

The Opal Express

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



**Volume #37 Issue #6
June 2004**

TO:

Some Topics In This Issue:

- Himalaya Mine Field Trip
- Opalized Shells
- Strange Opal Experience
- Hey! Don't Get Lost!!!
- Famous Opals
- The Secret Life of Rocks

Important Info:

Board Meeting

June 7th

General Meeting

June 10th

Speakers:

Leslie Neff & Larry Hoskinson:
"How to find Opal in Coober Pedy"

— GENERAL MEETINGS —

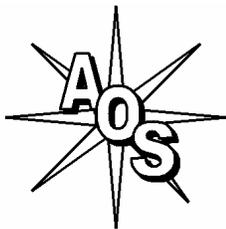
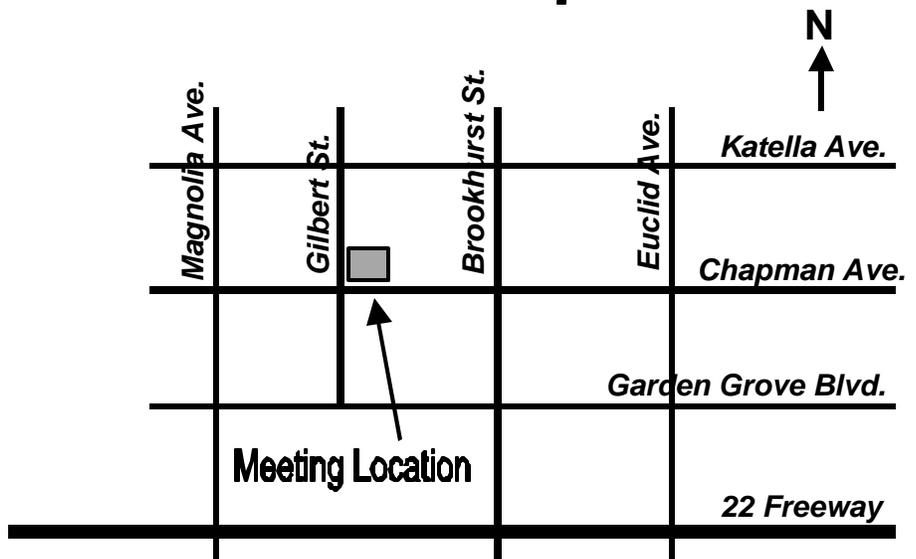
2nd Thursday of the Month
7:00 pm - 9:00 PM
Garden Grove Civic Women's Club
9501 Chapman Ave.
(NE corner of Gilbert & Chapman)
Garden Grove, CA

MEETING ACTIVITIES

Opal Cutting Advice Guest Speakers
Slide Shows Videos Other Activities

June 10th - General Meeting

Lecture: How to Find Opal in Coober Pedy



The American Opal Society

<http://opalsociety.org>

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Editor-Jim Pisani

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Are Your Dues Due Now?

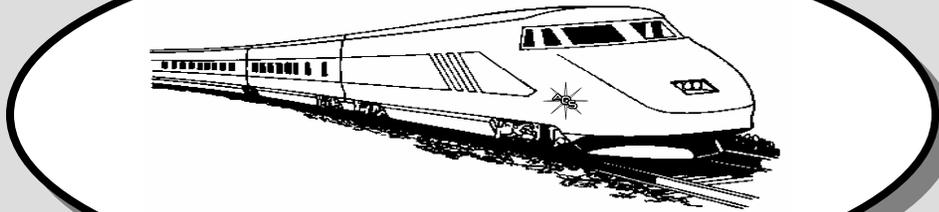
PLEASE CHECK YOUR ADDRESS LABEL. If your label shows the current month/year your dues are **DUE NOW**. If the date is older, your dues are overdue.

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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June 2004

Volume 37 Issue 6

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President's Message

By Pete Goetz

Hi Folks,

Once again we had our crack at the ROCK PILE at Walker Jr High School – believe it not – it's gone! All the approximately 5 tons of rocks and minerals have been stashed in a member's garage, put in display box, slabbed on a saw, or put in the dumpster. Don't get upset! Most of the dumpster rocks were leaverite.

As far as summer field trips, we discussed doing some at the last board meeting. Some of us are itching to get up to Virgin Valley to dig for its famous black opal. Tentative plans are to have the trip in the first week of August this year. We will have more details next month. We will need some minimal number of members to really get this trip going. If you are interested in going, contact Pete Goetz, at (714) 530-3530 (leave a message), or e-mail him at mgoetz2@socal.rr.com.

The next two locations of interest are in the Mojave Desert. The Tecopa opal deposit and Opal Canyon are potential winter trips, being too hot to go to in the summer. Tentative plans are to have them around January and March. More details later.

Show preparations are still underway. Contracts are being prepared to mail to our dealers. Fran and Jay busy getting advertising squared away. More later!

General Meeting Lecture - How to Find Opal in Coober Pedy

Leslie Neff and Larry Hoskinson will give a lecture titled "How to Find Opal in Coober Pedy, Australia". Leslie and Larry have had extensive travels in Australia, to look for, of course, opal! They will present a lecture and slide presentation of the local character and nodding techniques of the biggest opal field of the world – Coober Pedy.

Opal Workshop

The AOS opal workshop is at **Ball Jr. High School** on 1500 W. Ball Rd., Anaheim, CA. It can be open for members on Monday. Contact **Stan McCall** at (714) 220-9282.

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:** "spencer".

Field Trip Report: May 15th - Walker Jr High Rock Pile

The American Opal Society had its last field trip at the Rock Pile of Walker Junior High School on May 15th. The pile originally measured approximately 25 feet long, by 4 feet wide by 3 feet deep. This rock pile was accumulated in the last 30 years by Dr. Walt Johnson to be used as raw material for the classes he taught on the lapidary arts.

