

# NEEDLES GEM & MINERAL CLUB



**P.O. Box 234  
Needles, CA 92363**

Editor:  
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## **NEXT CLUB MEETING**

**May 18 at 6:00 p.m. PDT**

**First Baptist Church  
1421 Commercial St.  
Mohave Valley, AZ**

**Usually 3<sup>rd</sup> Monday of each  
month, Oct-May**

## **BOARD MEETING**

**30 minutes before Club  
meeting each month**

# Blue Agate News

Volume 4, Issue 4

April 2009

## **YEAR END POT LUCK APRIL 20 @ 5:00 p.m.**

Our Year End Pot-Luck will be held one month earlier this year so we can include the members who go north for the summer. Be sure to come and bring a dish to share.

*One of the secrets of life is  
to make stepping stones  
out of stumbling blocks.*

*By Jack Penn*

## **INSIDE THIS ISSUE**

- 2 Club Information
- 3 Refreshments Schedule/Upcoming Shows
- 4 This can Happen to You
- 5 Needles Blue Agate/AFMS Code of Ethics
- 6 Twenty Years of Making Jewelry
- 11 Diamond
- 12 Hints 'n Such
- 13 Field Trips & Events/Field Trip Report

## NGMC INFORMATION YOU NEED TO KNOW

### THE OBJECTIVES OF NGMC

To promote public interest in collecting and studying rocks and minerals.

To preserve and perpetuate the lapidary arts.

To provide field trips to obtain lapidary material and minerals for preservation and display.

To provide an opportunity for the purchase, exchange and exhibition of specimens and materials.

The NGMC meets the third Monday of each month from October through May at **6:00 p.m. Pacific Time** unless otherwise notified.

### NGMC - 2009

|                                    |              |
|------------------------------------|--------------|
| President: Ann Ferguson            | 928-768-7150 |
| Vice President: Allan Reed         | 928-763-3511 |
| Treasurer: Lori Clary              | 928-234-3391 |
| Secretary: Sally Hayward           | 928-768-7437 |
| Past President: Corinne More       | 760-326-5005 |
| Past President: Barb Ballard       | 928-768-6335 |
| Auditor: Ramona Peterson           | 928-854-1853 |
| Facilities Chair: Faith Reed       | 928-763-3511 |
| Field Trip Chair: Bob Ferguson     | 928-768-7150 |
| Membership Chair: Gisela New       | 928-768-5640 |
| Refreshments Chair: Faith Reed     | 928-763-3511 |
| Sgt at Arms: Pat New               | 928-768-5640 |
| Sunshine Chair: Barb Ballard       | 928-768-6335 |
| Newsletter Editor: Barbara Wiggins |              |

### HONORARY LIFETIME MEMBERS

George Truitt  
Norma Truitt  
Myrna Givens  
Corinne More  
Tom More

**Membership dues** are payable at the November meeting and delinquent after January 1. Please send dues to the official Club address on the first page of this Newsletter, attention: Treasurer.

This Club is a member of the California Federation of Mineralogical Societies (CFMS) <http://www.cfmsinc.org/>.

Membership per person: \$15.00 year

Name Badge: \$ 3.75

Field Trip Fee: \$ 1.00

"No Badge" fine: 25¢

### FIELD TRIP GUIDELINES - NGMC

- Leader will state approximately how far, road conditions, and if 4WD is required when each field tripper signs in.
- Each car is to keep the car behind in sight and STOP if the car is not in sight (unless otherwise stated by the leader).
- Field trippers will notify the leader if they are hiking or driving to another site and their approximate return time.
- Field trippers will notify the leader if they are leaving the group and sign out (with time).
- Members wear name badges.
- Handheld radios: stay on Channel 6

The **Blue Agate News** is published monthly except June, July, August and September. Articles are requested to be to the editor by the **15th** of each month, preferably by email at [bartobra@yahoo.com](mailto:bartobra@yahoo.com). The Blue Agate News is also published via email - if you have internet, please share your address with the Secretary. This saves the club money and you will have the newsletter immediately. The Newsletter is in PDF format, so it will be necessary to download Adobe Reader (free program) in order to view the newsletter. You can also view the newsletter on line at <http://needlesgemmineralclub.blogspot.com/>.

The Blog (Web Log) – **Blue Agate News Online** is free and can be updated frequently October through May. If you have information you want posted, please email it to Sally at [rockhound.ngmc@gmail.com](mailto:rockhound.ngmc@gmail.com) or sign up to contribute directly to the Blog. You may access the Blog at: <http://needlesgemmineralclub.blogspot.com/>

## Refreshments Schedule

April 2009 – Season End Pot Luck  
 May 2009 -  
 October 2009 –  
 November 2009 -- Paula A. & Gisela N.  
 December – Christmas Party Pot Luck

## UPCOMING SHOWS

May 1-3 -- BISHOP, CA: Show, "Eastern Sierra Gem & Mineral Show"; Lone Pine Gem & Mineral Society; Tri-County Fairgrounds; Fri. 6-10, Sat. 9:30-4, Sun. 10-3; free admission; door prizes, raffle, field trips, demonstrations; contact Jeff Lines, (760) 872-6597; e-mail: rockmun@hotmail.com; Website: <http://lpgms.org>

