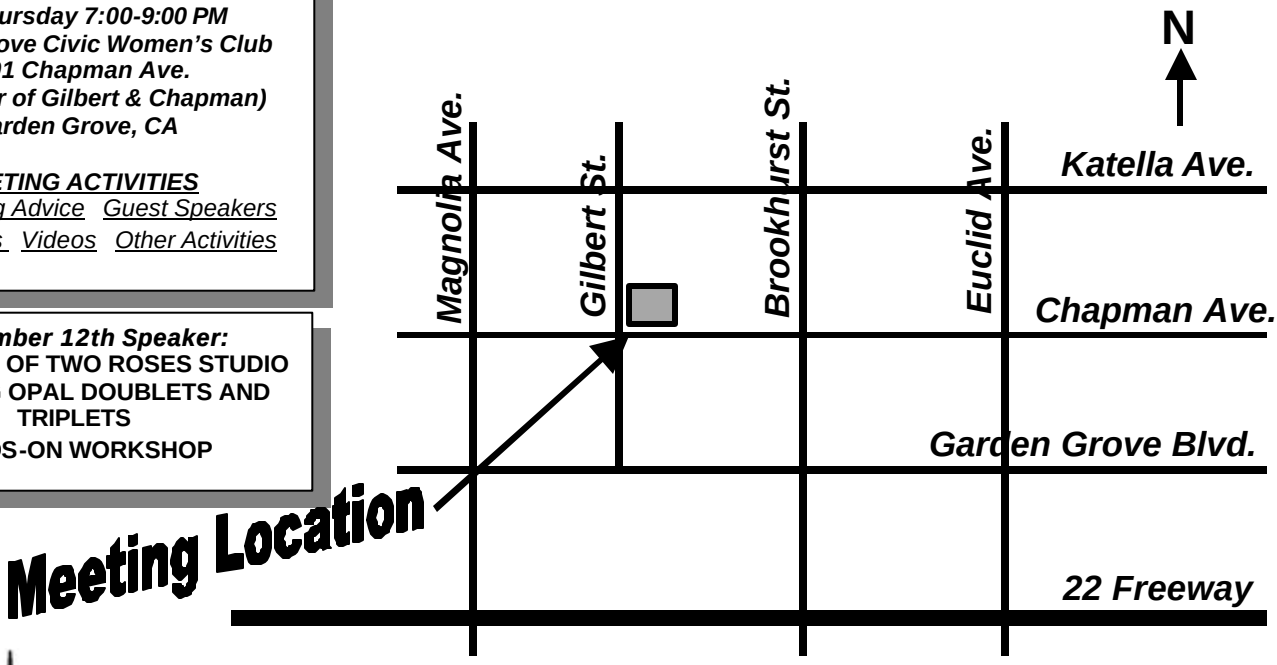
TO:

General Meeting
Thursday, August 8

— GENERAL MEETINGS —
2nd Thursday 7:00-9:00 PM
Garden Grove Civic Women's Club
9501 Chapman Ave.
(NE corner of Gilbert & Chapman)
Garden Grove, CA

MEETING ACTIVITIES
Opal Cutting Advice *Guest Speakers*
Slide Shows *Videos* *Other Activities*

September 12th Speaker:
JOHN ROSE OF TWO ROSES STUDIO
CREATING OPAL DOUBLETS AND TRIPLETS
HANDS-ON WORKSHOP



The American Opal Society
http://opalsociety.org

Mike Kowalsky	President	(714) 761-4876	email: mykowalsky@aol.com
Bob Dixon	Vice President	(714) 534-5063	
Bob Olinskas	Treasurer	(949) 786-7291	
Jay Carey	Opal Show Chairman	(714) 525-7635	email: jaycarey@gte.net
Jim Pisani	Editor & Webmaster	(562) 797-5239	email: webmaster@opalsociety.org

American Opal Society Membership Renewal

Thank you for continuing to support your American Opal Society!

TYPES OF MEMBERSHIP (Select one)	**DUES / RATES (select one)****	**AMOUNT PAID**
1) All US Addresses including Alaska and Hawaii	$25.00	
2) International Members = All addresses outside of US Addresses	$30.00	
3) *Additional Badges/each*	$5.00	
*** SENIOR DISCOUNT = Age 65 or over deduct $5.00*	-$5.00	
Name badge (optional) $5.00 each -includes engraving (Badge free when joining)	$5.00	

Please make check or money order payable to "American Opal Society". Mail payment and application to:
American Opal Society; PO BOX 4875; Garden Grove, CA 92842-4875

NAME		
BUSINESS NAME		
ADDRESS		APT #: or PO BOX
CITY	STATE	ZIP or POSTAL CODE
COUNTRY (IF OUTSIDE USA)		
PHONE: Home ( )	Business ( )	FAX ( )
E-MAIL	WEBSITE	

NAME BADGE ORDER FORM: PLEASE PRINT NAME AS YOU WISH IT TO APPEAR ON YOUR BADGE using up to two (2) lines of text for your name, nickname, or name of your opal related business.

MEMBERSHIP ROSTER & DEALERS LIST: The AOS publishes a membership directory once per year in its Newsletter, the *Opal Express*. Please check what personal information that you want listed for other members:

☐ Name ☐ Address ☐ Phone ☐ E-mail ☐ Website

☐ Include my name & address on a list provided to the Dealers selling at our Annual Opal & Gem Show.

If you checked any box above, please sign here: _____ Date_____

Without your signature here you will not be included in the member info list or included in the dealer roster.

The Opal Express is published monthly by *The American Opal Society*.

Editor-Jim Pisani
Please address all inquiries and exchange newsletters to:

The Opal Express C/O
Jim Pisani
P.O. Box 4875
Garden Grove, CA 92842-4875

Email: webmaster@opalsociety.org

Article Deadline is the 20th of the month prior to each issue

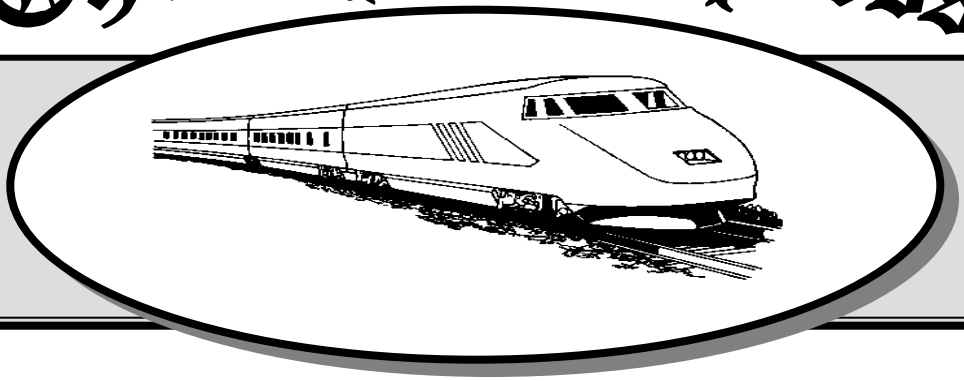
Are Your Dues Due Now?