On this outing, we were joined by the Searchers, whose expertise in identifying the numerous types of gems and minerals helped us pick which ones to keep and which ones to discard. About 15-20 diggers watched the pile go from about 50% of its original size down to 0%.

The pile is now completely gone. What was not carried off by the diggers was discarded in the trash bins after being judged as leaverite. In all, everyone had a great time visiting it. A number of buckets were filled with the bottom scrapings (rumored to have rubies, sapphires & diamonds) to be given as prizes by the AOS, probably in the next show's raffle.

We would like to thank Dr. Walt Johnson first, for alerting us to the rock piles planned demise and getting permission for our field trip, and second, for being there to identify the myriad of gems and minerals in the pile.

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Field Trip Report: Himalaya Mine Field Trip

By Jim Pisani

A number of AOS members went to the famous Himalaya Mine to fee-dig this past May 16. Jim Pisani, Eugenia Dickson, Diane Robinson and Frann Todd met at Jim's house in Huntington Beach early Sunday morning. We all piled into Fran's nice, new Tahoe and traveled 110 miles to the mountains of San Diego County. The ride took us through the back country of San Diego County, passing the San Diego Wild Animal Park, an Ostrich farm, a vineyard, beautiful mountains and scenic views. We arrived 8:30 AM in Santa Ysabel, a small town that is basically an intersection of Route 78 and Route 79, with a cluster of businesses in a rural setting surrounded by wooded mountains. This area was almost overrun by the wild fires of 2003 but was stopped in the hills above the town. We discovered about a dozen other dedicated rockhounds standing in the gravel parking lot behind the Julian Pie Company. Here we met the tour guide, Simon King, a large man with a larger passion for tourmaline, the gem we were after. Simon escorts the group to mine for the owner, Chris Rose. Simon isn't paid – he works only for the chance to look for tourmaline for free.

After Simon collected the \$50 (this fee allows you to keep all you find) each from each digger and showing off some nice specimens he had collected, we combined everyone into 4 cars and started for the mine – about a 20 minute drive. The reason for the car pool is because of an agreement with the mine owner with the owners of private properties near the mine.

The road into the mine is quite scenic. The route passes through the Mesa Grande Indian Reservation and is in oak covered 4000-5000 foot mountains mixed with grasslands. It is open range – one must be careful not to run into a relaxing steer sitting on the road. As we approached Gem Hill, the site of the mine, we stopped the vehicles and Simon pointed out a pegmatite vein in the side of the road cut, about 2 feet wide. Gem Hill is probably one the richest mountains in the world, with an estimate of literally tons of tourmaline being mined from the 2-3 mines on its slopes, with the Himalaya being the largest and oldest.



Himalaya Mine – Lower Entrance

The mine opened in 1898, and has produced more gem tourmaline than any other mine in North America. Gem Hill has more than 7 miles of tunnels honeycombing it. The mine tunnels follow the Himalaya pegmatite – a series of 2-5 foot wide veins cutting through solid granite, sloping at a 45 degree angle throughout the mountain. Scientists have theorized that the pegmatites were the last to cool in the granite, concentrating the

rare elements and minerals. Cavities, or “pockets”, are found in the pegmatites, which are a different composition than the surrounding granite. In these pockets, gemstones form, sometimes in the 1000's, sticking into the cavity from the surrounding walls, embedded in quartz. Many other minerals are found in these pockets, but tourmaline is what the miners were after here.

In the early part of the 20th century, the Empress Dowager Tz'u Hsi, the last Empress of China, loved pink tourmaline and bought almost a ton of it from the new Himalaya Mine. Legend has it that the Dowager went to rest eternally on a carved tourmaline pillow. Rumor has it that the early miners, responding to the demands of the Empress, who was their best customer, took only the pink and red tourmaline, leaving the greens behind in the tailings because of little demand for them at the time. This rumor has encouraged modern rockhounds to dig in the old tailings, sometimes with surprising good finds.

Tourmaline can occur in every color of the rainbow and in combinations of two or three colors. At the Himalaya, red, pink, green and clear and are the predominant colors. Bicolor and tricolor tourmalines, with bands of colors are very prevalent. Sometimes the colors are at different ends of the crystal and sometimes there is one color in the heart of the crystal and another around the outside. One color combination, pink center with a green rind, is called “watermelon tourmaline”. At the Himalaya, a rare reverse watermelon can also occur with green centers and red rinds.

The last mile of the road is a jeep trail, getting increasing rougher as you approach the mine. The final 200 yards is down a steep incline where high clearance is needed. We arrived at the mine around 9:15 AM, and viewed acres of tailings, sloping down the hill from two side mine adits, now closed. A 15 foot high rusted grizzly, a huge metal screen device, dominates the area where we parked. The grizzly was used in the 1970's and 1980's in conjunction with a noodling machine, whose ruins are off on the side of the hill. The machine is a Rube-Goldberg type device the size of a semi-trailer with conveyor belts and sifters, used to screen large amounts of tailings for tourmaline.

Simon explained the area and how to dig for the gemstones. The rest of the rockhounds soon dispersed; the regulars to their favorite “lucky” spots, the beginners hanging round Simon, who was showing how to do the basic tourmaline searching.

Tourmaline can be found in whole mine dump area. If one carefully inspects the road and tailings, you can see small bits of pink tourmaline lying here and there. The best places are those that haven't been noodled before, but that is hard to tell, the ground being disturbed many times and overgrown. The current mine entrance used by the mine owner is at the top of the hill, about a ½ mile away and is off limits for the rockhounds. The original entrance from the 1800's is no longer used and is on the opposite side of the mountain. The whole area is overgrown with black oak, scrub oak, and poison oak. One must be careful with poison oak, even when it is dead, since it can cause a severe rash. The area is primitive, with a one crude outhouse and no other facilities. One must bring their own water and lunch. A hat, sunscreen, gloves, and toilet paper are smart items to bring.

