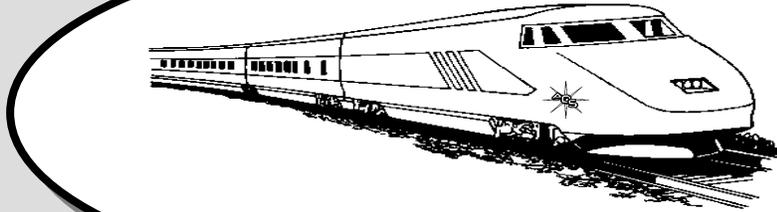


# The Opal Express

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amazing details, patterns and colors in various gemstones and fossils. One of his favorites and most popular subject are opals. A photo of a colorful Koroit opal called "Satan's Jacuzzi" was the group's favorite. Another photo of a piece of Mookite was my favorite. It reminded me of the Martian Machines of the movie "War of the Worlds". Mike gave an excellent presentation and sold and signed quite a few photos to the group. A big thank you from the AOS!

## President's Message

By Pete Goetz

Well, for those of you who attended the April General meeting, I hope your eyes have recovered from the dazzling display of OPAL art and photography presented by Dave Woodward. Great show!

For the month of May, I will demonstrate how to cook Andamooka Matrix.

IT'S COMING, IT REALLY IS COMING!! The 2012 OPAL and GEM SHOW. The venue will be the same as last year: The White House Event Center on Beach Blvd here in sunny California, that's right SUNNY California. It seems that last year some rain clouds lost their way and stopped in SUNNY Southern California to ask directions to The Wine County South of here.

Seriously, The OPAL Show is on its way. What I would like y'all to do: First, recruit new members and Secondly, Attempt to do some advertising in your local area. I will provide you with more info on what you can do in the next OPAL EXPRESS. The Board of Directors are gearing up for the show.

We have been doing the really interesting 'stuff' like Insurance coverage, City permits etc. etc...

Talk at y'all later!

## Members Only Website Password

To log onto the website's members only area at: [http://opalsociety.org/aos\\_members\\_only\\_area.htm](http://opalsociety.org/aos_members_only_area.htm) type: Name: "member" and Password: "matrixopal".

## Last Month's Lecture: Mike Woodward on Gem Photography

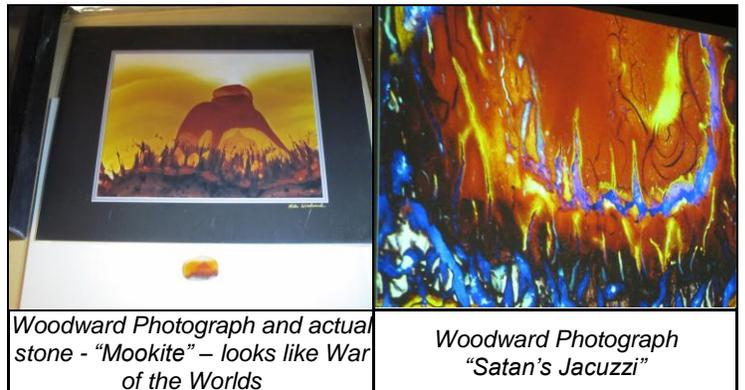
By Jim Pisani

Mike Woodward gave a great presentation at our April general meeting. Mike is the proprietor of Mike Woodward Photography (See [www.mikewoodwardphotography.com](http://www.mikewoodwardphotography.com))

Mike gave us a slide show of some of his creations. One of Mike's specialty and famous skills is taking awe inspiring close-up photographs of stones and fossils. His micro-photographs show the



Mike Woodward



Woodward Photograph and actual stone - "Mookite" – looks like War of the Worlds

Woodward Photograph "Satan's Jacuzzi"

## Andamooka



D7 Dozer and Excavator

Andamooka is a very small place that reminds one of the Wild West, it has its special appeal. The Tucker Box is the place to eat supper. You won't be able to empty your plate even though the food is top notch. The place for breakfast is at Pat and Margo's who run the post office there. Many good stories are told from million dollar parcels being stolen to guys getting bullets in the head and machinery being blown up. Little opal is being found now and few are working the fields. Andamooka has especially hard opal with



Top Andamooka crystal

wonderful crystal that is said never to crack.

Here in Andamooka a D7 dozer and excavator sit idle - signs of high fuel costs and no opal.

Here's a top piece Andamooka crystal weighing nearly one ounce. Rarely will you ever see a piece like this. When have you ever? I searched around Andamooka and never seen anything close. Not many miners working, high fuel costs and new fields needed to be found. Not a

good recipe for finding more. This piece must be worth a fair bit considering Andamooka crystal sells for more than Coober Pedy Crystal. Top Andamooka crystal sells for up to \$6000 a finished carat!

Here's a bulldozer cut in Teatree flat. You can see the level where the Iron staining is, gypsum is often present. It's along the contact of the red grey rock over top of the grey conglomerate you can see on the left face. Sometimes the level is broken up or down, up to 2 3 feet by slips or small faults that displace the level. In this picture they would have dug along the level, then returned to dig below the level just to be sure they weren't missing anything. You just never know with opal. As you can see there was nothing below the level as they did not continue digging.



Bulldozer cut in Teatree Flat

Andamooka has its own special atmosphere. The people are all very friendly and they all have a tale to tell. The streets are not named and are mostly dirt, except main street which is now paved. The main street is run along a dried creek bed. It seldom rains in Andamooka. You can see the mullock heaps from every angle that you turn your head.

There is usually a noodling machine to be seen as you drive through good fields. The loader feeds the hopper from mullock heaps. A conveyor feeds someone in a dark room with mullock under a black light. The opal fluoresces as it hits the UV light. After you search for 11 hours or so for pieces, you go look to see what you found outside. A UV light fluoresces patch as well as gem grade opal. In Andamooka some old diggings were full of Matrix. Matrix is very porous Limestone that fills with opal before solidifying. It's cooked with sulfuric acid and sugar to bring out the colour. I've seen

prominent stores on Main Street, Coober Pedy with pieces for 14,500 so beware! It was worth maybe \$1000 from my point of view.

Here's some treated Andamooka concrete matrix. These pieces are selling for \$30 - \$40 a finished carat.

From

<http://www.opalrough.ca/andamooka.htm>



Noodling Machine in Andamooka

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## Treating Matrix Opal the American Way

By George Bucholz.

You have probably read a lot about the Aussie way of treating Matrix Opal and I am sure it is a great way to do the material and it will give great results. I have never treated Matrix Opal the Aussie way. No matter, I get great results. I have been treating Matrix Opal since 1982 and I have some of the most beautiful Matrix Opal you will ever see.

At the end of this epistle I will tell you how to get rid of your used acid.

