

# The Opal Express

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



**Volume #38 Issue #12  
December 2005**

### Some Topics In This Issue:

- Seminars at the Opal & Gem Show
- Famous Opals -The Aurora Australis
- Demonstrators at the Opal Show
- Volunteers at the Opal & Gem Show
- Where Did Columbus Go Wrong?
- Dealers at the Opal & Gem Show
- Opal Cracks and Cracking
- Google on Noodle
- Petrified Lightning – Fulgurite
- Hunting Meteorites in Antarctica
- Opal - The Queen of Gems

### Important Info:

**Board Meeting  
December 6<sup>th</sup>**

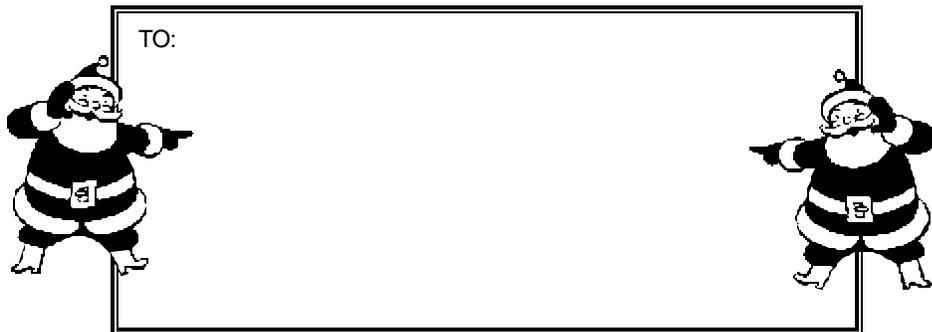
**General Meeting  
December 8<sup>th</sup>  
Christmas Party  
Potluck!**

### — GENERAL MEETINGS —

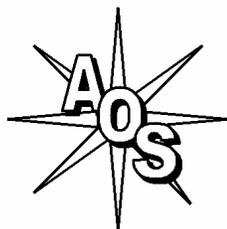
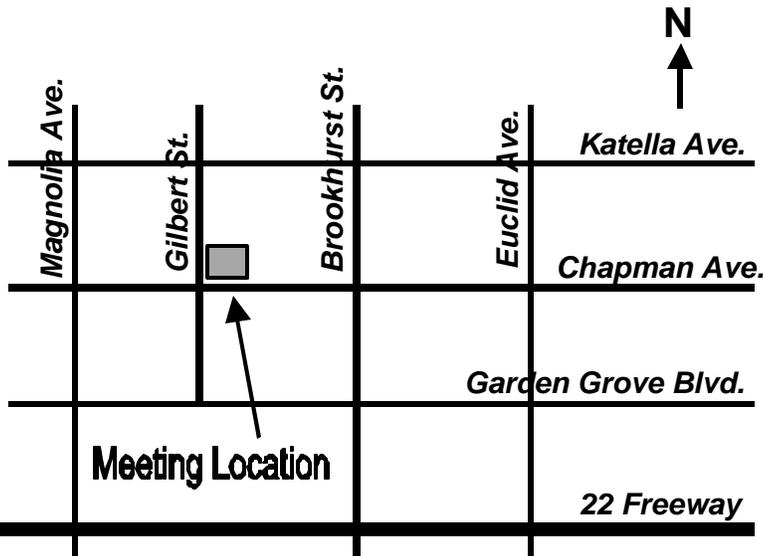
2nd Thursday of the Month  
7:00 pm - 9:00 PM  
Garden Grove Civic Women's Club  
9501 Chapman Ave.  
(NE corner of Gilbert & Chapman)  
Garden Grove, CA

### MEETING ACTIVITIES

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



# December 8th: Christmas Party Potluck!!!



## The American Opal Society

<http://OpalSociety.org>

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Jim Pisani	Editor & Webmaster	(562) 797-5239	email: editor@opalsociety.org

# American Opal Society Membership Renewal

Thank you for continuing to support your American Opal Society!

TYPES OF MEMBERSHIP		DUES / FEES)	AMOUNT PAID
<b>DUES:</b> <b>SELECT ONE</b>	All <u>US</u> Addresses including Alaska and Hawaii	\$25	
	<u>International Members</u> = All addresses <u>outside</u> of US Addresses	\$35	
ADDITIONAL BADGES = \$5.00 each (First Badge free when joining)		\$5	
ONE TIME INITIATION FEE = All <u>New</u> members		\$10	
SENIOR DISCOUNT = Age 65 or over deduct \$5		-\$5	
<b>TOTAL PAID – DUES, less Senior Discount plus Badge plus Initiation Fee (if Applicable)</b>			

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 using **PayPal.com**. To pay, just log onto your PayPal account and "Send Money" to the AOS account, **membership@opalsociety.org**. There is no transfer charge!

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

Address     Phone     E-mail     Website     E-Mail the Opal Express Newsletter instead of Postal Mail

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

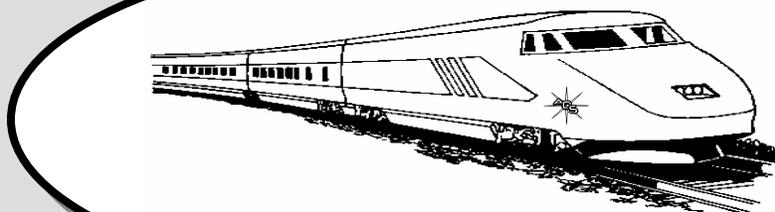
Please sign here: \_\_\_\_\_ Date \_\_\_\_\_

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The American Opal Society.  
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**Are Your Dues Due Now?**  
**PLEASE CHECK YOUR ADDRESS LABEL.** If your label shows the current month/year your dues are DUE NOW. If the date is older, your dues are overdue.  
**A Renewal Grace Period** of two months will be provided. If your dues are due now you will receive two additional issues of the newsletter. Please note, however, that as the system is now set up, if your renewal is not received you will be AUTOMATICALLY dropped from membership thereafter. It is your responsibility to assure your dues are current.  
Thank you,  
The Editor

# The Opal Express

Published  
monthly by  
The  
American  
Opal  
Society



December 2005

Volume 38 Issue 12

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## A Message from Your President

*Dr. Walt Johnson*

### GREETINGS FROM YOUR PRESIDENT!

May I extend my personal invitation to all of you to attend our Annual Holiday Potluck Meeting on December 8 at the Women's Club in Garden Grove, CA. Please bring a side dish or dessert as the main entrée will be provided.