The rockhounds used three different methods for finding tourmaline. The first, and easiest, is to slowly walk around and look for pieces lying on the surface. One needs good light and a good eye to see the small pieces. Sometimes this method is productive, especially after a good rain, which has rinsed and exposed the gems. I have often used this method to find a good place to dig at the beginning of the day. After an hour or so, this method may become unproductive due to the obvious pieces being found. The second method is to sift through the tailings with a small metal shovel or a garden claw, slowly scraping

through the dirt, looking for pieces as you dig. This method is more productive for finding big pieces and large crystal specimens, but can let smaller pieces slip away. One can cover large volumes of tailings this way and it suites some diggers well. The third and most popular method is to shovel material into a screen, usually ¼ inch, and shake. By shaking the screen, you filter out the fine soil and small pieces, leaving a screen full of rocks and hopefully, tourmaline. Some people will shake, examine, and throw away the rocks if nothing is found. Others, will save the screenings in a bucket after a quick look for oblivious pieces and then bring the bucket when it is full to a washing station that Simon sets up to wash the rocks. Spraying the gravel with water is another option if you do not have a wash station. Surprisingly, this can "materialize" crystals from ordinary appearing rock, because the water rinses off the dust and dirt from the crystals. This method requires the most labor but is the most productive. The second method can produce nice specimens, but if one is looking for gem grade tourmaline, the smaller pieces are usually more gemmy and easier to find by screening.

For all the methods, the digger looks for a number of clues to tell if a piece of rock is actually tourmaline. Color is the most important indicator. Anything red, pink, or green (or combinations) should be examined. However, if the light isn't good, or you are in the shade, this may not be obvious. Tourmaline crystals are usually long and slender, and can resemble a wood stick or twig, which are buried in the tailings also. You may have to touch them to determine that the item isn't a crystal, usually telling by weight and hardness. Also, the gem quality tourmaline crystal almost always has vertical striations along the long axis of the crystal. This is a dead giveaway and should be looked at immediately. Any stones with a glassy appearance should also be looked at.

There are many other types of gems and minerals along with the tourmaline. Black tourmaline, or schorl, is plentiful, with some excellent "garden rocks" available, showing crystals in matrix. Quartz and feldspar are abundant; some quartz crystals having occasional nice points that can be clear and/or smoky. Lepidolite, a purple mineral containing lithium, is present. Spessartine garnet can also be found. In total there are over 100 minerals been identified in the Himalaya pegmatite, some of them quite rare.

We spent the whole day digging. Other than a short delay for a great lunch feast, we worked hard. I did OK, but not as good as I usually do. I did have one big find: a 130 carat reverse watermelon about 1 inch but ½ inches in dimension, with some potential gemmy areas in the center. Fran, Eugenia, and Diane did not have beginners luck, finding some pieces but nothing spectacular. This return is not uncommon – I have been skunked here a number of times; however, it has been more that made up on my good days. As a consolation, Simon offered to sell us bags of mine run concentrate from producing pockets that he had at his home in El Cajon. This was a short detour on the way home, which proved to be well worth it. After getting a great tour of Simon's fantastic gem & mineral collection and superb workshop, we purchased some bags. These bags, weighing about 3-4 pounds, cost us \$20 each. Simon even donated one for the club, and gave us a volume discount at 2 bags for \$35. Each of those bags had more tourmaline that I had found all day and paid for itself, with one spectacular specimen of a green and black crystal on a quartz matrix.

In all, it was, as usual, a fine day. Nice scenery, good company, a good workout, and good tourmaline from one of the most famous gem mines in the world. Who could ask for more?

Simon King can be reached by phone at (619) 444-3731 or by e-mail at simonking1@msn.com. Tours to the mine are

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usually done at 1-2 times per month. Contact Simon for the next date if you are interested. The number of diggers is limited so reserve a spot if you are planning to go.

+++++
Opalized Shells

Coober Pedy, South Australia

Some Identified Species of Opalized Shells

Cockle - Cyrenopsis australiensis
Mussel - Eyrena tatei
Fan Shell - Maccoyella barklyi
Ornamental Sand Snail - Euspira reflecta
Smooth Sand Snail - Euspira ornatissima
Bivalve brooch Shell – Trigonidae

About 110 million years ago there was a shallow sea which covered much of inland Australia. It is in this sea that many extinct creatures were spawned. We know they existed here from the fossil record of the area.

The varieties of fossils found in these ancient beds, include mollusks such as cockles, mussels, clams and sea snails, belemnites, which were squid like animals that looked similar to cuttlefish, crinoids or sea lilies and some now extinct species of marine reptiles - Ichthyosaurs, Pliosaurus and Plesiosaurs.

Probably the most fascinating, and widely known, of all the opalized fossils are the opalized shells found on the opal fields of Australia, particularly at Coober Pedy.

Opalized shell fossils are unique to the Australian opal fields and top quality shells command high prices.

During this period of the early Cretaceous era cockles were the most common of the mollusks present but other varieties of shell, such as mussels, were also abundant in the Eromanga Sea, as it is known.

How Are Opalized Shells Formed?

The Eromanga Sea was also home to many now extinct marine creatures and may have been the breeding ground for marine reptiles. This is thought because of the number of juvenile fossils found.

When marine animals die, their remains sink to the bottom of the seabed.

The fleshy parts may be eaten by other creatures but the bony or hard calcium remains may become buried under sand or silt and are preserved. With the build up of sediments over millions of years those remaining bony or shell parts may become fossilized.