Before I tell you how to successfully treat Matrix Opal, I want to stress to you to get the best material you can afford. You want quality not quantity. I stress this. Any rough opal costs a lot of money, your seller knows this as well as you do. He is not going to make a mistake and slip in a high priced piece of opal. He also can't afford the mistake. If you want to be satisfied with what you get in the final result after all the preparation and the treatment, then you must get the best matrix opal you can afford. A few beautiful stones are much more salable and make better jewelry than a handful of poor quality. You want QUALITY not quantity.

Now the supplies you will need.

1. 1 small ceramic crock pot. My crock pot does not even have a heat gauge on it for various heats. I adjust the heat by moving the lid a little crack wider or narrower any way to keep under 190 degrees Easy to do. I drilled a small hole in one side of the lid, close to the rim, just big enough for the meat thermometer to stick down into the pot so I can check the heat to keep it about 180 degrees, while I am cooking the stones.
2. 1 Meat thermometer. The small round head with the metal stick body that comes in a long plastic sheath.
3. 1 copper tongs about 12 inches long, or if you can get stainless steel tongs about the same Just great. I have the copper ones.
4. 1 small ceramic electric potpourri pot
5. 1 Large mouth Mason jar -- quart size. This is the old fashioned kind. The one who's seal is a rubber ring and closes with a galvanized wire snap at the side. This is important because this is the jar that is going to hold the used Acid after your job is done.
6. 1 stainless steel strainer. Must fit and cover all the opening of the Mason jar if possible.
7. 1 plastic container of Battery Acid. Your nearest battery store that specializes in Batteries will probably give you a plastic container of battery acid. Ask him. If not then buy a small container of the acid. Not expensive
8. 1 box of Baking soda I do a lot of treating so I get a big box of baking soda from Costco or Sam's
9. 1 box of latex gloves A MUST HAVE
10. 1 Large ceramic pie plate with raised edges to hold the potpourri pot. I was lucky, I bought a ceramic pizza pie plate from a 2nd hand store for 1 dollar.

11. 5 lbs. of granulated sugar. I use the Hawaii stuff, never tried the beet sugar.

12. Safety glasses

13. Fairly large ceramic cereal bowl.

When I started I didn't know you were not supposed to use battery acid, but I couldn't get pure sulphuric acid, so I bought battery acid and never looked back. It's much easier to use and not nearly so dangerous.

The first thing I do when I get a new supply of rough rock. I treat it for 3 or 4 days to color it so I can really see what I have and where I should make my first cut.

I have found trying to look at an untreated rock in most instances will not show you the true colors for you to make your judgment.. I try to start the following on a Saturday or a Sunday and then I can do the acid treatment at my leisure.

Fill your ceramic rock pot about 1/2 full of water, add 2 big cups of sugar. It has to be a quite heavy syrupy mixture Plug in and Heat until dissolved. Then add your stones. Now put your thermometer down the hole in the lid, just crack the lid a bit and watch the temperature rise till 180 degrees.

That is the temperature you are striving for. Stir the stones to thoroughly dissolve the sugar. I control the temperature with the lid. I keep adjusting the lid every hour or so until this temperature is steady.

Don't worry if the temperature does go over 180 degrees Just so long as the temperature doesn't go over 190 You don't want the water in the rock to boil, and it can, if the temperature gets too high.

Keep watching this for the next 3 or 4 days, put water in to the same height, as it evaporates. I do this watching and adding every morning and evening. Stir the mixture at least 2 or 3 times a day. You are making stone soup. However don't ever try to eat any of it. You can't cook it soft enough.

On the 3rd or 4th day, I drain all the syrup out of the pot and take the pot and the stones into my shop where I have my potpourri pot sitting on my pizza pie plate. **DO NOT HANDLE THE STONES WHILE DRAINING THEM.** If you do, you can leave your fingerprints on the stone and it can show up on the final product.

I pour the stones into the potpourri pot, scraping out the ones that stick to the crock pot. Then I put on my latex gloves and my safety glasses.

#### **WITH MUCH CARE:**

Then pour the battery acid into the potpourri pot until the acid is about an inch above the stones.

**I TAKE GREAT CARE IN NOT PUTTING MY HEAD ABOVE THE POTPOURRI POT WHILE DOING THIS SO I do not breathe in any of the acid fumes.**

I then stir the stones with a wooden stick or my copper tongs, to loosen up the stones that are sticking together from the sugar. I plug in the potpourri pots. The potpourri pots have built in thermostats so they will get up to about 160 degrees F which is just fine with me, I make sure there are no ways a light or a spark can ignite any fumes.

Now get out your cereal bowl and put a couple of tablespoons full of baking powder into it. Fill it about half full of water and stir till dissolved. Put to one side.

I then go about my ordinary chores for about 3 hours and then I stir the stones again and add more acid if needed.

**PUT ON YOUR SAFETY GLASSES AND YOUR LATEX GLOVES EVERY TIME YOU DO ANYTHING WITH THIS OPERATION. AND DO NOT BREATHE OVER THE POTPOURRI POTS AND DO NOT LIGHT A FLAME ANYWHERE NEAR THIS OPERATION.**

**THE ACID WILL TURN BLACK DO NOT BE ALARMED - THIS IS THE ACID EATING THE SUGAR.**

At this time it will look like nothing is really happening to the stones, but it is happening, I can assure you. Be Relaxed!! This is a very relaxed operation. No Worries Mate

After about 6 or 7 hours I will look at my stones and I will see some of the most beautiful colors you can imagine. I usually take the stones out of the acid at this time but I will at times leave them in the acid for another hour or two. There is just no hurry. The acid will not

touch the opal at all. It will only deepen the black in the matrix. I have by accident left stones in acid for over a year and no damage.

You will also see that the acid has thickened and covers some of the opal so it may be hard to see the colors. Again no worries Mate. The thickness is from the sugar that the acid has been eating. It has not been dissolving the stones.

All, this has been done with latex gloves and safety glasses on!!! I pull the plug on the potpourri pot.

I put my Mason jar in my ceramic plate. I put the strainer on top to cover the opening and having my latex gloves and safety glasses on, I carefully lift up my potpourri pot and pour the acid into the strainer to expose the opals. If I spill any acid it will be caught in the plate so there is no danger of hurting something I shouldn't hurt. I dump my opals into the strainer.

Some of the opals may be caught on the sides of the potpourri pot If so, I can take them out with my latex gloves or I use a wooden stick. I prefer the stick to the gloves. I do not want to splash myself at all.

Now all is simple! I will put my opals slowly a few at a time, into the baking soda water bowl. It will foam and fuss This will neutralize the acid. I leave them there for about 10 minutes, then I can pick them up and look at them.