The year 2005 is rapidly coming to a close. It has been a successful year for the American Opal Society with such noted speakers as Lothar, Daniel Toledo, Dave Burton, Bob Gullage, David Kramer, Noel Lamkin, and Frances Lau.

Our Opal Show in November was a resounding success with world-class dealers, quality speakers, huge crowds, and great weather.

Plans are in motion to opening our own workshop beginning in January 2006. Thanks to those of you who purchased the lapidary pieces at our silent auction, the remaining equipment will soon be ready for use.

Your board of directors is now busy working on speakers for 2006 and are planning next year's opal show. If you know of a good speaker, please let us know. Your help is always appreciated.

Hope to see YOU at our Holiday Potluck Meeting.

## 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: "harlequin".

## December Meeting: Christmas Party Potluck!

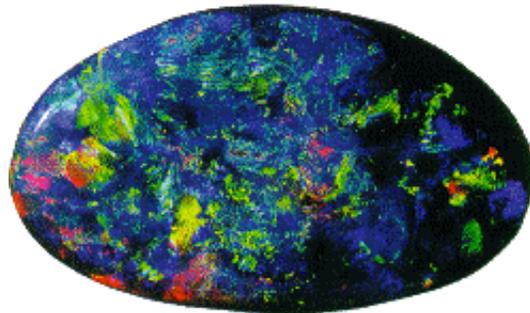
The annual holiday dinner will be held on December 8, 2005 at the clubhouse (Garden Grove Civic Women's Club). Please attend and bring your favorite casserole, dessert, salad, etc. A main course will be provided by the AOS.

## Famous Opals - The Aurora Australis

The "Aurora Australis" was found in 1938 at Lightning Ridge and is considered the world's most valuable black opal. The oval, cut and polished stone has a harlequin pattern with dominant red, green and blue colors against a black background. It weighs 180 cts. and is 3 inches by 1.8 inches. The rarity of the opal comes from its size and strong, vibrant colour play. It weighs 180 carats and its dimensions are 3 inches x 1.8 inches. Dug from an old sea-bed it has the distinctive impression of a star fish on its back. It was valued at AUD\$1,000,000 in 2005.

The Aurora is the first large, fine, Australian opal mentioned in literature. Charlie Dunstan had found another large opal previously, but its blue-green colour play was not considered valuable at the time although the stone weighed about 12 ounces (close to 1860 carats). At a depth of approximately six metres, Charlie found the brilliant gem. This treasure was rumored to have brought Dunstan 100 pounds. Altmann & Cherny purchased the opal in a semi-rough state (a rub). They cut and polished the opal into its oval shape. Realising what a true gem they had, they named it "the Aurora Australis" after the bright southern lights in the night sky.

"The Aurora Australis" is owned by Opal Retailers Altmann and Cherny (<http://www.altmanncherny.com.au/welcome.htm>) and is on permanent display in their showroom at 19 - 31 Pitt Street, Sydney.



*The Aurora Australis*

## Volunteers at the Opal & Gem Show

Of course, the show couldn't go on without all for the AOS member volunteers. We especially want to thank the show chairpersons, Fran Todd and Jay Carey, for organizing the show. Here is a list of the volunteers that I remember seeing at the show. If I missed someone, sorry. Let me know and I'll mention it in the next newsletter.

The volunteers were Nia Bakewell, Jay Carey, Pete Goetz, Lora Heidrich, Mike Kowalsky, Corey Kuepper, Steve Liss, Walt & Donna Johnson, Karen & Jim Lambert, Noel Lamkin, Russ Madsen, Stan McCall, Faye McDowell, Jim Pisani, Fran Todd, Hisaka Schlatter, Mike Siller, and Pam Strong.

## Great Seminars at the Opal & Gem Show

We had some very interesting seminars at the show. Each seminar had a great turnout. The AOS would like to thank all or the speakers on educating us with their expertise. Here are the seminars that were given.

Opal & Gem Show Seminar	
Jay Carey	Introduction to Opal - <i>Gem of the Never Never</i>
Mike Kowalsky	Created Opal
Walt Johnson	Casting 101- Do Your Own Casting
Tim Thomas - <i>House of Tibara</i>	Opal Formation
Larry Hoskinson & Leslie Neff	How To Find Opal In Australia
Barbara Thomas - <i>House of Tibara</i>	Opal Industry Status and Marketing Efforts
Stan McCall	Inlay Secrets of the Professionals

## Demonstrators at the Opal & Gem Show

We would like to thank all of the demonstrators for giving us their time and providing us with some fascinating displays of what can be done in the lapidary arts. The AOS would especially like to credit Clare Gagnon for organizing the demonstrations again, as he has done repeatedly in past shows. Good job, Clare!

Demonstrators	
Herb Beckman	Cabbing
Laverne Christenson	Precious Metal Clay
Conrad Cone	Inlay, silverwork
Sammy Florida	Gem Carving - Soapstone
Jeri Frank	Wirewrapping
Clare Gagnon	Faceting
Sandra Moore	Scrimshaw
Anastacio O'Campo	Chain Weaving
Cathy O'Campo	Silversmithing
Nora O'Campo	Chain Weaving
Virginia Pace	Gem Carving - Opal
C.C. Paxton	Wirewrapping
Jonas Ryzgys	Faceting

## Volunteers Needed for Tucson Gem and Mineral Show, February, 2006

The American Opal Society will have an information booth in the Galleria section of the Tucson Convention Center at American Gem Trade Association (AGTA) Show from Feb. 1 through Feb. 6.

We need volunteers to travel to Tucson and man the booth. Please contact Mike Kowalsky if you plan on going to Tucson and can dedicate some of your time at the booth.

## Where Did Christopher Columbus Go Wrong?

*By Ernest Barnhart*

Columbus has been described as a man who didn't know where he was going, didn't know where he had been, did it several more times, and all on borrowed money. However, he is the only foreigner honored with a legal holiday in the United States - unless you live in some parts of California where you are asked to observe "Indigenous Americans Day" instead.

The idea that the world is round was widely accepted by the time of Columbus. The main dissent was from the church, which held that the earth was a flat disc covered with a canopy, probably to provide a physical manifestation of heaven.

