The Opal Express

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

Volume #35 Issue #4
April, 2002

In This Issue:

- **Opal Synthetics and Imitations**
- **Opal Buying Factors: *Light***

Board Meeting-Monday, April 8
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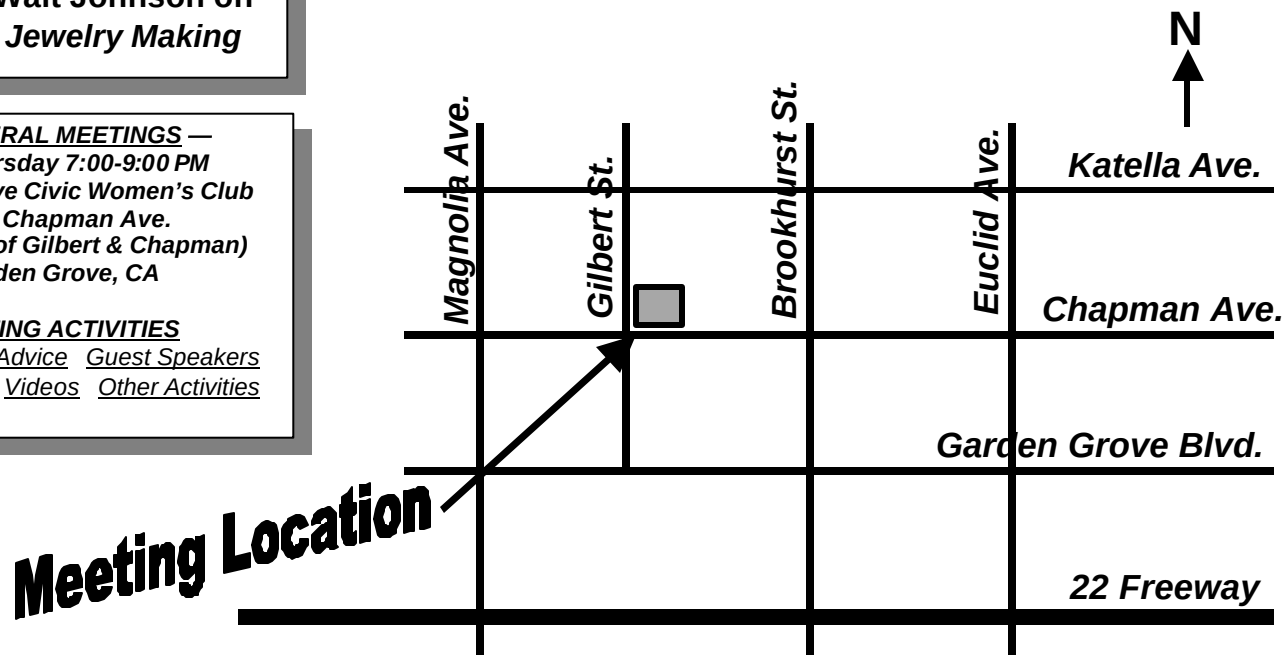
General Meeting
Thursday, April 11
Speaker: **Walt Johnson on *Opal and Jewelry Making***

— GENERAL MEETINGS —
2nd Thursday 7:00-9:00 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*

TO:



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!

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MEMBERSHIP ROSTER: Yes, include my name and/or address and/or phone information in a published AOS membership directory
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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.

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Article Deadline is the 15th of the month prior to each issue

OPAL SOCIETY WORKSHOP

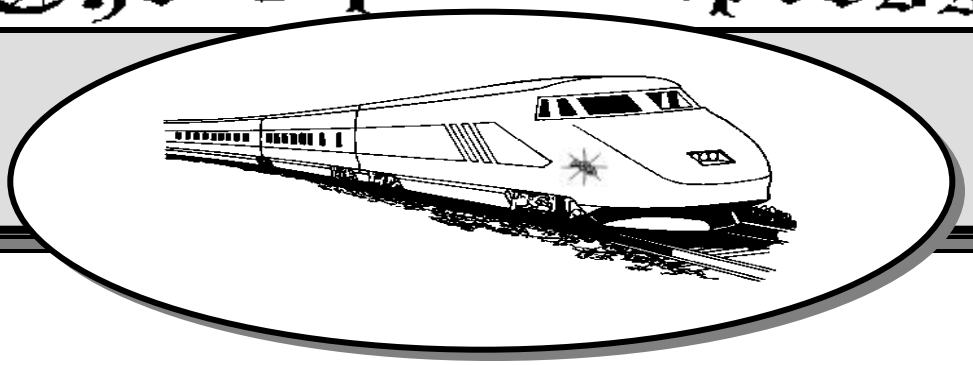
The workshop at Walker Jr. High is available for the use of AOS members on Wednesday nights. Please call Stan McCall at Gems & Opals (714) 827-5680 if you plan to attend a shop session.

