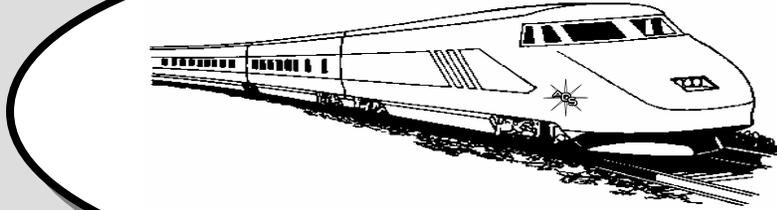


The Opal Express

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President's Message

By Gene LeVan

For this meeting there will be a free door prize so be sure to come for this event.

Members have a lot to offer to other members at our meetings, so I will ask a member from the floor what is of most important interest in the way of opals just to get the subject started. You may be a cutter, collector, rock hound, jeweler, wire-wrapper, field trip person, explorer, traveler, miner or one that just likes opals. Opal is a one of kind stone from the very plain white to the many colored red, blue, green, orange with patterns. The opal values are just as varied from a dollar to six figures or more and that adds to the mystery of opals. Where opals come from is also interesting with the most material being in Australia, but there are new finds right here in the USA.

Our last meeting was with Vida Rawhani from Australia where her brother is mining and cutting opal. Her display of finished opal stones showed great cutting and bright colors. Her story of the hardship of mining and the difficulty of finding stones tells us why opal has value. Be sure to get our prize!

Members Only Website Password

To log onto the website's members only area at: http://opalsociety.org/aos_members_only_area.htm type: Name: "member" and Password: "opalmine".

Opal Society Workshop

The American Opal Society's workshop is open at Ball Jr. High School every Monday from 7:00 to 9:30 p.m. The school is located

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at 1500 W. Ball Road in Anaheim. This is between Euclid Ave. and Harbor Blvd. If you are traveling east on Ball Rd. the parking lot entrance you need to use is just before the railroad tracks. If you are traveling west, the lot is just after the railroad tracks. Room 37 is in the center of the campus.

Instruction will be given in cutting opal, wax models, lost-wax casting, fabrication, and setting stones. The workshop will furnish machines to cut and polish stones as well as a centrifuge for casting and a kiln for burnout. You will need to furnish other equipment you wish to use. Please bring a roll of PAPER TOWELS with you for clean-up as the room is a science lab and needs to be kept spotless.

To attend, membership in the American Opal Society is a must due to insurance. A nightly fee of \$2 is asked to help keep the equipment in good running condition. Our thanks to Pete Goetz and the Anaheim Union High School District for the use of this classroom for our workshop!

February Speaker- Clare Gagnon on Gemstone Id

Clare Gagnon will give a presentation on gemstone identification techniques. Clare is a long time member who is an active faceter who has performed faceting demonstrations for our Opal & Gem show. Clare is a key member of the Gem Faceters Guild. Clare is also very active in the Seal Beach Leisure World Lapidary Shop.

Len Cram to Visit February 16th

Len Cram will visit with the AOS on Feb. 16th at 7:00 pm. We will get together with Len at the Carrows Restaurant at 16931 Magnolia Avenue, Huntington Beach, CA 92647, (714) 848-1995. It is on the west side of the street, just north of the corner of Warner Ave. We will meet in a special room in the back. Dinner may be ordered during the visit.

January Speaker: Opal Mining Family

The AOS wants to thank Vida Rawhani of <http://opalcountry.com>, for giving a great talk on opal mining in Coober Pedy by her brother.

Deceased - Past AOS President Larry Dobrin

Past AOS President Larry Dobrin has passed away in Freeland, Washington on January 15. Larry was an AOS President in the 1980's. Larry leaves his wife Suzanne. Larry was a part-owner of the Nowak Mine at Opal Canyon. Larry's opals have graced the cover of Rock & Gem Magazine multiple times.

AOS Live Auction Proposal: "O-Bay!"

The AOS is considering its first live auction--"O-Bay"-- for 30 minutes or so at the start of the March meeting. The AOS board believes that a live auction on a quarterly basis might become a great fund-raiser, and the club needs your ideas, comments, caveats, etc.

Live auctions are educational, as well as entertaining, and can prime our fund-raising pump! An added benefit of a live auction is generating immediate and dramatic interest to prospective new members, both at the meeting and through internet promotion!

So bring your opals, rough, findings, tools, or books, or any gem-related items to the March meeting. Some of the lapidary equipment that missed the silent auction at show time may also be up for bid.

For the first auction, we'll limit 15 lots for members only, on a first-come, first-served basis. A "lot" might include a small bottle of opals, 3 books, or 5 wax ring models, for example. All items must be subject to board approval just prior to the auction meeting, and available for preview prior to and during the meeting.

Members would be allowed to offer up to 3 lots of 5 items per "lot," and must agree to donate 10 percent of the final lot price to the club. Later, if things go smoothly, the AOS may raise the member auctions to 10 lots per member, with the only constraint being the time allotted to the auction out of the main meeting. Members may stipulate a minimum "reserve" price, if they choose.

Will Shaw has volunteered to be auctioneer for the first "O-Bay," as we're calling it for short, and will require one assistant to shuttle items, register bids, oversee auction lots, etc. and anyone who can bring a laptop with Excel on it may easily track and calculate the winners charges.

