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

Volume #37 Issue #3
March 2004

TO:

Some Topics In This Issue:

- **Walker Junior High Rock Pile**
- **Ethiopian Opal**
- **Optical Properties of Opal**
- **Getting "Burned" With Fire Opal**
- **Fascinating Facts about Diamonds**
- **Open Back or Not**
- **Dust Hazards**

Important Info:

Board Meeting
March 8th

General Meeting
March 11th

Meeting Speaker:
Hans Durstling -
Labradorite from Labrador

AOS Field Trip
March 20th
Walker Junior High Rock Pile

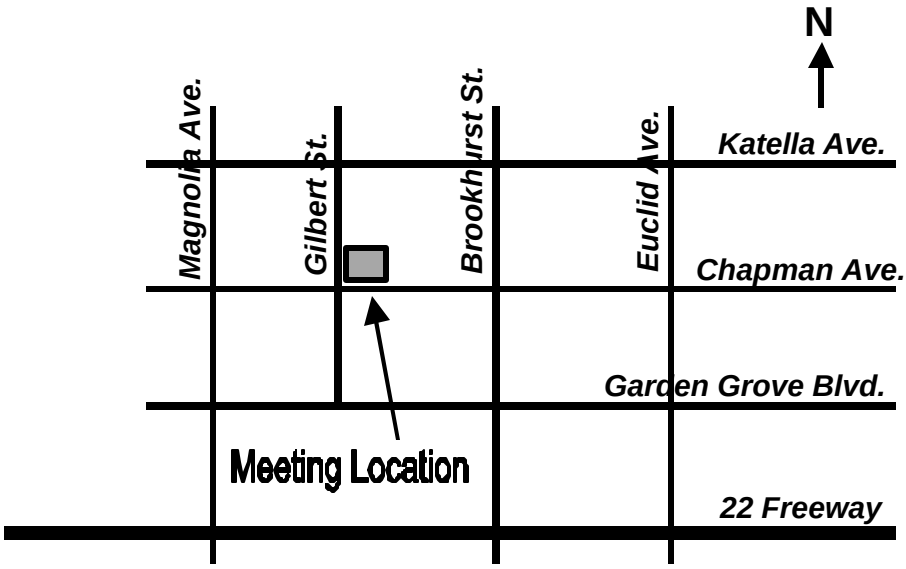
— GENERAL MEETINGS —

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

March 11th - General Meeting

March 20th - AOS Field Trip
Walker Jr. High



The American Opal Society
http://opalsociety.org

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American Opal Society Membership Renewal

Thank you for continuing to support your American Opal Society!

TYPES OF MEMBERSHIP		DUES / FEES)	AMOUNT PAID
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NAME BADGE ORDER FORM: PLEASE PRINT NAME AS YOU WISH IT TO APPEAR ON YOUR BADGE using up to two (2) lines of text for your name, nickname, or name of your opal related business.

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

☐ Address ☐ Phone ☐ E-mail ☐ Website

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If you checked any box above, please sign here: _____ Date_____

Without your signature here you will not be included in the member info list or included in the dealer roster.

The Opal Express is published monthly by *The American Opal Society*.

Editor-Jim Pisani
Please address all inquiries and exchange newsletters to:

The Opal Express C/O
Jim Pisani
P.O. Box 4875
Garden Grove, CA 92842-4875

Email: webmaster@opalsociety.org
Article Deadline is the 20th of the month prior to each issue

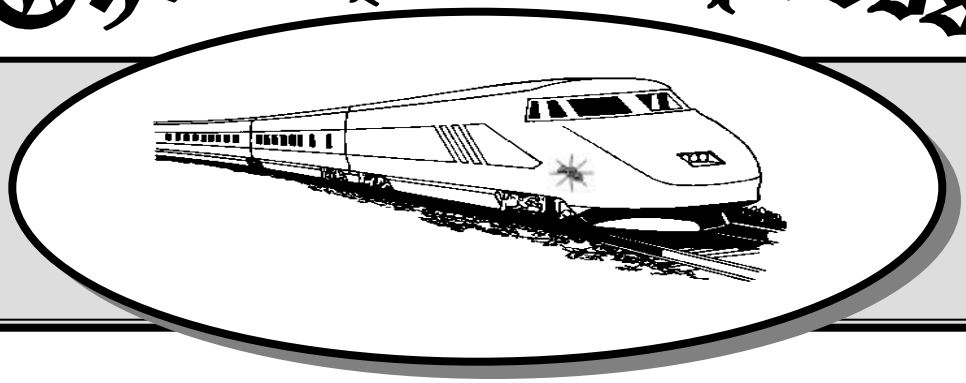
Are Your Dues Due Now?

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. **I**f 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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March 2004

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President's Message

By Pete Goetz

Hi Folks

Mister 'Broken Record' here. January's general meeting was a dandy. We were treated to a great speaker, Dr. Walt Johnson, who gave us a nifty talk on setting OPALS. I am sure everyone learned something. There were upwards of 35 to 40 members in attendance, which made for a really great social hour filled with interesting discussion and info sharing. Refreshments were pretty tasty as well, thanks Laura.

Lets talk SHOP: Jay Carey and I spent a laboring and dusty Saturday morning cleaning up the shop. The shop was setup for the membership to use, enjoy, and learn the finer points of cutting OPAL. Please take advantage of this opportunity. Call Stan, he lives for the smell of OPAL dust.

More serious stuff: We are a non-profit volunteer organization. Our health depends on the generous support, in both time and energy, of our membership. As I mentioned in the last newsletter, we need a treasurer. Mike has been filling in until we can find someone willing to take on this responsibility. Jay would like to start training a person or persons to take over the show chairman's responsibilities over the next couple of years. If anyone is interested, let me or the incumbents know.