WORKSHOP RULES

1. Shop may only be used by AOS members.
2. Shop users must sign liability waiver.
3. Shop users must sign in. Shop supervisor will maintain sign-in list and collect usage fees.
4. Shop usage fee is $3 per session.

To assist us in scheduling, please call Stan or a board member in advance to reserve shop time. Thank you!

The Opal Express



APRIL 2002

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PRESIDENT'S MESSAGE

Mike Kowalsky

One of the nice things about writing for the Opal Express are the positive comments we have been receiving about some of the articles. There were nice things said about the highlighting of opal from the Americas. It wasn't planned but the articles were published in the same issue and we have been highlighting our display of opal from North, Central and South America. While we have been concentrating on obtaining samples from these areas we still have been collecting available samples from places such as Ethiopia. I missed getting some samples of opal from Oregon, for myself, at Tucson because I found out too late where the dealer was located. The AOS does have a sample from Oregon.

I now have some new mines to take Len Cram to if he decides to come to the US. These include British Columbia, Idaho, and Arizona. I did have a recent conversation with Len. And I must report that his latest volume of a Journey with Color is planned to be introduced at White Cliffs about Easter time. This is Volume II and covers the history of White Cliffs Opal from 1889 to 1999. It will contain 324 wonderful photographs. There are two more volumes planned which will make a total of four volumes. Volume II is being shipped to dealers in the U.S. and should be available here soon after the introduction at White Cliffs.

I also had a nice surprise in my e-mail recently. I received some photographs of opal from a mine in the Winton area of Queensland. Some of the opal was carved with interesting patterns formed in the ironstone matrix. The stones were very striking with the patterns carved on them.

We are experimenting with a streamlined publishing scheme. It contributed some to the delay of last months Opal Express but we will be working to improve it for this issue.

Have a great month!

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Safety Report

Space in your suitcase flying

by Cathy Gaber

Give some thought to the items you pack,

'Cause some m ay not need to come back.
So toss those old socks,
To make room for your rocks,
And your suitcase still fits on the rack.

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NEWSLETTER ARCHIVES ONLINE

There is one password for all members: **"opalsrus".**

Workshop Notice

Construction work at Walker Junior High has temporarily closed the Opal Society Workshop and it is not known when it will open.

Please call Stan McCall at Gems & Opals (714) 827-5680 to find out the status.

APRIL GEM SHOWS

6-7--SAN DIEGO, CALIFORNIA: Annual "Gem Diego" show; San Diego Mineral & Gem Society; Al Bahr Shrine Center, 5440 Kearny Mesa Rd. (just west of Hwy 163 at Clairemont Mesa Blvd. exit, behind Hampton Inn); Sat. 9:30-4, Sun. 10-4; admission for both days adults $3, over 65 & military $2, children 12 and under free with an adult; scout and youth groups with leader(s) free; 14 dealers with gems, minerals, fossils, slabs, rough, equipment, books, carvings, tools, supplies and faceted gemstones, 42 exhibit cases, 14 demonstrators in faceting, wire wrap, bead stringing, silver fabrication and intarsia, hourly door prizes; contact Wayne Moorhead or Anne Schafer, (858) 586-1637; e-mail: annes@san.rr.com.

6-7--ANGELS CAMP, CALIFORNIA: 26th annual show, "Exhibits of Nature's Wonders"; Calaveras Gem & Mineral Society; Calaveras County Fairgrounds; Sat. 10-5, Sun.

6-7--HACIENDA HEIGHTS, CALIFORNIA: Show, "Magic in Rocks"; Puente Hills Gem & Mineral Club; Steinmetz County Park, 1545 S. Stimson Ave.; Sat. 10-5, Sun. 10-5; free admission; contact Bob Hess, (562) 696-2270; e-mail: rpsthess@earthlink.net.

20-21--MARIPOSA, CALIFORNIA: 2nd annual show; California State Mining & Mineral Museum; Mariposa Fairgrounds; Sat. 10-5, Sun. 10-5; free admission; dealers, vendors, craftspeople, children's activities, guest speakers, educational activities; contact Mova Verde, (209) 742-7625; e-mail: mineralmuseum@sierratel.com.