Bidders--both members and the general public-- would be registered via drivers licenses, given an official auction "paddle", and all items would be sold "AS IS, WHERE IS," no returns, ALL SALES FINAL and paid for in cash on evening of sale, PRIOR to pickup. All items must be removed from premises before conclusion of the meeting. Bidders and sellers would also be required to sign an agreement for "terms and conditions" of auction sales.

AOS welcomes your suggestions, and ideas. Please respond to Jim Pisani, Russ Madsen, Will Shaw, or Gene Le Van with your comments. The board's e-mails are on the front page.

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Famous Opals: The Opalworex Collection



Clinton McNamee with The Opalworex Collection

This magnificent parcel of opal was found at Lambina's Seven Water Holes on 10 October 2001, by Clinton McNamee, Rob DeBlaquire and Richard Burnett, experienced miners from Mintabie

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who had decided to try their luck there. It has turned out to be one of the most significant opal discoveries in the history of South Australian opal mining - a spectacularly large deposit of gem-quality material weighing 11.6 kilograms (25.5 lbs). I asked Clinton to put together a few words to describe the spectacular find:

"When we arrived at the remote opal mining community, some two hours drive east of Mintabie, the pioneering field was just cranking up after a considerable period of inertia. A few recent opal finds had encouraged miners from other fields to move in and the small community rapidly swelled to about 150.

Some 12 months before the discovery we had been busily mining a productive vertical of opal with the excavator and picks and shovels, while at the other end of the cut an interesting patch vertical ran in under an extremely hard caprock. It was so dense that it was almost impossible to penetrate with exploratory drill holes to see if it warranted opening up. After a considerable amount of discussion we took the gamble and, with the help of a ton or more of explosives, blasted off the 25 ft thick caprock, which we moved with our two 60-ton Komatsu dozers.

The day before the discovery I was walking behind the dozer late in the evening, spotting, when I noticed a huge amount of patch rolling off the side of the blade. At the time we were down about 30 ft and the patch poured out by the thousands of ounces. The following day, and two feet



The biggest opal in the Opalworex Collection, weighing in at 4.18 kg

deeper, we made the phenomenal discovery of the 10 large pieces of beautiful opal that we now call the Opalworex Collection.

Our combined opal experience was a collective 65 years, and over all that time none of us had ever seen the likes of this amazing phenomenon. At the first sign of colour we quickly parked the dozer and, grabbing our picks, gently began gouging the vertical and within minutes had found the first piece of superb opal. By the time we had taken out the complete pocket we had 10 beautiful large stones, each one bigger than the previous one we unearthed. It was like the earth giving birth to extraordinary beauty. The biggest surprise of all was when we lifted out the last one; it was almost as big as a football.

How could we continue to work after such an incredible find! As soon as our shocked muteness had turned to jubilation we decided it was time to celebrate, with a beer or two, or should I say three!

It is their size and consistent quality that make the Opalworex Collection so exceedingly rare and valuable, with the 10 pieces weighing 11.6 kilos, besides all coming out of the one pocket. There have been very few quality opals in the history of the South Australian opal industry that have exceeded 1 kilo, whereas four pieces of the Opalworex Collection alone are over 1 kilo, with the largest piece being 4.18 kilos (9.2 lbs).

The discovery was kept quiet for some years while we worked out the remainder of the claim, and following the retirement of Rob and Richard, in 2005, we decided to put the collection on the market. The decision has attracted a great deal of media attention, here in Australia and internationally, besides being on public display at the South Australian Museum. The

accompanying photograph of the opal and myself were taken by my wife Lynne."

From *A Journey with Colour - A History Of South Australian Opal 1840-2005*, by Len Cram. As of 5/2005, according to <http://opalworx.com>, the collection (all 10 stones) was for sale for \$1.5 million for 11.6 kg, 371 troy ounces or 58,000 carats. This works out at approximately \$26 per carat, uncut. The Editor

Rocking Opal Mountain

Collectible specimens litter the Mojave Desert waiting for rockhounds to pick them up

10:00 PM PST on Thursday, December 28, 2006
By John Pinson

Special to the Press-Enterprise

Northwest of Barstow sits Opal Mountain. With the promise of opals littering the ground, and the possibility of collecting some interesting mineral specimens, a day trip into the desert was too much to resist.

The area has been mined periodically for precious opals. On my visit, I found a fresh mining claim staked out and there is no lack of opal all over the area.

It is a great place to visit and hike with lots of interesting mineral specimens all over. Most if it is common opal, without the "play of light" of precious opal. If this isn't exciting, look closely because some of the opal will exhibit the color flash of precious opal.

Rockhounding

Rockhounding is the hobby of identifying and collecting minerals. Many rockhounds also cut, polish and prepare their specimens into beautiful display pieces or jewelry. Others prefer to leave specimens in their natural state.

Riverside and San Bernardino counties are home to spectacular collecting areas that attract both rockhounds and lapidary shops to supply them.

Depending on interest level, beginners can go to an area and start by picking up pieces of interesting rock. People with a deeper interest could start by visiting a lapidary supply shop for equipment and information. More serious collectors should consider joining a local club.

Gear to Carry

A good guidebook is your best rockhounding gear. A guide will give ideas of where to go and show how to identify and collect specimens. A small hand lens will help with identifying specimens.

A rock hammer is used for general digging and splitting rocks. It is like a regular hammer on one side but has a pointed pick on the other and is the main tool for rockhounds.