Back to fun stuff: Don't forget the 'field trip' planned for March 20th, at Walker Jr High. More on this at the March General meeting. Talk at you later - Pete

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March Speaker – Hans Durstling on Labradorite

Hans Durstling, a AOS member who resides in Nova Scotia, Canada, will speak March 11th at our general meeting in Garden Grove. Hans, an experienced lapidarist, will give a present on the gemstone Labradorite, from, of course, Labrador. Hans, with a long resume in the lapidary arts, has just written in the Lapidary Journal (see "British Museum Antique Table" story in Sept. 2003 issue), and recently helped complete a film series on gemstones in cooperation with the Canadian Discovery Channel.

Often likened to opal because of its brilliant color flash, labradorite -- a gem variety of feldspar -- was discovered by German missionaries in Eastern Labrador in the late 1700's. It's been mined -- quarried is a better term -- somewhat haphazardly ever since. This presentation takes viewers to a labradorite deposit in the starkly beautiful land at the edge of the tree line where the working season is barely a month long. We get a first hand glimpse of life and attitudes "Up North" -- often amusingly strange to our southern expectations. - Hans

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Opal Workshop

The AOS opal workshop is at **Ball Jr. High School** on 1500 W. Ball Road, Anaheim, CA. It will be available for AOS members on Monday. Contact **Stan McCall** for details at **(714) 220-9282** if you plan to attend a session.

AOS Field Trip – March 20th
Walker Junior High Rock Pile

The American Opal Society is announcing a Southern California field trip this March 20th at 8:00 AM (Saturday). This filed trip, will not go the desert or mountains, but to Walker Junior High School, on 8132 Walker St., La Palma, CA 90623.

There is a huge pile of rocks along side the old lapidary workshop. . The pile measures 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.

The school has discontinued the lapidary classes and the rock pile will eventually probably be thrown out. This would be a waste, since there are many valuable rocks, minerals and gems in the pile. Dr. Johnson has stated that there are dozens to hundreds of different types of gem & minerals in the pile, ranging from common agates to Montana sapphires. Dr. Johnson and his wife have been contributing to the pile from their many rockhound trips over the entire western United States.

The AOS has the privilege to high grade the pile. The school district is not responsible for any injuries that occur, nor is the Opal Society. It is strictly an "on your own event". Bring as many 5-gallon buckets that can fit in your car. Also bring a hat, first aid kit, gloves, screen for sifting, spray bottle, and a shovel. This will be the easiest rockhounding you will ever do! If you plan on attending, please reserve a spot, since no more that 20 can attend. This event is for AOS members only. Contact Pete Goetz, at (714) 530-3530 (leave a message), or e-mailing at mgoetz2@socal.rr.com.

Walker Junior High School is located at 8132 Walker St., La Palma, CA. To get there from South Orange County, go North on Walker St. (see map) from Lincoln Ave. about 2 miles. Walker Jr. High will be on the right hand side of the street (East side). There is a driveway that extends through a chain wire gate (it will be open) on the right hand (South) side of the school. Take that driveway and follow it to the back of the school and parking lot. The workshop is in the back. School personnel will let us in the locked courtyard for access to the rock pile.

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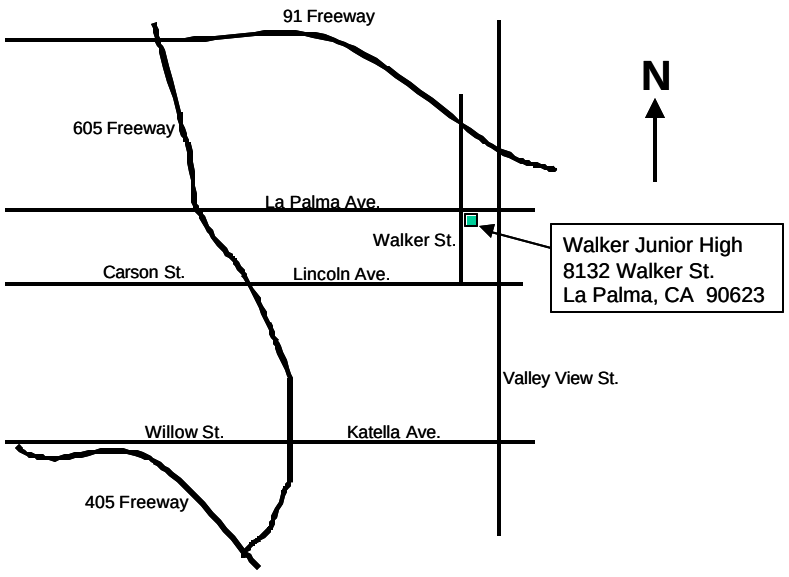

Map to Walker Jr High for AOS Field Trip
March 20th Field Trip – 8 AM

Members Only Website Password

The Members Only" protected area on our website, http://opalsociety.org/aos_members_only_area.htm, has had the password changed this month. An account name and password are required to get into the protected area. The account name is always "member", not the actual member name.

To login into the protected area, type the following when prompted: **Name:** "*member* "- **Password:** "*pinfire"*

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Ethiopian Opal

By Dan Statz of DB Opals

This opal comes from the Shewa Valley, 3 hours or so from Addis Ababa, the capital city of Ethiopia and is a fairly recent discovery, dating to about 1993.

The opal has been studied and written about extensively by the GIA, Lapidary Journal, Paul Downing, even "Melody" has finished her process of examination and will include it in her next book...

As a distributor of this rough and finished opal and having cut hundreds of cabs and faceted stones, I have some conclusions of my own regarding this beautiful but quirky material. The opal is volcanic in origin and forms as a nodule. The nodule's contents range from hollow to being filled with blazingingly colored opal. The opal ranges from colorless clear crystal, to yellows, oranges, and cherries, to an almost black based opaque. The brown based opal is far and away the dominant base color and can range from plain potch to very bright harlequin type color patterns with every color pattern imaginable in between.