26-28--SAN DIEGO, CALIFORNIA: Show; Gem Faire; Scottish Rite Center, 1895 Camino Del Rio S; Fri. 12-7, Sat. 10-7, Sun. 10-5; weekend pass $5; contact Allen Van Volkinburgh, (760) 747-9215; Web site: www.gemfaire.com.

27-28--FRANKLIN, NEW JERSEY: 30th annual show and swap; New Jersey Earth Science Association, Franklin-Ogdensburg Mineralogical Society, Sterling Hill Mining Museum; Robert E. Littell Center and Hardyston Township School, near intersection of Rte. 23 and Rte. 517; Sat. 9-5:30, Sun. 10-5; admission $4, children under 14 free with paying adult; two locations, more than 100 dealers in gems, minerals and fossils; contact Sterling Hill Mining Museum, 30 Plant St., Ogdensburg, NJ 07439, (973) 209-7212.

27-28--CUYAHOGA FALLS, OHIO: Show; Summit Lapidary Club, Akron Mineral Society; Emidio & Sons Expo Center, 48 E. Bath Rd.; rocks, minerals, gems, jewelry; contact Warren Salchak, 242 Monroe Ave., Cuyahoga Falls, OH 44223, (330) 928-0181.

27-28--LANCASTER, CALIFORNIA: Show; Antelope Valley Gem & Mineral Club; Antelope Valley Fairgrounds, 155 E Ave. I; Sat. 9-5, Sun. 9-5; free admission; dealers, displays, field trips, silent auction; contact David Ficke, 4233 W. Ave. L-4, Lancaster, CA 93536, (661) 943-5157; e-mail: av_gem@yahoo.com.

27-28--SANTA CRUZ, CALIFORNIA: 50th annual show; Santa Cruz Mineral & Gem Society; Santa Cruz Civic Auditorium, Center St. and Church St.; Sat. 10-5, Sun. 10-5; admission $3, children under 12 free; contact Eleanor or Hubert Drake, (831) 688-8086; e-mail: hmdrake@pacbell.net.

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STREAKING MINERALS — STREAK TESTING!

by Dr. Bill Cordua

Streak tests are easy tests, helpful in mineral identification. The streak is simply the color of the powdered mineral. It doesn't matter how the mineral is powdered — you can scrape off some with a nail or pound the mineral to bits with a hammer. More commonly, mineralogists use a streak plate, a piece of unglazed porcelain usually cut in a square or hexagon a few inches across. Streak plates have a hardness of about *6.5,* so if you want to test the streak of anything harder, get out the hammer! They can be bought from most mineral supply houses. For example, the latest Ward's Natural Science Establishment catalog lists them at 10 for $2.90. When they get dirty, they can be cleaned by scrubbing them off with an old toothbrush. I often use some sand with the water to scour off resistant streaks. If they get too dirty — heck, toss them out — they cost less than 30 cents each. When I was a kid, I used the back of old bathroom tiles to make an even cheaper streak plate.

Why do a streak test instead of just looking at the color of the bulk mineral? The color of a larger chunk of mineral can really vary, depending on what trace element impurities may be present. Calcite, for example, can be any color of the rainbow (and a few that aren't on any rainbow). But calcite always has a white streak. So why don't the impurities color the streak? They do, but only to a slight extent. This is because light going through a small grain of a mineral has less chance to interact with the impurities than light going through a big chunk of the material. Powdering the material thus minimizes the effect of the impurities.

Streaks are most useful in the oxides and sulfides. Silicates and carbonates generally have white or light-colored streaks. The oxides are fun to streak. Hematite's red streak is distinct from goethite's yellow-brown streak and pyrolusite's coal black streak. Sphalente is another mineral that can be lots of colors, but gives a yellow streak.

The streak of rocks is not distinctive. They usually give a light streak that reflects their dominant silicate or carbonate composition. If they give a red or brown streak, it suggests the presence of iron oxides. Of course, if the rock is coarse grained, you can try the streak test on the individual mineral grains.

Mineral databases and texts sometimes list the streak colors and sometimes don't.
It depends on the tastes of the author and the data available. All minerals have streaks (you can powder anything if you put your mind to it), but they may not be too distinctive (hundreds of minerals have white streaks). I think that when a new mineral is described, the streak should always be included. After all, the material had to

be powdered in order to do its microprobe or x-ray analysis, so all someone needs to do is remember to record the color. That would be a real help to those of us who don't have well-equipped analytical labs in our basements.