The spherical earth theory was proposed by several Greeks, the first of which was Aristotle (384-322 BC), who observed the shadow on the moon during an eclipse and concluded that this could only be caused by a round object.

The first who actually sought to prove this theory was Eratosthenes (circa 276-196). Born in Libya, he was the chief of the library at Alexandria, Egypt. This library was the repository of more than 100,000 scrolls containing the world's collective knowledge.

Eratosthenes heard of a well in what is now Aswan where the sun's reflection could be seen in the water of the well on June 21, the longest day of the year. He surmised that the sun was directly above the earth at that moment. He knew that this location was directly south of Alexandria and by measuring the shadow of an obelisk in Alexandria at the same time there was no shadow at the well, he computed the length of the two sides of a triangle, the length of the shadow and the height of the obelisk. He figured the angle of the triangle, which was 7 - 12 inches, approximately equal to one fiftieth of a circle's 360°.

He still needed one more measurement. The Greek standard of measurement was the stadia (based on the size of a Greek race course). Standard camel performance was to cover 100 stadia per day, and since it took a camel 50 days to make the trip between his two points, he calculated the distance to be 5000 stadia multiplied by 50 and come up with a figure of 250,000 stadia for the earth's circumference. Translated to modern measurements, his earth measured 25,000 miles, amazingly close to the actual distance at the poles of 24,860 miles. His scientific apparatus for this experiment consisted of something to measure the length of a shadow.

Unfortunately, some people cannot leave well enough alone. Sometime later, another Greek scholar named Strabo, for some unknown reason, reduced Eratosthenes figure from 25,000 to 18,000 miles. By Columbus' time the original calculation had been overlooked and it was this latter figure that Columbus relied on for his voyage.

Columbus knew the approximate distance from Europe to Japan, west to east, thanks to Marco Polo's journeys to the Far East. If his calculations of the earth's circumference of 18,000 miles had been correct, he would probably have been justified in assuming he had reached the Orient. A Greek scholar, 1700 years before Columbus' voyage had it right, and if Columbus had had the correct information, he may have realized he was 7,000 miles short of his objective.

Reference: Don't Know Much About Geography by Kenneth C. Davis. (From Rock Buster News, 3/01 Via Strata Gem, 1/03 via Rocky Mountain Federation News, 10/03, via the Flatiron Facets 1/04.

## Dealers at the Opal & Gem Show

Here is a list of the AOS 2005 Opal & Gem Show dealers and contact information. We would like to thank dealers for making the 2005 Opal & Gem Show a success.

Name	Description	Point of Contact	Telephone	Email	Web Page
Australian Opal	Australian Opal of all grades & types	Larry Hoskinson & Leslie Neff	(310) 318-2170	lesneff@aol.com	
Australian Opal Imports	Australian Opal - Finished & Jewelry	Eugene LeVan	(562) 621-1805	genea01@sprynet.com	<a href="http://www.australianopalimports.com">http://www.australianopalimports.com</a>
Casa De Lumbre	Opal & Gemstones, Books, & Jewelry	Mr. Salvador R. Chavez	(408) 926-7261	zrchavez@sbcglobal.net	
Custom Creative Gem Cutting	Custom Opal Jewelry	Mr. Stan McCall	(714) 827-5680	custom-creative@earthlink.net	<a href="http://home.earthlink.net/~custom-creative">http://home.earthlink.net/~custom-creative</a>
David's Creative Jewelers	Opal & Gemstones, & Jewelry	David Burton	(714) 827-5680	gemsandopals@earthlink.net	
Dragon Design	Custom Opal Jewelry	Dragon Design	(626) 576-4411	TheWeyr@Earthlink.net	<a href="http://www.dragondesignjewelry.com">http://www.dragondesignjewelry.com</a>
Great Southern Opals	Australian Opal	Frank Gross	(310) 541-2776	fwgross3@yahoo.com	
In A Flash	Custom Opal Jewelry	Tony & Caroline Thurber	(801) 743-0458	tthurber@xmission.com	
Lasco Diamond Products	Diamond Products for Foreord tools, etc.	Donna Schultze	(818) 882-2423	donna@lascodiamond.com	<a href="http://www.lascodiamond.com">http://www.lascodiamond.com</a>
Lightning Ridge Opal	Custom Opal Jewelry	John Ternus	(818) 512-1728	jhternus@earthlink.net	
Nugent & Assoc.	Custom Opal Jewelry	Jim Nugent	(949) 677-2626	jnugent@related.com	
Opal of Southern Lights	Custom Opal Jewelry	Craig Aaker	(562) 277-8288	craig@OpalOfTheSouthernLights.com	
Opal Traders International	Australian Opal of all grades & types, jewelry	Walter & Joan H. Skinner	(650) 589-3505	joanhinmanskinner@msn.com	
Rancho Santiago College	School of Gemology	Lothar Vallot	(714) 893-6643	ovdiamonds@aol.com	<a href="http://www.sccollege.edu/apps/comm.asp?Q=65">http://www.sccollege.edu/apps/comm.asp?Q=65</a>
Savings Unlimited Gems & Minerals	Custom Jewelry	Dale Atkins	(805) 383-3350	datkins2@peoplepc.com	
Stout Jewelry	Custom Jewelry	Randy Stout	(814) 856-2330	rfs4477@yahoo.com	<a href="http://www.stoutjewelry.com">http://www.stoutjewelry.com</a>
The House of Tibara	Australian Opal of all grades & types, jewelry	Tim & Barbara Thomas	(559) 299-5123	barbara@opal-tibara.com	<a href="http://www.opal-tibara.com">http://www.opal-tibara.com</a>
The Villiage Smithy Opals, Inc.	Australian Opal of all grades & types, jewelry	Mr. Steve Newstrom	(406) 651-4947	vsmithy@bresnan.net	<a href="http://www.villagesmithyopals.com">http://www.villagesmithyopals.com</a>
Tikka Opals	Australian Opal - Finished & Rough	Matti Tikka	61-2-9651 4705	mattitikka@bigpond.com.au	
Toledo Fine Art Jewelry	Wildlife and Nature Jewelry, Sculpture, Paintings, and Scratchboard	Daneil C. Toledo	(562) 944-6822	toeldowildlife@aol.com	<a href="http://www.natureartists.com/daniel_toledo.asp">http://www.natureartists.com/daniel_toledo.asp</a>
True Blue Opals Pty. Ltd.	Australian Opal of all grades & types	Sally Patel	(61) 755949760	salopals@aol.com	<a href="http://www.trueblueopals.com">http://www.trueblueopals.com</a>
Walter Johnson	Custom Jewelry	Mr. Walter Johnson	(714) 533-1287	donnawalt@msn.com	
Paragem	Cut gemstones from Brazil	Chris & RaeAnne Parachini	011-55(33) 3521-1989	tourmalinewoman@yahoo.com	
Gemstone Treasures	Beads, cabachons, faceted stones	Andrew De Boer	(714) 537-0473		

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## Opal Cracks and Crazing

*By Paul Downing*

Opal, they say, is a delicate stone. They are wrong! There are two things that may happen to an opal. It may crack or it may craze. An opal may crack when subjected to severe pressure applied by a sharp instrument but so can diamonds, and many diamonds do chip. An opal may craze if it dries out and/or changes its internal structure. But the vast majority of all opals do not crack or craze.