The nodules with the precious opal present, represents about 10% of the amount mined, with approximately 10% of that being stable enough to create gem stones that will remain solid and have real value. This opal, along with many other types of opal, can possibly develop internal fractures. It is my feeling that the opal in its raw or nodule form, that is to say with the rhyolite matrix attached and just windowed for color, is, in some cases, under stress internally to one degree or another.

There is some discussion as to whether the mining technique or the windowing procedure, (whacking the nodule with machetes) could cause this stressing of the opal Others suggest the rate of speed the material is brought to the surface at the mine is a factor. (The theory of letting the opal acclimate at different depths). There is also the controversy regarding whether the rough should be kept wet or dry. We at DBOPALS store and sell most of our graded rough dry and dusty. I have soaked, frozen, baked, boiled, and fired it at high enough heat to turn it to dust, tumbled it, opticoned it, oiled it introduced it to acid, and smacked it with a hammer, generally abusing it in every way possible. And, to further add to the mix, I have read that Mr. Len Cram, a noted world authority on opal, suggests ion-exchange within the molecular structure of opal, regardless of where the stone is from geographically, causes stress within the stone. This is more likely with volcanically based material. Results? Inconclusive.

It is my conclusion that with Ethiopian opal, the type and hardness of the host matrix, a welded volcanic ash, can help the cutter decide how to proceed.

Common Types Of Nodule Matrix

Light brown, sandstone type of matrix, the type that almost falls off the rough opal, generally leaves you with what we refer to as hat material, the opal being shaped like a 2 sided Chinese coolie straw hat (some imagination is required here) This usually small nugget of opal often gives

distinctly different colors and patterns on each side of the stone, leaving a cutter the decision of which side to use. In addition, one side will have a distinct matrix filled dimple in the top center, which further complicates the cutting choice. This hat rough as we call it is the choicest, most in demand rough we have and the supply is limited.

A second and very common host material is much darker brown to grey and the broken edges may show an even darker, heavier color leaning to dark grey. This type of matrix is often extremely hard, possibly harder than the opal and might cause some of the internal stress manifested as internal fractures when the opal is cut away from the host.

The nodule, when windowed for color at the mine, will often be cracked open conchoidally, showing once again, a wide range of color leaning to broad flash. This makes dramatic specimen stone and some cutting material. The limited success I have had cabbing this material has produced great gems. The cutter should expect lower yields and, lower prices of the rough material.

A third type of host/matrix is a breccias-type of material and is usually full of small pieces of crystal opal and most often encloses crystal or an opalized chalk within. Smoke treating the chalk will produce dramatically colored stones that are pretty much just a curiosity. The crystal is often very colorful, highly contra-luz, and usually of specimen quality.

There are many variations of this host or matrix material that will fall between and around the above listed material but will not be as common.

A little more on the types of Ethiopian opal I have come in contact with.

A rare but very cool type is orange, opaque hydrophane. This opal is thirsty enough to easily attach itself to a wet finger and can absorb up to half its weight in water if immersed. When it is soaked to capacity, the play of color virtually disappears, but reappears as the stone dries out. Usually soft and often cracky, but BRIGHT color.

Some of the dark brown but translucent opal will have huevos or light colored eyes that can be very beautiful when oriented as part of the cab. This huevo or egg is an inclusion or inherent color difference in the opal and not a condition that develops in a cab after cutting such as the Mexican opal is noted for the crystal type. This type of Ethiopian, contra-luz opal can be, in my mind the most beautiful and some of the most valuable opal to be had. Some very experienced and discriminating gem people have purchased these faceted stones from us because of the unique and unbelievable plays of color. This type of crystal ranges from clear to milky to yellow. To the potential faceter I'd say, start with older, dry material, preform your stones, and let them sit for a few days before cabbing or faceting. A faceting tip; If you use superglue to dop, use acetone to transfer and heat the dop to do the final release. (This assumes a metal dop)

The last type I'll list but certainly not the limit of Ethiopian opal types is what we call the leopard skin patterned opal. This variation of the brown colored opal has distinct potch or non-color patterns resembling leopard skin, with the spots filled with color. This opal will, many times give terrific color, stability, and a very unique finished stone. If this type of opal has a down side it could be that the orientation of the color might be directional and require a setting that accommodates that.

I'll conclude this with a few cabbing ideas that have worked for me.

- Saw or nip off as much matrix as you can.
- Use primarily the nova style wheels vs. hard diamond
- 280-600- 1200-3000-optical cerium has been a good progression for me.
- Rough leather and 50,000 is a good polish, but heat is a factor.
- Try taking the stone out to 1200 and setting it aside for finishing later. Any fracturing that may occur can then be cut away to yield a solid and beautiful gemstone.
- Cleaning up the back of the finished stone occasionally shows a better color than the front!
- Color usually runs thru the stone but often darkens the deeper you cut.
- Some of my best cabs have been cut very flat.
- Opticoning works marginally and only when the fracture is on the surface. "Tops in Opals" has a book that details opticoning and other info.

These ideas and your own trusted and time-tested cutting techniques will produce valuable gemstones.

We have strived to be straightforward and informative regarding this opal and its quirks. It is captivatingly beautiful material that is not only very affordable, compared to other opals, but is pregraded and sorted by us to insure the best possible value in rough opal.

Beth and I would be glad to answer any of your questions or talk about Ethiopian opal via e-mail dan.statz@att.net or 608-235-5018.

DBOpals, Box 8882, Madison WI. 53708 608-278-7567 or 608-235-5018.

Editor – Dan & Beth are AOS members.

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Optical Properties of Opal

by Karen Dawes (FGMS Member)

[Ed. Note: This article won first place in the adult article competition in the California Federation of Mineralogical Societies in 1995.]