(Copyright 1998. Dr. William S. Cordua, Professor of Geology/Mineralogy, University of Wisconsin — River Falls, WI 54022. Non-commercial republish permission granted, provided that the article is reprinted in toto. From Lapidary Digest #64, via Gem Cutters News 11/97)

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EXTREMOPHILES PRODUCE SOLID GOLD

Simple microscopic organisms which thrive in extreme conditions turn dissolved gold into solid gold. While experimenting on the use of a similar microbe to clean up toxic water, University of Massachusetts professor Derek Lovely discovered the microbe's special power.

The extremophiles inhale dissolved gold and convert it into solid deposits. "They use dissolved metals like iron, uranium and gold the same way we use oxygen," said Lovely.

(condensed from article in San Jose Mercury News 9/4/0 1 by Breccia, from Breccia 9/0 1)

A PETRIFIED WOOD FACT

Many pieces of petrified wood, especially from the northwest, have a center that looks like wood, but with a layer or chalcedony or pumice between the center and the outside. This indicates that the tree was green when it was buried in hot ash. The water in the green wood evaporated, making the wood shrink. The outside was made into a cast by the heat, so the areas left between the wood and the cast were filled with chalcedony, making beautiful pieces of petrified wood.

(from Kisidgen Journal 1/97, via Shop Notes and News 9/0 1)

TIPS & HINTS

Backing for cabs: If you use sawdust, pencil shavings, cardboard, or any other porous materials for a filler or cushion in bezel cups, invariably moisture will penetrate into the space. When this occurs, the material will swell and force the stone upward, pushing the bezel away from where it formerly rested against the stone. The material will dry and the stone will be loose in the bezel cup. This loose stone will be more likely to fall out or break from impact. The other ramification is that softer gemstones can sometimes be porous too. This addition of moisture can cause discoloration, and even stress-cracking from the inward and outward moisture changes. One cheap and readily available material is plastic sheeting. Try using the lids of cottage cheese containers instead. Recycle! *Mark Green in Lapidary Digest via Chips 'n Splinters 1/02*.

Do not store opals in high heat, direct sunlight, or brightly lighted showcases and remove opal jewelry while cooking. Overheating will give most gems a milky or brownish appearance and destroy their play-of-color. Remove opal jewelry prior to washing dishes, your hands or bathing. Detergent and bleach can destroy opals, particularly doublets and triplets. Never use ultrasonic cleaners or steamers: Clean with warm, (mild) soapy water only. Avoid exposing opals to sudden, extreme changes in temperature or humidity as they may crack, craze or fracture. *Compiled by Ban L. Doty and condensed from The Opal Express 12/98.*

Heat nodule and thunderegg halves under a heat lamp for a few minutes before polishing with tin oxide or cerium oxide on felt. The polish comes up almost instantly. Alternatives include putting specimens in a 200 degree oven until warm to the touch or putting specimens in a kettle full of hot water until they are warm. Dry off water before polishing. *From Rock Talk via Chips 'n Splinters 10/99.*

Hydrochloric acid is **good for testing lapis lazuli.** A drop of it on the blue stone (the backside) creates an odor of hydrogen sulfide (rotten eggs). On the white areas, it usually effervesces because the white is usually calcite. This test will distinguish lapis from sodalite or lazulite. *From Mineral Matter via Rocky Review 6/99.*

Put reflector tape or fluorescent paint on your tool handles. It makes them easier to see. Your tools won't rust if you spray them with PAM or WD-40. *Original source unknown via The Rock Bag - 10/99.*

NOTE: The Opal Express does not vouch for any of these hints and advises caution when trying new procedures! Taken from The Nugget, of the Culver City Rock & Mineral Club.

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Real or Fake?
Opal Synthetics, Simulants, etc.

By Jim Pisani

All the various types of opal that are currently being marketed have confused many of us. Is it genuine? Is it real? How about natural? Synthetic? Lab-grown? Simulant? Imitation? It can get confusing! Enhanced? Doublets? Triplets? Treated Opal? This article is an attempt to educate opal lovers on what is out there and how to avoid being mislead into buying something that you thought was different by explaining exactly what these terms mean.