Crazing is readily identifiable in an opal. It starts with small intertwined cracks at the surface of the stone which may spread over time. The pattern they form looks like a spider web or a dried

mud puddle. Scientists do not know why some opals craze. One common explanation is that the opal loses part of the water trapped between silica spheres. It then shrinks and the surface tension causes the crazing. Another explanation is that the chemical structure of the silica spheres changes as a result of being exposed to the light. The energy of the light activates the chemical reaction.

Cracking is easily distinguished from crazing. Cracks are long and go into the stone. When examined with transmitted light, a crack will reflect an orange light from one or more directions. Usually there is only one crack. Cracks are caused by external pressure. The miners break up large pieces of opal by squeezing them between the sharp jaws of a file nipper. Prongs in jewelry designed for faceted stones do the same thing to an opal. Most cracked opals are

the result of inappropriate setting. On rare occasions, an opal will crack for no apparent reason. People have told me of opals that cracked in their rings when they went outside in very cold weather.

The problem of cracking and crazing made me curious, so I started an experiment about a year ago. I took several opals and put them in a paper bowl in the freezer. After several days they were frozen solid. I then ran them under scalding tap water. After repeating this exercise six times, none of the opals cracked or crazed. Next I placed these opals in a west window and let them bake in the hot Florida sun. After almost a year, not a one has cracked or crazed. The experiment included opals of several types. Base colors ranged from white to gray. Some opals had full fire, some only lines of color, and some had no fire at all. They were from Coober Pedy, Mintabie, Andamooka, and Lightning Ridge. Some had inclusions in them. Others had cracks. Neither the inclusions nor the cracks spread.

I conclude from my observations that we really do not know why an opal crazes. We do know that almost all (well over 99%) of the opal from any Australian mining area does not craze. We know that almost all cracking results from pressure caused by improper setting of the opal or extraordinarily rough wear. Opal has an undeserved reputation. Cracking and crazing are very rare. Is opal delicate? Not really.

From *The Stone Chipper* 10/04 via *Serendipity Gems* 1/92

## Google on Noodle

### No Parallel to "Stratford on Avon"

Search Google on 'Noodle' and the first 20 references are to do with fishing by hand for catfish in the USA. And we all know about the cooking noodle made of flour and used in pasta and spaghetti bolognese.

But in the opal industry 'noodle' is equivalent to 'fossick', as in using your hands to sort through waste dirt for pieces of gold. To noodle for opal is to sort through waste dirt for opal. The simplest way is by hand.

A major problem in sorting opal from waste on the Coober Pedy Precious Stones Field is the fine white powdery dust produced by the disturbance of the ground that is necessary in opal mining. The dust covers everything, including the broken-glass-like appearance of opal.

By hand the best way to noodle is to shovel the waste dirt into a sieve and shake it to get rid of the dust, then by hand roll over each large piece of dirt to look for any opal embedded in it, or broken pieces of opal.

On a larger scale a loader is used to dump cubic meters of waste onto a grizzly, which lets really large pieces fall off. Under the grizzly is a bin to receive the smaller pieces and all the dust. The dust is let fall through to the ground and the smaller pieces are directed into a 'darkroom' and let fall through a wide chute onto a moving belt under an ultra-violet fluorescent light. Opal shines (fluoresces) in this light (so do cotton waste, grease dollops and cigarette butts!). Pickers in the dark room run their hands over the lumps on the moving belt, rolling them around, and grab anything that fluoresces and put it aside. Later on those pieces taken from the darkroom and from the field to the miner's home to be washed in water and checked for colour, before being selected piece by piece for processing into gem quality opal.

All the above operations on the field are combined in various ways in mostly individually built units called "noodling machines".

Noodling machines have been in operation for many years on the opal field, and rely on machinery components that have long ago been patented (like bearings for example) and are all readily available for purchase in any major hardware or machinery outlet.

Posted by *Gazza*

From the

[cooberpedynews.blogspot.com/2005\\_02\\_01\\_cooberpedynews\\_archive.html](http://cooberpedynews.blogspot.com/2005_02_01_cooberpedynews_archive.html)

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## Petrified Lightning – Fulgurite

*Author Unknown*

Along the ocean beaches, sandy hills or dunes, people sometimes come across a strange hollow tube of cemented sand, sometimes in the shape of a tree branch, sometimes like a small straight rod. This is a piece of "petrified lightning," created in a fraction of a second when lightning struck the earth and fused sand particles into silica glass.

Scientists call these fragile objects "fulgurites," from the Latin word fulgur, meaning lightning. When a bolt of lightning strikes an area of dry sand, the intense heat, with temperatures as high as 3,272 degrees, melts the sand surrounding the stroke into a rough glass tube. In as short a time as 100-millionths of a second, a stroke of lightning pierces the earth, and leaves this fused record of its searing path. With diameters from one-half inch to two inches, some fulgurites are ten or more feet long, although most are less than a foot.

They are nearly always found in pieces, for the brittle cast breaks easily if jarred, dropped or stepped upon. The inside walls of the tube are glassy and lustrous, while the outside is rough with sand particles adhering to it. They are usually tan or black, but an almost transparent white fulgurite has been found in Florida. They have been found in almost all parts of the U.S., wherever people happen to recognize what they are.

*Editor's Note:* I did a quick check of the Internet, searching for the word FULGURITE and came up with about 400 "hits". One site (<http://www.fulgurite.com>) sells fulgurites, and has many interesting pictures. Several other sites talk about the largest fulgurite ever found - a two branched fulgurite found in Florida one branch was 16 feet long, the other branch 17 feet long!