Now no fires, no cigarettes no sparks. To neutralize the acid I put a small spoonful of baking soda into the acid in the mason jar Do not close the lid Let it boil. I continue to do this until there is no more boiling. I put at least 2 more spoonfuls in and let it set for a few days, then I put another spoonful in and let it set some more days. I consider it as being dead and I can then flush it down the toilet. I flush the toilet a couple of times more to clear it from the pipes.

Some rocks are very hard and will require several treatments to finally color them. For my successive treatments I go from Saturday to Saturday and do the above. Gradually there will be a great change in color and you can be rewarded with the most beautiful opals you will ever see. Takes a lot of patience for the reward. I have treated some stones for better than 2 months this way, week by week, before I get the color I want.

#### **A WORD:**

I want to stress the fact that there is a LOT of work and MUCH patience, connected to getting a beautiful stone.

There is a buildup of brown haze over the stone and it keeps getting deeper and deeper every time the stone is cooked. However, it is a surface haze that obscures the colour flash in the stone.

I take it off each stone by carefully polishing the stone with 18000 diamond grit sanding belt, under water

spray. A person can use whatever the person has just so long as the haze comes off, and just so long as the stone is not scratched.

I think I have it all here. Good luck BE CAREFUL

From <http://www.shed.com/aom/storyfile/ammatrix.html>

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#### **How to Cut Opal**

I have been cutting opal (Boulder opal and opal doublets will be handled in separate articles) since I was thirteen. I have cut Mintabie opal, Lightning Ridge opal, Andamooka opal, Coober Pedy opal and Boulder opal from many Queensland opal mines.

This article is about the basic procedure I use to produce the best results for the cut solid opals that we sell in our shop and our website. Firstly a few hints. Attention to detail. Don't move from one step to the next unless you are totally satisfied with the result you have achieved at each stage.

#### **Opals ready for Dopping**



Don't be afraid to try a new technique. Most opal cutters have their own method and it is a matter of finding out what works well for you. A good idea is to watch as many good opal cutters that you can. You will learn a little from each.

Learn to cut cabochons from cheaper gemstones such as agate before you move on to opal. Practice cutting material that is around the same hardness as opal such as obsidian or the many common opal and opalites that are available at some lapidary outlets. I believe it is better to make mistakes on material that is not too valuable. Once you are proficient at cutting good cabochons move on to precious opal.

I tend to cut opal solids in batches, doing each step in lots of 20 or so opals.

### **Opal Cutting Machinery**

I use a Diamond Pacific cabochon cutting machine fitted with two 8 inch diamond impregnated cutting wheels (80 and 220 grit) and four diamond 8 inch diamond impregnated sanding wheels (280, 600, 1200 and a new spare of one of these that I am wearing in). The end of the machine has a flat disc that has a rubber pad attached to it. On top of this I have glued a 'polypad' that I impregnate with 100,000 diamond paste to polish the opals. I also have a small saw fitted with a very thin 4" diamond blade.

### **Step 1. First Shaping of the Opal**

Generally using the 220 cutting wheel I remove the outer layers of the opal so that I can see where the colour bars lie. (Occasionally I will use the 80 grit wheel if there is a lot of potch to remove or the opal is low quality.)

This stage reveals any sand spots or flaws that will determine what my next step is. It is common to cut several stones out of a single piece opal depending on where the colour lies, the thickness of the opal and any imperfections that become evident. I use a thin permanent marker pen to draw saw lines that I follow.

A mistake many first time opal cutters make is to cut the biggest stone they can out of each piece of opal rough. Sometimes more value can be achieved by cutting the opal rough into several stones that are individually more appealing than one large stone. I believe the right idea is to cut the best stones out of each piece. If the opal is of fine quality I will cut stones often that are quite small (e.g. 4mm and 6x4mm).

Smaller patterned opal often cuts more valuable smaller stones per carat than if the same opal is cut into larger stones. Often rough opal with rolling flashes can be cut into incredible gems by positioning the flashes correctly when cutting. Some times this means sacrificing size but the value will be more. The most enjoyable part of opal cutting is making these decisions and achieving the result you have imagined.

Sometimes the colour pattern will vary within the opal rough so an artistic decision has to be made so that each opal is as good and as balanced as possible.

Often two or more totally different looking stones will be cut from the same piece of opal rough. Sometimes the top of one will be the bottom of its neighbor.

Cracks cannot be tolerated and are either ground out or sliced along. If the opal becomes too thin to cut a viable solid I will set it aside for cutting into an opal doublet.

Often there are several colour bars within a piece of rough opal. A decision has to be made as to which of these bars will be the brightest or will have the most interesting pattern. I then grind down close to the colour bar that I want on top being careful to not get too close as the final cutting is best done on the sanding wheel.

I roughly preform the stone to a resemblance of its final shape. I flatten the bottom of the stone ready for dopping.

### **Step 2. Dopping the Opal**

Dopping is when you 'cement' the stone onto a stick that you hold for the rest of the cutting process.

It is most important that the preformed opal sits properly aligned on the dopping stick. If it is not it is very difficult to cut a well-balanced opal.

Every cutter has his favourite sticks of preferred length and thickness. I use bullet head nails of 7cm in length and of 3 different

thicknesses depending on the size of the opal preform. These are cheap, and the uniform size means I get used to the feel of them. They fit in my palm and can be turned easily between my fingers. Feel in cutting an opal is important as it is a repetitive process and I believe it plays a major part in the process.

I use normal green dopping wax available at most lapidary suppliers. I have a small saucepan with a thick base that I heat the wax in. To heat the wax I use a hot plate (electric) with a thick piece (about 1cm) of steel placed on top. The reason for all this thickness is so that once the wax is melting I can set the heat on the lowest setting and the wax stays at a perfect temperature (It needs to be liquid but just enough to hold onto the nail when you put it in. Too hot and the wax is too runny and won't hold the opals)

The plate of steel is about 200mm wider than the hot plate. On this I place the opals bottom up to receive the nails with wax on the heads. I also place the nails on this to warm to a temperature that is still easy to hold without being uncomfortable. I place the opals where they heat up to quite a hot temperature but not too hot that you couldn't touch them.

The technique (once the wax is melted and the opal hot) is to place the head of the nail in the wax, lift it out and place it directly on the opal. I lick between my finger and thumb; lift the opal up and make a cone shape under the opal. Don't forget to wet your fingers otherwise wax burn is very painful as it sticks. Try not to get wax past the extremities of the opal preform.

### **Step 4. Final Shaping of the Opal**

Now that I can hold the opal better I go to the 220 grit cutting wheel and looking directly down on top of the opal I complete the final shape as carefully and correctly as I can. Minor adjustments can be done at the sanding stage but the better the shape now the easier it is later.

I try to get a right angle of about 10% of the final height of the opal around the base and then gently curve the rest of the opal. Moving on to the top of the opal I decide on the curvature of the surface. The amount of curvature is often determined by the thickness of the opal colour bar. I generally do a series of grinds around the opal ending up with around a 10 degree curvature on the top.