PLEASE CHECK YOUR ADDRESS LABEL. If your label shows the current month/year your dues are DUE NOW. If the date is older, your dues are overdue.

A Renewal Grace Period of two months will be provided. If your dues are due now you will receive two additional issues of the newsletter. Please note, however, that as the system is now set up, if your renewal is not received you will be AUTOMATICALLY dropped from membership thereafter. It is your responsibility to assure your dues are current.

Thank you,
The Editor

The Opal Express



Published monthly by The American Opal Society

August 2002

Volume 35 Issue 8

PRESIDENT'S MESSAGE

Mike Kowalsky

The month of July seems to have passed at breakneck speed. I was on holiday to the Rocky Mountain Parks of Canada. Had exceptionally great weather while viewing the outstanding sights of rivers, waterfalls, forests and snow on mountaintops. It was a breathtaking trip, with new vistas around each corner, on the train portion and the motor coach portion.

I tried to do some noodling while on the trip. In Vancouver I was able to see one small specimen of Okanagan opal in the Gem and Mineral Museum. I couldn't make it to the Vernon Opal Miners Gift Shop because of my itinerary limitations. No luck finding opal in Jasper, Banff or Calgary shops and gem stores. The gift shops and jewelry stores were filled with Ammolite, which was sold in many forms of jewelry and beautiful larger specimens. If I were in the market for Ammolite, I would have fulfilled my dreams.

I am reserving the week of August 18th to set up a field trip to Idaho. I will be contacting the folks that have sent me e-mail to see if that will be a suitable time. This time of year has a potential problem caused by the summer monsoons that come up from Mexico and hit Las Vegas and sometimes more westerly. So far they have not been too aggressive in spawning large thunderstorms.

I am pleased that we have been able to obtain the noted speaker, Bonita Chamberlin, to make two separate and different presentations at our annual November Gem Show. I was able to view her newest presentation on Gemstones of Afghanistan at the Culver City Gem Show. Her presentation has exceptional photography of the mining sites and of the many gems that have come from those sites. The second presentation describes how the gemstones were created in Afghanistan and the mining has been developed through the years. Bonita will describe how she is helping with the planning to develop the precious gem industry in Afghanistan. Both presentations are must see because of the content and the style of presentation by Bonita Chamberlin.

I also want to mention the passing of Richard T. Liddicoat, Gemologist and past president of GIA. He has written several books; The Handbook of Gem Identification, The Diamond Dictionary and The Jeweler's Manual. He developed the International Diamond Grading System which is the primary diamond grading system used throughout the world.

A celebration of his life will be held August 24th at 4:00pm at GIA Headquarters in Carlsbad California.

At the August General Meeting we will again have several opal cutting and polishing machines for demonstration of cutting techniques.

At our September meeting we will have a presentation on the techniques of making opal doublets and triplets. You can bring in some of your own material to make a finished stone at the meeting. Otherwise we will have material for you to use for making a finished stone at the meeting, which you can then take home.

MARK YOUR CALENDAR!!!

For The American Opal Society's

35th Annual

ANNUAL OPAL & GEM SHOW

Largest Opal show in USA!

Sat. & Sun., November 2 & 3, 2002

Saturday 10AM - 6PM

Sunday 10AM - 5PM

Location: Quality Maingate Hotel

616 Convention Way **ANAHEIM**, California

Close to **DISNEYLAND**

One block South of Katella Ave.

On Harbor Blvd.

September 12th Meeting Announcement!!!

JOHN ROSE OF TWO ROSES STUDIO

Will give a slide presentation on:

CREATING OPAL DOUBLETS AND TRIPLETS

A HANDS-ON WORKSHOP for the members will be held after the presentation.

Practice material will be provided; however, bring your own opal material if you want.

*The presentation will start **promptly at 7PM**.*

***Door prizes** will be provided along with the usual refreshments*. **Don't miss this one!!!**

NEWSLETTER INFO

Due to the recent loss of my computer hard drive, it has taken me a few weeks to get all my data restored. That's newsletter is late! Also, because of lost data, the website update will take longer than expected. I have backed up the Opal Expresses, but their conversion to HTML has to be performed again. This is a good lesson to always back up your data!

To view the existing archives, go to this website: http://www.opalsociety.org/aos_member_login.htm. Type the password **"opalsrus**" (small letters) in the space to the right of the label "Password". This will take you to the archives.

++

AUGUST GEM SHOWS

2-4--SANTA BARBARA, CALIFORNIA: Show; Gem Faire; Earl Warren Showgrounds, Las Positas and Hwy. 101; Fri. 12-7, Sat. 10-7, Sun. 10-5; weekend pass $5; contact Allen Van Volkinburgh, (760) 747-9215; Web site: www.gemfaire.com.

3-4--BEND, OREGON: 29th annual show; FarWest Lapidary & Gem Society; North Bend Middle School; Sat. 10-6, Sun. 10-5; admission $1; dealers, demonstrations, Ye Old Timers Mineral Club table award and breakfast; contact Carolyn DeMetz, 413 Ingersoll, Coos Bay, OR 97420, (541) 267-5008; e-mail: czdemetz@earthlink.com.

3-4--WATERVILLE, MAINE: 32nd annual show; Water-Oak Gem & Mineral Society; Mount Merici School, 142 Western Ave.; Sat. 10-5, Sun. 10-4; free admission; demonstrations, lapidary, jewelry, specimens, gems, minerals, fossils, displays, fluorescent minerals, wholesale and retail dealers, books, magazines; contact William Longley, P.O. Box 565, Waterville, ME 04903-0565, (207) 873-4863.

9-11--BUENA VISTA, COLORADO: Show "Contin-tail (Continental Divide Tailgate)"; Colorado Federation of Gem & Mineral Societies; Rodeo Grounds; Fri. 9-5, Sat. 9-5, Sun. 9-5; free admission; 173,620 Square Feet of Rocks, Minerals, Beads, and Jewelry. Located at the foot of Mts. Antero, White and Princeton. Fluorescent display, Friday night; contact Greg Tunnicliff, P.O. Box 2392, Parker, CO 80134, (720) 851-7393; e-mail: cofedminsoc@hotmail.com.

9-11--COSTA MESA, CALIFORNIA: Show; Gem Faire; Orange County Fairgrounds, Bldg. 12, Arlington Ave.; Fri. 12-7, Sat. 10-7, Sun. 10-5; weekend pass $5; contact Allen Van Volkinburgh, (760) 747-9215; Web site: www.gemfaire.com.

9-11--NIPOMO, CALIFORNIA: Show, "Rainbow of Gems"; Orcutt Mineral Society; St. Joseph's Church, 298 S. Thompson Ave.; Fri. 10-5, Sat. 10-5, Sun 10.5; free admission; more than 50 tailgaters, eight inside dealers with many displays, big "Santa Maria-style" barbecue on Sat. night; contact Wes Lingerfelt, 110 W. Bennett St., Nipomo, CA 93444, (805) 929-3788; e-mail: Rocks4u@prodigy.net.