To protect consumers, the US Government Federal Trade Commission (FTC) has gotten in the act to define some of the terms and descriptions. They have come up with guidelines and rules to specify that it is unfair or deceptive to describe any industry product that is manufactured or produced artificially as "real," "genuine," "natural," "precious," "semi-precious," or any similar term. No longer is it acceptable to use the term "real" to describe a laboratory-grown gemstone, which was a common practice before the FTC ended the practice.[3]

Other terms that are commonly used require caution. Two words that appear that can greatly affect the cost of a gemstone are "synthetic" and "simulant". A gemstone that is laboratory-grown or synthetic has the same physical, optical, structure, and chemical properties as it's natural counterpart. A simulant or imitation stone can be made of anything that looks like whatever you are trying to imitate.

Imitation or Simulant Opal

Gemstones that are lab-grown have, in recent years, gained in popularity due to their good looks, affordable price, and durability. However, they are still very different in composition than simulants or imitation, and are much more expensive. In fact, some synthetics command prices comparable to natural stones. One needs to be careful as to what he or she is buying!

The beauty and scarcity of opal has encouraged many to bypass nature completely and attempt to duplicate its beauty by artificial means. Believe it or not, this practice has a long history. Precious opal has been faked since ancient times. Precious opal was available to Romans in ancient times from the deposits in Hungary. There has been reports that they put peacock feathers and fish scales behind glass to appear as opal. More recently, in the 19th Century, a substance called "opal glass" was popular. It was made by inserting finely chopped aluminum into glass. It produced a blue and red opalescence.[4]

Another way of imitating opal was to produce a type of glass with many small cracks. The cracks, due to their small dimensions, caused light diffraction that produced an iridescent effect. This glass was created by cooling the glass rapidly after production and was known as "quench cracking". During the Art Deco era early this century, opalescence glass was used in jewelry to imitate opal. In 1974, a product called "Slocum Stone", name after it's inventor, had a moderate success as an opal imitation. It had a play of color similar to opal and came in various colors, including a gray-white version to imitate the prevalent white opal, a yellow version to imitate fire opal, and a black version to imitate black opal. Slocum glass was and is produced by melting into silica glass extremely thin, ground metallic slivers.[1,4]

Plastic or polymer precious opal imitations were created in Japan at the end of the 1970's and start of the 1980's. These imitation opals were milky in color and resembled the white precious opal typically found in Cooper Pedy, Australia. They were easily identified by their specific gravity, which was about half that if real opal. However, their microscopic structure was the most similar to opal yet of all the imitations, consisting of microscopic plastic balls arranged in a close-packed arrangement like real opal. They were marketed under the name of "Pastoral Opal" or "Neo Noble Opal". Another type of imitation opal are the "paua opals." These "opals" are not opals at all, but really a type of mother-of-pearl. They are used to create imitation "opal" doublets.[4]

Plastic opal can be identified by its low specific gravity, about half of normal opal. However, filler can be added to increase the weight. Another test is to touch the material with a hot point. A smell of resin or plastic indicates that artificial materials are used. Be careful not to damage real opal!

Imitation opal should never be claimed to be natural or even synthetic or lab-created opal.

Synthetic Opal

Up to now, we've been describing "imitation" opal, as opposed to "synthetic". Opal that has been successfully duplicated in the laboratory is called synthetic. Chemically, it is identical natural opal; the only difference is that it is man-made. My research has found a number of synthetic opals being manufactured. These are Gilson, Kyocera and Russian (no company). In this article I have categorized the three as synthetic, however, there are ongoing disputes as to the correctness of this label.

Gilson synthetic opal is the most famous. The process was first invented by Pierre Gilson, Sr. of France in 1974. Since then, is has been a popular synthetic, coming in various colors, including crystal, white, and black. Gilson synthetic opals are considered to be the highest quality of the lab created opals. Gilson created opal is made with actual silica spheres, not with the plastic-filled spheres found in cheaper material. The process can take from 14 to 18 months and the play of color occurs naturally from the process, with no treatment or enhancements. They are also heat resistant and can be heated to 2600 degrees F before breaking down. They are also harder and more durable than real opal and not prone to chipping or cracking.

Gilson synthetic opal has zero moisture content. It does not lose moisture over time, which can be the main cause of natural opal crazing. This lack of water in Gilson opal has currently brought about debates and lawsuits over the labeling and classification of Gilson synthetic opal and other man-made opals. The debate centers on the definition of synthetic, simulant, and imitation.