When I am happy that I have as near as perfect shape and I am happy that I have the best possible play of colour as close as I am prepared to go without actually going into it I move on to the 280 Sanding wheel.

### **Step 5. Sanding the Opal**

Before sanding the opal I check the shape is as perfect in all aspects that I can get. The first stage of sanding is very quick. I simply remove all the marks from the cutting stage with the 280 sanding wheel and make any minor adjustments to the shape.

Almost as quick is the 600 stage. This only removes the coarser marks made by the previous sander.

By far the most time consuming part of my opal cutting is the final sanding, done on the 1200 sanding wheel. I do the edges first, holding the nail so that the opal edge is running at 90 degrees to the surface of the wheel. Looking down on top of the opal I check that my shape is perfect.

At this stage I use quite firm pressure and keep the opal moving at all times. I rotate the opal constantly and then move it up and down. I also put the main face of the opal on the sander and with firm rotating pressure work it until it is perfectly free of any sanding scratches. I dry the stone often and look at the reflection of the light on the surface of the opal. Any coarse sanding marks are then obvious and all need to be removed. The stone needs to be perfect in all aspects for this stage to be successfully completed.

### **Step 6. Polishing the Opal**

This is the easiest part of the opal cutting process. If all the previous stages have been done correctly is simply a matter of moving the entire surface of the opal over the polishing pad until the opal gem is completely polished.

I have a spray jar that I keep spraying water onto the polishing pad. I recharge the pad with 100,000 diamond paste about every 20 or so opals. This is simply done by putting some compound on my finger and rubbing it into the polypad.

To remove the finished opal simply place in the freezing compartment of the refrigerator and it will drop off.

**Step 8. The Back of the Opal**

Sometimes I curve the back of the opal (Particularly if the opal is cut from a Lightning Ridge black opal nobby). If I am curving the opal I re-dop it and repeat the cutting process.



*Solid Crystal Opal just polished*

Most opal solids I cut have a flat back and I am used to holding the opal on the end of my finger and flattening the back on the 240 sander. I then follow the procedure through.

The final step is a small bezel put on the base of the opal that I also do by holding the opal between my fingers and turning it. I do this on the 600 sanding wheel.

**Step 9. Stop and Admire the Opal**

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From <http://mineshaft.com.au/opal/how-to-cut-opal/>

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**Fundamentals of Lapidary - Cabochon Cutting**

*By Donald Clark CSM*



Cabbing is the most popular form of gem cutting. It requires a fair amount of skill, but is something almost everyone can master. Rough material for cutting can be found or purchased inexpensively. Many people never buy their rough and are content to cut the many stones they find or trade for. As one gains skill, you can move into more desirable materials like turquoise and lapis lazuli. If you wish, you can

graduate to highly valuable materials like catseye chrysoberyl and black opal.

**Tools**

The tools used for cabbing can be as inexpensive or elaborate as your taste runs. The most popular cabbing machine is the Genie by Diamond Pacific. It has six, permanently mounted wheels. The first two are 100 and 260 grit diamond on solid wheels. The other four range from 280 to 14,000 grit. They have a foam backing, which conforms to the curvature of the stones. There are two moveable "geysers" which supply water to the wheels for lubrication. You cannot polish everything with one method, so there is a flat disk that can be mounted on the end. This disk can hold a variety of pads and polishing compounds; enough to be able to polish anything that you might encounter.



The advantages of the Genie are that you never spend time changing accessories and that the diamond wheels last almost forever. Its primary disadvantage is cost. At approximately \$1500, this is a major investment. It is also large and heavy, which is fine for a permanent setup. However, if you need portability, this is not the right unit for you.

Going down in cost, Loretone offers a unit for approximately \$500 that has a built in saw, a silicon carbide grinding wheel, an expanding drum and a flat disk for polishing. The quality of the machine and the work you can do with it are both excellent. The cost reduction comes in the wheels.

Silicon carbide wheels round in the center. They soon become difficult to use and eventually unusable. To flatten them you need a diamond tool that costs about \$30. Nor do they do not last nearly as long as a diamond wheel. A good six-inch diamond wheel will cost you between one and two hundred dollars, where an equivalent silicon carbide wheel will run about \$30. While the initial cost of

silicon carbide is much lower than an equivalent diamond wheel, in the end the diamond is less expensive. You should bear this in mind when replacing a wheel, or building your own machine.

The Loretone also uses an expanding drum that is four inches wide. To use it, you place a belt around the drum and, as the machine comes up to speed, the drum expands and holds it in place. There is a wide variety of belts available. They come in silicon carbide or diamond and in grits from 100 to 50,000.

In the long run, these belts cost more than a wheel with imbedded diamond, but the difference is not as significant as with the silicon carbide grinding wheels. The primary disadvantage is the time it takes to change belts between grits. The machine needs to come to a complete stop; remove the old belt, replace it with a new one; then bring the machine back up to speed. To some people this will be insignificant, to others just a minor disadvantage. You need to look at your needs to determine how much this will affect your enjoyment. On the very bottom of the price scale is the Rock Rascal. Its cost is just \$240 if you add your own motor. It only has one station, so you are constantly changing accessories, and it will only hold one-inch wide wheels. However, it has been on the market for several decades, which speaks volumes for its durability.

There are a number of other machines on the market with a variety of features and prices. Many people have made their own machines. The requirements are an axle of the proper diameter for the wheels you chose; a motor; a pulley system to attain the proper speed and a method to keep the wheels wet. This is usually a drip system. Another simple system is a sponge that is arranged to sit in water and constantly wipe the wheel clean.

It should be pointed out that you can cab on a faceting machine, but you cannot facet on a cabbing machine. Bear this in mind if you are a beginning lapidary and budgeting your equipment costs.

You can shape your cabs with the same coarse laps you use for faceting. Clean your coarse lap, then put a piece of firm, 1/4" thick, foam rubber on top of it. This will hold pieces of 600 wet/dry sandpaper, (that you have to cut to shape,) for smoothing. To polish, replace the sand paper with an Ultra Lap, a piece of leather, or other polishing pad charged with your favorite compound.

**Techniques**

In this section we will describe how to cut an oval cabochon. This is the

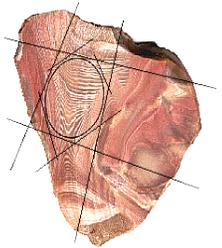
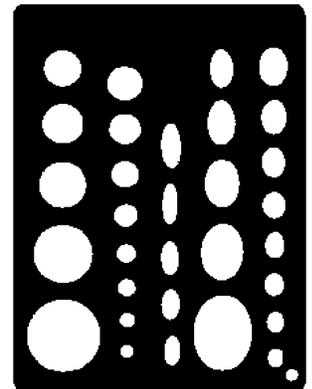
most common shape for cabs and the other shapes just require a minor adjustment of technique.