Eye protection is necessary equipment. Optionally, consider taking a chisel, a sledgehammer or maul, a miner's pick and a shovel. These help extract tougher specimens and the shovel doubles for digging out a stuck car.

Desert Travel

A map is necessary to avoid getting lost. The BLM's Cuddeback Lake map is one of the better ones. As well, a GPS with mapping software is helpful for locating hard-to-find turnoffs.

The roads to Opal Mountain are currently in good shape but are rough with washboard. Four-wheel drive is recommended, but a high-clearance two-wheel drive vehicle would be adequate with necessary precautions.

As usual in the desert, be prepared for possible problems. Do not travel alone and bring extra water, food and warm clothing in case of an unexpected overnight stay. Make sure to check that the spare tire and jack are in good condition and that all fluids are full before leaving.

Also bring a tow rope, jumper cables and extra fluids in an emergency kit. Cell phone service is available near Opal Mountain.

Tips for Finding Opal

Opals are found in milky white, green and clear veins in other rocks. At Opal Mountain, it's found mostly in the reddish-brown rhyolite common to the area. Much of it can be found lying on the ground due to natural action or previous digging activity.

Since opal is softer than the surrounding rock, do not try to dig it out directly. It will shatter into dust. Instead try to break out the surrounding rock to extract nice specimens.

Stay away from open mine shafts and respect active mining claims. On the other hand, the tailing dumps of abandoned mines are loaded with interesting and beautiful specimens that would otherwise be inaccessible.

Inspect translucent opal specimens from many angles relative to the sun to search for small flashes of colored light. The small bits of precious opal are uncommon but make the trip worth it.

While there, keep an eye out for jasper, a red, brown or yellow form of quartz with a glassy sheen. Look out for geodes as well. These are generally round, hollow stones with crystals and concentric rings of agate inside them.

Opal Mountain Details:

Minerals: Opal, Jasper, chalcedony, geodes.

Directions: From Interstate 15 in Barstow, take Highway 58 west for eight miles. Turn north on Hinkley Road and go 7.5 miles to the fork. Go right on unsigned dirt road C099 and go 3.9 miles. Turn left at Opal Mountain Road (C297), just after road C296. Go 5.6 miles to the Opal Mountain area.

Regulations: Rockhounding is allowed on public lands not otherwise closed to rock collecting. Rocks can be collected on private land with permission. Do not take more than can be carried in a daypack. No vertebrate fossils or archaeological artifacts may be taken.

More information: <http://blm.gov/ca/barstow/rock.html>

What to Bring: Map, Water, Snack, Hat, Sunscreen, Guide book, Daypack, Hand lens or magnifying glass, Rock pick.

Rare Black Diamonds May Have Come From Space

15 January 2007

News scientist.com News Service

By Kelly Young

Black diamonds found in only a few places on Earth may have crashed down from space in a kilometer-sized rock, according to new research.



This black diamond, found in Brazil, may actually have come from space (Image: Steve Haggerty)

The diamonds, also called carbonado, are only found in Brazil and the Central African Republic. Unlike other diamonds, they are made of millions of diamond crystals that are stuck together.

They are also porous, which is a puzzle. Scientists say it would have been difficult for gas to become trapped in rocks at depths of about 200 kilometers below the Earth's surface. The intense pressure there turns carbon into conventional diamonds.

"This is the feature that first led some of us to think, well, perhaps there has to be a different alternative," says Stephen Haggerty, a geologist at Florida International University in Miami, US, and an author of the new study.

Because carbonado diamonds have only been found in two places and never in traditional diamond fields, some scientists suspected they crashed to Earth from space.

Haggerty believes they came from a large, diamond-bearing asteroid that may have fallen to Earth billions of years ago, when the planet and the Moon were being heavily bombarded by space rocks. Carbonado has been dated to be between 2.6 billion and 3.8 billion years old.

'Plums in pudding'

At that time, South America and Africa were one land mass, which could account for the diamonds showing up on two continents today, Haggerty told New Scientist.

He and his colleagues believe the diamonds have ancient, rather exotic origins, forming around a star other than the Sun. Using an infrared synchrotron at Brookhaven National Laboratory in New York, US, they found hydrogen in the carbonado that indicates the diamonds came from hydrogen-rich interstellar space.

The diamond dust from which they formed may have been released when a star exploded in a supernova billions of years ago.

The diamond dust then became part of the cloud of gas and dust from which our solar system condensed. Over time, it coalesced into larger clumps that became embedded in asteroids "like plums in pudding", Haggerty says.

The new spectral measurements of the carbonado closely resemble those of other diamonds found in meteorites, as well as diamonds seen in space (see [The night sky really is studded with diamonds](#)).

Journal reference: *Astrophysical Journal Letters* (Vol. 653, p 153).

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Fire Breath Opal

Here's an interesting thread from Ganoksin Orchid Digest. Not all that you see is real... The Editor.

From: Christen

I recently purchased this fascinating stone and would like to know whether it is natural or man made. It is vivid orange, usually, with brilliant flashes of purple, sometimes rippling across the face of what looks like an inclusion within the stone, at least in the one I have. The jewelry these stones are set in is most often labeled as vintage or antique, and the stone commonly has names such as Mexican fire opal, jelly opal, or dragon's breath opal. I can't find any conclusive answers anywhere regarding it's actual composition. Anybody out there have any?