In some cases the shells, being calcium carbonate, may be dissolved by acids in the soil, leaving cavities which may, in turn, be filled with other minerals, even opal. Sometimes, the cavities

are filled with precious opal and these are highly prized amongst collectors.

About 65 Million years ago, the various species of sea reptiles perished along with the dinosaurs, but many of the mollusks survived and their ancestors are still surviving to this day.

It is not known why some species died out completely but the survival of those that remain today could, possibly, be likened to the process whereby an embryo is frozen and later thawed to propagate the species which later evolved into the varieties we see along our shorelines to this day..

The opalized fossils are found by miners, known as gougers, who work the opal fields for precious opal. Opal can be more valuable than diamond and it is the promise of a 'Lucky Strike' that tempts miners away from city life to the harsh and unforgiving conditions encountered in the hot arid regions of Australia's outback.

From <http://www.openallday.au.com/OpalisedShells.html>
sales@openallday.au.com

+++++

Strange Opal Experience

Here's a great thread on some of the different types of opal floating around out there - Caveat Emptor! The Editor.

From: Brenda

Dear all,

David, the gentleman I work with, has recently created a mounting for a piece of dark opal. It is a very attractive piece of black opal, and David assumed it was a piece he had sold the client, as she has purchased several opals from us in the past. After further checking, we find that she purchased it for about \$200.00 on a cruise. We would have estimated the value to be much higher, based on visual observation. The stone weighs 1.02 carats. It has a dark brown body color, with very good play of color- large, distinct flashes of red and green.

Here is the weird part: when David got the stone wet during cleaning of the finished piece, it turned very dark and lost its play of color. We had the ring soaking in warm ultrasonic solution, though the ultrasound was not running. The stone looked dark when we dried it off, but then returned to its original appearance within approximately 5 minutes. It also seems softer than regular opal, with the finish being disturbed even with routine, careful polishing of the metal around it. We have never seen or heard of anything like this. Have any of you?

We hope you had a great holiday. Take care and keep in touch.

Brenda

David Lee – Jeweler

Golden Touch Jewelry

Mason City, Iowa

From: Andrew MacKINNON

Sounds like potch opal. We recently 'treated' a large piece here in shop. Simply place in a super saturated sugar solution for a couple of weeks at 20 Deg. C or higher and then pop into a bath of conc. Sulfuric. The sugar is carbonized and turns black high-lighting the opalescence. A lot of Australian boulder opal in the rough has an opalescent sandstone backing. If the colour is strong you can make a reasonably saleable rock from it by the above means. It's similar to the way onyx is died traditionally.

Regards, Mac

P.S. Treated potch opal is cut, pre-polished then treated.

The final fine polish is done after treatment as the carbonized layer is generally only a few mm thick.

From: Renate Sommer

Date: Tue Jan 07 21:57:44 2003

> Sounds like potch opal.

Not potch, potch is clear transparent opal with little or no play of colour. You mean opal matrix which is porous and "treatable".

Not sure what sort of opal Brenda at David Lees was talking about. I'm only familiar with the South Australian opals but as I've said before, I would never put an opal in anything other than ordinary water. Put an Australian opal in a soapy solution and you will lose the play of colour sooner or later depending on the porosity of the stone. That's the nice thing about opals... you will rarely find two the same. So treat them all with respect.

Cheers for now, Renate

From: Beth Rosengard

> Not potch, potch is clear transparent opal with little or no play > of colour.

Not so. Potch is common opal which has no fire or play of color. It can be various colors and is more often opaque or translucent than transparent. It can also be quite beautiful: The blue, opaque to translucent opal from Peru is just one example of this.

Beth

From: Renate Sommer

> Not potch, potch is clear transparent opal with little or no play > of colour. Not so. Potch is common opal which has no fire or > play of color.

Now there was an "off the top of my head answer". You are no doubt right Beth. There are many wondrous things on (and in) this earth that I have yet to learn about. I do have some lovely pieces of "honey potch" though, which comes out of Andamooka which does have fine green flecks of "play of colour" when looked at in the right light. Definitely transparent too. Methinks there are many grades between common and precious opal and lots of rocks that refuse to fall into one category or the other.

Cheers, Renate

From: Douglas Turet

Date: Thu Jan 09 02:01:19 200

Hi Brenda, Yes, I've heard of this, and dealt with it a couple of times, too, but not recently. What I think your customer may have bought was a cheap piece of Mexican Opal that had been "barnyard burned" into its present color. Although there are other types of Opal that'd also yield a brown body color and bright plays of color (sugar & acid treated Andamooka Matrix Opal, the Koroit Coprolites and the new Nigerian Opals are but a few cases in point), the "disappearing fire trick" leads me to believe that the former is the culprit, and here's why I think so. You see, back in the mid-to-late 1970's, an awfully high percentage of the Opal rough produced by the mines in Queretaro, Mexico, came out of the ground as the usual Fire Opal - i.e., a translucent to transparent Opal in fire like colors of orange to red, with or without the spectral play-of-color most jewelers think of, when they hear of an Opal's "fire" - but quickly dehydrated to an unattractive and frequently crazed/cracked, peach-to-salmon colored potch, called Hydrophane, which is unusable for jewelry purposes.

In order to really understand this "odd duck" stone you've described, you really need to examine what opals are about, as a group. Precious or otherwise, opals contain trace amounts of water within their structures, which, in turn, are comprised of densely-packed, non-crystalline masses of silica spheres, called "cristobalite spherules"; in essence, a semi to mostly petrified, hydrated silica gel. Get a piece with a low water content (say, 0.25 to 1%), and with these spherules precisely stacked in a

size-graduated order, and you wind up with a crystal-clear chunk of precious opal with "#5" level play of color (the brightest possible). Increase that water content to 4-5% and the body of the stone becomes cloudier, or opaque; jiggle the array of spherules a few times during their growth process (seismically), and your play of color dwindles, as well.