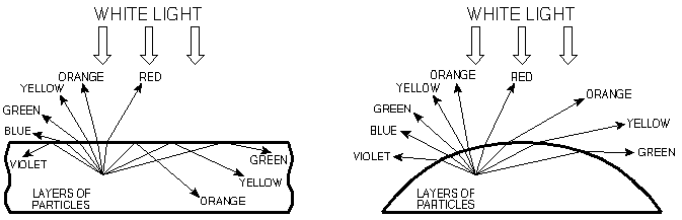
I love opals. Even as a child, I was fascinated by the ever-changing play of colors as I moved my grandmother's opal ring in the light.

There are many kinds of opal, but only precious opal flashes color. Opal is composed of silicon, oxygen, and water. The chemical formula is $SiO2 \cdot nH2O$. Opal contains from 1 percent to 27 percent water. The mineral itself is amorphous, never crystalline. Opal is most often found in cracks, cavities, and in veins within rock.

Why does precious opal flash color? The opal structure consists of numerous, tiny spheres of silica, hydrous silica, and water packed together in a pattern to form layers. The index of refraction of opal is 1.44. The index of refraction of water is 1.33. The refraction of light, back and forth, between the layers causes the light to break up into spectral colors. Unequal refraction of different wavelengths of visible light result in bright flashes of different prismatic colors.

The size of the tiny spheres determines which colors are visible. If the particles are large enough to allow the longest

wavelengths of visible light through, then all the colors of the spectrum will be seen. If the particles are very small and only the shorter wavelengths of visible light can pass through, then only the colors produced by the shorter wavelengths will be seen. I have a piece of opalized petrified wood that only flashes blue and violet. This tells me that this piece of opal consists of very tiny spheres of material.



Precious opal is never faceted like a gemstone. It is polished "in cabochon" in order to capture as much of the flash of color as possible.

References

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Via the Lithosphere (May 1995); Fallbrook Gem and Mineral Society

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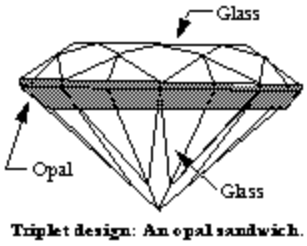
Getting "Burned" With Fire Opal

by Edna B. Anthony, Gemologist

Using the loupe to examine gemstones is not one of my strengths. This weakness caused me considerable embarrassment following the September 1996 Denver Gem and Mineral Show. During negotiations for the purchase of some nice tanzanites and a beautiful red spinel, the vendor brought forth a parcel of fire opals purported to originate from a new source in Mexico.

The colors of the fire opals were truly lovely. I chose an especially bright reddish orange trilliant cut and a deep rich "cherry" red marquise to complete the transaction.

Several days elapsed before I began the usual gemological confirmation tests of each gem I acquired at the show. The polariscope soon revealed the expected singly refractive nature of both "opals", but I was in for a shock when I placed the "cherry" red one under the microscope. Prominent doughnut shaped bubbles glowed amid syrup-like swirl marks inside the stone.



Triplet design: An opal sandwich.

The refractometer showed a refractive index reading of 1.52, a much higher reading than the usual 1.42 to 1.43 for Mexican fire opal. The density also deviated from the normal range of 1.99 to 2.25 for the red-orange variety. The stone sank in 2.57 heavy liquid and floated in 2.62.

The trilliant cut exhibited properties abnormal for opal as well. A refractive index reading of 1.53 and a specific gravity between 2.62 and 2.67 indicated a paste (glass) simulant. All doubt vanished when both stones were immersed in alcohol. This final test disclosed the presence of a distinct layer of color between the colorless crowns and pavilions. I had, indeed, been "burned" with triplet imitations of Mexican fire opal!

Naturally, I returned them to the vendor. He confirmed through GIA testing that the lot had been "salted" with a number of additional imitations. Shortly afterward, Nancy Attaway provided me with an excellent specimen of natural Mexican fire opal, along with a copy of a report from GEMOLOGY WORLD published by the Canadian Institute of Gemology.

Dated August 8, 1995, the report stated that the GIA Gem Trade Laboratory issued an alert concerning two stones purchased in Mexico that had been submitted for identification. Of particular interest here was that a chemical analysis revealed the presence of selenium in the imitations. Cadmium sulfo selenide and cadmium selenide are known agents used to produce the red-orange "selenium glass". The report described the specimens as "a transparent red that might easily be mistaken for high quality `cherry' opal", and a "slightly less transparent orange resembling much of the "Mexican" opal seen in the gem trade".

It seems we are encountering many more very good synthetics and imitations of the inexpensive gemstones in the market, as well as those for the expensive ones. This episode emphasizes the need for increased vigilance to protect ourselves and our clients. The erosion of customer confidence poses a very real danger to all of us in our profession if we do not maintain our integrity with full disclosure policies.

(Editors Note: We wholeheartedly agree with Edna regarding full disclosure of the merchandise we sell. We all depend upon our vendors for proper identification of gemstones, whether rough or cut, as well as valid information on their point of origin. Honesty is the best policy when dealing with our customers. We expect the same treatment from our vendors.)
From the Orchid Digest from http://www.ganoksin.com. 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. The Editor

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Fascinating Facts about Diamonds

Carlsbad, Calif. – With their clear brilliance, diamonds may have an icy appearance, but they are a hot-selling gemstone. Consumers in the United States alone purchased $9 billion worth of loose gem-quality diamonds in 2001. Although the U.S. accounts for less than one percent of total global gemstone production, America is the world's largest diamond market.

Despite such strong demand, however, diamonds, like true friends, are not easy to come by. According to diamond experts at the Gemological Institute of America (GIA) in Carlsbad, Calif., 250 tons of earth must be mined to produce a single one-carat diamond, and fewer than 20 percent of the diamonds mined worldwide are gem-quality. In addition, only one polished diamond out of a thousand weighs more than one carat.