10-11--LAKEVIEW, OREGON: Show, "Rock Round-up"; Tall Man Rock Chippers; Fairgrounds, Hwy. 140; Sat. 10-5, Sun. 10-4; dealers, demonstrations, displays, field trips, silent auction; contact Tall Man Rock Chippers, P.O. Box 563, Lakeview, OR 97630.

10-11--WALNUT CREEK, CALIFORNIA: Show, "The Great Contra Costa Crystal Fair"; Pacific Crystal Guild; Civic Park Community Center, 1375 Civic Dr. at Broadway; Sat. 10-6, Sun. 10-5; admission $3, children under 12 free; up to 45 vendors of crystals, minerals, gems, jewelry, mystical and healing arts; contact Jerry Tomlinson, PCG, P.O. Box 1371, Sausalito, CA 94966, (415) 383-7837; e-mail: sfxtl@earthlink.net; Web site: www.crystalfair.com.

16-18--SACRAMENTO, CALIFORNIA: Show; Gem Faire; Scottish Rite Center, 6151 H St.; Fri. 12-7, Sat. 10-7, Sun. 10-5; weekend pass $5; contact Allen Van Volkinburgh, (760) 747-9215; Web site: www.gemfaire.com.

17-18--SAN FRANCISCO, CALIFORNIA: Show; San Francisco Gem & Mineral Society; Fort Mason Center, Herbst Pavilion, Marina Blvd. and Buchanan St.; Sat. 10-6, Sun. 10-5; adults $6, seniors and students $5; contact Ellen Nott, e-mail: ellennott@yahoo.com.

17-18--YELM, WASHINGTON: Show, "World of Gems and Minerals"; Nisqually Valley Rockhound Society; Yelm High School Cafeteria, Marvin Rd., I-5 exit 111; Sat. 10-6, Sun. 10-5; free admission; dealers, demonstrations, silent auction, door prizes, displays, kids' booths, tailgaters; contact Keith G. Greetham, 3838 Boston Harbor Rd. NE, Olympia, WA 98506-2433, (360) 352-8909.
23-25--OGDENSBURG, NEW JERSEY: Mineral symposium; sponsored by Sterling Hill Mine and Museum, Nittany Mineralogical Society, Penn State University Mineral Museum and Pennsylvania Museum Foundation; takes place at Sterling Hill Mine and Museum; popular talks, scientific lectures, field trips, tours, benefit auction; for times of the events and registration brochure, contact Andrew Sicree, Penn State Mineral Museum, 112 Steidle Bldg., University Park, PA 16802, (814) 865-6427, e-mail: sicree@geosc.psu.edu.
23-25--SAN DIEGO, CALIFORNIA: Show; Gem Faire; Scottish Rite Center, 1895 Camino Del Rio S; Fri. 12-7, Sat. 10-7, Sun. 10-5; weekend pass $5; contact Allen Van Volkinburgh, (760) 747-9215; Web site: www.gemfaire.com.
30-2--CRAWFORD, NEBRASKA: 16th annual show, "Crawford Rock Swap"; Northwest Nebraska Rock Club; Crawford City Park, Main Street; Fri. 8-6, Sat. 8-6, Sun. 8-6, Mon. 8-2; free admission and free camping; this show is also the 4th annual gathering of Fairburn Agate Collectors; daily field trips, presentations and demonstrations; contact Wade Beins, P.O. Box 569, Chadron, NE 69337, (308) 432-8950; e-mail: wbeins@prairieweb.com.
30-2--FORT BRAGG, CALIFORNIA: 40th annual show; Mendocino Coast Gem & Mineral Society; Town Hall, Main and Laurel streets; Fri. 10-6, Sat. 10-6, Sun. 10-6, Mon. 10-4; free admission; contact Don McDonell, 634 N. McPherson, Fort Bragg, CA 95437, (707) 964-3116.
31-1--AUGUSTA, MAINE: 12th annual show; Kennebec Rocks and Minerals Club; National Guard Armory, Western Ave.; Sat. 10-5, Sun. 10-4; contact Ron LePage, 37 May St., Waterville, ME 04901, (207) 873-6270.
31-2--SILVER CITY, NEW MEXICO: 19th annual show; Grant County Gem & Mineral Society; Silver City Recreation Center, 1016 N. Silver St.; Sat. 10-6, Sun. 10-6, Mon. 10-5; free admission; more than 39 dealers and 80 tables displaying rocks, minerals, gems, beads, jewelry and equipment; contact Jim Lett, 2213 Ponderosa, Silver City, NM 88061, (505) 538-3216; e-mail: jameslett@zianet.com.

++

Mineral Cleaning

By John Betts

 Originally published in four installments by the New York Mineralogical Club.

As promised this article is first in a series on how to clean mineral specimens. 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.

Oxalic Acid

Anything that has the word "acid" sounds ominous. But oxalic acid is easy to find, use and the safest for the home. In fact it is found in many vegetables including spinach. It is used to dissolve the iron oxide (brown) stain on all minerals. Specimens collected at Phoenixville, Ellenville, Case Quarry, NH smoky quartz and many others clean up beautifully with oxalic acid. Zeolites do not respond as well, so you should test beforehand on small specimens to see how they react.

To make this as simple as possible I will give a step-by-step guide to its use. Do not take any shortcuts or make substitutions. Purchase a one-pound box of Oxalic Acid (OA) powder at your local hardware store in the paint department or at a paint store. It is used as wood bleach and will be labeled as such. The most common brand is Rainbow.

Fill a plastic one-gallon container 3/4 full with hot tap water. Pour in the OA crystals and stir for five minutes. Be careful not to inhale any powder when adding the crystals. Once the OA is dissolved top off the container to a full gallon. Label the container and put out of reach of children or pets.

When you are ready to use it place your specimens in a plastic container and add enough OA solution to cover. Set aside for several days.

After the iron color has disappeared then you can remove the specimens (with gloves on) and wash under running water for three hours. Then soak in clean water for a day changing the water as often as possible.

Heat speed up the reaction, as does agitation. If you have a hot plate and can set up outdoors or in an area with good ventilation the repeat step 4 but heat the solution to bath water hot (110°F.). Never Boil! You will find that an hour in hot solution will usually do the trick. Best of all is an ultrasonic cleaner with built in heater. Sometimes only 30 minutes is necessary. But you should not put the OA directly into the stainless steel basin. Make a double boiler type of arrangement by partially filling the ultrasonic cleaner basin with water. Then place your specimens and OA solution in a plastic container or heavy-duty plastic bag that is suspended in the water.

You can reuse the solution over and over. As it dissolves more and more iron it will get darker often taking on a green color. After it gets really dark I would discard it and mix a new batch. Safety is important. OA solution is highly toxic. It can be absorbed through the skin and builds up in your organs cumulatively. Same goes for the fumes, which is why you never boil the solution and always have proper ventilation when using the heated solution. Be careful not to spill the solution on porcelain and keep away from food preparation surfaces.

In spite of the fuss, this is the best all around method of cleaning minerals. I keep a large five gallon bucket with tight fitting lid filled and ready, I drop specimens in as I collect them. It always works and the large volume does not exhaust quickly. Mastering this technique will provide an important tool in your mineral cleaning and preparation arsenal.