In most cases, this water content is fairly low, and the more stable opals (like many of those from Mintabie, Australia, and Piaui, Brazil) bear evidence of this. At the other end of the equation, we come to Hydrophanes, which have so-much-water in them -- often as much as 8-10% -- that they often will dry out and crack while being taken out of the ground, or soon thereafter, and are so unstable that they're often only available as specimens, packed into a jar with some sort of colorless fluid, forever to sit atop your favorite bookcase! (Probably the best examples of this are the partial replacements of wood, found in the Virgin Valley area of Nevada. According to some reports I've heard, some of these Opalized woods are still "woody" enough to burn as firewood, once dried.) Anyhow, opals from the group, while often among the most beautiful, when at their best, are usually so "thirsty", when dry, that they will actually stick to your tongue as tightly as a leach, if given the chance. As such, a great many attempts were made to try and stabilize them, in hopes of realizing silk purses from sow's ears.

Probably the most easily done of these, and the one I suspect was responsible for the piece your shop handled, was one which involved first cutting the stones to their approximate finished size, then completely drying them out, first in the sun, and later with a chemical dehydrant. Next, the stones were immersed first immersed in a solvent-laced then bath of ordinary motor oil, then set to "burn" in a pile of decomposing horse or cattle dung, where it sat for several weeks before, finally, receiving its polish. A good number of similar stones then entered the stone market, and were sold under names like "South American Black Opals" (origin frequently unknown) but, because the original, untreated, material was so structurally unsound, I doubt that many of these "barnyard burned" Mexican Opals still exist.

The one key detail that "tipped me off" about your customer's stone was the fact that it lost its color in the soapy solution in your ultrasonic tank, even though "the ultrasound was not running". Because of the oil fillings in their microscopic pores, these particular opals had the "un-opal-like" tendency to repel water, rather than absorb it. The only way to overcome this property would have been to dissolve these carbon-laden oils from the outer surface, which, in turn, would have left your bench jeweler with a stone whose outer "skin" was now saturated with a soap, whose density/opacity, in turn, prohibited the play of color from shining through. Once dry, all of that "fire" would again transmit from the stones subsurface (oil-filled) areas, while leaving its newly-porous outer skin susceptible to "being disturbed even with routine, careful polishing of the metal around it." (Hope this makes your day a happier one.) And so, VOILA! Yet another case solved by Inspector Lappy-Dappy!

All my best, Doug
Douglas Turet, GJ Lapidary Artist, Designer & Goldsmith
Turet Design
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From: Don Rogers

David, it sounds like you have a piece of Indonesian opal. The opal you have is one that has to be worked dry because, as you found, the color disappears when wet, but will return when dry. When I was still doing shows, there was a dealer who

specialized in this opal. We talked a lot about the opal and how it was worked. There is some of the Indonesian opal that has exactly the opposite characteristics. IE when dry, there is no color, but when fully wet, the color appears. These are good for display but not much use in jewelry. Both types have very good play of color, and some rival the best of Lighting Ridge Blacks.

I have a piece of Nevada opal with the same characteristics. The opal is prone to absorbing oils and chemicals, so cleaning with water only is a must. As you found also, it is a very soft opal. Care should be used in setting it, and if you attempt to re polish it, I would recommend not using Cerium Oxide as it will acclimatize in the porous opal and discolor it. Diamond on a fiber belt/disk will give you the best results. When polishing a mounting, care should be taken not to load the stone with rouge. I recommend using a pink silicon wheel and polish just to the edge of the gold, not onto the opal surface. This seems to work well.

I have no experience with the stability of the opal, but based on its similar characteristics to some of the Nevada opal, it might not be very stable. My dealer friend didn't care to share his information. I would be interested in hearing from others on this point.

Don

From: Holt

Brenda, Sounds like hydrophane opal. As I recall there was quite a discussion of it on Orchid last year. A search of the archives should give you all the info you want.

Jerry in Kodiak

From: EarthSpeak

Check out Hydrophane opal. That is what you have. I ran into this animal unknowingly and it caused me much grief till I got it identified and learned more about it. My inclination is not to use it in any type of jewelry at all. My client had bought it on the web from a company in Portugal. The material was misrepresented to my client by the company. Live and learn.

Bill

Editor's Comment:

What everyone in this thread failed to mention is that hydrophane opal is usually dull and fireless without water and has fire with water. The type of opal in question is "reverse hydrophane", a rarer type of opal. The only type of reverse hydrophane opal that I have heard of comes from Opal Canyon, California. Some Louisiana opal has this property also. I tend to agree with those that say this is hydrophane opal -- I doubt if it had been "cooked" with oil. Hydrophane opal reacts quickly, and soap doesn't hide color in my experience.

Also, hydrophane opal can be quite stable and will not later crack. The comment that opal gets increasing unstable as water content increases is probably correct, but there are examples of opal that disprove that -- e.g. the opal from the Black Rock Desert in Nevada.

From the Orchid Digest from <http://www.ganoksin.com>, dated 1-6-03 to 1-17-03. The Ganoksin Project provides an information forum on the Internet free of charge for all things connected with jewelry and jewelry making. Visit it and see! Printed with permission of Ganoksin.

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SAFETY ARTICLE

Hey! Don't Get Lost!!!

By Chuck McKie, CFMS Safety Chairman 2004

You drive out into the desert, into the mountains, into the forest. All alone. Maybe someone else is with you but only one car. BAD IDEA. We've all done that. But listen carefully. That IS a bad idea. You are 150 miles from nowhere. Your car stops.

The motor won't start. You kick the tires. Fiddle with the battery connection. Tinker with this, that and everything else. No luck.