May 2-3 -- ANAHEIM, CA: 50th anniversary show; The Searchers Gem & Mineral Society; Brookhurst Community Center, 2271 W. Crescent Ave.; Sat. 10-5:30, Sun. 10-4:30; free admission; lapidary and jewelry-making demonstrations, dealers, club member displays, door prizes, gold panning with Route 66 Gold Miners, silent auctions; contact Clarke Benich, 18661 Silver Maple Way, N. Tustin, CA 92705, (714) 639-9927; e-mail: [clarkebenich@yahoo.com](mailto:clarkebenich@yahoo.com); Website: [www.searchersrocks.org](http://www.searchersrocks.org)

May 8-10 -- COSTA MESA, CA: Gem Faire OC Fair & Event Center/Bldg. 10, 88 Fair Dr. Gem Faire hours: Fri. 12pm-7pm, Sat. 10am-6pm, Sun. 10am-5pm. Admission \$5 weekend pass. For more info, contact Yooy Nelson, (503) 252-8300 or e-mail: [info@gemfaire.com](mailto:info@gemfaire.com); Website: [www.gemfaire.com](http://www.gemfaire.com)

May 15-17 -- COSTA MESA, CA: Show, "West Coast Gem & Mineral Show - Spring"; Martin Zinn Expositions; Holiday Inn - Bristol Plaza, 3131 S. Bristol; Fri. & Sat 10-6, Sun. 10-5; free admission; 120 wholesale and retail dealers, open to the public; contact Martin Zinn Expositions, P.O. Box 665, Bernalillo, NM 87004-0665, fax (505) 867-0073; e-mail: [mz0955@aol.com](mailto:mz0955@aol.com); Website: [www.mzexpos.com](http://www.mzexpos.com)

May 16-17 -- NEWBURY PARK, CA: 35th annual show, "Pageant of a Thousand Gems"; Conejo Gem & Mineral Club; Borchard Park, 190 Reino Rd.; Sat. 9-5, Sun. 10-4:30; free admission; minerals, rocks, fossils, exhibits, demonstrations, dealers, youth activities, door prizes, silent auctions, plant sales; contact Robert Sankovich, (805) 494-7734; e-mail: [rmsorca@adelphia.net](mailto:rmsorca@adelphia.net); Web site: [www.cgamc.org](http://www.cgamc.org)

May 16-17 -- YUCAIPA, CA: Show; Yucaipa Valley Gem & Mineral Society; Yucaipa Community Center, 34900 Oak Glen Rd.; Sat. 9-5, Sun. 10-4; free admission; 16 dealers, gems, rocks, children's rock Bingo, Spin the Wheel, demonstrations, wire wrapping, beading, sphere making, rock polishing, silent auction; contact William P. Jochimsen, 35525 Ivy Ave., Yucaipa, CA 92399, (909) 790-1475; e-mail: [bjm2285@aol.com](mailto:bjm2285@aol.com); Website: <http://mysite.verizon.net/yucaipagem>

May 29-31 -- SANTA BARBARA, CA: Show; Gem Faire Inc.; Earl Warren Showgrounds/Exhibit Hall, 3400 Calle Real; Fri. 12-7, Sat. 10-7, Sun. 10-5; \$5 weekend pass; contact Yooy Nelson, (503) 252-8300; e-mail: [info@gemfaire.com](mailto:info@gemfaire.com); Website: [www.gemfaire.com](http://www.gemfaire.com)

May 30-31 -- GLENDORA, CA: Show; Glendora GEMS; 859 E. Sierra Madre Ave.; Sat. 10-5, Sun. 10-4; contact Bonnie Bidwell, (626) 963-4638; e-mail: [Ybidwell2@aol.com](mailto:Ybidwell2@aol.com)

May 29-31 -- LAS VEGAS, NV: Retail and wholesale show; Bead Renaissance Shows; Palace Station Hotel/Casino, 2411 W. Sahara Ave.; Fri. & Sat 10-6, Sun. 10-5; free admission; bead artists, dealers, ancient, vintage, contemporary and designer beads, jewelry, tools, books; contact J&J Promotions LLC, P.O. Box 420, Williamsburg, NM 87942, (575) 894-1293; e-mail: [beadshow@aol.com](mailto:beadshow@aol.com); Website: [www.beadshow.com](http://www.beadshow.com)

June 12-14 -- ALBUQUERQUE, NM: Show; Gem Faire Inc.; NM State Fairgrounds, 300 San Pedro N.E.; Fri. 12-7, Sat. 10-7, Sun. 10-5; \$5 weekend pass; contact Yooy Nelson, (503) 252-8300; e-mail: [info@gemfaire.com](mailto:info@gemfaire.com); Website: [www.gemfaire.com](http://www.gemfaire.com)

***THIS CAN HAPPEN TO YOU***

by Robert Madden, M.D.

On November 1, 2008, my fiancé, Dori, and I were criminally charged with collecting Staurolites on U.S. Forest Service land. Local collectors have been going to this location to collect Staurolites for over 30 years. Our friends, Tonya and Barry, informed us of the location in Blue Ridge. We visited this area four (4) times in the summer and fall of 2008. The Staurolites we found on the surface were mostly poor quality. However, just a few inches under the surface using a scraper we found much better quality ones. We used hand tools including a scraper and a small pick. I feel we were very careful not to damage the site. We did not dig more than 6 or 7 inches and completely filled in our holes and raked the dirt to ensure the site looked undisturbed.