Muriatic Acid

Now we are going to get more aggressive with our mineral cleaning technique. Hydrochloric Acid is available in most hardware store as Muriatic Acid. It is sold in one-gallon containers and is used to clean masonry and as a rust remover, which is what we will use it for. In spite of its availability, it is dangerous. Do not inhale the fumes or get any on your skin or in your eyes. Always wear gloves and eye protection and old clothes. Keep your arms covered even if it is a hot day. And always observe the safety precautions on the container.

There are two main uses for hydrochloric acid: removing carbonates like calcite that often are the last minerals to form in a pocket and therefore obscure other mineral crystals, and the more aggressive removal of iron oxide rust stains (faster than Oxalic Acid). The former use is the most common and often produces staggeringly beautiful specimens because the calcite being dissolved protected the minerals underneath. Specimens of almandine from the Trumbull, Ct., or vesuvianite from the Goodall Quarry in Sanford, Maine are all easily cleaned in hydrochloric acid. If hydrochloric is being used to remove iron oxides you should be careful that there are no carbonates in the specimen that you want to keep. The acid will dissolve them. Which is why, no matter what minerals you are cleaning, always test your cleaning agents on lesser pieces to make sure you will not ruin your best pieces. The basic procedure is:

First wash your minerals carefully in water to remove any loose sand and dirt and to make the acid last as long as possible (sand and dirt contain iron oxide and will exhaust your acid quickly).. Place your minerals in a large plastic container with a lid that can be tightly sealed. Again I prefer a five gallon joint

compound bucket found at construction sites. Let your specimens dry and move the container outdoors to an area with good ventilation. Pour in enough acid to cover the specimens. Always wear heavy rubber gloves and be very careful not to splash any acid on yourself.

Depending on what you are removing with the acid you will want to leave it in from 5 minutes to 5 days. If you are etching carbonates/calcite off a specimen then you should check it after five minutes. Be careful not to inhale any fumes when checking the progress. When removing calcite or marble from specimens the action is very fast and active. Your bucket should be large enough to prevent the bubbling foam from overflowing.

If you are removing rust stains from quartz the action can take up to a day and is less energetic. When removing the "sphalerite" crust on quartz crystals from the Spring Glen Mine in Ellenville it is not uncommon to repeat three-day sessions removing any loose material between each session. You can place the lid on the bucket to prevent children and animals from exposure (but provide a small vent hole for relieving gas pressure).

According to Jerry Call, a commercial mine owner in Brazil and North Carolina, you should not leave the bucket in the light. He says this results in a yellow stain. Whether light is the source of the stain I cannot tell, but it is not uncommon for some residual acid/rust stain to remain after your first treatment. Then you need a second treatment in fresh, clean acid reserved for such a purpose. You will see the stain disappear quite quickly and you can remove your specimens for neutralizing and washing This final batch can be diluted 1:1 with water. When diluting always add acid to water, **NOT WATER TO ACID**.

People neutralize the acid many different ways. I prefer to dissolve ordinary household baking soda in a bucket of warm water and then immerse your specimens in it (after a brief pre-rinse). Let them sit in the baking soda solution for 15 minutes, then proceed with washing.

Because the acid has penetrated the specimen it is best to wash very thoroughly. I prefer the rule of thumb of washing three times the time the duration the specimen was in acid. If you just briefly dipped it for 5 minutes to remove some calcite then a 15-minute wash will be adequate. But If you left in your quartz specimens in for removing rust stains for a full day, then you should wash them for at least three days. The washing is essentially placing them in clean water and keeping the water clean as the acid diffuses out of the specimens. It is best if you can set a water supply on a slow trickle into the bucket to constantly provide clean water. Otherwise changing the water as often as possible will work. If you are washing for a full day then a water change schedule like this would be appropriate: change water every 15 minutes for an hour; then every hour for four hours; then every four hours for the rest of the day.

As the acid is used up it will eventually turn yellow/green/brown. It can be used until it no longer is effective or until it starts to stain your specimens. If you are using it to dissolve carbonates/calcite the acid will exhaust itself long before the color changes. You will see that it no longer actively dissolves the calcite. It should then be discarded. You can fully neutralize your old acid with crushed limestone or marble or with more baking soda. When it no longer fizzes then you can dispose of the acid safely. The limestone gravel found at the Limecrest Quarry in New Jersey is great for neutralizing the acid.

A last warning, if you are removing calcite from a specimen, do not dissolve all calcite. Often it may be the only thing holding the specimen together. A little calcite can provide a nice contrast and make it more aesthetic. In the case of the spinel crystals from the Limecrest Quarry, there are often alternating layers of spinel and calcite. They will crumble to powder if cleaned too long in hydrochloric acid. Also fluorescent willemite may turn powdery on the surface if cleaned in acid resulting in the loss of fluorescence.

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 or 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.

The "Waller" Solution

This method of mineral cleaning was first introduced to me by Roland Franke as a simple method of cleaning iron stain from minerals. Further research reveals different methods of using the basic solution.

As originally described by Roland the solution is made by dissolving in one liter of distilled water:

8.4g Sodium Bicarbonate

17.4 g Sodium Dithionite

5.9g Trisodium salt of Citric Acid (sodium citrate)

Once mixed, the minerals are immersed in the solution. The cleaning action can be accelerated by placing in an ultrasonic cleaner. This solution is not appropriate for indoor use because, once mixed, there is a strong odor of rotten eggs. Use only outdoors or in an area with proper exhaust venting. As usual read all precautions on the individual component packages.

The solution is good for only about 24 hours and should be discarded after that. Since a liter of solution may be more than you need, the Geological Museum of Copenhagen (Hansen, 1984) suggests a variation - you can prepare a stock buffer solution of one liter water, 28 g sodium bicarbonate and 59 g sodium citrate (citric acid). Then when ready place your specimens in a container, pour in buffer solution to cover the top, then carefully sprinkle on top 1 g sodium dithionite for every 30 ml of buffer solution. After five minutes another 1 g of sodium dithionite is added in the same way. They also recommend sealing tightly with a lid and keeping at room temperature to avoid the formation of sulfides and sulfur.

If you have heavy iron stain a specimen may require several treatments in succession as the solution becomes saturated and loses effectiveness. After your piece is clean then wash in distilled water for an equal amount of time that the specimen was in the solution. Then in running (or regularly changed) tap water.

Apparently the solution works by reducing Fe+3 to Fe+2 and then dissolving Fe+2 in the Citric Acid. The Sodium Bicarbonate balances the pH to be neutral. This last point means that theoretically you can clean any mineral in it without worrying about etching it. Practically though caution should be taken by testing on samples prior to immersing your best piece. In conclusion, I have stayed clear of the more hazardous hydrofluoric, sulfuric, nitric acids and treatments for specialized uses such as cleaning native copper. If you are looking for more information I highly recommend starting with John Sinkankas books *Field Collecting for Gemstones and Minerals* (originally published as *Gemstones and Minerals: How and Where to Find Them* and *Gemstone and Mineral Data Book*, both published by Geoscience Press.