You decide to walk out. 150 MILES??? Don't you remember your safety rules? STAY WITH YOUR CAR!!

Your water supply is good. You did bring water, right? NO? I can't believe you forgot water. There is plenty of water in your radiator. DON'T DRINK IT. With antifreeze, it is poisonous. DON'T DRINK THE WATER FROM YOUR RADIATOR!!

But somebody will come looking for you shortly because you told everybody where you were going. Your friends, the forest service officers ---ah--- Noooooo???

Forget it. You are history. Years from now when someone stumbles on your remains; bleached bones scattered by hungry animals and a few shreds of cloth, they will erect a small wooden cross to mark your spot. But let the rest of us go on. We'll get out of our car and put our noses down into the dusty trail with our eyes glued on the ground so we can see that fabulous find we are looking for. We'll stagger this way and that for half an hour, an hour, or 2 or 3. Finally looking up we turn expectantly to look at our car. Our Car! Where is it? It should be right over there! It is really amazing how far we can go when we are just looking here and there.

Now what?

If you are a good Indian tracker, just follow your footprints. I'm more Indian than most of you and even I probably can't do that.

SO?

SO! So far we haven't done very well in our safety planning. Score about a fat round zero. But there is something you could have done. Something YOU can do!

Besides bringing water (and other safety equipment), telling others where and when you are going, getting others to drive with you, you can get a GPS. (Global Positioning System) Realistically I know that very few of you will buy one. I have one, Dick Pankey and Joe Hafeli (also past Field Trip Chairmen have and use them.) It is a small hand held device similar to a cell phone.

The military has installed a world wide coverage of satellites so that their airplanes and ships (and now individual people also) can determine exactly where they are anywhere in the world. To

within about 15 feet and that includes elevation also. It is a system that uses 3 or more satellites which transmit signals down to the GPS device which mathematically triangulates the data to determine your location.

Some expensive cars now have built in a GPS which also have transmitters to send a signal up to the satellite so its location can be tracked. The hand held GPS's only have receivers.

Most GPS's track your route and display in on a map and they have a program by which you can backtrack yourself.

BUT THIS IS THE REAL TRICK. Don't get lost. Here is how. At some point in your trip, stop and take a reading. Write it down on paper. Yes, the information is on your GPS and you can enter it as a "Way Point." WRITE IT DOWN!

The batteries in the GPS don't last very long. If you have to replace your batteries (YES YES YES take extra batteries) the information is lost. If you have the coordinates written down, after replacing your batteries you can reenter them in your GPS.

The route will not be there but your destination (where you came from) will be and you can guide yourself safely back

My GPS is about 15 years old and not the best. Maybe the newer ones have better programs. My duty to you is to try to keep you safe. I've done my best to keep you alive. Try it and I'll see you down the road.

From the CFMS NEWSLETTER, APRIL, 2004

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Famous Opals

It seems that nearly all the well-known opals have come from Lightning Ridge area. Although having strong and beautiful colors the Queensland material is in general too thin to have large and important stones cut from it, and none, so far, have been given individual names. It is said that most of the famous opals were named by Jack Landers, well known for many miles round the Lightning Ridge area.

South Australia has produced some beautiful stones; such as that presented to Queen Elizabeth II in Adelaide in 1954. It weighed about six ounces in the rough and was cut and polished to a large oval of more than two hundred carats which measures 3 1/8"x1 3/4" (more accurately, 81x45mm). The colors are brilliant and the setting, a palladium necklace of the most delicate design, with light, gracefully curved filigree work, bears 180 diamonds.

Other stones having interesting pints are the Head of queen Victoria, a quite lifelike representation of the Queen in her young days; this was said to have been presented to the Royal family years ago, but there may be some confusion here as a very similar stone was recently for sale in Hatton Garden together with a newspaper cutting relating to it and dated from the beginning of this century. The Duke of Devonshire's opal, a low cabochon oval, measuring about two inches by one, weighed only a hundred carats, but was a flawless deep black with splendid spangled colors. And then there was the Gem of the West, the Green Goddess, worn by Myrna Loy in the "The Double Wedding" and said to be the world's largest and rarest opal and worth about \$36,000.00 USD and the Galloping Sixty, so called because, sold originally for about \$100.00, it was said to have been gulped down in about sixty minutes! There was also Big Ben, 4,100 carats, which was cut down to a large number of smaller gems of high quality and greater total value and reputed to have weighed fifteen ounces and to have been worth about \$27,000.00.

From Opals International Jewelers, Inc. <http://www.opals.info/>

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The Secret Life of Rocks

By Martin Stone

Think they just lie around? Oh, no! Rocks are constantly meeting, mingling, and occasionally making gemstones.

Every so often you hear about a miner who literally trips over a rock, or takes a good, hard look at the ground in just the right place, and suddenly discovers a gemstone deposit. For the serious prospector, though, finding a deposit requires a good grounding in how the Earth is put together - the different types of rock you encounter and the conditions under which they formed.

all of which determine whether or not gems could have grown there.

What are those prospectors looking for? Why are gems plentiful in some places and not in others? What is schist, and how does it happen? The answer begins at the center of the Earth.

Geologists agree that the planet is composed of three layers - a central core, a middle area called the mantle, and a relatively thin crust upon which we live and where precious stones are formed.

The core is believed to consist of an inner hub of very dense rock, made up of about 80 percent iron plus various amounts of nickel, silicon, and cobalt. This is surrounded by an outer core layer of liquid rock, or magma, containing mainly silicates of iron, magnesium, aluminum, calcium, sodium, and potassium. The planet's middle layer, or mantle, is a semi-molten zone, and floating upon this is the crust, or surface. As a general rule, elements that dissolve easily in iron, like chromium and vanadium, tend to sink to the iron core, while the lighter silicates migrate up to the crust.