You can email me at Studio@blackwatersiren.com

Thanks! Christen

From: Lisa Bialac-Jehle

Yep, its real...and natural...Mexican opal is just a different variety of opal. I have seen opaque yellow and semi-transparent blue opals with no fire at all. They are still opals. The blue ones are really cool. If you stick them in a glass of water overnight, they become almost completely translucent. Doesn't last though. Opals have a wide range think Chinese vs. boulder vs. Yowah.

Lisa, (Packing my booth for the shows...ick), Topanga, CA USA

From: Phillip Scott

The American Opal Society

Thanks for the great picture. This is a glass cabochon. Sometimes they put gold leaf or some type of foil in the glass. Other times they use a glass with an opal type look. The picture does not look like Fire opal or Jelly opal. You can have it tested for sure but the picture is great and does not indicate opal of any kind. I have seen this material many times before and even did some testing on it when I went to GIA.

I hope this helps. If you have any further questions please feel free to contact our technical support department.

Best regards, Phillip Scott G.G.

Technical Support & Sales Rio Grande 1-800-545-6566 ext 13752

TechnicalSupport@tbgr.riogrande.com



Fire Breath Opal

From: Dale Porter

It's often hard to tell from a single photo from one perspective, but my money is on it being a "Mexican Fire Opal". Jelly Opal rarely has such a vibrant orange hue to it
Cheers, Dale

From: Lisa Bialac-Jehle

> This is a glass cabochon

Eep... I guess I had better defer to Philip...I thought it was a lousy picture and so went by the name you had given... Mexican opal. It was probably my lousy computer or my lousy eyes and not the picture. So sorry. But hey...there are Mexican Opals I just traded someone for a few beauties in return for setting a few more in some rose gold for her...

Lisa, (Made green chile stew tonight... yum.) Topanga, CA USA

From: Doug

Hi Christen,

Sorry to be the bearer of bad news, but "Dragon's Breath Opals", like the creatures for which it is named, are about as genuine and natural as the plastic resins and iridescent purple celluloid films from which they are usually cast. Although I've seen some Victoria Stone (another imitation of opal, this one made of glass) cabs that approached the appearance of this stuff, the 'original' -- and, hey, let's not be fooled by imitations -- "Dragon's

Breath Opals" seemed to appear in costume jewelry sometime in the mid-1970's, around the time when both Kingman Turquoise and those Yowah Nut-like matrix-and-jelly cabs of Mexican Fire Opal were all the rage. As is unfortunately so often the case, these "gems" are still sold to unsuspecting jewelry buyers as "genuine Dragon's Breath Opals" by unscrupulous dealers at gem and crafts shows and flea markets, right alongside the supposedly natural "Mount Saint Helens Glasses (a.k.a. "Obsidianite") and other such gemological frauds. I hope that whomever sold you yours didn't take too much of your hard-earned change, in the process.

By the same token, both Fire and Jelly Opals are genuine gems, found on at least three continents (in the western and southern US, Mexico, Brazil and, of course, Australia). The term "fire" in Fire Opal, refers to the "fire" and "glowing coal-like" colors of the material, not the play of spectral colors so often seen in Precious Opal. Hope this helps!

Douglas Turet, G. J., Turet Design, P.O. Box 242, Avon, MA 02322-0242

From: Noel

> This is a glass cabochon.

This occurred to me, too-- looks more like dichroic glass than opal. If you look at it with a microscope or a strong loupe, if it is glass, you should see bubbles. They will be either round (a dead giveaway) or elongated. If you have a copy of the January issue of Art Jewelry Magazine, it contains photos of inclusions in opal simulants, taken by our own James S. Duncan, G. G.

Noel

From the *Orchid Digest* from <http://www.ganoksin.com> , Dated from 2/8/06 to 2/10/06. Printed with permission of Ganoksin.

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Organism Produced Rocks

Very old but entirely new

By Martin Jalowica

I was fortunate to live in an area where I could collect all types of native artifacts. I also cleared some burnt-over land that had many camp and kill sites on it. My extensive collections are in the Archaeological Lab next to the Fort Dauphin Museum.

I also wanted to know what materials these artifacts were made of. The majority were made of various grades of Swan River chert. Then where did Swan River chert come from or how was it formed? I wasn't satisfied with the geological explanation for this and other similar materials, so this problem kept bothering me for over 30 years. There was always this need to know. It kept coming up in my mind, so I guess it was up to me to do something about it. Nodules or rocks of Swan River chert were commonly used for flaking into tools. In the area west of Lake Winnipegosis and Manitoba and into Saskatchewan. I did not find any of it in southern Alberta. It is a micro-crystalline quartz similar to flint, other cherts, chalcedony or jasper. In Alberta there is a black chert that was used. From collecting artifacts it was only another step into collecting rocks, fossils, crystals, minerals and samples. I purchased the rock and mineral sets from Geological Survey of Canada and more good books on the subject. I also got into lapidary where I gained more knowledge and experience with rocks. By the time I retired in 1985 I was well into some interesting hobbies.