References

Hansen, Mogen, Cleaning Delicate Minerals, Mineralogical Record, March-April 1984, pg. 103 Marcasite Disease and Preservation

This article and others can be found at Mr. Betts web site: ***http://www.johnbetts-fineminerals.com***

++

Opal Waste

Here is an a thread of messages that I found in the Orchid Digest from http://www.ganoksin.com concerning some good advise on rough and parcels. The Ganoksin Project provides an information forum on the Internet free of charge for all things connected with jewelry and jewelry making. Visit it and see! Printed with permission of Ganoksin. The Editor

Subject: Opal waste
From: Charles B Buckman
Date: Mon Mar 11 22:58:39 102

Anyone, Question for any experienced opal cutters. I know Downing and others say that your yield is often in the 20 - 40 % range per stone, assuming you cut a viable stone out of the rough. What about the yield of a parcel? I got a parcel of rough recently from Grawin field - Lightning Ridge. So far I got about 2 out of 5 stones to face decently, and they're pretty nice semi-black crystal, and several carats each. The other 3 stones had a lot of sand inclusions under the surface that really badly weakened the stones to where they came apart on the wheel despite the extra care on my part. Do you always blame yourself or the material? I'm really a significant novice, and got a lot to learn, but anyone can take things slow and turn down the wheel speed.

Bottom line - what yield do you get for the parcel, can you get 20% yield from 40 -50 % (more or less) of the parcel stones? This would give you about 10 % yield overall. Anyway, thanks for the input.
Blaine

Subject: Re: Opal waste
From: Margaret Malm
Date: Wed Mar 13 00:17:46 102

You have to start out by realizing that there are parcels, and there are parcels. Then add that of course anything the miner found that looked *really* good has already been removed. What you buy is what they do not feel is worth their time/money to cut/have cut, but which does still show some nice color. Usually you can see at least one stone in there that should cut to give you what you paid for the parcel, and the rest is "gravy". So, the yield you should expect will depend to a considerable extent on the cost of the parcel. And, of course, how much you want to (or are able to) spend on cutting them.
Cheers!
Margaret

Subject: Re: Opal waste
From: Don Rogers
Date: Wed Mar 13 00:33:06 102

Hello again, Blaine. It has been my experience that when buying a parcel of opal, or any other gem rough, you should look for the one or two stones that will "pay for the parcel". In other words, a parcel purchase will leave you with a lot of junk and a few good stones. This is quite a balancing act. I am of lately, beginning to think that paying the "Pick Price" for the top stones is a better business deal than buying a large parcel of stones. Here, you are able to estimate return quite easily and not have the problem on dumping the rest of the parcel when you are done. It takes some of the risk away but not all. It also takes away some of the potential rewards. Just remember, the safer the investment, the less chance for high returns, and while a high risk investment MIGHT give great returns, the fact that it is high risk indicates that it won't. Your challenge is to determine if it is a sure thing or a high risk. Only experience will help you here, and that experience can sometimes be costly. Just remember to look at the bad experience as a learning experience. And only learn that lesson once.

On cutting returns, expect 20% to 30% return on a single piece of rough. If you get above the 25% return, you are in the gravy. This goes for both cabs and faceted stones. On a parcel, if you can get 20% return on the volume with 10 % of that being good quality, you are doing good, if you bought correctly. Just remember that price doesn't necessarily equate to value.

By the way, those of you who are not familiar with Blain, he posted a very unique opal some time back and then, the GIA, Gems and Gemology, did a report on it. If you haven't seen it, get a copy and look at it. It is one of the most unique opals I have seen. Unique and beautiful.
Don Rogers

Subject: Re: Opal waste
From: Peter B. Steiner
Date: Wed Mar 13 00:40:57 102

Hi Blaine, There is no simple answer to your question. However...

When you purchase a mine-run parcel from an honest dealer, you should expect to receive material which shows promise to the discerning eye.

This doesn't mean that every piece in the parcel will cut a finished stone. It does mean that each chunk of rough in the parcel is worth exploring. If you've found material for solid cabs, with good color, in 2 out of 5 pieces of Lightning Ridge rough - you're doing just fine. (The stock answer is that a good parcel is one which allows you to cut stones with a wholesale value of at least three times the parcel price.)

Patience is the key to improving your yield. Don't put a rough stone anywhere near a power tool until you know what's inside. Take your time, and window each piece by hand on wet 320-grit Silicon Carbide paper. Sooner or later you'll find a stone that makes you -very- glad you didn't have a power wheel around when you hit color.

Finally... save the bright chips from the stones which fall apart. They have value as inlay material.
Peace,
Peter

++

Tips on Cutting Lambina Opal

By Steve Newstrom

Hello everyone, If anyone has been cutting the new opal from Lambina or is thinking about it, here are a few tips I would like to share with you. I have been cutting Lambina opals for a couple of years and have learned that there are a few tricks or things to be careful of.

The biggest challenge is directionality. From the side almost all Laminas appear bright and colorful, but when you turn them 90 degrees they sometimes lose their brightness and some of their color.

Lamina's are one of the few opals to exhibit a pink fire combined with a blue/green fire. This is beautiful from the side, but when turned 90 degrees you sometimes loose the pink and all that remains would be the blue/green.

Sometimes but not all the time. I have cut some gorgeous stones from the higher grades ($400-$1000/oz) and some very nice stones from some of the more inexpensive grades. If you do have a gorgeous fire layer sitting over a layer of crystal potch it is usually brightest when the fire layer is exposed (the top of the cab) from the crystal side (Vs the opaque side of the stone). It is best to study the stone well from all sides before actually cabbing to determine if the fire is indeed directional. To do this grind off any opaque rind around the stone to better observe the interior of the stone and the fire layer (or layers).

On some Laminas it is possible to include the clear potch with an intense fire layer to make a cab, into which, you can see into the interior of the fire layer. The clear potch also makes a great contrast to the brilliance of the fire.

Pinks and oranges and greens and blues combined can just knock your socks off especially with the very transparent crystal base. It seems as though the fire is floating in a clear liquid. I do like Lambina opal! I certainly don't mean to discourage

anyone from attempting to cut Lambina opal....only to warn you of some of the difficulties.

Laminas are my favorite opals to cut, but can be very frustrating.

One real problem with these stones is an inclusion in the centers of the stones that appears to be cotton (or looks something like cotton). With other opals you wouldn't be able to observe this inclusion, but since most Laminas are very clear crystal opal, these inclusions can be easily observed. Some of the Australian miners call it "gypsum cotton". I don't know what it is composed of I only know it can be very irritating. The best way to prevent any problems here is to grind away all crust on the outsides of the stone so you won't have any trouble examining the insides of the stone when wet. Hold the stone up to a bright lamp (actually the edge of the lamp shade or cover words best. so your not looking directly at the lamp and the stone is being illuminated indirectly. Examine the stone carefully for inclusions (gypsum cotton) and also cracks.