Those silicates, by far the most common minerals in the Earth's crust, form the basis for the majority of gemstones. The necessary elements combined in the heat and pressure of the mantle and then crystallized into minerals as they cooled in the crust.

Most of the commercially important gems, such as feldspar, quartz, tourmaline, beryl, topaz, and zircon, were created in the middle and lower levels -of the crust. Their slower rate of cooling as they transformed from magma to rock made it possible for large crystals to form. As the temperature of the magma dropped, individual minerals separated out in a process known as fractional crystallization. The feldspars were the first to solidify, producing large, well-formed crystals such as those seen in amazonite and adularia. As temperatures fell, one by one minerals separated and crystallized, with quartz being one of the last. That's why quartz crystals are usually smaller and less well-formed - except in geodes - since earlier crystallizations had already taken up most of the growing room.

Rock formed in this way is called igneous, or fiery, rock. Sometimes the rock will cool and harden underground and be transported to the surface via a volcano or other lava flow (magmatic rock), and sometimes the rock is composed of the lava itself.

The most common type of igneous rock is granite, which, because of its slow cooling rate, is coarse-grained, meaning that it tends to contain large crystals. Rock formed from lava flows, such as basalt, tends to be fine-grained because it cooled quickly, and therefore only rarely contains gem size crystals.

Igneous rock is host to pegmatites, some of the richest gem-bearing rock on the planet. Pegmatites consist of dikes or veins, and usually contain large, well-developed individual crystals. They formed toward the end of the cooling process, when residual liquid or gas - often containing some of the rarer elements - crystallized into veins in the host rock. It's those rare elements that were the key to forming gemstones, which otherwise are made from some of the most common elements on earth.

Occasionally a fresh magma flow will be forced into rock that has already cooled, causing interactions between the elements in the magma and the elements in the cooler rock. Gemstones such as alexandrite, ruby, and sapphire can be formed during these reactions.

It's often zones where a new stream of elements interacted with existing rock - be it part of the cooling and crystallization process, as in a pegmatite, or an instance where a magma flow brought new elements upward that gemstones form. Because

those zones of interaction between the new rock and the old rock were so narrow, gems tended to form in narrow, concentrated veins rather than being scattered throughout the rock.

But that's just the beginning of the story. Rock that's exposed to the air is gradually broken down by the forces of water, wind, and temperature fluctuations, forming a new type of rock, sedimentary. Once the rock is broken down, water and wind combine to move the fragments about the surface, sometimes for long distances. Sedimentary rocks can be caught up in fast flowing streams and gradually settle into depressions in the riverbed, or in bends and bottlenecks. Being heavier, gemstones tend to settle in those beds, forming alluvials, or gem gravels.

Sometimes, however, layers of sediment get piled on layers of sediment, forcing the old layers downward. The new layers of soil put greater and greater pressure on the rock below it, until the pressure - combined with heat if the rock gets close enough to the boundary between the mantle and the crust - causes a chemical reformulation.

This new type of rock is called metamorphic. The key difference between metamorphic rock and igneous rock is that the metamorphic rock never quite reaches the molten state, whereas the igneous rock was molten to start.

The two types of metamorphic rock most likely have gemstones are schist which consists of a more or less even mixture of quartz, feldspar, and mica and gneiss (pronounced "nice"), which typically has light-colored layers of quartz/feldspar alternating with dark colored biotite/amphibole.

Gemstones commonly found in metamorphic rock include ruby, sapphire, zircon, spinel, garnet, and jade, and sometimes it also plays host to gems usually found in igneous rock, like emerald and tourmaline.

Although we often think of rock as permanent and unchanging, in fact rocks are in a perpetual cycle of change. Igneous rock from beneath the surface is pushed upwards by volcanic action or tectonic activity: once on the surface, it weathers and becomes sedimentary rock, only to be pushed gradually down into the crust to become metamorphic rock. As the rock changes, it carries gemstones with it, or sometimes the gemstones will form as a result of geological activity.

No matter what type of rock it forms in, each mineral crystallizes according to its own physical and chemical characteristics. Therefore, the variety of minerals found in a given deposit is limited by the local environment and conditions. Geologists know that if they find a certain mineral in a given locale, it is possible that other minerals with similar criteria for formation will be nearby, while minerals demanding an entirely different set of circumstances at birth will seldom be found in the

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same deposit.

For example, emerald is almost never found near ruby or sapphire because they require opposite conditions to form. Emerald is a beryllium aluminum silicate [Be₃Al₂(SiO₃)₆] whereas ruby and sapphire are types of corundum (Al₂O₃). Corundum generally forms in rock that is low in silicates, whereas emerald is a silicate.

Following that line of logic, you'd expect to find corundum in the same areas as other silica-deficient gemstones, like chrysoberyl and spinel. And in fact, in Myanmar (formerly Burma), it's very common to find spinel near the ruby and sapphire mines; likewise, you often see spinel and chrysoberyl in the sapphire rich alluvial gem gravels of Sri Lanka. While it's not always that straightforward a process, it works as a rule of thumb.

Knowing which minerals develop in company - or in association, as geologists say -helps the prospector identify the types of gems likely to be associated within his claim. Similarly, identification of a mineral can be aided by knowing which type of host rock it came from. For example, topaz and danburite crystals are so alike in color and appearance that a prospector might be easily confused unless he knows that they never occur together. Topaz is usually formed in igneous granitic rock, whereas danburite is mainly found in metamorphosed limestone. By identifying the host, the rock-hunter can identify the gem.

With advanced geological study, miners are learning more and more about where and how gemstones form, in ways that will eventually allow them to more accurately predict where deposits will be found. Until then, perhaps the luckiest miner is the one with a trained eye.