By the end of 1999 I was ready to start some types of tests or experiments, but not knowing where or how to start to get rocks to provide me with information I needed. Ideally, most rocks can tell a story if you can get them to talk or provide you with answers. On January 2, 2000 I first succeeded in growing a ground-up mixture that contained silica, magnetite, a form of iron sulfide and something that resembles garnet; then it died out, so I had to find out why. This was an entirely new field and it took quite a lot of common sense experiments. Sure, I made mistakes, lots of them, but I learned and I made progress. With the help of my big complete book of science I started to get together a lot of useful information. There are living inorganic things called autotrophic organisms that go back to some The American Opal Society

early stage of earth's geologic history when there were only rocks, water and sun. Inorganic because they are mineral based {silica gel, metallic ions, mineral salts} and autotrophic because they live off the environment and do not depend on anything live for even part of their food. Sunlight was necessary to keep them and their environment reasonably warm. There was likely no free oxygen at the time. They adapted and must have done well because they are still here; one of the early forms of life. By leaving part of their RNA incomplete, they were able to adapt to most rock and mineral types and to produce rocks of their own like flint, chert, Jasper and types of chalcedony and several types of quartz.

Every living thing has a will to live and to reproduce. I notice that they have reached a point where they produce rocks for the purpose of protecting their offspring -- the spores. I watch and find some of these organisms use slightly varying ways to mix the spore cases into the slurry they produce that becomes one of the rock types. They can add more slurry to rocks and not have a problem for it to bond. All the microcrystalline rocks they produce are at least partly soluble in water so the spores can germinate at various times, even millions of years later and are not as likely to cause overpopulation. There is something they have as an inhibitor which they use to control another population as well as their own. It makes it hard for me to tell what is wrong. I've seen times when nothing would germinate, on account of the inhibitor, until I diluted the water with enough plain water.

Basically it is the spores that turn into organisms that live in water that produce the chert (or some other rock) and more spores and almost entirely using only water. Unbelievable? Dust like other things we take for granted. I have no problem believing because I have seen it done so many times with many kinds of rock or even minerals.

These experiments are not exactly easy and sometimes do not work. It takes a lot of care, time, patience and perseverance, and then chances improve. I have a basic understanding of the process involved. It is some of the details I am still lacking. There should be a separate class name for these rocks because they are not igneous, nor sedimentary nor metamorphic. They are intentionally produced by living organisms.

I never cease to marvel and am as fascinated as can be with these things. Nature is so remarkably wonderful that it makes us wonder how it could be or else we just take it for granted feeling that it is not possible to understand it all. Now that I have seen Swan River chert actually being produced, as well as the other rocks in this class, my main goal has been accomplished. Besides, I found out much, much more than I was not expecting.

I would still like to know how petrified wood is made. Somebody told me it takes millions of years. I don't have millions of years left, so I better get at it and see if it can be done in much less time. I have a feeling that the same organisms that produce chalcedony will play the key role.

From the *Winnipeg Rock & Mineral Club newsletter, The Rock Vein, Rose Lacey, editor, via the GMFC Newsletter, Spring 2002*

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Health Effects of Faceting

By Mathew Krebs, MD, MPH

(Though most opal cutters do not facet, most of these health effects are applicable to cabber's also. The Editor)

I have selected some common exposures to review. Before covering these, a section on the Material Safety Data Sheet is presented. They are useful sources of health information on products you purchase. Information concerning diamond dust, silica or quartz, acetone and methylene chloride is presented. They were chosen as representative of the most common exposures for faceters. Principles here can generally be applied to other materials with some common sense.

MSDS. All material purchases have Material Safety Data Sheets, or MSDS's, available from the manufacturer. They can usually be requested at the point of purchase. The MSDS is a

summary of composition, hazard, safety, fire, handling and emergency information. It is almost always the best ready reference on the material. Phone numbers are listed for further information. The MSDS follows a standard format:

1. Chemical Product Name and Company Information. (Phone numbers are listed here.)
2. Composition.
3. Hazard Identification. (Potential Health Effects)
4. First Aid.
5. Fire Fighting Measures.
6. Accidental Release Measures.
7. Handling and Storage.
8. Exposure control and personal protection.
9. Physical and chemical properties.
10. Stability and reactivity.
11. Toxicological information.
12. Ecological information.
13. Disposal considerations.
14. Transportation.
15. Regulatory information.

Most of this information applies to industrial use, or use of the commercial quantities of the product; the faceter usually can glean sufficient information to determine reasonable safe use. Attention should be paid to section 3, 4, and 7. Section 11 provides a summary of information usually pertaining to animal studies. Sometimes human study information is available. When reading this section, you may encounter the term LD50 or LC50. LD50 is the Lethal Dose to 50% of exposed subjects, or the dose at which 50% of the study population died. LC50 is the concentration at which 50% of the exposed population died. This information should not be applicable to the average faceting desk. These documents are generally only a few pages long, and can be read in their entirety. Do not hesitate to call the phone numbers of the manufacturers, they are more than happy to assist.

Diamond. Diamond is biologically inert. It is not absorbed through the skin. The only route of exposure is pulmonary. I have found no reports of lung disease from abrasive diamond exposure. Diamond cutting and grinding have been performed for centuries, without ill effect. Other carbon forms, graphite and carbon black, which also have heavy industrial use, have limited reports of lung disease. These forms are more reactive than diamond, and greatly overestimate the risk. In both cases, the dose required is best described as "filling the lungs." Very heavy exposures are reported, with few cases of illness. In these cases, silica exposure is also a factor. Based upon this, I expect fewer problems with abrasive diamond. Inhalation of diamond particles between 0.5 (50,000 mesh) and 3 microns is required for deposition in the alveoli, or the deepest part of the lung. Particles smaller than 0.5 microns are usually not deposited and simply are breathed out. Diamond particles larger than 3 microns are usually removed by the nose, mouth and upper airways. Normal cutting, polishing or grinding with diamond powders requires oils, waxes or similar cutting fluids. Dry polishing is limited, and usually uses powders already imbedded on the lap. The amount of diamond used very small one-quarter of a carat for charging a lap, and very small amounts of diamond afterwards. Based on graphite exposure, kilograms of diamond would have to be used over time. For practical purposes, normal diamond abrasive use presents a very minimal hazard. No special precaution is required.