The most important rule in opal cutting is to cut away ALL cracks. I can't emphasize this enough. Cracks always grow. And cracks devaluate a cut stone to make even the most beautiful of opals essentially valueless.

The only other advice I can give is to carefully check the sides and tops of your stone with a magnifying glass to be sure you have cut away all irregularities and scratches and have put a high gloss polish on your stone. Getting rid of scratches can be frustrating and you may have to make several trips back to the sanding wheels (I usually end up doing this more than once) to come up with a stone you would be proud to show off at a rock club meeting or to set in gold jewelry.

Wow… this is turning into a lecture series!

If you are looking for more opal cutting tips or books on opals I would buy up everything Paul Downing has out, including his video on opal cutting… also there are some new books out on opals and opal mining by Len Cram (A Journey With Colour), Stephen Ararcic (Discover Opals) and Alan Eckert (The World of Opals). Crams book is by far the best.. his photography of opals is unmatched. The price is $130.00 and the book weighs 2 kilo's and has 366 color photographs. It has to be ordered direct from him in Australia, PO Box 2 Lightning Ridge, NSW 2834, Australia.

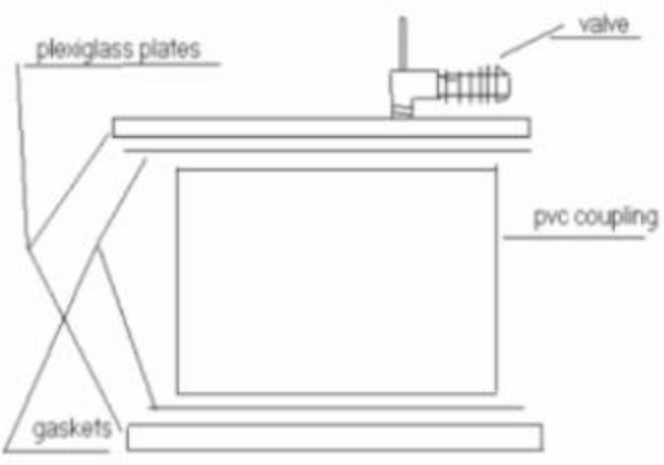
If you want to call and talk opals or order some Lambina opals, I can be reached at 701-255-4675 and for correspondence write to Steve Newstrom, The Village Smithy Opals, P.O. Box 1334, Billings, MT 59103-1334

Steve <vsmithy@cwix.com>
From the LapDigest News, Issue No. 206 -- Wed 4/14/99 Web Site: http://www.lapidarydigest.com
++

Stabilizing Opal and Turquoise

By Mark Ferguson

The stabilizing of either material requires the use of a resin such as Opticon 224 (TM) and a vacuum system.



A simple vacuum system can be made by using PVC couplings (I have a 8 inch coupling which is large enough to do casting evacuating in as well). Use these as is, no modifying needed on the couplings. You will need some 1/4 Plexiglas (avail at some of the larger hardware stores) and a vacuum capable valve (avail at auto supply stores) that has one end threaded and the other set up for plastic tubing to be pushed on to. Drill a hole in the Plexiglas for the male end of the valve (this hole will be smaller than the fitting as it needs to be tapped (check the thread size of the valve and get/barrow a tap drill and tap for this size). Work slowly while you drill and tap, as the Plexiglas will break if stressed. Use plenty of lubricant while tapping so you reduce this stress. Once you have the hole drilled and tapped, use some Teflon tape around the threads and install the valve into the lid piece of Plexiglas. This piece (as will the bottom piece needs to be at least a inch larger in all directions than the PVC coupling. You will need some gasket material; old large inner tubing will work well (cut to size and shape) with some vacuum grease applied. Make the gaskets larger than the PVC coupling and leave at least an inch or so inside as well (diameters, inside and outside should be 1 inch smaller and larger than the coupling to insure good seal). Apply vacuum grease to all surfaces of the gaskets and set one on the bottom piece of Plexiglas, place coupling on this, place your item inside, lay the other gasket on the coupling so that the top piece of PVC will seal all around the coupling/gasket combo. You are now ready to evacuate the container...Hook up the valve to your vacuum pump, vacuum cleaner, and start. Watch your medium so that it doesn't overflow the container inside and make a mess and mess up the job your trying to do. Close the valve if you need long-term immersion, and check vacuum level periodically. There are also commercial vacuum bells available, which already have a valve and gaskets.

Cover the stone(s) with resin and using low heat, (under 150 degrees F) evacuate the container. Seal it off and let it sit. It has obtained enough vacuum when you see out gassing (bubbles) occur in the resin.

Good stones may only need a couple of days in the resin/vacuum to get all the moisture/gases out of them. Others may need weeks. The purpose of letting them sit under vacuum so long is to get as much water or gases out of the stones which is replaced by the resin when after desired length of time is reached, the vacuum is released allowing the resin to be sucked into the deepest cracks and openings.

Let sit another day covered under resin before removing from resin and wiping off excess. Allow to cure in heat (less than 212 degrees F, 150 degrees F is recommended for 224) for at least an hour.

Mixing up a batch of resin and hardener per instructions, coat the rock(s) with mix and allow to sit for just a few minutes, then wipe off excess and allow to cure on some wax paper or equally easy to remove material. The hardener will also cure out the upper-most resin in the rock if not already cured adding to the stability.

Your stone is now ready to cut. This process will also work on Honduran matrix opal to make it polishable.
Mark can be contacted by e-mail at mafer@domafer.com
or regular mail at P.O. Box 371, Ferndale, WA 98248
Also, visit his website at http://www.domafer.com
++

SAFETY – SAFETY - SAFETY and More Safety!!

By Chuck McKie, CFMS Safety Chairman 2002

We have another summer coming up with our planned excursions into the great outdoors and so we should be thinking about safety again- or better yet, still. I know most of you know what I will cover so I apologize for boring you. You must

remember we may be old well informed and safety practicing rockhounds but fortunately we do have many new young rockhounds joining us regularly. And many new corners after they join a club hear "You are our Field Trip Leader" and no one tells them how to do it. Therefore this is aimed at these newcomers to keep them as safe as we old timers have learned to be.

Before the F/T leader goes on a f/t he should make all his tools safe to use. Mushroom heads ground off their chisels, wooden handles tightened to their business ends, his vehicle put into good mechanical condition with proper air in the tires, oil and water checked and his current valid driver's license in his possession. Extra oil, water, and transmission fluid should be taken along also. I like to have spare fan belts, and brake fluid. A good map and directions to the f/t site is also required.

As responsible parents should stress to their children that they should practice safe ways of doing things, so too, ALL field trip chairmen MUST stress to their field trip participants that they MUST practice safety in all their rock or other material collecting activities.