GIA, which created the International Diamond Grading System™, based on the Four Cs (color, clarity, cut, and carat weight) says diamonds were formed billions of years ago through

a combination of tremendous pressure and temperatures of

2000º – 3000º F at depths between 75 and 120 miles beneath the earth's surface. But today's diamond miners don't have to dig that deep, because diamond crystals are found in volcanic kimberlitic pipes, which carried the crystals closer to the earth's surface through volcanic activity. Diamonds can also be found in

alluvial deposits where the crystals settle after being transported away from the kimberlite pipes by geologic activity, according to information from GIA's Diamonds course.

Diamonds have been prized for thousands of years. The earliest written account of diamonds dates back to around 500 B.C., and, until the 18th century the only diamond mines were in India. As early as 1725, diamonds were discovered in South America. The discovery occurred in Minas Gerais, Brazil just as the production in India was dwindling. In the 1840's, diamonds were found in North America, although this was soon eclipsed by the discovery of diamonds in Africa and the ensuing Great Diamond Rush.

One of the most famous diamonds is the Great Star of Africa, which was cut from the world's largest rough diamond, the Cullinan I, weighing 530.2 carats. The historic Cullinan diamond, found in South Africa in 1905, weighed an astounding 3,106.75 carats. It was cut into the Great Star of Africa (Cullinan I), the Lesser Star of Africa (known as the Cullinan II, weighing 317.40 carats), and 103 other diamonds of nearly flawless clarity. The principal diamonds are mounted in the British crown jewels.

Australia produces the most diamonds by volume, and Botswana is first in value of diamonds produced, but North America is coming into its own with the opening of the Ekati Mine and others in Canada, which have the potential to produce at least 12 percent of the total world diamond production.

The U.S. has the world's only diamond mine open to the public. The Crater of Diamonds State Park in Arkansas is a dig-for-fee operation for tourists and rock hounds. Since 1906, more than 70,000 diamonds have been discovered there, including the Uncle Sam diamond, weighing 40.23 carats. To date the Uncle Sam, discovered in 1924, is the largest diamond ever found in the U.S.

For more information on diamonds and other gems, visit GIA at www.gia.edu, or call 800-421-7250.
For more information or for images, please contact us.
(http://www.gia.org/template.cfm?key_web_page=3683)

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Open Back or Not

Here is a thread of messages that I found in the Orchid Digest from http://www.ganoksin.com on the question on using an open back or not on jewelry. They were published from 1-08-04 to 1-21-04. 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. The Editor

From: Red1Eagle

I have a question that those of you that have been doing fabricating hopefully will be able to answer. In a bezel setting I have been taught to leave the back sheet intact (I work fine silver or high carat gold). I also use a shiny fine silver foil inside the bezel. I was wondering whether it makes a difference when the back sheet is opened or if this is just personal preference. If the item is sitting against the skin it should reflect as if the back was closed. I would appreciate any feedback on this.
Thank you all and Happy New Year.
Linda

From: Beth Rosengard

Hi Linda,
I too use closed-back bezels for all but faceted stones. The purists among us will probably oppose this practice but as the designer/maker, I want to be the one who controls the color of the stones I use. The only way to do this is to use closed back bezels and sometimes to foil-back the stones, as you already do. A blue-green tourmaline cab in a gold bezel will become a yellow-green tourmaline if it is not backed; pink will become peach or orange, etc.
The only alternative that I know of is to create a fairly high gallery for an open-backed stone. If it's high enough, sufficient light will enter from the back to prevent or at least minimize color change. This is probably the most professional and traditional method for setting cabs but it is also the most labor-intensive and time-consuming. In the interest of controlling color and keeping time/labor investment at a reasonable level, I prefer closed-backed bezels.
Where faceted stones are concerned, the issue is usually irrelevant. In a well-cut stone, light will never reach the backing, rendering it unnecessary.
Beth

From: coralnut

Whether the back of a setting is left closed or cut away is in individual decision and one's idea of how a setting should look. There are some technical reasons to cut away back plates such as... if you are setting a very large stone and using heavy plate... cutting part or most of it away will make the piece lighter. If you are setting a translucent or transparent stone, especially ones with beautiful dendrites or plumes etc, cutting away the back will allow play of light that can make the piece more beautiful. If you are using light plate… say 24 or 26 gauge, leaving all or most of the back plate will increase rigidity and strengthen the overall piece. Sometimes the back plate is cut with a design just to make it look 'pretty'. In effect, there are lots of reasons to leave the back plate alone... and lots of reasons to remove all or most of it!
Cheers from Don at The Charles Belle Studio in SO FL where simple elegance IS fine jewelry! dcdietz@comcast.net

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From: Joel Schwalb

Linda,
One consideration is that, with use over a period of time, the back of the stone can become dull due to an accumulation of dirt, soap film, etc. This stuff can seep in under the edge of a bezel. It the back is left open it can easily be cleaned periodically. It you close it, there is no effective way to clean it.