Quartz. At the opposite end of the spectrum from diamond - a rare and biologically inactive material is silica - ubiquitous and biologically active. The most common crystalline form of silica is quartz. Included in this family are some of our preferred cutting materials, amethyst, citrine, rose quartz, agates and synthetic quartz. Diseases from silica have been known since the ancient Greeks and Egyptians. Hippocrates knew of the association of pulmonary disease from certain rocks with occupation. In 1930 and 1931, in Gauley Bridge, West Virginia, 400 of 2,000 men died from

cutting two tunnels in crystalline quartz rock. The remainder of the 2,000 contracted silicosis, and became disabled. Today, disease from silicosis is still reported, with many persons at risk. Common occupations are sandblasters, miners or tunnelers, millers, pottery workers, glassmakers, foundry workers, quarry workers and abrasive workers.

Silicosis develops in two distinct ways, depending upon exposure. Very large exposures over short intervals (days to weeks), produces an acute syndrome. In Gauley Bridge, accounts describe the dust from blasting as so thick the locomotive headlamps were not visible in the tunnels. In just a few months after operation began, men began dying in the tunnel. Lucky ones got short of breath early and did not return. Shortness of breath, cardiac failure, and death are inevitable from this exposure. Heavy sandblasting in confined spaces will produce a similar exposure. Fortunately, none of us can afford to buy enough amethyst to grind up to produce this type of exposure. The second type of exposure is chronic, slow exposure. This is the classic silicosis pattern. Exposure to low to moderately dusty conditions for 8 hours a day for 10 to 20 years is required. Sawing, grinding and polishing generate particles of crystalline quartz. During grinding or cutting, dust can be virtually eliminated by use of water or similar cutting fluid. If you prevent the particles from becoming airborne, there is no exposure. Laps should be cleaned after use, and cutting swath removed while still wet. Care should be taken with paper towels or other contaminated items simply to be placed in trash bags for disposal. Rough handling, or creating clouds of dust should be avoided. Most gem cutters with a little care should experience no ill effects with a lifetime of exposure. The common sense practices to prevent lap contamination also work to prevent our contamination.

Acetone The good news about acetone is that it is fairly safe. Its biggest danger lies in its flammability. Do not use around open flames. Acetone has few health effects. It exerts a drying effect on the skin, which is short lived. It is not absorbed through the skin. It is absorbed via pulmonary routes, but is also exhaled, and rapidly metabolized. At very high concentrations, headache and dizziness may result. It is irritation to the senses exerting a direct irritant effect on the nose, as well as the sense of smell, the eyes, which limits exposures. At these high concentrations, fire is the major risk. No described illness or long term effect has been described from repeated acetone exposure. Judicious use in the smallest quantity for cleaning stones, laps, dops, etc. presents no health risk. Heavy use is safe with good ventilation to prevent a flammable atmosphere and limit the irritant effect. It is readily available, and inexpensive.

Methylene Chloride (Attack™). MeCl is often used as an epoxy solvent in faceting. MeCl is the least acutely toxic of the four chlorinated methanes. The toxic effect is predominantly narcosis, although it is not good enough for an anesthetic. MeCl is metabolized to carbon monoxide, but not in sufficient quantities to be the primary cause of toxicity. The primary problem from use is miscoordination, or "drunkenness", which may cause inept operation. Symptoms of excessive exposure may be dizziness, nausea, tingling or numbness of the extremities, sense of fullness of the head, sense of heat, stupor or dullness, lethargy and drunkenness. Extremely high concentrations may lead to rapid unconsciousness and death. Prompt removal from exposure prior to death us, ally leads to complete recovery. Studies in workers have found no increase in cancer, but some cancers have been identified in some mouse studies. The evidence present is controversial This prompts the warning from the state of California that the product is a suspected carcinogen.

In normal use, amounts are small. The use of less than an ounce at a time results in minimal concentration in most rooms. Absorption is via inhalation and to a small extent the skin. It is irritating to both, which tends to limit prolonged exposure. Because it is very volatile, with a boiling point of 40.1 °C, containers should be kept dosed as much as possible. Storage should not be in an

uncontrolled temperature area. If possible, keep in a ventilated cool area.

I have used this material. It is very effective. In practice, it is very expensive, evaporates quickly and difficult to retain in the container. Products for paint stripping with MeCl usually do not have sufficient concentration to dissolve the epoxy. One of the primary reasons for using the epoxy is to limit heat stress on the stone. The epoxy creates heat, and its own problems. For these reasons, I rarely use this anymore, preferring wax dipping methods for most stones.

Additional Information For most faceters, common sense, and responsible use of our equipment and materials present no significant hazard. Thanks for the opportunity -be safe and well out there!

Reprinted courtesy of the, USFG Newsletter, Vol. 10, No. 4, December 2000, pages. 25-26 and The Gem Examiner of the BC Faceters Guild via the GMFC Newsletter Spring 2001.