From *Stoney Statements*, Jan 01 via *Chips and Chatter Chatter*, April 01.

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## Antarctica is a Hot Spot for U. of Az. Scientists Hunting Meteorites

*By Lori Stiles*

November 10, 2005



Cruising the base of an Antarctic mountain range, searching for meteorites, on an austral summer day. (Photo: Julia Goreva, UA Lunar and Planetary Laboratory)

Not many people celebrate their year-end holidays on the east Antarctic ice sheet. But nearly every year for more than a decade,

University of Arizona Lunar and Planetary Laboratory (LPL) professors, graduate students or alumni have.

They have been part of the Antarctic Search for Meteorites (ANSMET) program, intent on collecting pieces of asteroids, the moon and Mars which have landed as meteorites on the whitest place on Earth.

**NOT A E**

Contact Information  
Jani Radebaugh  
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Julia Goreva  
520-626-5741  
[jgoreva@lpl.arizona.edu](mailto:jgoreva@lpl.arizona.edu)

Related Web sites  
[Antarctic Search for Meteorites](#)  
[NSF Office of Polar Programs](#)  
(<http://geology.cwru.edu/~ansmet/>)

ANSMET program is funded by the National Science Foundation Office of Polar Programs and by NASA's Solar System Exploration Division. Planetary scientist Ralph Harvey of Case Western Reserve University heads the collecting expeditions.

"The program is a wonderful thing, because now there's a push to go back to the moon and Mars and return samples to try to understand these bodies," Radebaugh said. "We can learn a lot more about these bodies as we increase the collection of the samples that land on Earth. I think these expeditions are a really important

service to planetary science."

Radebaugh, who earned her UA doctorate last May, will join the Brigham Young University geology faculty this fall. "I think this experience would be fun for students to hear about," she added.



Julia Goreva (right) and a colleague demonstrate proper meteorite collecting technique by using tongs to place meteorites in sterile plastic collecting bags. (Photo courtesy of Julia Goreva, UA Lunar and Planetary Laboratory).

Postdoctoral researcher Julia Goreva was on the successful 2004-2005 meteorite collecting expedition. She and 11 others collected 1,230 meteorites. These include more than 300 pounds of "pallasite" meteorites -- rare rocks originally from the core-mantle boundary of a small destroyed planet or a large asteroid. One pallasite, the largest ever found, weighed more than 70 pounds.

"For the past 10 years I've been studying meteorites -- destroying them, dissolving them, melting, burning, getting every bit of information they can give me about the processes that took place at times when the Earth was just an embryo," Goreva said. "ANSMET is a program that builds a collection available to any scientist around the globe, so it was very important for me to become one of the people who can personally contribute to the pool of rocks that continue to puzzle me in the lab."

"ANSMET is such an amazing program," UA postdoctoral researcher Jani Radebaugh says. "It's like getting free samples from outer space, free except for the cost of traveling to Antarctica to collect them."

Radebaugh is among 15 scientists and mountaineers selected for the 2005-2006 ANSMET program. So is Gordon Osinski, a recent LPL postdoctoral researcher now with the Canadian Space Agency. The 20-year-old

Radebaugh leaves for New Zealand on Nov. 17. Expedition members get completely outfitted at Christchurch, N.Z., then board an LC 130 cargo airplane for an 8-hour flight to McMurdo Station, Antarctica. Bad weather can mean turning around mid-flight and returning to Christchurch. It took one expedition four tries to reach McMurdo.

After survival and other training at McMurdo, Radebaugh, Osinski and their colleagues will head for the Antarctic plateau inland of the Miller Range in the Transantarctic Mountains and set up base camp. They'll live in 2-person tents for five weeks during the South Polar summer, when temperatures hover around minus 30 degrees Fahrenheit.

Goreva said, "I never thought that two girls could eat a pound of butter per week and a pound of bacon for breakfast. That does keep you warm!"



Field camp home in Antarctica, 2004-2005 (Photo: Julia Goreva, UA Lunar and Planetary Laboratory).

Antarctica is by far the best place on Earth to search for meteorites, mainly for two reasons, Ralph Harvey explains on the ANSMET Website, <http://geology.cwru.edu/~ansmet/>. One is that although meteorites fall randomly all over the globe, they are more easily found against Antarctica's plain, bright ice than on other Earth surfaces. The other has to do with the fact that as snow



Goreva shows off her Arizona Highways calendar while camping on Earth's coldest, largest desert. (Photo courtesy of Julia Goreva, UA Lunar and Planetary Laboratory).

accumulates on the continental ice sheet, the weight pushes the ice sheet toward the edges of the continent.

"As this big, very thick ice sheet slowly spreads out, it moves like a conveyor belt and delivers meteorites to the bases of mountains," Radebaugh said.

Over tens of thousands of years, phenomenal concentrations of meteorites can develop, as high as one meteorite per square meter in some places, Harvey says on the ANSMET Website. The ANSMET

program archives all its meteorites at NASA's Johnson Space Center in Houston.

That many LPL researchers have been on the Antarctica meteorite-collecting teams shows "just how involved the LPL is in the planetary science community," Radebaugh said. "The lab has a big group of people doing different kinds of research. The UA is a strong institution in planetary science. And, I also think many of us became involved because we have so many friends who have gone, and they know how exciting it is, how much fun."

"Antarctica is the most amazing place I've seen in my life," Goreva said. "At times it was breathtakingly beautiful, at times harsh and angry, but always pure, and it made me feel, well, very small. It was an overwhelming feeling to realize that you are the first person to be in that particular place in the world. (Goreva was on the 4-person reconnaissance team, the advance group for the 8-person collecting team, last season.) Except for the four of us, there was not a single living being hundreds of miles around."

Goreva added, "One of the first questions people ask is if spending two months on the ice was worth it. The short answer is -- every second of it. Would I do it again? In a heartbeat."