This is, of course, only important with stones that are translucent or transparent.
Joel Schwalb joel4@optonline.net,
http://www.schwalbstudio.com

From: Dale Burnett
I forgot to ask in my other posting, what is the shiny fine silver foil inside the bezel for? Is this with faceted stones?
Dale

From: Dale Burnett
Hi Linda,
While I am certainly not one of the experts on this list, I will venture to answer your question. Since I have not yet been working with faceted stones, I will also limit my answer to bezel setting cabochons and leave any discussion of faceted stones to those more knowledgeable than I.
Whether to leave the back open or closed depends upon a number of factors:
1. **Transparency or translucency of the stone.** Reflections from the closed back behind a transparent or translucent stone can interfere with or obscure the characteristics of the stone. An example would be a closed back behind a rutilated quartz crystal cabochon. Reflections could obscure the rutiles and make them less visible. Another example would be a translucent opal.
Reflections from a closed back could interfere with the fire of the opal. However, a properly textured and/or patinated background behind such stones can also be used to create some interesting effects and enhancements to the characteristics of the stone. For example, a black patination behind a translucent opal can be used to make the fire stand out and more consistently without concern for what background effect different clothing may have. One note of caution here is that if not properly done, this can look as though you are giving a fake appearance to the properties of the stone.
2. **Weight considerations.** In a larger piece, leaving the back closed will add more weight to the piece. This is generally undesirable from a comfort standpoint of the wearer as well as the fact that it adds cost to the item, especially when working in higher priced metals such as gold. In smaller pieces, leaving the back closed will also add some weight which can be desirable in that it can give the piece a more substantial feel.
3. **Design considerations.** Sometimes whether to leave the back open or closed is best determined by the design and what kind of look you want your work to have. A closed back can give a piece a more elegant look, even if the wearer is the only one who will see it. Sometimes you may want the back of the stone visible such as if it is a particularly interesting stone. An example might be a piece I did recently with an intarsia cabochon. I left the back open because I wanted people to be able to see that what was visible from the front went all the way through the stone (I did not use a backing piece for the intarsia). I found that most people who looked at it were surprised by that fact.
I hope this gives some helpful insights to you.
Best Regards, Dale

From: The Doctor
Happy New Year to you too, Linda.
First, I'm going to assume that you're using a faceted stone for this bezel setting. This is where the study of gemology comes in handy. When a gemstone is faceted properly, light will enter the stone through the crown (the top portion), bounce around inside, hopefully off the pavilion, and exit back through the crown to the viewer's eye. This is due to the stone's crown and pavilion angles being cut in harmony with the stone's critical angle. For this reason alone, opening or closing the back of the setting will have no effect on the stone's interaction with light, and therefore, it's appearance to the eye. From this information, you'd think that an open or closed back would have absolutely no effect on the stone's appearance.
However, oils and grease from our bodies and the things we handle in our day-to-day affairs can and will be attracted to the stone, especially on the pavilion of it. This very different substance (different from the gemstone, that is), when attracted to the pavilion, actually changes the critical angle of the stone (makes it much larger) and will cause a phenomenon known as "unplanned light leakage". This means that light will enter the crown and, instead of bouncing around the pavilion and exiting back through through the crown, it will exit through the pavilion, thereby reducing the brilliance of the stone. This is why gemstone jewelry loses it's sparkle when dirty and regains it when cleaned.
Even bezel-set stones will attract dirt, oils and grease to it's pavilion, no matter how closely the bezel is set to the stone. for this reason, I recommend that, whenever possible, you leave at least a small open area in the back of your setting to facilitate cleaning so that your gems may indeed sparkle forever.
James S. Duncan, G.G.

From: Milt Fischbein Jewellery Artist
I generally make my bezel set stones open backed, particularly when I am setting a large freeform. Sometimes during the fitting process, the stone gets stuck in the bezel. If the back is open, you can apply pressure to the back of the stone through the opening to pop the stone out.
Regards Milt Fischbein, Calgary, Canada

From: Daniel R. Spirer
I haven't been following this thread too closely so I apologize if someone has said this before, but if you use an open back in a pendant or pin the color of whatever the person is wearing will determine the color the stone looks (in other words it is out of your control how the stone appears) and if it is in a ring it will be backed by the person's skin color. This, of course, mostly applies to cabochons and not faceted stones as any well faceted stone shouldn't allow that much of the skin color come through. Also, I hope that those of you who choose to use foil backings are informing your customers about that, as it can alter the stone's appearance over time and effect future repairs. Remember you can never disclose too much.
Daniel R. Spirer, GG Spirer Somes Jewelers
1794 Massachusetts Ave Cambridge, MA 02140 617-491-6000
spirersomes@earthlink.net, http://www.spirersomes.com

From: Jewelryartschool
Depending on the piece and the "look" you are after... If I decide on a closed back setting I generally drill a small hole in the center or off to one side. This is to facilitate removal of the stone during setting should problems arise.
It's also so that the next person to work on the piece that may have to remove the stone doesn't turn the air blue cussing me!
There have been a few exceptions to this for design or aesthetic reasons -- but not many.
Brian P. Marshall Stockton, Jewelry Arts School
Stockton, CA 95209 209-477-0550 Workshop / Studio / Classrooms instructor at http://jewelryartschool.com

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From: Gerry
All, I am a stonecutter and a jewelry maker. To me all stones facetted in cuts to make the stones more internally brilliant should be set in open back mountings. The more light that enters the stone the better.

Cab stones are a different matter. After listening to many buyers I have found that there are several reasons for open back settings in cabs and several reasons for closed backs. This makes a difference in my decision to invest my time in the finishing of the back of a cab.

Open back

- show off the design on the back of the stone.
- better show the translucency of the stone.
- to get the feel of the stone on the skin of the wearer.
- for wire wrappers to show a fully finished product.
- to save metal and weight in production.

Closed back

- to make a stronger setting.
- to make designs on the back of the setting.
- easier to produce

Gerry Galarneau

From: MillsGem

Gerry, Faceted stones reflect from internal surfaces and do not require open backs. To suggest otherwise is to say that a stone set in a tube setting will not sparkle. Au contraire! A PROPERLY cut stone is based on the assumption that the refractive index of the mineral will determine the angle of reflection of the stone. This is EXACTLY why windowed stones don't sparkle!

Ron at Mills Gem, Los Osos

From: Daniel Grandi

The only major reason that a bezel setting should have an open back... and more so for faceted stones is to be able to clean the ring/stone area easily. If it is closed, when you go through a cleaning cycle, it would be very easy to trap dirty water behind the stone... this will greatly affect the look of the stone.