LARIMAR, the Caribbean Gemstone

Larimar is a blue colored variant of the mineral **pectolite** with the hardness of 5 to 7. The color can range from deep sky blue to azure bluish green of the Caribbean, with white marbling to milky greenish shades. Its characteristics colors and variations of texture make it a very unique and interesting gemstone.

It has only been found in one location on earth, in the mountain region in the Dominican Republic that is difficult to access. The Dominican Republic is also an important source of amber and conch pearls. Larimar was found in the seventies although natives knew of the stone much earlier. Water eroded fragments of pectolite were first found in the alluvials of the Rio Boruoco, and later traced to their upstream source. The trade name Larimar was given to the stone by Miguel Mendez, who named the stone after his daughter LARIssa and the Spanish word for sea: MAR - LARIMAR.

All mineral rights in the Dominican Republic belong to the government, and pectolite mining is permitted only by concession from the Dominican Bureau of Mines: the Minería. The commercial quantities of blue pectolite available at this time are all mined in that mountain area.

Larimar is still a very rare gemstone. This year for the first time many dealers at the 2006 Tucson show carried rough and slabbed larimar, as well as finished jewelry. The slabs went for \$0.75 to \$7.00 **per gram** depending on color, very expensive since the slices were fairly thick.

Working larimar can be very tricky, Gary Bojeck uses Opticon to stabilize the piece while he is working on it.

This article is from the Montreal Club's Geminews. March 2006 issue. Via the GMFC Newsletter Spring 2006.

Eleven Ways to Become a Fossil

—Author Unknown

FREEZING - This rare creature has suffered a minimum of change. His arteries may still contain dried blood, his stomach undigested food. Most common is the Ice-Age mammoth of Siberia and Alaska.

DRYING OR DESICCATION - If these organisms were thoroughly dried, they can be of high quality. Best known are the camels and sloths found in our Southwest caves.

WAX AND ASPHALT - Natural paraffin makes an excellent preservative, as proved by specimens found in Polish mines. The most famous asphalt fossils are still embedded in the La Brea Tar Pits in California.

SIMPLE BURIAL - English bogs are famous for their buried forests. Sand dollars, sea urchins, and mollusks have been preserved by this method for up to 75 million years.

CARBONIZATION - Incomplete decay of volatile substances leaves carbon behind, sometimes reducing organisms to paper-thin layers of shiny black film that reveal much detail.

PETRIFICATION - Our common stony fossils got that way by permineralization, the replacement of the structure by dissolved

The American Opal Society

minerals, or secondary replacement, such as when limey fossils are dissolved and replaced by silica.

MOLDS AND CASTS - Natural molds in sediment remain after organisms decay. Sandstone beds reveal molds of shells and trees, and the finest molds are Northern European amber, which has perfectly preserved the forms of insects.

IMPRINTS - Sandstone, shale and tuff reveal external molds of very thin objects such as leaves. Best known of these are the Illinois Coal-Age plant imprints.

TRACKS, TRAILS, BURROWS - Dinosaur prints are the most famous of these. But Nebraska's "Devil's Corkscrew" once housed a beaver who dug an eight foot spiral hole.

CASTINGS & COPROLITES - Ancient worms swallowed sand to help digest small organisms; they regurgitated these casings. Coprolite is a polite word for petrified "dung".

GASTROLITHS - Many ancient reptiles ground their food with these stones (as do our modern fowl). The stones are rounded, smooth, and even polished at times. Also known as "Gizzard Stones".

From Paleo Newsletter, April 2001; via the Breccia, 7-2006.

How many of these fossil types have opals been found as? The Editor

January 2007 Gem & Mineral Shows

2-4--SAN RAFAEL, CA: Show; Gem Faire Inc.; Marin Center/Exhibit Hall, 10 Avenue of the Flags; Fri. 12-7, Sat. 10-7, Sun. 10-5; \$5 weekend pass; contact Yooy Nelson, (503) 252-8300; e-mail: info@gemfaire.com; Web site: www.gemfaire.com.

8-11--TUCSON, AZ: Show, "Tucson Gem and Mineral Show"; Tucson Gem & Mineral Society; Tucson Convention Center, 260 S. Church Ave.; Thu. 10-6, Fri. 10-6, Sat. 10-6, Sun. 10-5; adults \$7, children under 14 free with paying adult; lectures, seminars, junior education area, special and guest exhibits from museums, universities and private collectors, Wed. evening reception, Sat. night dinner and silent auction; contact Tucson Gem & Mineral Society, P.O. Box 42588, Tucson, AZ 85733, (520) 322-5773; e-mail: tgms@tgms.org; website: Web site: www.tgms.org.

9-11--SANTA MONICA, CA: Show; Gem Faire Inc.; Santa Monica Civic Auditorium, 1855 Main St.; Fri. 12-7, Sat. 10-7, Sun. 10-5; \$5 weekend pass; contact Yooy Nelson, (503) 252-8300; e-mail: info@gemfaire.com; Web site: www.gemfaire.com.

9-11--TUCSON, AZ: Show; J.O.G.S. International Exhibits; Tucson Expo Center, 3750 E. Irvington Rd.; Fri. 10-6, Sat. 10-6, Sun. 10-6; free admission; contact Vitality, 650 S. Hill St., Suite 612, Los Angeles, CA 90014, (877) GEM-SHOW; e-mail: info@lastcallshow.com; Web site: www.lastcallshow.com.