Lunar and Planetary Lab scientists who have been on ANSMET expeditions include:

- Julia Goreva, postdoctoral researcher (2004-2005)
- Nancy Chabot, graduate student (1998-1999), then as an alumna and ANSMET program assistant (2001-2002 through 2004-2005)
- Timothy Swindle, professor (1997-1998 and 2003-2004)
- Gordon Osinski, postdoctoral researcher and alumnus (2003-2004 and 2005-2006)
- Barbara Cohen, alumna (2003-2004)
- Dante Lauretta, assistant professor (2002-2003)
- Carl Allen, alumnus (2002-2003)
- Guy Consolmagno, S.J., alumnus (1996-1997)
- Faith Vilas, alumna (1987-1988) and director of the UA/Smithsonian MMT Observatory

From <http://uanews.org/cgi-bin/WebObjects/UANews.woa/6/wa/MainStoryDetails?ArticleID=11975>  
 UNIVERSITY OF ARIZONA NEWS RELEASE Posted 11/10/05

## Opal - The Queen of Gems

by Betty Jones\*

Anyone can make an opal; all you need is a drop of water packed in clay and to wait 25 million years! All seven colours of the rainbow are captured in this unique gem, the only one which man has not been able to replicate. The beauty of opal lies in the variety of colours that it flashes, the famous "play-of-colour," that is typical only of "precious opal."

"Common opal" refers to the stone with no colour play, known in Australia as "potch." Common opal can be found in many colours - black, white, yellow, green, blue and pink - throughout the world. Mexican fine opal; orange/red, is considered gem material without play-of-colour, but precious Mexican fire opal does have play-of-colour in orange/red.

The name of opal comes from an Indian word for "stone." The special characteristic of the stone is its opalescence; a rainbow-like iridescence that changes with the angle from which it is observed. At first, it was thought that this was caused by the refraction of light from the thin surface layer, but later, with the use of the electron microscope and a magnification of 20,000, it was seen that tiny spheres of the mineral cristobalite layered in a silicious jelly caused the reflexion.

Opal always contains water, the amount varying occasionally as high as 30%. In the course of time, the stone loses water and the opalescence weakens. Temporarily, this can be restored by soaking the stone in oil or water. Opals should be stored in moist cotton to avoid this drying out. Opals are also most sensitive to heat, pressure and knocks. All this helped emphasize the belief that opals are



Map from various sources by J. Bourne

unlucky, in Europe, at least, for in Asia, the opal stands for loyalty and hope, while in Japan, it is thought to bring good luck.

The earliest reference we have for opal is to the opal artifacts, discovered by the anthropologist Louis Leakey, in Ethiopia, dating back to about 4000 B.C. The Romans considered opal a gemstone about 100 B.C., but most of the gem opal found in the Old World is thought to have come from Hungarian mines (now part of the Slovak Republic). In the 1500's, the Spaniards returned from the New World with precious opal from Mexico and the Andes, but in the 1890's, magnificent opals began arriving in Europe from Australia, and gradually, the Hungarian mines closed. These mines had operated for 2000 years until 1922.

### SUPERSTITIONS

Superstitions attributing evil powers to opal have haunted the stone since early times. Opal became known as the talisman of robbers and thieves because of its supposed ability to make a wearer invisible.

In Victorian times, opals became linked with misfortune owing to a misconception in the last of Sir Walter Scott's novels, "Anne of Seierstein" (1829). If the public had not read the third volume, they came to the conclusion that the heroine had been bewitched and her magic opal lost its colour when touched by holy water, and she died as a result. This single work plunged opal prices to half in one year, and crippled the European opal market for decades. It was Australia's massive and beautiful opal discoveries and Queen Victoria's love of the gem that finally put opals back in favour.

### AUSTRALIAN OPAL FIELDS

In 1849, white common opal was found in South Australia, and over the next eighty years, the other famous fields were discovered.

1863 Victoria - first opal with "play-of-colour." 1873 Queensland - Boulder opal and sandstone opal found, the latter looking like that from Andamooka and Mintabie, found unattached, while boulder is formed attached to reddish brown ironstone. Here the opal filled cracks in the ironstone. Because of the attached matrix, it was years before boulder opal was appreciated. Only since the 1970's has it been properly admired, for it has the most brilliant colours of all opal. 1890 White Cliffs, New South Wales - first commercial mine exported large colourful light opal.

1903 Lightning Ridge, New South Wales - wonderful black opal made Australia the largest producer of the world's finest opal.

1904 South Australia - the first precious opal

1914 Coober Pedy, South Australia - huge deposits found.

1930 Andamooka - the last field found.

Mintabie, a small field, grew in the 1970s with the introduction of heavy earthmoving equipment, to be the world's largest opal producer for two years in the 1980s. The map shows in the shaded area, the Great Artesian Basin. 10 to 200 million years ago, during the Jurassic and Cretaceous periods, a huge shallow sea covered the interior of Australia. Thick, sandy and clay sediments settled over much of the present land, then, about 37 - 70 million years ago, the climate changed; the sea receded, and the basin turned to desert. The top 100 feet became layers of shale, mudstone, limestone and sandstone. Note that most famous mines are on or near the southern shore of the Great Artesian Basin. Large areas of this shoreline have yet to be prospected for opal.

**MEXICAN OPAL**

Quevètaró, situated almost in the centre of Mexico and at 6,000 feet, has seen opal mining by the Indians for at least 100 years or more. Here, opal is found embedded in volcanic rhyolite. It is close to the surface, and so is quarried, rather than mined. Some is very fine quality and colour, but not much is obtained of gem quality as it is often fractured when being extracted from the hard rhyolite, and is also prone to craze on exposure to air.

**AMERICAN FIELD**

This is at Rainbow Ridge, Humboldt County, Nevada. It was first discovered by a cowhand. The opal is unsurpassed for its colour by any in the world, but as it contains 11% water, it is very unstable for gems and is inclined to craze and fracture after being exposed to air. Opals have also been found in Brazil, Guatemala, Honduras and Japan.

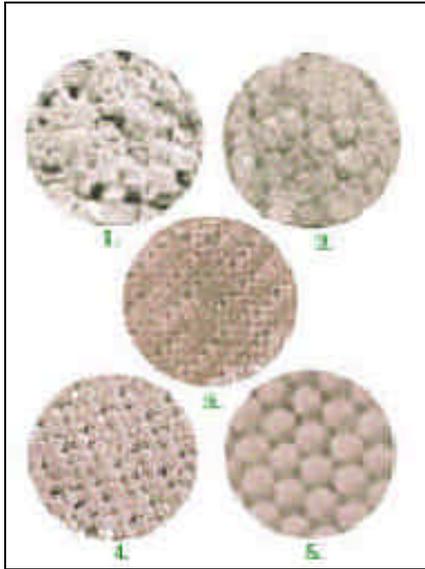
There are several conflicting opinions as to how opals are formed, but most researchers believe that Australia's opals formed after the Cretaceous sediment weathered, liberating the silica.