Also, how would you like to try and clean a ring that was worn for a year and the back was sealed, but the stones look bad because of dirt inside the bezel area... I have seen this happen and Its' not fun.

Daniel Grandi

From: Gerry

All,

Try a simple experiment. Take two stones of the same size, cut, color, and clarity and mount one in a closed back setting and one in an open back setting. Hold the two mounted stones side by side and note the differences. Look at the areas near the girdle and the flash from the center of the stone as the stone is tilted and rotated. Which stone appears more pleasing to your eye?

I have cut many thousands of facetted stones and have sold many thousands of the stones that I have cut. The one area of cutting and marketing that is still difficult to get a grasp on is the pleasant feeling a certain stone gives to a buyer. Describing this effect is very difficult as I do not fully understand it. No formula, expertise in cutting, measurement, or analysis that I have done can give me a hint of what it is that triggers the response from a customer of "that's it". I want that one now. This applies to open back or not. A stone mounted in a closed back does not appear natural to me. When that same stone is presented in an open back it is pleasing.

I know all the formulas and facts about light in gemstones and have the skill and experience to cut as well as anyone else. All that will not trigger the response I so often observe from customers. That's the one, price is secondary.

Gerry Galarneau

Editor – It seems that no one mentioned that the all closed back opals must be considered to be doublets or the back is blackened – this would affect the cost of the piece and would need to be disclosed to the buyer.

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Just A Little Dust

by Mel Albright, Safety Chair

Have you ever told yourself "It's just a little" about the dust from some lapidary project you're working?

Yes, I know. Most of our work is done wet and there is no dust flying around. But, not everything! Carving is often done dry - especially sanding and polishing. Knapping arrowheads is almost always done dry. Finished silver and gold projects are often "touched up" with dry sandpaper. Breaking rocks with a hammer or from matrix out in the field is a dry project. Often cleaning fossils for presentation is a dry project - especially when sand blasting. How about trimming up your mineral samples? I bet you can think of other places where a little rock dust flies around. Well. It IS only a little!

BUT, your lungs do not expel silicates from rock dust. So, a bunch of "littles" is as bad as a "bunch". It might take years to get too much, but eventually you may. What's the problem? A disease called silicosis.

"Silicosis, a scarring and hardening of lung tissue, can result when particles of crystalline silica are inhaled and become embedded in the lung. The disease can be progressively debilitating and fatal. In construction, workers can be easily exposed to silica when using rock containing silica or concrete and masonry products that contain silica sand when performing such tasks as chipping, hammering, drilling, crushing, or hauling rock; performing abrasive blasting; and sawing, hammering, drilling, and sweeping concrete or masonry. Even materials containing small amounts of crystalline silica may be hazardous if they are used in ways that produce high dust concentrations." says the National Institute for Occupational Safety and Health (NIOSH).

So, how do you protect yourself? Lots of ventilation is always a good way. However, the ventilation should come from the side or a little behind you so that any dust is blown AWAY from your nose. You can check before working on the rocks to be sure that is going on. Eddies around your face and head will not protect you. Masks work also - if they're good enough.

Those of you who run club shops should be very careful that dust is controlled. You might get ten exposed rather than one. An exhaust hood would be an excellent investment. A little sheet metal or plywood, a cheap fan, and stovepipe going through a hole to outside would be easy to make. Some equipment may have filters on it. Be sure that a special filter is used and that it is cleaned often. A proper filter is important even it is more expensive than something from Wal-Mart.

"PRIVATE" NIOSH recommends the following measures to reduce exposures to breathable crystalline silica in our shops: Breathable silica includes almost every rock or fossil that rockhounds may have.

- Recognize when silica dust may be generated and plan ahead to eliminate or control the dust at the source. Awareness and planning are keys to prevention of silicosis.
- If possible, do not use silica sand or other substances containing more than 1% crystalline silica as abrasive or blasting materials. Substitute less hazardous materials.
- Use engineering controls and containment methods such as filtering machines and cabinets, wet drilling, or wet sawing to control the hazard and protect nearby friends from exposure.
- Routinely maintain dust control systems to keep them in good working order.

- Practice good personal hygiene to avoid unnecessary exposure to other shop contaminants such as lead.
- Wear disposable or washable protective clothes at the shop.
- Shower (if possible) and change into clean clothes before leaving the shop to prevent contamination of cars, homes, and other work areas.
- Post warning signs to mark the boundaries of shop areas that may be contaminated with rock dust.
- Provide members with training that includes information about health effects, work practices, and protective equipment for breathable crystalline silica.
- If you think I'm exaggerating - more than a few knappers have suffered from this disease. Reference: http://www.cdc.gov/niosh/silicupd.html.

Via the Gneiss Gnews, 11-2001, http://members.thegateway.net/hlgms/

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Shop Hints

Opal Tips:

Rub your opal on your face and it will bring out the colors. Skin oils cause them to sparkle. All opal does not need to be backed with a black backing. Try other stones for different effects. Using a white opal backing gives a triplet a natural look. Some fire opal works well with a red backing.

Spic & Span® Spic & Span® has oxalic acid in it. It is an excellent source for the final polish of tumbled stones. Use one cup of Spic & Span® for each six pounds of stones. *Via Gem Cutters News 6/02, via Glacial Drifter, 2/02*

Super Iron Out®

A product called "Super Iron Out®" is supposed to work as well as, or better then, oxalic acid to remove iron stains from mineral specimens. It can be found at Ace Hardware, where a plastic 18 oz. bottle costs about $4. It can also be used on ceramics, cloth and carpet, is not toxic, is easier on your skin [though you should wear gloved] and, as it turns out, is safer for the environment and our drains. *Via Rock rollers 6/02, via Nugget 4/02, [condensed from article by Michael Peterson] in Rockhound Notes 12/98*

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March Gem & Mineral Shows

5-7--COSTA MESA, CA: Show; Gem Faire; Orange County Fairgrounds, Bldg. 12; 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.