Since the start of the eighties, the Japanese company Kyocera has marketed its so-called synthetic "Inamori

Opals", which are now also recognized as a synthetic by some. Kyocera synthetic opal uses silica spheres but is plastic or polymer impregnated as a binder; some experts classify it as an imitation due to the impregnation.

The debate is between Gilson opal and with manufacturers of polymer-impregnated manufactured opals. The argument is that since polymer-impregnated manufactured opals use epoxy and other chemicals other that silica to bind the silica spheres together it is not a natural ingredient. Some severe critics state that Gilson Opal should be called a simulant since it has no water in its composition. However, most experts in the jewelry industry accept Gilson Opal as a true synthetic.

Russia and China have also marketed light, dark and transparent synthetic opals since 1994. The Russian synthetics have been sold at various gems shows around the world and are starting to gain significance in the gem trade.

How Synthetic Opal is Made

There are basically two methods that opal is created. The first one consists of a reaction that occurs in nature where silica diluted in aqueous solutions (water) condense to lead to the formation of a silica network. Such a condensation may occur in various aqueous solutions depending on pH and salt concentration. This is nature's way of making opal.[5]

The second method is to produce it in the laboratory synthetically. Three steps are required to produce synthetic opal. The first two are basically the same for most processes while the third step differs between manufacturers.

The first step the synthetic manufacturers had to solve was the problem of manufacturing balls of silica that are identical in size. A preparation of monodisperse silica spheres is created by starting with an organic silicon compound such as tetraethyl orthosilicate. This is then dispersed in fine droplets in an alcohol-water mixture and converted by the addition of ammonia or some other mild alkali into silica spheres, which will then contain a little water.[2]

Second, these spheres must be ordered into a close-packed arrangement; i.e. arranging them into a regular three-dimensional grid. This is the easiest step, because it merely requires permitting the silica spheres to settle from a dispersion in water of controlled acidity. This step may take over a year. This is called the sedimentation period, where the opal spheres settle by gravity, fitting into the close-packed arrangement by themselves. The product of this step, a type of gel, is fragile.

In the last and most difficult step, it necessary to fill the spaces between the spheres and compact the opal so that it becomes hard enough to be usable. The ordered gel must stabilized in order to reduce the porosity and increase its strength. For Gilson, there is speculation that the silica gel is heated at a medium temperature to produce some sintering. Pressure may then be applied via a hydrostatic press in a uniform manner in order not to destroy the ordering of the spheres or distort it. Supposedly for the Russian technique, some additional silica is added at this stage to fill up the pores between the spheres. Kyocera is believed to use plastic or polymer infiltration to reinforce the spheres.

This is a general description on how it is done. However, the "devil is in the details". The exact processes are proprietary and closely guarded trade secrets.

How to Identify Synthetic Opal

Synthetic opal, at first glance, looks like natural opal. It usually has very bright flash and a number of colors, similar to top quality opal. However, on a closer look, synthetic opals may have certain characteristics that can help identify it. This is done by examination under a 10X magnification. A tiny mosaic pattern can be seen in each color patch.[1]

Also, when viewing synthetic opal from the side, a column-like structure may be seen for each color patch that extends from the top to the bottom. Synthetic opal has a higher transparency to ultraviolet light than natural opal.[1]

These characteristics of synthetic opal have been documented for past production of Gilson and Kyocera synthetics. Synthetics produced in recent years may be more difficult to identify. There are rumor that there are synthetics out there without such discriminating characteristics. Be informed!

Assembled Opal - Doublets and Triplets

To be complete, opal doublets and triplets need to be mentioned here. Doublets and triplets, by definition, are manufactured and the official term for them is "assembled opal". A doublet is a slice of opal bonded to a backing, usually a black mineral such as black opal potch or basalt. The black or dark backing causes the play of color of the opal to be enhanced and appear brighter. An exceptional doublet can be striking and can be confused with a top quality black opal.

A triplet is similar to a doublet, but in addition to the backing, it has a topping glued to it, such as a transparent dome of clear quartz. Both are usually made when the opal material is either too thin or too light in color flash to create a normal solid opal cut. Triplets require less opal that doublets. They are relatively inexpensive, and can offer good value and beauty and in the case of triplets, increased durability and toughness. Triplets resist scratching and the quartz magnifies the brilliance and fire of the opal.