On November 1, 2008 Officer Mike Tipton of the USFS approached us. We did not attempt to hide ourselves because we had no idea we were doing anything wrong. He stated he had set up a video camera at the site and had been watching us. This was very alarming to us. I assured him if he had approached us that first time and explained that the Forest Service did not wish us to collect here, we would have politely left and never returned. He will attest to the fact that we were cooperative. He even complimented us stating we were "not like most of the individuals he deals with."

Officer Tipton approached us and asked us what we were looking for. We told him we were looking for Staurolites. He did not know what Staurolites were, but informed us we needed a mining permit to dig for any type of mineral. He told us any Staurolites we find are government property. Next he confiscated our scraping tools, knap sack and bucket. He separated us and read me my Miranda rights. At this point he asked me if I would allow federal agents to search my home in Rome for any other federal property. When I said "no" my interview was over. Evidently he tried to obtain a search warrant, but was unsuccessful. Officer Tipton repeatedly inquired as to whether we sold rocks. I told him I have never sold minerals and Staurolites have only intrinsic value. In the past there have been locations in Blue

Ridge (Hackney Farm) that have allowed individuals to collect a bucket of them for \$5.00.

On January 11, 2009, Officer Tipton gave us a courtesy call. He stated we are being charged criminally with 261.9(a) destroying a natural feature or property of the United States (\$250.00 fine) and 261.9(b) removing a natural feature or property of the United States (\$250.00 fine). These are criminal misdemeanor offenses and can result in a criminal record. I strongly feel the section we are being charged under is both vague and does not address the important point that we were collecting minerals. Mineral collecting is generally allowed on most U.S. Forest Service lands including public domain lands and acquired lands. Unfortunately, each individual Forest Service can now make the rules (on acquired lands) dictating the rules for rock hounding and Georgia has one of the most restrictive policies. Under this charge it appears we are vandals or even worse thieves. I told Officer Tipton I was considering going to court. Five days later when I received my ticket it had doubled to \$400.00 for each offense for a total of \$2000.00.

In conclusion, I feel strongly we took the utmost care to treat this land with care. We spent at least 15-20 minutes each time to leave the ground looking undisturbed. I feel the Georgia State Forest Service is treating mineral collectors like criminals. Mineral collecting has in the past been considered a wholesome and educational activity. In other states, the USFS has been much more responsive to working with mineral collectors and even encourages collecting. I am saddened that the Georgia State Forest Service is now considering it a criminal offense. Thank you for the time you spend considering this matter.

Source: 4/10/09 email from John Wright, Chairman, AFMS Conservation & Legislation Committee. He thinks this is important enough that all of AFMS members should be made aware of the problems they could encounter when rock-hounding in National Forests. Permission was granted by Dr. Madden to use his well written article, which is typical of a number of other similar cases being adjudicated in the Southeast Federation of Mineralogical Societies area at the present time.

Joe Smith started the day early having set his alarm clock (MADE IN JAPAN) for 6 a.m. While his coffeepot (MADE IN CHINA) was perking, he shaved with his electric razor (MADE IN HONG KONG). He put on a dress shirt (MADE IN SRI LANKA), designer jeans (MADE IN SINGAPORE) and tennis shoes (MADE IN KOREA).

After cooking his breakfast in his new electric skillet (MADE IN INDIA) he sat down with his calculator (MADE IN MEXICO) to see how much he could spend today. After setting his watch (MADE IN TAIWAN) to the radio (MADE IN INDIA) he got in his car (MADE IN GERMANY) and continued his search for a good paying AMERICAN JOB.

At the end of yet another discouraging and fruitless day, Joe decided to relax for a while. He put on his sandals (MADE IN BRAZIL) poured himself a glass of wine (MADE IN FRANCE) and turned on his TV (MADE IN INDONESIA), and then wondered why he can't find a good paying job in.....AMERICA.....

### **NEEDLES BLUE AGATE**

Ann Ferguson announced that while perusing the Internet, Pam Tobin learned that our Needles Blue Agate has one of the most complex combinations of minerals ever found in an agate. There are usually nine minerals in agate, but Needles Blue Agate has 21 minerals. And interestingly, since not much has been found in recent years it now sells by the gram or carat.

Below are some of the sites Pam visited:

<http://www.spiritrockshop.com/Agate.html>

<http://www.tumbled.com/needles.htm>

[http://cgi.ebay.com/NEEDLES-BLUE,-NICE-VEINS-WITH-COLOR-1%2F4-POUND-ROUGH\\_W0QQitemZ250394532456QQcmdZViewItemQQimsxZ20090323?IMSfp=TL090323131006r10121](http://cgi.ebay.com/NEEDLES-BLUE,-NICE-VEINS-WITH-COLOR-1%2F4-POUND-ROUGH_W0QQitemZ250394532456QQcmdZViewItemQQimsxZ20090323?IMSfp=TL090323131006r10121)