Most cutting begins with a slab. Yes, that means you will need a saw. Some pieces can be cut without slabbing, but most will need to be cut into 1/4" to 3/8" thick slices.

Begin by placing a template over the slab. If your material is a solid color, you are just

looking for the largest piece you can cut. If it has a pattern, then you are looking for the shape and size with the most eye appeal. This is a bit of a guessing game, as the pattern will change as you round the top. Look at both sides of the slab to get an idea of how it will change.

It isn't always necessary to use a template. Some valuable materials, most notably opal, are usually cut freeform for maximum weight retention. However, on most materials you will want to end up with a calibrated size and shape. That is because they fit into pre-made settings. It



Saw Lines

isn't cost effective to save a little weight on most cabs and then have to spend a dozen hours, or hundreds of dollars, to make a setting for it.

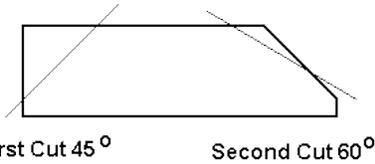
When you have chosen your area, mark it for cutting. An aluminum pen is ideal for this purpose. It will make a mark that will not wash away, as a pencil will. Many materials will absorb liquid ink, which leaves an unsightly mess that has to be cut away.

Now that you have your cab outlined, take it to the saw and cut away as much excess material as possible. Until you get used to this process, it is helpful to draw guidelines with the aluminum pen and a ruler.

If you are working with a large gem, you can move on to the grinding stage. Smaller stones should be dopped to save your fingers from unnecessary abuse.

### Shaping

Now it is time to begin cutting. If working with something hard, like a piece of agate, begin with your coarsest wheel. If you are working with something soft, like opal or turquoise, or something small, begin with one of the smoother wheels. If it cuts too slowly, you can always go to a coarser one, but caution dictates that you start gently.



Bring your machine up to speed and get your chosen wheel thoroughly wet before starting to cut. The water serves two important purposes. It acts as a lubricant, keeping the friction and heat down. It also carries away the swarf, (the cutting debris,) which prevents the wheel from clogging up. Most manufacturers recommend that you use an additive for additional lubrication. Unless your machine is made entirely of stainless steel, you will need an additive with rust preventative properties as well.

When grinding, it is important to use the lower quarter of the wheel. If you try to work above the centerline, there is a good change the gem will be pulled out of your hands. "Pulled" is tame compared to what actually happens. The gem is yanked violently from your hands and flung to the far reaches of your shop. If you can find it again, it may well be broken.

Begin by grinding the excess material down towards the outline you have drawn. Use a pair of calipers to measure your progress. Templates are great for shapes, but are not accurate for dimensions. Leave yourself some room for the remaining steps. Depending on the size of your cab, you may want to leave a half-millimeter or so. This is something you will learn from experience, as the amount varies with the hardness of the material and the size of the gem.

Once you have the outline shaped, it is time to begin the process known as "Peeling the Apple." Grind a bevel all the way around the gem at about 45 degrees, bringing it 2/3 to 3/4 of the way down to the bottom. Then grind another bevel, again all the way around the stone, at about 60 degrees, leaving some of the previous cut showing. Keep peeling the apple, cutting bevels at increasingly steeper angles, until they meet in the center.

This is the area that causes the beginner the most trouble. It seems that just three cuts will completely cover the stone, except for maybe a tiny area right in the center. That is not good enough. If you have even a tiny area that is flat and not properly domed, it will not take a proper polish. To make matters worse, it is right on the very top where it shows the most!

You have to be patience and learn to get the entire stone evenly domed. Look at the stone from both ends and both sides. The curvature should be even in every direction and all the way to the center. You should make this inspection at every step, but especially

in the first, coarsest stage. Any irregularities are easier to correct now than later with the finer grits.

Now we are going to get ahead of ourselves for a bit, just so you know where we are headed. As you are shaping the gem, leave a small, vertical area on the sides before it begins to taper in. You will also want to sand a very small bevel on the lower edge of your girdle. This is done in the fine sanding stage. The bevel prevents the edge from chipping and it also leaves a small area for solder.

Cabs are usually placed in a bezel setting. The bezel, a thin strip of metal, is soldered to the main piece. Hence, you need a little room for the solder. To hold the gem securely, it needs to be bent inward, over the curvature of the stone. The vertical area on the side offers support, without having to bend the bezel too far in. When finished, you want to see mostly the stone. You do not want the bezel to come so far over the edges that it distracts from the gem.

These steps are particularly important with brittle opal. If you leave a sharp edge on the girdle, the stone can chip or crack when tightening the bezel. The steeper the sides, more support the gem receives. Of course this can be overdone. The above illustration shows ideal proportions, from the metal smith's point of view.

### Smoothing

Once you are satisfied with the shape of your gem, it is time to start sanding out the coarse scratches. If you are using diamond, this will be in a series of steps. Typically, you would use a combination like 260, 600, and 1200. Inspect your gem after each step. Look for proper curvature, as you did before. Also, check to make sure you have removed all the coarse scratches from the previous step. This is very important. If you don't get them all out before moving on to the next step, you will have to either back up and do it again, or settle for a low quality finish.

The gem needs to be dry for you to see the progress. This can be challenging in a humid environment. If possible, warm the room before starting. If you can't warm the room, at least use warm water. Have plenty of towels available and dry your hands before trying to dry the stone.

If you are using silicon carbide, all you need is 600 grit. It wears fast and becomes the finer grit you need for a prepolish. Unfortunately, these have limited uses. You may have to have two 600 belts in use; one for shaping and a well-used one for prepolishing.

The quality of your prepolish, the final fine sanding, cannot be overstated. This is the single most important element in getting a high polish. The surface should be ultra-smooth, with no visible scratches at all. Any time you find you are having trouble getting a high polish, go back to the prepolish step. Soft materials like lapis and opal scratch readily with diamond. 1200 diamond is a fine prepolish for agate, but you might need something much finer, like 3,000 or 8,000 for softer gems.

### Polishing

There are hundreds of polishing methods, which can be very confusing to a beginner. If you buy a new machine, it will probably come with a polishing system. That is a good place to start.

An old lapidary trick is to use aluminum oxide on suede, soft side out. This is the most versatile polishing method available. It will put a high polish on more materials than any other method.

Quartz responds best to cerium oxide, which does well for opal too. You have to be very careful about heat buildup with opal. Stones get hot quickly while polishing and heat can destroy opal.

Jade, on the other hand, needs a lot of heat and friction to polish. Use chromium oxide on leather or felt.