5-7--HAYWARD, CA: Show; Mineral & Gem Society of Castro Valley; Centennial Hall, 22292 Foothill Blvd.; Sat. 10-6, Sun. 10-5; adults $5, children under 13 free with adult; gems, minerals, fossils, rocks, jewelry, beads, lapidary equipment, jewelry making supplies, live auction,; contact Ron Miller, MGSCV, P.O. Box 2145, Castro Valley, CA 94546, (510) 538-2397; e-mail: mgscv@yahoo.com; Web site: www.mgscv.com.

6-7--ARCADIA, CA: 44th annual show; Monrovia Rockhounds; L.A. County Botanic Garden (Arboretum), Ayers Hall, 301 N. Baldwin Ave.; Sat. 9-4:30, Sun. 9-4:30; 12 dealers, club displays, treasure wheel, grab bags, geode cracking; contact Kris MacFarland, 3771 Bresee Ave., Baldwin Park, CA 91706-4119, (626) 337-8596.

6-7--KLAMATH FALLS, OR: 18th annual show; Rock & Arrowhead Club; Klamath County Fairgrounds, 3531 S. 6th St.; Sat. 10-5, Sun. 10-4; contact Garwin Carlson, 2108 Carlson Dr., Klamath Falls, OR 97603, (541) 882-8276.

6-7—NEW YORK, NY: Show; Excalibur Mineral Corp., New York Mineralogical Club; The Holiday Inn-Midtown, 440 W. 57th St.; Sat. 10-6, Sun. 11-6; admission $6; gems, minerals, fossils, meteorites; contact Excalibur, 1000 N. Division St., Peekskill, NY 10566, (914) 739-1134.

6-7--VENTURA, CA: 42nd annual show, "Artistry from Nature"; Ventura Gem & Mineral Society; Seaside Park, Ventura County Fairgrounds; Sat. 10-5, Sun. 10-4; free admission; gems, minerals, rocks, fossils, jewelry, exhibits, displays, demonstrations, prizes, video presentations, dealers, kids' activities; contact Jim or Nancy Brace-Thompson, (805) 659-3577; Web site: www.vgms.org.

12-14–DEL MAR, CA: Show; Gem Faire; Del Mar Fairgrounds, 2260 Jimmy Durante Blvd.; 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.

12-14–HILLSBORO, OR: Show; Tualatin Valley Gem Club; WA County Fairground, Cornell Rd. across from Hillsboro Airport; Fri. 9-5, Sat. 10-5, Sun. 10-5; free admission; door prizes, dealers, raffle, demonstrators, silent auction, spin-a-wheel, grab bags; contact Rose Jackson, (503) 359-3723, or Evan Acey, (503) 640-2098.

12-14–OGDEN, UT: 53rd annual show; Golden Spike Gem & Mineral; Union Station, 25th and Wall Ave.; Fri. 9-6, Sat. 10-6, Sun. 10-5; adults $2, students $1.50, children under 12 free; special education day Fri. contact Bonnie Glismann, 4326 S 200 W, Ogden, UT 84405; e-mail: bonniesbylines@juno.com.

13-14–SAN MARINO, CA: 46th annual show, "Tournament of Gems"; Pasadena Lapidary Society; San Marino Masonic Center, 3130 Huntington Dr.; Sat. 10-6, Sun. 10-5; free admission; contact Marlene Kyte, (626) 794-0519.

12-14 VICTORVILLE, CA: Victor Valley Gem & Mineral Club in California will host their 28th annual tailgate. The 28th Annual tailgate will be held off Stoddard Wells Road in Apple Valley about 15 miles east of Interstate 15 and just north of Victorville. It will be on the right hand side of the improved dirt road and posted. Contact Mavis Mushaney at (760) 241-8282 for more information.

13-14–VALLEJO, CA: 50th anniversary show, "Golden Jubilee"; Vallejo Gem & Mineral Society; Solano County Fairgrounds, McCormack Hall; Sat. 10-4, Sun. 10-4; contact Phyllis Malicki, (707) 745-3255.

20-21–ANGELS CAMP, CA: 28th show, "Exhibits of Nature Wonders"; Calaveras Gem & Mineral Society; Calaveras County Fairgrounds; Sat. 10-5, Sun. 10-4; contact Earl Klein, (510) 632-9373.

20-21–BAKERSFIELD, CA: 2nd annual show, "Rock & Mineral Rendezvous"; Helfrich's Jewelry Creations; Kern County Fair Grounds, 1142 South P. St.; Sat. 9-5, Sun. 9-5; free admission; contact Lew Helfrich, Helfrich's Jewelry Creations, 1723 Columbus St., Bakersfield, CA 93305, (661) 872-8230; e-mail: lewsrocks@netzero.net.

20-21–SAN DIEGO, CA: Annual show; San Diego Gem & Mineral Society; Al Bahr Shrine Auditorium, 5440 Kearney Mesa Rd.; Sat. 9:30-5, Sun. 10-4; contact Charlene Everly, (909) 679-5600, or Wayne Moorhead, (858) 586-1637.

26-28–SAN FRANCISCO, CA: Show; Gem Faire; Fort Mason Center, Herbst Pavilion; 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.

27-28–ROSEVILLE, CA: 43rd annual show, "Nature's Wonders"; Roseville Rock Rollers; Placer County Fairgrounds, 800 All America City Blvd.; Sat. 10-5, Sun. 10-5; adults $1, children under 16 free; more than 30 dealers, minerals, crystals, jewelry, educational mineral identification, demonstrations, gold, gems, youth activities, lapidary, fossils, raffle prizes, silent auction; contact Gloria Marie, P.O. Box 1547, Foresthill, CA 95631, (530) 367-2262.