There is nothing wrong at all with doublets and triplets. They often look great and are more affordable. However, some unscrupulous dealers or jewelers may sale them without disclosing what they are and that they are manufactured. This is wrong and is illegal in the USA. Doublets and triplets (stone only without the setting) typically are priced at 1/10 the value of an equivalent solid opal. Triplets are easy to identify from the optical effect of the transparent dome. By viewing the triplet from the side, one can see through the clear dome or the sandwich of the three layers. Doublets, on the other hand, may be more difficult to detect. Sometimes the opal is bezel set and the bond layer is covered up by the jewelry. One should always assume, that if one cannot see the back of an opal due the jewelry it is set in, that it is a doublet and that it should be priced accordingly.

Also, lately there has been a product called "natural boulder doublets". These are true doublets, but the backing is composed of ironstone instead of the usual black materials. Some buyers have confused these with real boulder opals, which always have a layer of opal naturally attached to a ironstone backing. Boulder opals are never called doublets. At a quick glance, the "boulder doublets" appear as a real boulder opal. Be careful!

Treated Opal
Last, but not least, is "treated" opal. Here, natural opal is modified by a process to enhance its appearance or other attribute.

The best example of treated opal is dyed Andamooka matrix opal. Some types of precious opal, especially Andamooka matrix opal, are porous. Because of this, it can accept a dye. The opal matrix is normally a whitish to cream color. It is then dyed black with a sugar and acid treatment. This serves to enhance the play of color of the opal, which can be hidden by the white color. As in doublets and triplets, dyed matrix opal is beautiful and should be priced similarly. It should never be sold as solid opal without disclosure that it has been treated.

To detect whether an opal is treated, examine it carefully under a 10X loupe and look for little black spots where the dye impregnates the stone. Also, the stone appears flat, without and depth.

Other types of treated opal are Honduran Opal Matrix and smoked Mexican opal.

Remember, the FTC states: "It is unfair or deceptive to fail to disclose that a gemstone has been treated if the treatment has a significant effect on the stone's value. The seller should disclose that the gemstone has been treated."[3]

In conclusion, there are many types of "stuff" that looks and feels like opal, but isn't quite opal. So Caveat Emptor – let the buyer beware. If an opal looks to good to be true at the price, there is a good possibility it might be something else! However, if the product is adequately identified and you know what you are buying, the various simulant, synthetic, assembled, and treated products can offer great looking "opals" that can fool the experts at bargain prices!

References:

(1) Handbook of Gem Identification, by Richard T. Liddicoat, Jr., GIA, 1993
(2) Gems Made by Man, Kurt Nassau, 1980
(3) Federal Trade Commission (FTC) website - http://www.ftc.gov
(4) GZ Journal - International Jewelry and Watch Trade Magazine - http://www.gz-journal.de
(5) The Sol-Gel Gateway, worldwide Sol-Gel community - http://www.solgel.com

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OPAL BUYING FACTORS: LIGHT

By The House of Tibera

Understanding light helps you reduce the potential RISKS in buying and cutting opal.

WHY? Because if you fail to orient the opal correctly before you cut it, you will lose the precious fire you purchased. "Mother Nature" will tell you how to cut the stone, but not if you don't know how to really "SEE" what the opal is showing you.

LIGHT SOURCES
First you need appropriate LIGHT for viewing opal. The five main types of light are:
1. **Incandescent** - A yellowish cast/hue, which is not full spectrum, but shows most colors.
2. Fluorescent - Except for full spectrum plant-growing tubes, it is very deficient in the red portion of the spectrum, and in general a "weak" light - - especially for candling opal.
3. **Quartz Halogen** - Appears to be the best light source - white light.
4. **Ott Light** - This is advertised as full spectrum light, but we doubt it. It does hype the blue end of the spectrum. It is not balanced, nor does it work well when you attempt to candle a stone because it is not intense enough.
5. **Sunlight** - Always the best, but most opal is not viewed, purchased or evaluated in sunlight.

LIGHT. PURCHASING OPAL AND YOU!
The bottom lines are that opal is seldom bought in natural light nor is it usually seen or worn in natural light. THEREFORE, to the truly discerning observer, the opal will change with the
1. Light type.
2. The lighting source's angle of presentation.
3. The position of the viewer in relation to the light and the opal.
4. Single versus multiple source lighting.

Our goal at Tibara Opal is to ensure that you "see" your opal accurately, knowing that it will change from lighting condition to lighting condition, i.e. show lighting vs. home lighting, fluorescent, incandescent, sun light, etc. We don't want you to be surprised when conditions change. We are sensitive to this issue because if the opal seems different after you purchase it, you might not be happy with Tibara - when it was mainly a lighting condition's influence.