Diamond can be used on leather or specially made pads. However, it has never gained the popularity with cabbers that it has with faceting. It is more expensive than aluminum oxide and doesn't offer any significant improvements, except on ruby and sapphire.

These are the most common and most useful polishing methods. With them, you will be able to get a mirror polish on any material.

That mirror polish is important. It is a fair amount of work to come up with a machine, learn how to use it, find the rough, orient it and finally cut a gem. When you get that mirror high polish on a beautiful stone, it all becomes worthwhile.

## Judging Your Work

When examining a cabochon, begin by judging the polish. Look for any scratches or pitting that will reduce the amount of light reflected from the surface.

The next thing to look for is how even the contour is. A cabochon should have an even curvature to its surface. Look at the cab from both ends and both sides. The shape, (the curvature,) should be a mirror image from side to side. No area should be thicker than its opposite and there should be no bulging.

The second way to judge the shape is to hold the gem so light reflects off its surface. Move the gem so the light travels across the top. If the surface is properly cut, you will see the band of reflected light glide evenly over its surface. The band of light will begin to snake if there are any irregularities.

The very top of the gem is where you are most likely to see a problem. Often a small area will be somewhat flattened. This is hard to see when viewing from the side, but obvious as light passes over it. The fact that light doesn't flow smoothly over this area is why it is considered to be second-rate workmanship. However, if you look closely, that area probably doesn't have as good a polish either.

*From the International Gem Society*

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**From the book Rags to Riches & Disasters**

*By Peter Greisl*

## Chapter 22 – The Big Con

It was a miserable Friday morning, it was just bucketing down, Johnny had left already for the claim and I was on my way to the shop, and the VW was slipping and sliding all over the place in the red mud which the rain created. I arrived and opened up the Shop and set up the display area with meat cuts etc., and was just about ready to do the books. Doug McCullum came in and told me the truck is on its way with the supplies, which means I will have busy day with the carcasses arriving as well as all the other stuff I ordered for the shop like the casings and spices etc. for the sausages. And hopefully I will receive the rectifiers, which means I can finish my job with the batteries for the shack.

Doug said; "don't know how long he will be with the rain." I said it does not really matter as I will be staying back tonight anyhow to make the sausages if he has the casings and all the other stuff on board." Doug said, "this is your second week now and I have to say I am very pleased, the meat cuts look much more appetizing, the shop is very clean no rubbish and off cuts laying around, and most of all the takings have increased by 33% which is great, what would you put it down to?" he ask me.

"I said it's very simple," I replied," first of all when people come in and ask for a certain cut, you suggest to them a better cut which I more expensive but you must explain the benefits and point out the savings because of no fat or no bone etc. And when the customer agrees you just ask how many pieces would you like and don't let them answer continue with saying is it two or three never say one or two as they will always go for the lower amount." You can apply this to any product in your shop here." He smiled and said you would make a great sales person, keep up the good work and when we have the next co-op meeting I will negotiate a bonus for you." I thanked him, smiled and just said in a joking voice "now please Doug piss off I got work to do," He just smiled back and said, "Well said," and disappeared.

Ann arrived and I said to her, Morning Anne, I hope you don't have any pressing engagements tonight," She looked at me sheepishly and replied, "Why?" I told her the truck is on the way and if he has the gear on board we will be making Sausages.

She asks me how long, till about 8pm we should be finish by then, I replied. No problem was her answer.

Well let's open the Shop I said to her, Anne unlocked door and turned around the sign from closed to open so the people have access from the Co-Op Display area.

Anne said to me, "Why don't you and Chris come up on Saturday afternoon for coffee and have a look at the place." I said "I will check

with her when I go home at lunch break, if the bloody rain stops and I can get through with my little shitbox."

Anne said, yes I have to go to see Harry at his claim to let him know that I will be late."

As soon as Anne finished talking the door went open and a fellow walked in his appearance, was disgraceful he was dirty, filthy halve length hair, bloodshot eyes, dirty beard, and black and broken teeth, a real derelict look.

He said to me "are you Peter?" Yes I replied what can I do for you?"

He said Rudi told me of you and said that you might be interested in what I got to offer," and he pulled out two small Nescafe Jars full of Opal pieces, which were milky but with great colours of red, orange and green and blue, there would had to be at least 10 ounces. I looked at it spun it around and it was beautiful, some had fine cracks in them. I ask him where he got them from. He told me they came from Stuarts Creek. I never heard of this field. I said lets go outside, I don't like to do any business in the butcher Shop. We went outside under the awning of the shop and I ask him "you want to sell them," He replied yes, I said what is the price, he told me he wants \$200 for both bottles. I said "I cannot afford that much, all I got is \$100" He said, "well I am in a bind I need \$200 desperately," Well you have try someone else," He shuffled from one foot to the other and then said, Ok give me a hundred and they are yours," I reached into my pocket and pulled out a \$100 and gave it to him. He handed me the bottles and said "If you want I will bring you more next week again." I said Ok, shook his dirty hand and he went into the direction of Johnny Lyon. I was rather proud with myself having thought I did a great deal here. I put them in to my office and washed my hands and I started preparing some meat cuts. I was thinking while I was working, how I will show up Johnny when I tell him about my opal mining from the shop and bringing home a few ounces of opal.

Lunchtime came and just as we closed the shop the Truck arrived. Anne went to see her Husband; I was helping unloading my meat carcasses and the rest of the equipment for the Butcher shop.

Fortunately the rain has stopped and I told Doug that I am going for a short while as I worked into my Lunch Hour, and I will be back before we open up again. Doug just nodded and I drove to the claim. When I got there I called out for Johnny and he came up I said "I have to work in the shop tonight and you better get home at a reasonable time and tell Chris about it, and also ask her to give you the opals for cleaning and you can clean up the stuff if you wish, I will be home about 8:30 to 9:00 pm." Johnny nodded, I did not ask how he was doing, I went back to the shop immediately.

I arrived just on opening time and so did Anne, the afternoon was quite busy as some people were waiting for some of the products the Truck brought today. While Anne was serving, I started cutting up some pork and some beef for a batch of pork and a batch beef sausages, when Ann were not busy serving I asked her to put it through the mincer. I put it then in the Meat mixer and added the required spices and mixed a batch of 40 lbs. of beef and 40 lbs. of pork in the meantime I had the hog casing soaking and got the stuffer ready, when the mixing was finished I started filling the stuffer and started the run of pork sausages first which are skinnier then the beef sausages, I did show Anne how to twist them, which she picked up quite quickly so we managed to produce 80 lbs. of sausages in about 3 hours, I still had 15 lbs. of mix left so I made pork and beef hamburger patties. This was a new line for the shop, which should sell quite well.

After cleaning up everything we walked out at 8:15 pm. I took for my meat some beef and some pork sausages.

I wished her a good night and told her to tell Harry we will be up there on Saturday after the shop.