<http://www.houseofhutsell.com/Treasure.html>

<http://www.tumbled.com/needles-7.htm>

<http://www.blm.gov/ca/st/en/fo/needles/rock.html>

### **"AFMS CODE OF ETHICS"**

- I will respect both private and public property and will do no collecting on privately owned land without permission from the owner.
- I will keep informed on all laws, regulations or rules governing collecting on public lands and will observe them.
- I will, to the best of my ability, ascertain the boundary lines of property on which I plan to collect.
- I will use no firearms or blasting material in collecting areas.
- I will cause no willful damage to property of any kind such as fences, signs, buildings, etc.
- I will leave all gates as found.
- I will build fires only in designated or safe places and will be certain they are completely extinguished before leaving the area.
- I will discard no burning material - matches, cigarettes, etc.
- I will fill all excavation holes which may be dangerous to livestock.
- I will not contaminate wells, creeks, or other water supplies.
- I will cause no willful damage to collecting material and will take home only what I can reasonably use.
- I will practice conservation and undertake to utilize fully and well the materials I have collected and will recycle my surplus for the pleasure and benefit of others.
- I will support the rockhound project H.E.L.P. (Help Eliminate Litter Please) and will leave all collecting areas devoid of litter, regardless of how found.
- I will cooperate with field-trip leaders and those in designated authority in all collecting areas.
- I will report to my club or federation officers, Bureau of Land Management or other authorities, any deposit of petrified wood or other materials on public lands which should be protected for the enjoyment of future generations for public educational and scientific purposes.
- I will appreciate and protect our heritage of natural resources.
- I will observe the "Golden Rule", will use Good Outdoor Manners and will at all times conduct myself in a manner which will add to the stature and Public Image of Rockhounds everywhere.

**TWENTY YEARS OF MAKING JEWELRY**

By Jim Crowe

After twenty years experience of making fine jewelry I now feel competent to pass on to you the secrets of the trade qualifying me as the expert I am in the field. Particularly in the cutting and grinding of gemstones. While most people can produce a true work of art on their first attempt there are many of us that require a bit of perseverance to build up the confidence and skills gained through experience. A step by step instruction is hereby provided starting with the beginning.

Collection of the raw material. Finding rocks suitable for the fabrication of gemstones is best done by going outdoors as most come from there. A most notable exception to this rule is southern Mississippi where we now live. At our home the rocks are inside, whether it be the house, a shed, or on a covered concrete slab where they won't get rained on and slowly sink into the earth or disintegrate through excessive sunlight and humidity. So one must go somewhere else to pick up rocks. This I did in my youth when I went to places other than Mississippi. Now that I never leave home I depend on using the rocks I got a long time ago or that other people give me. It is not important to pick up every rock you see, for there are some that don't make good jewelry. Examples of these are clumps of mud and dried dirt. I have in my collection a beautiful chunk of sandstone which when brought inside became a jar full of fine colored sand. It's still pretty but unsuitable for cutting and polishing. Some real rocks aren't too good for making jewelry because they are too soft and will wear away or get all scratched up by simply wearing them, if that's what you do often with jewelry. Talc, gypsum, and calcite are examples of rocks that aren't good for making into things to wear. They are good for carvings to set on a shelf. Then there are some rocks that just aren't pretty enough to make into jewelry. Pick them up anyway. The funny thing about rocks is that, like people, they might be good on the inside.

Cleaning the rocks. Some rocks need a little cleaning up after you get them home. This can be accomplished by something as simple as wiping them off on your pants. Others require washing in water or a detergent. A mechanical cleaning with

brushes or sandblaster may be suggested for hard rocks. A large hammer can be used to break rocks into small enough pieces that fresh fracture sides will appear clean. Some need a hard-core treatment like soaking in an acid solution. As can be seen from photographic evidence some rocks are adversely affected by hard core treatments. Similar results can be attained with the hammer approach.

Cutting rocks. It is with this step that some special tools might be necessary. If you are cutting rocks that are pretty soft a general purpose carpenter's saw will do. For gem quality rocks to be cut in a plane we get into rock saws. These are power tools with diamond coated blades or at least blades harder than the rock being cut. Saws come in varied sizes. My largest saw has a twenty-four inch circular blade. It's good for cutting rocks up to about ten inches in diameter. If you are a good gem maker you don't need to start with rocks that large but if you are new at the business that may be a good size because beginners generally waste a lot of the raw material in the cutting, grinding and polishing stages of making a gem. There are several other saws around the shop most of which don't get used either because they don't work or are too messy. All rock saws need a coolant so blades don't get overheated and ruined. Water can be used to cool blades but I usually use a special oil coolant that is recirculated over the rock that is being cut. This means that a desirable feature is a cover of some kind over the blade to contain the oil and prevent it from flying all over the room and the operator. On larger cuts it is nice to have a vise to hold the rock and a drive mechanism to push the rock over the blade. By leaving the rock in the vise between cuts and moving the vise to the left with a turn screw, perfectly parallel cuts can be made in the rock. The piece then cut off results in a flat slab. With a switch to automatically turn off power when the rock is cut in two, the saw can run without operator attention. This is wonderful for large rocks often taking up to an hour or so for a cut.

Once a slab has been cut to the thickness desired it is often necessary to make further length and width cuts with a small saw. Six inches is the common blade diameter for a trim saw. It permits the operator to hold the piece with the fingers and rapidly cut off unwanted parts of the slab. A deflector is usually placed above the blade to

direct the coolant away from the operator's face. It's nonetheless advisable not to be wearing Sunday clothing while cutting with a trim saw. If the rocks you wish to change to gems are small to begin with it is only necessary to have access to a trim saw.

The usual procedure in gem making is to cut slabs, mark the shape you want the gem, cut slab to roughly that shape, grind it down to the desired shape, and polish the gem. Rocks that are not transparent are usually cut into shapes called cabochons. That is, they are flat on one side and rounded on the top. Transparent rocks are often faceted. They are ground to have many flat surfaces at precise angles to each other so that light can enter through the surface and bounce around inside and be reflected back to the eye in a most pleasing angle. First we shall take up the matter of cabochons, or cabs, for with these one machine can do the whole job. I have more than one grinding machine because mine are the ones that other folks didn't want anymore since all the features designed into them, no longer work.