16-25--INDIO, CA: Mineral exhibit, "County Fair and National Date Festival"; San Geronio Mineral & Gem Society; Gem & Mineral Bldg., Bldg. 1, 46-350 Arabia St.; 10-10 each day; contact Bert Grisham, (951) 849-1674.

17--PHOENIX, AZ: 57th annual show, "Phoenix Gem & Mineral Show and Prospectors Day"; Maricopa Lapidary Society, AZ Mining & Mineral Museum, AZ Prospectors; AZ Mining and Mineral Museum, 1502 W. WA St.; Sat. 10-4; free admission; gold panning, metal detecting, dealers, lapidary and wirewrapping demonstrations, kids' crafts, jewelry making; contact Laurette Kennedy, 1502 W. WA St.; Phoenix, AZ 85007, (602) 738-2552; email: lkennedy11@aol.com; Web site: www.mines.az.gov.

23-25--SANTA BARBARA, CA: Show; Gem Faire Inc.; Earl Warren Showgrounds/Exhibit Hall, 3400 Calle Real; Fri. 12-7, Sat. 10-7, Sun. 10-5; \$5 weekend pass; contact Yooy Nelson, (503) 252-8300; e-mail: info@gemfaire.com; Web site: www.gemfaire.com.

24-25--BOISE, ID: Annual show and sale; ID Gem Club; Expo ID (formerly Western ID Fairgrounds), Glenwood and Chinden; Sat. 10-7, Sun. 10-5; contact Charlie Smith, P.O. Box 1264, Riggins, ID 83549, (208) 628-4002.

24-25--EVERETT, WA: 54th annual show; Everett Rock & Gem Club; WA National Guard Armory, 2730 Oakes Ave.; Sat. 10-6, Sun. 10-5; contact John Peterson, P.O. Box 1615, Everett, WA 98206, (425) 402-9227.

24-25--SAN FRANCISCO, CA: Show, "San Francisco Crystal Fair"; Jerry Tomlinson; Laguna Ave. and Marina Blvd.; Sat. 10-6, Sun. 10-4; contact Jerry Tomlinson, (415) 383-7837; email: sfxl@earthlink.net; Web site: www.crystalfair.com.

25-26--ANTIOCH, CA: Annual show, "Treasures of the Earth 2007"; Antioch Lapidary Club; Contra Costa County Fairgrounds; Sat. 10-5, Sun. 10-5; adults \$3, Scouts in uniform and kids 12 and under free; lapidary demonstrations, dealers, faceted stones, handmade jewelry, rocks, beads, supplies, opals, fossils, minerals; contact Ellen Bauer, (925) 458-2539; or e-mail: ebauer-lapidary@yahoo.com.



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<i>ONE TIME INITIATION FEE All New members</i>		\$10	
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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

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**Volume #40 Issue #2
February 2007**

TO:

Some Topics In This Issue:

- The Opalworx Collection
- Rocking Opal Mountain
- Rare Black Diamonds From Space
- Fire Breath Opal
- Organism Produced Rocks
- Health Effects of Faceting
- LARIMAR, the Caribbean Gemstone
- Eleven Ways to Become a Fossil
- AOS Live Auction Proposal: "O-Bay!"

Important Info:

Board Meeting
January 30th At Ball Jr. High

General Meeting

February 8th

February Speaker – Clare Gagnon on Gemstone Identification

Special Meeting

February 16th

Visit with Len Cram, Famous Opal Expert and Author

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

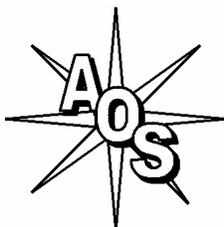
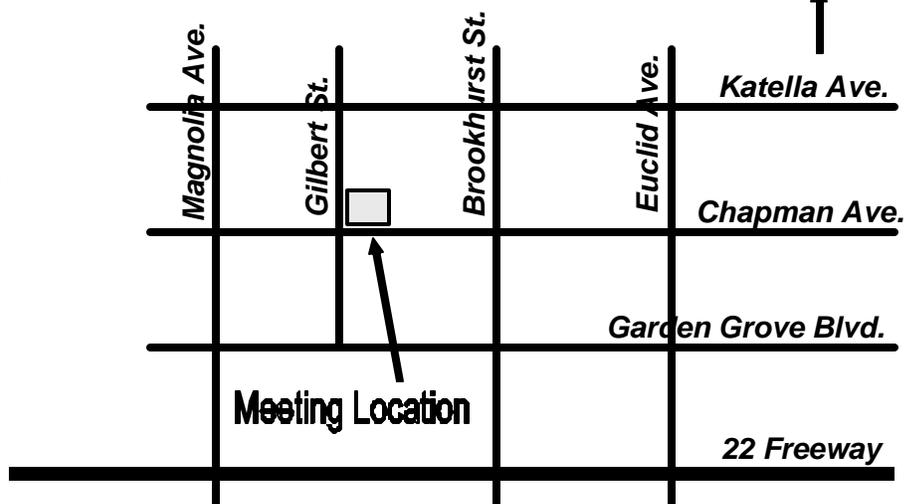
MEETING ACTIVITIES

Opal Cutting, Advice, Guest Speakers,

Slide Shows, Videos, Other Activities

**February 8th:
Clare Gagnon on Gemstone Identification**

**February 16th:
Len Cram, Famous Opal Expert**



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