At the start of all collecting (or even sight-seeing) activities, a field trip chairman must hold a gathering of all participants - not merely the drivers - and should begin by instructing everyone of the route of travel and the eventual destination. If he tells them (as we up here in the North Bay Field Trips organization always do) to make note of the vehicle leading them so in the event a passing vehicle cuts into the convoy, he will know which car to follow and at the same time to note the following vehicle and if that vehicle fails to follow he should stop, then the car ahead of him will stop and so on and so on. In that way no one will miss the f/t and the safety aspect of this detail is that no one should have to speed trying to catch up. He must inform every one of the local hazards or dangerous items at the collecting site. That pets and small children should be controlled is another thing that should be stressed. Pets and small children don't know not to run up to a person swinging a sledgehammer or throwing rocks about. If they wander away, they could become lost. He should do this before leaving the rendezvous area because when they arrive at the field trip area they have a tendency to disperse very quickly. Never-the-less, upon arrival at the field trip site, the field trip leader should call for another gathering and as he tells them of the best areas to collect, he should point out the local dangers and the things to look out for such as snakes, mine shafts, poison oak or ivy, caution about a dry river bed suddenly turning into a roaring torrent after a storm far up in the hills, the dangers of being up-hill or down-hill when others are in the same area.

The f/t leader should stress the use of safety glasses or goggles, the use of heavy gloves during hard rock mining. It is too late at this point to say they should wear steel-toed shoes but hopefully the f/t announcement had included that item. I see so many people wearing only tennis shoes or low quarter shoes when digging large rocks out of banks when a falling rock could badly damage a foot or even break a bone there in.

While the group is collecting the fit leader should spend the major portion of his time in seeing that they are getting good material as well as monitoring their safety practices. If someone is observed doing anything in a dangerous manner, he MUST insist that they stop. If they are digging a hole into a bank, they must be stopped and instructed to dig off the over-laying material so that there is no danger of a cave-in. He should monitor them so that they don't throw things down a slope when an others are below them. If they are using chisels with mushroomed heads, they MUST be told NOT to use them. He should make certain that if someone is using a sledgehammer, that the observers are using eye protection also.

Tell the f/t participants not to block the driveway. Some one may have an emergency and have to leave in a hurry. Instruct them to check with you before they leave early - a sign out sheet is handy.

If anyone smokes, fire danger must be emphasized.

If on private property (with permission of course) or with some near-by, that the property owners rights and signs must be respected.

If a hole is dug, before leaving there must be a slope access dug of 30 degrees to allow animals to escape.

If someone goes on a break and leaves his tools or clothing at that spot, others should respect his diggings and not trespass on his location.

Tell everybody to pick up all their trash and that which less thoughtful persons have left behind so that the area is cleaner than it was found.

All gates must be left as found. If they are closed be CERTAIN to reclose them.

From The CFMS Newsletter, July 2002

++

TIPS & HINTS

From THE NUGGET, MAY, 2002

NOTE: AOS does not vouch for any of these hints and advises caution when trying new procedures.

Sawing Montana Agate: People not familiar with cutting Montana agate have perhaps wondered how to saw the first nodules they acquire. Most are found in two shapes — flat and slightly curving like the hand or round and elongated. As this material has rolled hundreds of miles down turbulent streams, nearly all of it is cracked to some degree.

First, look into the rocks as far as possible with a strong light to determine which way the moss or banding layers lie. Light cuts taken off an end and a side, at right angles to the layers, will then reveal whether the best scene or effect can be obtained by slabbing from end-to-end or from side-to-side.

Many people who are used to sawing thunderegg-type agates saw through the center to expose the pattern, moss or plume. While this method works well with those nodules, it cannot be used to the best advantage with Montana material. It will probably ruin the best sprays of color, as the larger and better ones usually lie toward the center. Sawing across them will render them valueless. *Original source unknown via Rocky Review 12/01.*

Workshop Notice **-**Construction work at Walker Junior High is still preventing the Opal Society Workshop from opening. The construction has progressed but we still do not know when it will open. Please call Stan McCall at Gems & Opals (714) 827-5680 to find out the status.

Keep a disposable **camera** in the trunk of your car where it is cooler than inside. If you get hit by another car, get your camera, take a photo of the person who hit you, their car, your car, and the street sign nearby. Don't forget their driver's license number and insurance card. *Contributed by Toy Sato in The Agatizer 12/01.*

If your hands are weak, when you want to open a jar and it's difficult even with a jar opener, open one of the kitchen drawers, put a towel in the corner and place the jar on it. Push the jar into the corner and then open the jar. The corner works like a vise. *Contributed by Toy Sato in The Agatizer 12/01.*

If you have a used **jar that still smells** of what was in it and you want to use it for something else, put in a good heaping teaspoon of dry mustard (it comes in the yellow tin), add hot water and shake well. Leave it set for a couple of hours and the smell will be gone. *Contributed by Toy Sato in The Agatizer 12/01.*

Forget the Moh's scale? Remember this: The Girl Could Flirt And Flirt Quickly Though Connie Didn't. (Talc Gypsum Calcite Fluorite Apatite Feldspar Quartz Topaz Corundum Diamond.)

Original source unknown via MOROKS 8/0 1.

The American Opal Society Roster* as of August 2002. Total members: 149

**The AOS, to protect the privacy of its members, has not listed personal information unless it was checked on the membership application. If you see information present on the list that you do not want published again or want additional listed, please contact the editor.*

Name	Company	Address	Phone	Email	Webpage
Joseph Hallimmachmur	Amore Gems				
Eric Scott	Land of Wonder				
Gregory Howell	Quality Gems				
Jesse Aguilar	Dandi Designs				
Larry Hoskinson					
Brad Smith					
Edward Zutaut	The Opal Hole				
Hans Durstling					
Len Cram					
Salvador Chavez	Casa De Lumbre				
Wesley Roth	Opalcutter				
Carol Bova	Bova Gems	PO Box 5388 Glendale, CA 91221	323-261-6135	bova@bovagems.com	
H. Louise Oleson					
Murray Willis	Australian Opal Mines				
Walter & Joan Skinner	Opal Traders International				
Juergen Schuetz					
Duke Davey	Academy Enterprises				
Tom Huson	Blue Idaho Opal				
Richard Miller	Opal and Opal			mintabie@aol.com	www.opalandopal.com
Iain McLeod					
Clare Gagnon					
Conrad Cone					
Gerald D. Carey	Jay's Jewelry			jaycarey@gte.net	
Dionisios Devaris		13521 Grenoble Dr Rockville, MD 20853		dandevaris@aol.com	
Bob Dixon					
Michele Fowler	Opal Essence				
Harold Umberson					
Hisako Schlatter					
Len Green	Len Green Gems	1007 Barclay Dr Cocoa, FL 32927	321-637-4437		
Ken Gard		PO Box 9 Montclair, CA 91763			
Lora Heidrich					
David Burton	Lapidary International				
Barr L. Doty				barr617@cs.com	
Alfred A. Hagedorn III	Broken Wagon Ranch Crafts				
Allen Farquer			949-349-5037		
Robert Olinskas					
Eva Coan					
David Tally					
David Lippmann		2308 Tower Drive Austin, TX 78703	512-245-3119		
Don Mills		3881 S. Madill Circle W. Valley City, UT 84119			
Gabriel Ayala					
Gary Mitchell					
Geoffrey Genzmer	Australian Opal Imports	468 S. Marcos Pass Rd S. Barbara, CA 93105	805-689-9050		Australianopalimports.com
Greg Fowler					
Herbert Vogel					
Jake Schmidt					
James Wilburn		6351 Piney River Rd Dickson, TN 37055			
James McDaniels					
Jim Pisani				vulajim@socal.rr.com	
John Hall Jr.	Hall Enterprises	106 Willie Horton Dr Ruidoso, NM 88345		hallent@trailnet.com	
Keith Rigby	Keith Rigby Opals				www.opalrough.com
Lyle Backus					
Michael Salazar					
Pete Goetz					
Michael Kowalsky					
Paul Diment					
Paul Reeve	Opals By Us	1505 Clark Ave. Cottage Grove, OR 97424			
Richard O. Martin	Martin Designs				
Richard F. Martin	Aquia Creek Gems				
Stan McCall	Lapidary International				
Russ Madsen					
Russell Spiering	RKS Designs	2940 Santa Clara SE Albuquerque, NM 87106	505-266-3067	DesignsByRKS@msn.com	
Stephen Frost					
Steve Newstrom	The Village Smithy Opals	PO Box 1334 Billings, MT 59103		vsmithy@prodigy.com	
Victor Hoffman					
Betty Sheffler					
Walter Johnson					
Annette Bryant					
Catherine Gaber					
Dorthea Pattee					
Ellen Cohen		PO Box 2645 Malibu, CA 90265			
Evelyn Smallwood		10718 Clancey Ave. Downey, CA 90241			
Faye McDowell					