I got home and there was Johnny sitting at the tale and was smiling like a cat who ate the Canary. I had my Opals in a Paper bag and just put them on the table. I asked did you guys eat. The reply came; yes we had toasted ham cheese and tomato sandwiches. Ok, I said, "Chris would you please fry me a couple sausages meaning 4 I will have them with bread and mustard, like a hot dog." While Chris was preparing my sausages, I said to Johnny, ok what's that big grin on your face?

Without saying a word Johnny bent over to reach to the bottom of his chair and picked up four Epsom salt bottles full of chips and one bottle half full with doublet and triplet material and put it in front of me. He also put in front of me 5 small pieces of painted ladies which had the most spectacular colour display.

I was over the moon, these chips were magnificent he leaned them up extremely well there were hardly any debris left on them. I could not stop looking at these stones and I was speechless. He started by telling me the weight of the chips are 12 ounces, and there were 15 gram of doublet and triplet material.

And this was all the stuff we produced and had. He said, "We should get at least \$80 per ounce for the chips and \$ 20 per carat for the doublet and triplet material." I said "that's great if we get that amount for it, I tell you my heart is pounding, this is the first result from my dream, I am so excited about it."

I continued and said, well, let me add something to this fortune," and I told them what happened today in the shop, and Johnny just burst out with a "Oh No," without seeing the bottles I brought home. I pulled out the bottles from my paper bag and put it in front of Johnny. Chris in the meantime gave me my hotdogs which I started to eat. Johnny looked at the stuff which was of course no comprising to the other stuff. He said, "Peter I am sorry to say so you got scammed, this fellow is known as the White Abo, he lives and sleeps with dogs and with the aborigines and gets this stuff from a place called Stuart Creek, this material is the most inferior material you can get, it cracks when you work it, if you should be able to produce some stones they crack after a while, nobody likes to buy this stuff. That's why there is no real mining activity there. No Opal buyer will buy this off you, I am really sorry about this but that's a fact, we can take it with us to Peter Vlack and let him tell you." I replied, so I shit in my own nest, and wasted my money." Johnny asked me "How much did you pay for it?" I told him "I paid \$100 and he asked for \$200 and when I told him I only had \$100 he hesitated and then accepted it." Johnny replied, "He would accept \$20 for it all he wants money to buy Metho.

He does this to newcomers all the time, I am sure he got your name from someone who knew all about you and told him that you are new on the field and they also told him that you are working in the butcher shop." I said yes, he told me that Rudi recommended me to him." Well there you are, "that's what the guy is doing it, he is a drunk and drinks with the abos methylated spirit, he is filthy and dirty, he is not allowed in at Gus's Place.

Well after the high I experienced, I suddenly feel like a real heel, and I really could not afford to spend the \$100 I was hoping that I can double or triple it.

Johnny said, "Hey that was a lesson you learned, and I am sure you will not buy anything again until you know a bit more about opal." Look on the bright side, if we keep getting more of this stuff we soon get a bit of money behind us.

Now I suggest tomorrow I meet you here after you finish the shop and we go to see Peter Vlack and see how much wrong my estimate is, my question is do you want to sell it or shall we hang on till we got more, or do you need the money to support us?" I said to Chris, "how much is in the safe," meaning our tin which is under the lino in a hole in the ground covered up with a piece of wood and the lino put back over. Chris said "there is about \$375 and I still have \$50 in my purse, but I must go and do a bit of shopping this week which would be about the amount I have, but I have some money coming from Lottie for the waitress Job" I said "that's great, I still have \$200 left from Johnnie's money after my stupidity and I get paid tomorrow \$275, we have to pay the rent, and order water, and that's about all we have to spend for the household." I said "I have to fill up the cars for next week and get a drum of fuel for the winch and the generator and have to find out how much Laszlo want for the Batteries." I think we can go and get a price on the opal and see if it is a standing offer and we hang on to it, what you think Johnny?" He replied "Whatever you decide is ok with me." "Ok that's settled then we hang on to it," I said. "So how did you finish of at the claim, "I asked Johnny, He told me he put in another charge and cleaned everything out and he got about six feet of tunnel with a level to drop. "That's great." I replied

well let's hope we have a repetition or even better." The time was 11pm and I said lets go dreaming, we said good night and Johnny went to his room, I put all the bottles in the cupboard, and we went to bed also. From <http://www.gemsociety.org/info/lap23.htm>

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## May 2012 Gem & Mineral Shows

More shows can be found at <http://www.rockngem.com/show-dates-display/?ShowState=ALL>

4-6—BISHOP, CA: Annual show; Lone Pine Gem & Mineral Society; Bishop Fairgrounds; Sierra St.; Fri. 6-9, Sat. 9:30-5, Sun. 9:30-3; free admission; field trip, dealers, demonstrations, children's games and free rocks; contact Francis Pedneau, PO Box 667, Lone Pine, CA 93545, (760) 876-4319; e-mail: franceem@qnet.com

4-6—SANTA ROSA, CA: Wholesale and retail show; Gem Faire Inc.; Sonoma County Fairgrounds; 1350 Bennett Valley Rd.; Fri. 12-6, Sat. 10-6, Sun. 10-5; adults \$7, children (11 and under) free; contact Yooy Nelson, (503) 252-8300; e-mail: info@gemfaire.com; Web site: www.gemfaire.com

5-6—ANAHEIM, CA: Annual show; **Searchers Gem & Mineral Society**; Brookhurst Community Center; 2271 W. Crescent Ave.; Sat. 10-5, Sun. 10-4:30; free admission; jewelry, hobby supplies, books, demonstrations, exhibits, silent auction, door prizes, precious stones, kids' jewelry making, gold panning with the Route 66 Gold Miners; contact Steve Duncan, CA, (714) 724-7102; e-mail: showchair@searchersrocks.org; Web site: [www.searchersrocks.org](http://www.searchersrocks.org)

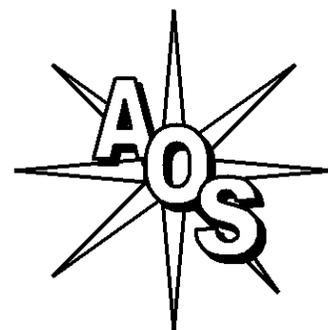
11-13—SANTA ANA, CA: Spring West Coast Gem & Mineral Show; Martin Zinn Expositions; Holiday Inn - Orange County Airport; 2726 S. Grand Ave.; Fri. 10-6, Sat. 10-6, Sun. 10-5; free admission; 80 retail and wholesale dealers; contact Martin Zinn Expositions, PO Box 665, Bernalillo, NM 87004-0665; e-mail: mzexpos@gmail.com; Web site: www.mzexpos.com