**Grinding.** My favorite grinder is a small one with two diamond coated wheels. The wheel on the right has a coarse grit #80 which grinds away rock at a rapid rate. This is great for hard rocks from which most gems are made. In my twenty years of experience I have learned not to use it on delicate softer material like opal. A momentary distraction or just a little too much pressure can ruin a good opal while grinding a soft rock on this wheel.

The wheel on the left is of smaller sized diamond grit (#600). It's not exactly the coarseness I want in order to remove the scratches that remain after the first grinding. So I go over to another machine that has a wheel somewhere in between these two densities.

Once the slab has been cut and trimmed down to the approximate desired shape, it can be held rather gently against the coarse wheel of the grinder until it exactly meets the outline you may have drawn on the stone or is precisely that outline you want. It is very important during these steps to have the wheel wet so things will stay cool despite the friction and to wash away the ground up remnants of the stone. Water is usually used as a coolant here because it is cheap and has a more pleasant smell than oil. Sometimes I

add a little product called rust inhibitor to the water which supposedly keeps the grinder from getting rusty and mostly keeps the manufacturer of the product in business.

While holding the rock up against the spinning wheel it is very likely that the fingers will brush the wheel. This normally does not hurt fingers, for the skin on fingers is relatively resilient and will withstand short periods of rubbing. On the other hand (the left hand if you are right handed) the fingernails are hard enough to be scratched and ground down by the wheel. Some folks find this annoying and employ a dop stick so fingernails needn't be so close to the rotating wheel. The dop stick whether it be of wood, metal, or plastic is fastened to the rock with some kind of adhesive. This is usually some variety of wax that is heated and melted between stone and stick. With the stone on the stick, hold the edge of the stone against the grinding wheel at such an angle that you can remove a layer of material all the way around the piece. A mark circling the piece near the base will aid in preventing grinding the circumference to out-of-round while leaving a small even girdle at the base. Next grind off another layer at a steeper angle all the way around the stone above the first grinding. Continue grinding at steeper angles until the stone is dome shaped if that is your objective. A dome shape is the most common cabochon. The most usual error in this step is ending up with the stone too flat on top. While still using the same wheel, grind off the bumps and ridges until you have a perfect dome. The stone will have this same shape after going to the next grinding wheel. But you must use other wheels to remove the scratches left by the coarse grit grinder.

**Polishing.** The reason I use more than one grinder is to save time. if you go from a coarse grit, say #80, to a grit that is too fine, it will take forever to remove the scratches left by the larger sized diamonds or whatever you are using. So I go from coarse grit to a slightly finer grit wheel. At this point, and at the end of the coarse grit, I continuously move the stone around on the face of the wheel so all portions of the stone are removed of those scratch marks.

The stone will now look a bit shinier, especially when it is wet, and it should be wet from the coolant being thrown from the wheel. Next go to a

finer grit to take more dullness from the piece. Rinse off the stone as you go from coarser to finer grit so as not to carry the scratch-making grit with the stone. About three different grinding wheels will make the stone nice and smooth. After using about a #1200 grit wheel you can go to a polishing wheel that doesn't even need water on it. These are usually disks that protrude out from one end of a grinding machine. They generally need a bit of the polishing compound of your choice added to the wheel or disk from time to time. There are so many kinds and brand names of polishing compounds on the market that I won't go into that. Some are marked with the fineness of the medium. Others are only identified as polish, such as rouge, cerium oxide or whatever. Different rocks seem to take the best shine from different polishing compounds. I keep several little disks and wheels in zip-lock bags to change out as needed. Bagging them helps to keep out foreign material that might scratch a nearly finished gem.

After your stone has been turned into a gemstone and is all bright and very shiny it can be removed from the dop stick. There are many ways to do this. You can slam it onto a concrete floor. This a little risky because the gem could break before the dopping material. You can soak it in acetone or some other solvent that melts the wax. This takes some extra time and energy. You can cut the wax with a sharp knife. I never have a knife that sharp. You can melt the wax with fire. Some stones change color with heat which may make this method undesirable.

The simplest method I have heard of is putting the stick and stone in the freezer for five or ten minutes. When removed the stone will pop off the stick with a twist of the fingers. If any wax remains on the stone even a dull knife will scrape that off. This method works sometimes even when you don't want it to. Before my shop was heated in the winter stones would come off the stick during cold weather at most inopportune times.

Once the new gem is off the dop stick it can be rubbed against a rag with some polish on it to remove smudge marks. If the back of the stone is going to be mounted in jewelry where it can be seen you may wish to polish the back of the stone. It's even possible to grind down and polish in the same way, the other side was done.

Mounting gems in jewelry. There are so many ways to set stones into jewelry that we can't hope to cover all of them, or for that matter, any of them completely. None of the methods can I do well but that is understandable for I've only been doing jewelry for twenty years. At this point in life I'm concentrating on getting a good polish on stones. If I ever do a good one I'll consider mounting it.

Stones can be set by wire wrapping, casting, smithing (gold, silver or other metals), gluing onto another object, embedding (in plastic or other transparent material), or just setting it on a pedestal. Most of my gems just go into drawer waiting to get finished.