During heavy rainfalls, the silica-rich water seeped through faults in the subsoil. Sometimes, silica replaced buried shells, wood and bone to form opal fossils. Sometimes the silica was trapped in holes in the hard clay.

The water eventually evaporated and the silica concentrated and agglomerated forming microscopic spheres.

A long steady rate of deposition and evaporation produced spheres of uniform size and shape vital to the formation of precious opal. If the spheres are irregular in size, shape or alignment, the result will be common opal. The diagram illustrates the sequence from poor to best arrangements for the spheres.

References: H.H. Read, *Rutley's Elements of Mineralogy Mineralogy*, 26th edition. Thomas Murby & Co., London. Schumann, Walter. *Gemstones of the World* Sterling Publishing Co., Inc., New York. 1977. Fred Ward, *Opals Opals*, Rev. Ed., Gem Book Publishers, Bethesda, MD. 2000. Wilfred Charles Eyles, *The Book of Opals Opals*. Charles E. Tuttle Company, Rutland VT. 1976. *From the Shin Skinners News, 2/2002*



Microscopic views of sphere arrangement in opal. Fig.1 is common opal; Fig. 5 is fine opal with best play of color. Adapted from Fred Ward's Book

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**December 2005 Gem & Mineral Shows**

**2-4 — SANTA BARBARA, CA:** Show; Gem Faire; Earl Warren Showgrounds/Exhibit Hall, 3400 Calle Real; Fri. 12-7, Sat. 10-7, Sun. 10-5; \$5 weekend pass; contact Gem Faire, (503) 252-8300; e-mail: info@gemfaire.com; Web site: www.gemfaire.com.

**3 — TUCSON, AZ:** 2nd annual sale; Tucson Gem & Mineral Society; TGMS Clubhouse, 3727 E. Blacklidge; Sat. 9-4; free admission; gems, minerals, fossils, jewelry, crafts, kids' giveaways; contact Marnie, (520) 884-5109.

**3-4 — ORANGEVALE, CA:** 42nd annual show; American River Gem & Mineral Society; Orangevale Grange Hall, 5807 Walnut Ave.; Sat. 10-5, Sun. 10-5; adults \$1, 12 and under free with adult; contact Paul Daly, (916) 725-6578.

**9-11 — COSTA MESA, CA:** Show; Gem Faire; Orange County Fairgrounds/Bldg. 10, 88 Fair Dr.; Fri. 12-7, Sat. 10-7, Sun. 10-5; \$5 weekend pass; contact Gem Faire, (503) 252-8300; e-mail: info@gemfaire.com; Web site: www.gemfaire.com.

**9-11 — LONGMONT, CO:** Annual show; Flatirons Mineral Club; Boulder County Fairgrounds, 9595 Nelson Rd., Bldg. A; Fri. 9-5, Sat. 9-5, Sun. 10-4; ages 14 and up \$2, 13 and under free with paid adult; dealers, door prizes, children's activities, classes, programs, exhibits; contact John Hurst, (303) 443-7885; e-mail: john.hurst2@comcast.net; Web site: http://bcn.boulder.co.us/community/fmc/fmcshow.htm.

@gamineral.org; Web site: www.gamineral.org/december-show.htm.

**16-18 — SAN DIEGO, CA:** Show; Gem Faire; Sheraton Hotel Mission Valley, 2nd floor, 1433 Camino del Rio S.; contact Yooy Nelson, (503) 252-8300; e-mail: info@gemfaire.com; Web site: www.gemfaire.com.

**16-18 — SAN DIEGO, CA:** Show; Gem Faire; Scottish Rite Center, 1895 Camino del Rio S; Fri. 12-7, Sat. 10-7, Sun. 10-5; \$5 weekend pass; contact Gem Faire, (503) 252-8300; e-mail: info@gemfaire.com; Web site: www.gemfaire.com.

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## **ALL DAY WORKSHOPS**

### **ART CLAY SILVER LEVEL I CERTIFICATION**

**FEBRUARY 2, 3, 4**

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**Presenter:** Barbara Thomas, Pres. House of Tibara Inc., Senior Art Clay Instructor  
Co-sponsor–House of Tibara, Art Clay World USA, Pfingst, Lasco, Mountain Mist, G& LW

**Goals: YOU WILL**

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2. Develop appropriate technique & skills in order to be an effective certified Art Clay Silver instructor.
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**RESERVATIONS REQUIRED: Limited to 8 participants, deadline Jan. 20.**

Seven and a half hours of class time with a short lunch.

<>**COST:** Workshop includes **individualized, professional instruction**, all art clay materials, Art Clay book and the Tibara Opal Book. = \$500.00

### **BEZEL SETTING IN ART CLAY SILVER**

**FEBRUARY 5**

**9:00 am - 4:00 pm**

**Presenter:** Kristy Walden, Master Art Clay Instructor  
Co-sponsor –House of Tibara, Art Clay World USA, Pfingst, Lasco, Mountain Mist, G& LW

**Goals: YOU WILL**

1. Explore several methods of bezel setting faceted and bezel capping rough cut or semi polished stones.
2. Two pieces will be successfully completed in the workshop
3. Intermediate level of metal clay skills required.

**RESERVATIONS REQUIRED: Limited to 12 participants, deadline Jan. 20.**

Seven and a half hours of class time. Lunch included. Stones available for purchase.

<>**COST:** Workshop includes **individualized, professional instruction**, all art clay materials = \$275.00

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## BEZEL SETTING IN ART CLAY SILVER

FEBRUARY 6

9:00 am - 4:00 pm

**Presenter:** Kristy Walden, Master Art Clay Instructor  
Co-sponsors: House of Tibara, Art Clay World USA, Pfingst, Lasco, Mountain Mist,

G&LW

**Goals: YOU WILL**

1. Explore several methods of bezel setting faceted and bezel capping rough cut or semi polished stones.
2. Two pieces will be successfully completed in the workshop
3. Intermediate level of metal clay skills required.

**RESERVATIONS REQUIRED: Limited to 12 participants, deadline Jan. 20.**

Seven and a half hours of class time. Lunch included. Stones available for purchase.