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June Gem & Mineral Shows

3-6 — WESTMINSTER, CO: Annual show; Mile Hi Rock & Mineral Society; Westminster Mall, 88th and Sheridan; contact Jennie Baldwin, 25100 Bromley Ln., Brighton, CO 80603, (303) 659-7630; e-mail: ctunncliff@msn.com; Web site: www.milehirams.org.

3-16 — SHANIKO, OR: 1st show; Rambling Rockhounds; Hwy. 97, milepost 58, north of Madras; Thu. 10-6, Fri. 10-6, Sat. 10-6, Sun. 10-6, Mon. 10-6, Tue. 10-6, Wed. 10-6; contact Darlene Denton, 5830 Haddon Ln., Anacortes, WA 98221-4332.

4-6 — LAS VEGAS, NV: Retail and wholesale show, "Bead Renaissance Show" J&J Promotions; Palace Station Hotel/Casino, 2411 W. Sahara Ave.; Fri. 12-6, Sat. 10-6, Sun. 10-5; free admission; bead artists and merchants carrying ancient, vintage and contemporary beads, designer beads, buttons, jewelry, tools, books; contact Glen or Joan Johnson, J&J Promotions, P.O. Box 420, Williamsburg, NM 87942, (505) 894-1293; e-mail: info@beadshow.com; Web site: www.beadshow.com.

4-6 — PUYALLYUP, WA: 3rd show; Puyallup Gem & Mineral Club; Fruitland Grange, 112th St. E and 86 Ave. E; contact Gary Anderson, (253) 848-4140, or Paul James, (253) 475-8060.

5-6 — BUTTE, MT: Annual show, "Made in MT" Butte Mineral & Gem Club; HPER Complex, MT Tech; Sat. 10-5, Sun. 10-5; adults \$2, children under 12 free with adult; 15 dealers, jewelry, gemstones, mineral specimens, fossils, exhibits exploring the mineral, gem and fossil heritage of MT Butte; contact Mary Alice Magness, (406) 563-5976.

5-6 — COEUR D'ALENE, ID: Annual Show; North ID Mineral Club; Kootenai County Fair Grounds, Kathleen and Government Way; Sat. 9-6, Sun. 10-5; adults \$2, children 12 and under free with adult; gems, jewelry, minerals, silent auction, door prizes, demonstrations; contact Janet Cutino, P.O. Box 2790, Hayden, ID 83815, (208) 687-9260; e-mail: janet_cutino@hotmail.com.

5-6 — SAN FRANCISCO, CA: Show, "Great San Francisco Crystal Fair" Pacific Crystal Guild; Ft. Mason Center, Laguna at Marina Blvd.; Sat. 10-6, Sun. 10-4; Jerry Tomlinson, (415) 383-7837; e-mail: sfxtl@earthlink.net; Web site: www.crystalfair.com.

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11-13 — SAN DIEGO, CA: Show; Gem Faire; Scottish Rite Center, 1895 Camino del Rio S; Fri. 12-7, Sat. 10-7, Sun. 10-5; weekend pass \$5; contact Gem Faire, (503) 252-8300; e-mail: info@gemfaire.com; Web site: www.gemfaire.com.

18-19 — CAYUCOS, CA: San Luis Obispo Gem & Mineral Club; at the pier in Cayucos; Sat. 9-5, Sun. 9-5; free admission; contact Bob Hurlless, (805) 772-7160.

18-20 — NEWPORT, OR: 41st annual show; OR Coast Agate Club; Newport Armory, 541 S.W. Coast Hwy. 101; Fri. 10-6, Sat. 10-6, Sun. 10-5; contact Ed Obermeyer, 218 S.E. 98th St., South Beach, OR 97366, (541) 867-6903; e-mail: edndi@peak.org.

19-20 — CO SPRINGS, CO: Show, "Pikes Peak Gem & Mineral Show" CO Springs Mineralogical Society; Phil Long Expo Center, 1515 Auto Mall Loop, N. Academy exit I25; Sat. 10-5, Sun. 10-5; contact Ruth Cook, (719) 632-9686; e-mail: csmsshow@cs.com.

19-20 — LA HABRA, CA: Show, "Jubilee of Gems" North Orange County Gem & Mineral Society; La Habra Community Center, 101 W. La Habra Blvd.; Sat. 10-5, Sun. 10-4; dealers, demonstrators, exhibits, youth activities; contact Ofelia Warthen, (626) 330-8974.

24-27 — PRINEVILLE, OR: Annual show; Prineville Rockhound Pow Wow Association; Crook County Fairgrounds; Thu. 9-6, Fri. 9-6, Sat. 9-6, Sun. 9-4; free admission; dealers, displays, auction; contact Gretchen or Wes, P.O. Box 320, Crescent, OR 97733, (541) 433-5392 or (503) 507-5030.

25-27 — SANTA FE, NM: Show; Gem Faire; Sweeney Convention Center, 201 W. Marcy St.; Fri. 12-7, Sat. 10-7, Sun. 10-5; weekend pass \$5; contact Gem Faire, (503) 252-8300; e-mail: info@gemfaire.com; Web site: www.gemfaire.com.

26-27 — CULVER CITY, CA: Show, "Fiesta of Gems" Culver City Rock & Mineral Club, Culver City Human Services Dept.; Culver City Veterans Memorial Complex, 4117 Overland Ave.; Sat. 10-6, Sun. 10-5; free admission; lapidary demonstrations, mineral, fossil and jewelry exhibits, prizes, children's games; contact Janice Metz, (310) 314-1203.

30-4 — MADRAS, OR: Show; All Rockhound Pow Wow Club of America; Jefferson County Fairgrounds; about 70 dealers, field trips daily; contact Charles Prentice, (360) 293-2031; e-mail: mistybluemorn@aol.com.