Silversmithing is so fascinating that I have taken three classes in that art. Beginning classes all. I have turned out some interesting pieces by this method. Not good but interesting. In class it's easy but I seem to forget how to do it by the time I get home. It involves getting some wire or plate of a weight and shape desired and bending and soldering to get the gem and perhaps a finger into it in the case of a ring. Bending isn't the hardest part of silversmithing. Soldering is the big trick. Flame from a small torch is applied to clean metal that has some flux and solder filings on the parts you want to join together.

When the temperature is just right everything melts together and the flame is removed. In real practice there is a glob of molten metal remaining or else the parts aren't joined properly. A paste containing both solder and flux can be purchased. As with straight silver or gold solder, it comes with different melting temperatures so progressively lower temperatures can be used as each layer of work is being done without melting down that done earlier. If the parts manage to come together as desired the piece is soaked in a warm acid solution to remove the crud on the outside. A little filing is then needed to make it nice and smooth so no sign of the joints are visible. As with stones, scratches left by files or a coarse grinder, as I often use, must be removed. A good polishing will make the metal look its best. Then if everything was done right the stone or stones can be placed in the metal to see if they fit. If the sizes match rather closely the metal can be stretched a little or the stone can sometimes be cut down a hair. If they don't, as so

often happens, now is a good time to start all over again. Don't throw the stones or the settings away though because after a while you will have a large box full of stones and settings. Laws of random selectivity will eventually provide you with two or more parts that will match in size.

Many methods have been devised to prevent stones from falling out of your jewelry. Little prongs built into the metal findings are popular with faceted stones where you want as much light to get inside and bounce around a lot before coming back to the eyeballs. The prongs are simply bent over the stone near the top of the stone. For some stones, glue alone works pretty well. Digging a hole in metal with a hard tool is often used on very small stones. The edges of the metal are then pushed over part of the stone to hold it down. Another common method is to wrap wire around the stone to hold it into the finding. This is called wire wrapping in counter-distinction to smithing. It is quite popular and can be very attractive when done well. Combinations of these methods are common as are methods not described here or are being invented every day. For me a strip of transparent tape to hold the stone to the finding works about as well as anything.

The casting of metal is the most entertaining way to make something that will hold a stone for display. That's where you turn metal into a liquid state and let it cool down into the shape you want it. There are different ways to accomplish getting metal to cool into the desired shape. As metal changes from liquid to solid it is still too hot to mold by hand so I use the lost wax method and a centrifuge. That is, something is made first from wax. That object is then placed in a medium that won't melt when placed in an oven so the wax can melt down and evaporate. After the wax is gone and the medium is hot enough not to explode when being hit by molten metal, the container is taken from the oven and quickly placed in a centrifuge. A correct amount of metal is then melted and poured into a hole provided by having added a funnel shaped to the original wax object. The pouring, instead of flowing into the hole by gravity is slung into the cavity by the action of the centrifuge as it spins about in a horizontal plane when turned on. If too much molten metal is used the excess will fly into a big container in which the centrifuge is contained.

Should the centrifuge be placed to spin in a vertical plane I guess excess metal would tend to fly about the room in which the operator is located which could cause some worker damage. If the metal being used is gold and you don't want a gold plated room this could become an expensive proposition. By placing the spinning contraption in a tub, a good deal of the solidified metal can be scraped from the sides of the tub and reused on subsequent casting attempts.

Other methods of getting molten metal into a cavity made by the lost wax process are a straight gravity pour and the vacuum method. The gravity pour is self explanatory but vacuum methodology may need a short description. Therein a vacuum is created in the cavity and the melted metal is just sucked into the space. I have seen this done but don't have all the vacuum creating equipment required.

The lost wax method is by no means the only way to cast metals. Carving a cavity directly into a material that has a higher melting point than that of the desired material you wish to cast is the obvious answer. Getting the carving tools into the cavity of a single piece mold is obviously difficult for small objects like jewelry, A two piece mold that can be joined together after carving is satisfactory. The problem with this is that it is likely as easy to carve out a chunk of the metal you want to end up with. This type of mold may be fine if you want to make numerous objects of the same exact design. A mold to make numerous wax impressions will accomplish the same results and is easier.

**Wire wrapping** is an excellent method for setting any stone. In addition to holding the stone or stones in place, wire is available in a variety of thickness, surface patterns, luster, alloys, coatings, and lengths (cut it to any length). It can be round, flat, square, triangular, or oblong in cross section. It can be twisted, bent to any angle, doubled with other wires, or wrapped around material other than stones. And wire can cost about any price you wish to pay. By recycling old wiring from various sources such as household appliances you can get it for free. The insulation can be stripped off with little effort and you can have perfectly good copper wire. Gold wire can be purchased at exorbitant cost or you can draw out your own for only slightly less. Gold coated wire,

either plated or filled is not expensive at all and looks as good and is corrosion resistant to boot. Most wire wrapping is done without using solder. Thus one need not be concerned about removing the layer of gold from the surface by melting it off with the heat.

Wire wrapping is easy to get into because there are so many ways it can be done. Simply wrap a wire around a stone and add as many sections of wire to the piece as you wish, wrapping them around each other to join them and continue until finished. Although it is simple to do, wire wrapping is very difficult to do well. That's why I can't do it. It takes us handicapped people too long to perfect the art.

These methods of setting gems are not all inclusive. Drilling holes in rocks and dangling them from strings, chains, or wires makes rather common jewelry. My problem is getting the holes drilled into the stones despite having a moderate supply of small diamond drill bits laying about. Fortunately stones or other beads can be purchased at a reasonable cost so they can be beaded.