<>**COST:** Workshop includes **individualized, professional instruction**, all art clay materials = \$275.00

## BASIC & INTERMEDIATE OPAL CUTTING AND FINISHING

FEBRUARY 7

9:00 am-4:30 pm

**Presenters:** Tim Thomas, House of Tibara Inc., Opal cutter since 1976  
Keith Olivas, Tibara associate Opal cutter since 1977  
Co-sponsors - Ameritool Lapidary Equipment, Lasco, Mountain Mist, Pfingst, G & LW

**Goals: YOU WILL**

1. **FINISH A STONE FACE OR KNOW WHY YOU DIDN'T!**
2. Learn to make cutting plans for opal.
3. Learn and practice basic cabbing techniques.
4. Identify Opal types and classifications.
5. Be introduced to tough cutting, sculpting, and polishing challenge
6. Explore, as time allows, valuation, selection of opal rough and options for making more money with opal

**RESERVATIONS REQUIRED: Limited to 8 participants, deadline Jan. 15.**

Seven and a half hours of class time with a short lunch.

<>**COST:** Workshop includes **\*TOC >> Tibara Opal Cutting Kit, individualized, professional instruction**, The Tibara Opal Book and selected **Option 1 or 2 or 3 below:**

**Option 1:** Workshop includes purchase of 6 inch Ameritool grinder and TOC\* Kit = \$899.00

**Option 2:** Workshop includes purchase of 8 inch Ameritool grinder and TOC\* Kit = \$999.00

**Option 3: BYOE** – bring your own equipment = \$300.00

**\*TOC >> Tibara Opal Cutting Kit:** 5 rubber backing pads, 3000 & 8000 diamond mesh sanding disc, leather polishing pad, 5<sup>th</sup> lap, special polish, 3M feathering adhesive, W&D sanding paper, dop supplies, epoxy, \$100 of Tibara Opal for workshop use.

## CARVING OPAL – AN ADVANCED OPAL CUTTING TECHNIQUE

FEBRUARY 8

9:00 am - 4:30 pm

**Presenters:** Barbara Thomas, Pres. House of Tibara Inc., Opal carver since 1982  
Keith Olivas, Tibara associate, Opal cutter since 1977  
Tom Hay, Mountain Mist owner, expert polisher

Co-sponsors – LASCO, Mountain Mist, Pfingst, G & LW

**Goals: YOU WILL**

1. **CARVE & FINISH A STONE FACE OR KNOW WHY YOU DIDN'T !**
2. Make carving and sculpting plans.
3. Learn basic carving techniques, use of equipment & secrets of success.
4. Learn Opal types for carving and sculpting.
5. Be introduced to tough cutting, sculpting, and polishing challenges.

**RESERVATIONS REQUIRED: Limited to 8 participants, deadline Jan. 15.**

Seven and a half hours of class time with a short lunch or bring your own lunch.

<>**COST:** Workshop includes a piece of opal selected specifically for carving, diamond burr kit, Mountain Mist polishing kit, Tibara Opal Book and **Individualized, professional instruction and selected Option below:**

**Option 1** - purchase of motor, foot control, flex shaft, hand piece, \$510.00

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		BEST BEAD SHOW  KINO CENTER TENT A SPACE 32  10:00-6:00p	BEST BEAD SHOW  KINO CENTER TENT A SPACE 32  12:00-9:00p	BEST BEAD SHOW  KINO CENTER TENT A SPACE 32  12:00-9:00p	BEST BEAD SHOW  KINO CENTER TENT A SPACE 32  10:00-6:00p	BEST BEAD SHOW  KINO CENTER TENT A SPACE 32  10:00-4:00p				

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<b>FEB 5 BEZEL SETTING IN ART CLAY SILVER</b> ONE DAY WORKSHOP, 9:00-4:00 KRISTY WALDEN, MASTER INSTRUCTOR	<b>\$275.00 US</b> _____
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<b>FEB 6 BEZEL SETTING IN ART CLAY SILVER</b> ONE DAY WORKSHOP, 9:00-4:00 KRISTY WALDEN, MASTER INSTRUCTOR	<b>\$275.00 US</b> _____
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<b>FEB 7 OPAL CUTTING BEGINNING &amp; INTERMEDIATE</b> ONE DAY WORKSHOP, 9:00-4:30 TIM THOMAS, KEITH OLIVAS	OR ( ) 8 INCH @ \$999.00 US _____ ( ) 6 INCH @ \$899.00 US _____
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<b>FEB 8 ADVANCED OPAL CARVING &amp; FINISHING</b> ONE DAY WORKSHOP, 9:00-4:30 ( ) purchase flex shaft equipment \$510.00 US _____ BARBARA THOMAS, KEITH OLIVAS ( ) rental of equipment \$370.00 US _____
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**TOTAL in US \$** \_\_\_\_\_

( ) **PAYMENT IN FULL OR ( ) DEPOSIT US \$** \_\_\_\_\_

**BALANCE DUE JANUARY 15, 2006 US \$** \_\_\_\_\_

**Payment:** You may pay in full now or put down a deposit of 50% of the total above with the balance due by January 15, 2006. Cancellation/refund service charge of 10% of the above total or \$25.00 which ever is less. Your signature or phone verification is a contractual agreement for you to pay your designated amount above.

CHECK # \_\_\_\_\_ CASH \_\_\_\_\_ VISA/MC \_\_\_\_\_ AMEX \_\_\_\_\_ DISCOVER \_\_\_\_\_

credit card# \_\_\_\_\_ expire \_\_\_\_\_ back of card verification# \_\_\_\_\_

Name on the card \_\_\_\_\_ Card holder Signature \_\_\_\_\_

**REGISTRATION GUARANTEES YOU a seat!! If one is still available. DEADLINE: January 15, 2006**

MAIL THIS COMPLETED FORM TO <>

HOUSE OF TIBARA, DEPT. bara  
P O BOX 1717, CLOVIS CA 93613

Phone 559-299-5123 <> fax 559-299-9456 Email <> [barbara@opal-tibara.com](mailto:barbara@opal-tibara.com) <> [www.opal-tibara.com](http://www.opal-tibara.com)

OPAL IS YOUR PERSONAL RAINBOW – SEE US IN PAVILION BOOTHS 627 & 726  
THIS INFORMATION WILL NOT BE SHARED. YOUR PRIVACY WILL BE RESPECTED  
12/4/2005