Name	Company	Address	Phone	Email	Webpage
Fran Todd					
Geraldine Crisler		3288 Arizona Lane Costa Mesa, CA 92626	714-637-2770		
Lupe Hernandez					
Phyllis Brouse					
Pamela Kay Strong			714-896-3420		
Erik Dolvik	NorScott Scandinavian Designs				norscott.com
Tim & Barbara Thomas	The House of Tibara	7573 N. Fancher Road Clovis, CA 93611	209-299-5123	opalinfo@opal-tibara.com	www.opal-tibara.com
Bob & Susan Thompson	Idaho Opal Mines, Inc				idopalmine.com
Phillip W. Brown	The Opal News	PO Box 1022 Lutz, FL 33549		opaltalk@atlantic.net	
Patrick Hopman	Hopman Jewelers, Inc.				hopmanjewelers.com
Duane Robey					
Simon Omotosho	Firebird Opal	PO Box 1075 Lightning Ridge, NSW 2834	02-6829-0434	source@firebirdopal.com.au	www.firebirdopal.com.au
James Doty				cd102@aol.com	
James Kutzner	Santiago of San Diego	1074 Devonshire Dr San Diego, CA 92107		farfresher@cox.net	
John Hiller		5332 Foxfire Place Kingsport, TN 37664	423-224-9324	cartman@preferred.com	
Robyn Dufty	Robyn Dufty, Inc.				duftyweis.com
William L. Mattis					
Mike Rogers	Rogers Rarities	PO Box 1517 Manteca, CA 95336-1149	209-482-3023	ultramike@mediaone.net	www.rogersrarities.com
George Downey					
Chris Duffield					
Margaret Malm		PO Box 926 Leeds, UT 84746-0926			
Trevor Berry	Berryd Opals	PO Box 711 Coober Pedy, SA 5723 Aust.	08-86723802	trevor@berrydopals.com.au	www.berrydopals.com
Peter Brusaschi	Petren Products Pty Ltd.	PO Box 226 Banora Point, NSW 2486 Aust.	07-55999091	opals@ion.tm	www.opalmine.com
Ken Davis					
Bill Harmon					
Effie Hetrick					
Chuck Williams					
Barbara Dalton					
Ernest Howe	Trigon Holding Co.				
Blaine Buckman		3719 Stadium Blvd. Apt. B-10 Jonesboro, AR 72404		blaine.buckman@murraystate.edu	
Jozef Molnar	Opal				
Carlos Lugo					
Ron Olson	Lapidary Services				
Robert A. Combs					
Richard Tobiassen		40-05 59th Street Woodside, NY 11377		rtobiass@bellatlantic.net	
Tony Clarke	A.D. Clarke Boulder Opal	PO Box 99 Blakehurst Sydney, NSW 2221	02-95461566	Tony@Boulderopal.net.au	www.boulderopal.net.au
Jing Yao					
Sarah McCarthy					
Bill Campbell					
Louis Kripple	Capitol Jewelry				
Harry Steele	Harlin Ent.				
Opal Association Inc.		PO Box Opal Ramsgate, NSW 2221 Aust.	205005OPALS	info@opal.asn.au	www.opal.net.au
Jeff Chappell	Yowah Opals Ltd.	PO Box 609 Mildura, Victoria 3502 Aust.	50-234-695	jeff@yowahopals.com.au	www.yowahopals.com.au
Eugene LeVan	LeVan Specialty Co.	2750 East 2nd. St. Long Beach, CA 90803	562-621-1805	genea01@sprynet.com	
Denise Kowal		530 S. Orange Ave. Sarasota, FL 34236	941-364-3384	dkowalsons@aol.com	
Joyce Sessions	J & J Gemstones				
Robert E. Howard					
Martin Winkler					
Ken Oliver		521 Roxbury Drive Horse Creek, CA 96050		senchoo@sisgtel.net	
Larry Voorhies					
Andrea Weintraub					
Paul Brown	Brown Design				
Doug Simmons					
Gean Bigler					
Mark Dana					
Korky Campbell					
Linda Jenkins					
Frank Valdez					
Michael Fadely	Redondo Sportfishing				
Henry Oliver					
Conrad M. Valdez					
Dida Kutz	Candida Opals		415-221-7446	didak@jps.net	www.candidaOpals.com
Bob Yorke-Hardy	Okanagan Opal, Inc.	Box 298 Vernon, B.C. V1T 6M2 Canada	250-542-1103	okopal@junction.net	www.opalscanada.com
Tony Dabdoub	Tropical Gems Explorations	4739 Utica St. Suite 205 Metaire, LA 70006	504-888-7511	tropicalgems@cox.net	
Wendell Vandever		2617 NW 28th Street Ok. City, OK 73107		wvby@webtv.net	
Bobbie Wayne					
Gail Clark		2832 Silverwood Place Pocatello, ID 83201			
Jack Green					
J. Robert Campos				campos1r@gte.net	
Richard Eddy				raeddy@msn.com	
Dan Statz	DBOpals	PO Box 8882 Madison, WI 53708	608-235-5018	dan.statz@att.net	
Ben-Zion Keidar					
Robert Short	The Opal Shop	PO Box 46 Elanora Hts Sydney,NSW 2101	299706067	sales@palshop.com.au	www.opalshop.com.au
Garrath van der Linden	Opal Digital	PO Box 90 Stirling, SA 5152 Aust.	08-8370-9750	garrath@opaldigital.com.au	www.opaldigital.com.au
William Wren		PO Box 439 Gleneden Beach, CA 97388			
Roberta Leblang-Davis					