Faceting is fascinating. When one thinks of jewelry the idea of a multi-faceted diamond, set into a ring comes to mind rather quickly. Any stone that can be made into a cabochon can be faceted. Most aren't though. Good faceting grade stone is usually that which a great deal of light can penetrate. A facet is a flat surface that creates rather precise angles with other flat surfaces. These angles let the light penetrate through the stone and be reflected to other facets several times and then back out after the resultant magnification of the light. Knowing what the best angles are to maximize the effect is important. Different minerals possess different properties. One of the properties of a mineral is its refractivity, that is the angle at which light is bent as it enters the surface and reflects from a second surface. So to become a good faceter it is important to know the properties of the mineral. Me? I hardly know one mineral from another let alone what their properties are. But that isn't the only reason everyone can't be a good faceter. Grinding a stone to a fairly flat surface can be done on a grinding wheel. Grinding an adjacent flat surface next to it at the proper angle is all but impossible. Therefore another tool came into

being. It is called of all things, a faceting machine. They aren't cheap. Unless like mine, they are old machines that somebody chose to get rid of. Unlike most regular grinders, a faceting machine has a built in holding device for the stone and lots of little notches, verniers, knobs, slides, and bolts to set and hold the stone at particular chosen angles. Like any grinding machine a wheel goes around and around so it will rub against the stone and wear it away. Like grinding a cabochon, the coarseness of the wheel must be decreased after the shape has been established so the stone will attain a polish. When one whole side, top or bottom, has been cut and polished to the prescribed number of facets determined to be proper, the tricky part comes. That is, the stone must be transferred to another dop stick on the other end of the stone very precisely. A really good dop wax or glue is used in faceting because the stone must not fall off the stick during either half of the procedure. Good faceters can remount a fallen stone but I am not one of those. After both halves of the stone are faceted and polished the finished gem can be mounted in an appropriate finding such as a ring, broach, or belly button. Or it can be thrown into a box full of other jewelry unsuitable for display.

Carving rocks can be called jewelry making. Especially if the rocks are small enough to be displayed on the body. I have several blocks of stone ready to carve into beautiful objects of art. The problem I have with these is I don't know where to start. I even have some tools like chisels, mallets, and hand grinders and polishers. It has been said that one should make a model first from clay or other inexpensive material to determine dimensions before ruining a perfectly good rock. So first I guess I should learn to model in clay. Finally I might be able to decide what to make. I once signed up for a class in carving but when I found it to be about carving silhouettes I took metal casting over again instead. That was dumb because cameos make perfectly good jewelry. Even better than large sculptures.

Another jewelry skill is chain making. It is similar to wire wrapping. Wire is spiraled around a dowel of the size you want your links and then cut lengthwise along the dowel to provide a bunch of rings. The rings are then interwoven into intricate patterns to form a chain. Wire sizes can vary up to whatever you can work by hand. Gold filled or

plated wire is common in chain making because of price considerations and it does not need to be soldered because many designs are of multiple links tying them together. I have a box full of chains of different designs that I have started. None have been finished.

Sometimes people aren't happy with the material from which their jewelry is made. The appearance can be changed by gold, silver, or chromium plating other metals. Gold plating was once considered too dangerous to be done in the home shop because it involves the use of cyanide to dissolve gold into solution where it is given off into the air in the electroplating process. And ingesting cyanide is said to be bad for health. I have never used it although I often don't believe everything people say.

This short dissertation by no means covers all methods of making jewelry. Today much of it is stamped out of sheet metal with huge presses and coated with paint. Plastic makes jewelry and I have used that medium. One just glues pieces of plastic together. If a pin or clasp is desired they can be glued or melted on. Someday, perhaps in another twenty years, I shall maybe finish one of the pieces of jewelry I have begun.

Source: Gravel Gazette, 12/1999

## **DIAMOND**

Diamond is the ultimate gemstone, having few weaknesses and many strengths. It is well known that Diamond is the hardest substance found in nature, but few people realize that Diamond is four times harder than the next hardest natural mineral, corundum (sapphire and ruby). But even as hard as it is, it is not impervious. Diamond has four directions of cleavage, meaning that if it receives a sharp blow in one of these directions it will cleave, or split. A skilled diamond setter and/or jeweler will prevent any of these directions from being in a position to be struck while mounted in a jewelry piece.

As a gemstone, Diamond's single flaw (perfect cleavage) is far outdistanced by the sum of its positive qualities. It has a broad color range, high refraction, high dispersion or fire, very low

reactivity to chemicals, rarity, and of course, extreme hardness and durability.

In terms of its physical properties, diamond is the ultimate mineral in several ways. Diamond is a perfect "10", defining the top of the hardness scale. Diamond is transparent over a larger range of wavelengths (from the ultraviolet into the far infrared) than is any other substance. Diamond conducts heat better than anything - five times better than the second best element, Silver! Diamond has the highest melting point (3820 degrees Kelvin)! The atoms of Diamond are packed closer together than are the atoms of any other substance!

Diamond is a polymorph of the element carbon. Graphite is another polymorph. The two share the same chemistry, carbon, but have very different structures and properties. Diamond is hard, Graphite is soft (the "lead" of a pencil). Diamond is an excellent electrical insulator, Graphite is a good conductor of electricity. Diamond is the ultimate abrasive, Graphite is a very good lubricant. Diamond is transparent, Graphite is opaque. Diamond crystallizes in the Isometric system and graphite crystallizes in the hexagonal system. Somewhat of a surprise is that at surface temperatures and pressures, Graphite is the stable form of carbon. In fact, all diamonds at or near the surface of the Earth are currently undergoing a transformation into Graphite. This reaction, fortunately, is extremely slow.