11-13—SANTA BARBARA, CA: Wholesale and retail show; Gem Faire Inc.; Earl Warren Show grounds; 3400 Calle Real; Fri. 12-6, Sat. 10-6, Sun. 10-5; adults \$7, children (11 and under) free; contact Yooy Nelson, (503) 252-8300; e-mail: info@gemfaire.com; Web site: www.gemfaire.com

12-13—JACKSON, CA: Annual show; Fossils For Fun; Kennedy Gold Mine; 12954 Kennedy Mine Rd.; Sat. 9-5, Sun. 9-5; free admission; indoor exhibits, outdoor dealers, rocks, gems, minerals, fossils, live and silent auctions, surface mine tours, gold panning; contact Debbie Bunn, PO Box 714, Fair Oaks, CA 95628, (916) 929-6665; e-mail: fossilsforfun@hotmail.com; Web site: www.fossilsforfun.org

18-20—SACRAMENTO, CA: Wholesale and retail show; Gem Faire Inc.; Scottish Rite Center; 6151 H St.; Fri. 12-6, Sat. 10-6, Sun. 10-5; adults \$7, children (11 and under) free; contact Yooy Nelson, (503) 252-8300; e-mail: info@gemfaire.com; Web site: www.gemfaire.com

19-20—YUCAIPA, CA: Annual show; Yucaipa Valley Gem & Mineral Society; Yucaipa Community Center; 34900 Oak Glen Rd.; Sat. 9-5; free admission; hands-on youth activities, 17 dealers, specimens, rough and finished material, jewelry, books, tools, beads, silent auction, Yucaipa Iris Festival; contact Lee Peterson, 31059 Nice Ave., Mentone, CA 92359, (909) 794-0731; e-mail: res09ayd@verizon.net; Web site: www.yvgms.org



# American Opal Society Membership Application

FILL IN APPLICABLE INFORMATION		DUES / FEES)	AMOUNT PAID
DUES: SELECT ONE	RENEWING MEMBERS	\$30	
	NEW MEMBERS	\$40	
INTERNATIONAL MEMBERSHIP FEE (All addresses <u>outside</u> of USA)		\$10	
PRINTED NEWSLETTER FEE (Paper copy postal mailed instead of PDF file by e-mail)		\$5	
ADDITIONAL BADGES (Your First Badge is <u>free</u> when joining)		\$10	
TOTAL PAID DUES plus International, Print or Badge Fees if Applicable:			

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**

An optional, quicker method of payment is via the Internet. To pay, just visit the membership page on our website at [http://opalsociety.org/aos\\_application\\_by\\_web.htm](http://opalsociety.org/aos_application_by_web.htm) and complete the form. You May pay with a Credit Card or via PayPal account. The transaction is completely secure and the AOS never sees your credit card number. The AOS PayPal account is [membership@opalsociety.org](mailto:membership@opalsociety.org).

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BUSINESS NAME			
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OCCUPATION		HOBBIES AND INTERESTS	

**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:** The AOS publishes a membership directory once per year in its Newsletter, the *Opal Express*. Your name will be included. Please check what additional personal information that you want listed for other members. If it is different from the information above, please note that on the application.

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## Are Your Dues Due Now?

**PLEASE CHECK YOUR ADDRESS LABEL or NEWSLETTER E-MAIL.** There should be a date that shows the current month/year of your membership. If the date is older than the current date, your dues are overdue. A warning will be stated if you are overdue.

A Renewal Grace Period of two months will be provided. 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

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

**Volume #45 Issue #5  
May 2012**

TO:

## Some Topics In This Issue:

- Last Month's Speaker - Mike Woodward on Gem Photography
- Andamooka
- Treating Matrix Opal the American Way
- How to Cut Opal
- Cabochon Cutting
- From the book Rags to Riches & Disasters - Chapter 22 – The Big Con

## Important Dates:

### May 9 – Board Meeting

### May 10 - General Meeting

Pete Goetz, our President, will demonstrate the techniques of "cooking" or blackening Andamooka Matrix Opal

## **May 10th Speaker: Pete Goetz on Cooking Andamooka Matrix Opal**

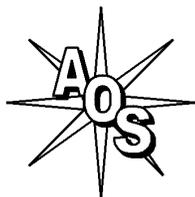
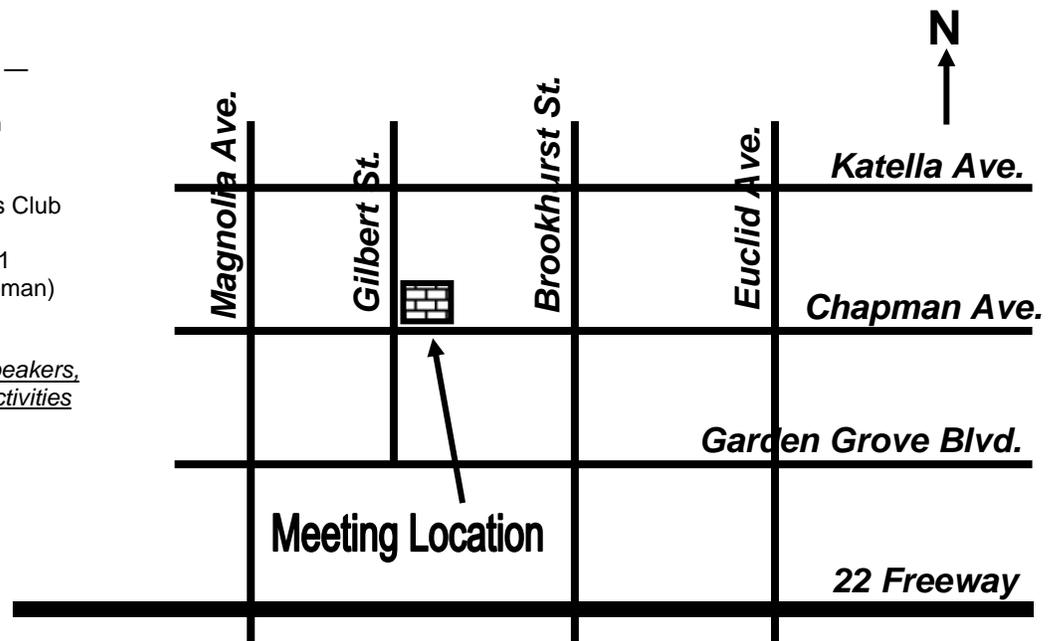
### — GENERAL MEETINGS —

2nd Thurs. of the Month  
7:00 pm - 9:00 PM

Garden Grove Civic Women's Club  
9501 Chapman Ave.  
Garden Grove, CA 92841  
(NE corner of Gilbert & Chapman)

### MEETING ACTIVITIES

Opal Cutting, Advice, Guest Speakers,  
Slide Shows, Videos, Other Activities



## The American Opal Society

<http://OpalSociety.org>

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