Color is variable and tends toward pale yellows, browns, grays, and also white, blue, black, reddish, greenish and colorless. Luster is adamantine to waxy. Crystals are transparent to translucent in rough crystals. Crystal Habits include isometric forms such as cubes and octahedrons, twinning is also seen. Specific Gravity is 3.5 (above average). Cleavage is perfect in 4 directions forming octahedrons. Fracture is conchoidal. Streak is white. Associated minerals are limited to those found in kimberlite rock, an ultramafic igneous rock composed mostly of olivine. Refractive index is 2.4 (very high), dispersion is 0.044, fluorescent. Notable Occurrences include South Africa and other localities throughout Africa, India, Brazil, Russia, Australia, and Arkansas. The best Field Indicator is extreme hardness.

# Hints 'n Such

**These hints were gathered primarily from the bulletins of other clubs. They have not been evaluated for safety or reliability and could be unsafe or could cause damage to your project. Please use caution and safety when trying out any new idea.**

If your diamond charge lap is dirty and slow in cutting, clean it with Twinkle, available at most supermarkets. It will not only be cleaner, but it will look and probably cut like new.

Source: The Rockwood G&MS, 3/2003, via Rockhound Rambling, 10-11/2005

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Geode Cutters that cannot decide which way to cut a non-spherical geode should try rolling it on a flat surface. Roll it several times and note which side stops "up" most frequently. Then cut on a plane parallel to the floor. Crystal growth inside the geode probably is at the top and bottom of it's resting position, as stalactites and stalagmites grow in caves.

From Rock Chips via Breccia, 3/2004

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For jade polishing try a mixture of 1/3 micron diamond product, 1/3 Vaseline and 1/3 liquid floor polish. Only a small quantity is needed.

From Petrograph via Breccia 3/2004

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Is it solid? - To determine how solid a slab is, heat it in hot water. The surface will dry immediately - with the exception of pits and fractures which will be outlined with water when removed from the hot water.

Source: The BEMS Tumbler, Boeing Employees Mineralogical Society, Inc., Seattle, WA, 9/2004, via Rockhound Rambling, 12/2005

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Use sanding cloth until it falls apart. The more worn it is, the more smoothly it sands. If faster sanding is desired, use a cloth freshly broken in. But for super smooth finish, use patience and a well worn sanding cloth.

Source: Golden Spike News via Rockhound Rambling, 10-11/2005

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To clean Fluorite, do not wash in hot, nor even warm water. The luster will vanish and be gone forever. It can be placed into muriatic acid to remove calcite, then washed in cold water.

Source: Rockwood G&MS, 3/2003, via Rockhound Rambling, 10-11/2005

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Most tumblers produce better results if there are small bits of pieces of rock of the same hardness in with the bigger ones you are trying to polish.

From Tumbler via Breccia, 3/2004

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Don't mix lead with silver or gold scrap.

Source: Hound's Howl, 02/2004, via The RockCollector, 03/0206

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Polishing psilomelane: Use 100,000 diamond on canvas to get good results.

Source: Hound's Howl, 02/2004, via The RockCollector, 03/2006

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Never use ammonia, soap or detergent on turquoise. Ammonia will turn the turquoise white. A drop of ammonia on what may be a scrap piece is a good test to see if it is genuine.

Source: Skagitt Gems, 01/2001, via Calgary Lapidary Journal, 4/2008

**UPCOMING FIELD TRIPS & EVENTS**

- Apr 5 Sporre's Home – Bernie & Kathy  
Peterson's Home – Jim & Ramona
- Apr 11 Squiggly Jasper – Bob
- Apr 25 Needles Mine – Bob
- May 9 Golden Shores – Linda

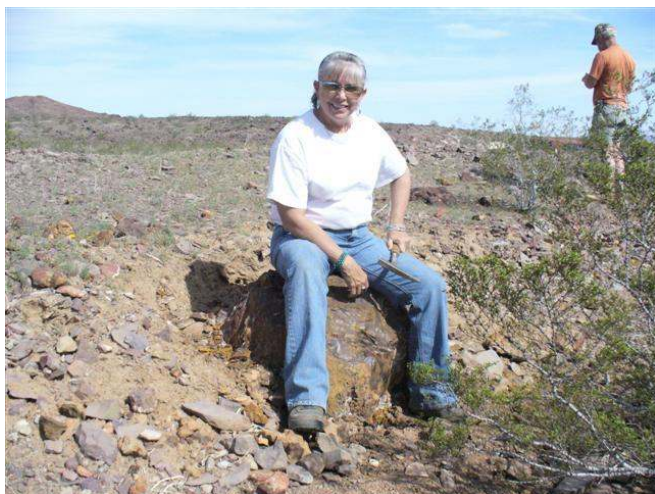
April 5

14 NGMC members and 3 dogs visited the Sporre's and Peterson's homes. The demonstrations, the tours, the lunch and refreshments were all outstanding.

**FIELD TRIP REPORT**

March 20-21

We had 9 members, 1 guest, and 3 dogs attend the weekend field trip to Ludlow.



High centered, guess who!

**BLUE AGATE NEWS**  
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