THE NATURE OF LIGHT
Without becoming too technical, the most perfect light is sunlight between 10:00am and 2:00pm. During these hours, all of the colors in the spectrum may be "stimulated" in the opal, if the colors are available in the piece of opal. Before and after these hours, color stimulation is distorted somewhat to various parts of the color spectrum, depending on time, atmosphere, etc.

In summary, sunlight between 10:00am and 2:00pm on a crystal clear day is the perfect time to view opal. Any other time is less than perfect, in some small way.

We use Quartz Halogen bulbs, because they appear to be the most like natural light and do not have a yellow incandescent tint.

VIEWING OPAL - PERCEPTION AND REALITY
Each of us humans see things differently (perception), meaning we may or may not see what is "objectively"

present. It is not uncommon for a customer to ask for a given fire color and when shown that color, reject it, because their "mind's eye" is "seeing" something different. An example is the customer who asked for blue/green and then rejected several parcels of it as the "wrong color." When asked to point to the color of opal that they wanted, they pointed to RED. Go figure!!

This begs the questions, "How" and "Why" was there such a discrepancy? Simply put, it boils down to perception. The process of filtering and giving meaning to what we see. Another example is: you're driving on a curving road. While going around a corner a motorist coming the opposite direction yells "PIG," as he shakes his fist. You get ticked off and sure enough, you Hit the Pig! Now, did you hear the other motorist calling you a bad name, or did you hear her/him calling a warning of impending danger? How you interpret each event in the sequence affects your actions - perceptions.

THE MORAL: A narrow and emotional focus may cause a ruckus. In buying opal, work at removing the emotionality. We have seen customers break into a sweat, flush, get twitchy, etc., which means that their perceptions will be distorted. HENCE, we say opal is the most exciting stone in the world - if you perceive it that way (and we do!).

The point is if you get up-tight while buying opal, it may distort what you SEE. We want you to SEE the same opal before, during, and after your purchase. We ALWAYS provide a place where you can sit quietly and perceive your opal as appropriately as possible.

Another factor of viewing opal is your VISION: the quality of vision (your eyesight), color blindness (partial or complete), cataracts (yellow filter), magnification (with or without), technical (color temperature of the light source, which is not usually an issue unless you're photographing opals.)

LOOKING AND "SEEING" OPAL ACCURATELY
"PEEK" AT OPAL (sampling):

- **Wet** - like it's been polished
- **Dry** - exposes some kinds of cracks, checks, etc.
- **Light** - with and without, bright and dim, intensity
- **Magnification** - with and without

Also look for:
Cobbing - the process of removing a small piece of opal with tile pliers so that you can tell if the opal will face (fine - up on the face and not just on the side)
Natural Breaks - same goal as cobbing
Windowing Facing - Using your grinder to remove a small area so that you can look for face fire characteristics
These indications allow you to peek/sample what is really there.

LIGHTING THE OPAL:
Shows face fire, fire type, intensity, etc. Place the opal perpendicular to the light source. If it "fires" on the window area, then the whole face "should" fire.

VIEWING TOOLS:

- Penlight - for candling
- Optivisor - for seeing accurately
- Calculator and metric ruler - doing metrics on your rough - cost per gram, cost per carat, sizing issues, internal flaws, cotton, spider webs, veils and other nasty surprises.

REDUCING RISK WHEN BUYING OPAL
Ultimately, opal is as opal does. However, we try to predict what a given opal will do in order to reduce/eliminate nasty, costly, and unwanted surprises. We do this in the following ways:

- Candle the stone
- Peek - cobbing, wet/dry, etc.
- Light - know type of light source
- Metrics - valuation calculations
- The DEALER: **KNOW YOUR DEALER.** Make sure your dealer knows:
    - The miner
    - The mine
    - The depth of the mine
    - Has a reasonable return policy
    - Will face opal at a show for you so you can see the material
    - Is knowledgeable about which fields are cracky and unstable; which miners are reputable and will "stand behind" their goods
- Know your **dealer's policy toward miners relative to returns. OUR RETURN POLICY IS:** If the opal cracks in a reasonable time period and is unmodified in any way, then we expect the opal must be replaced. If the miner does not warrant the unmodified opal – HE OR SHE WILL NEVER SELL TO TIBARA AGAIN -PERIOD.

BEWARE OF:

- Runners
- Unknown sellers
- Dealers who have no return policy
- Opal that is too cheap - - because "If it's too good to be true, it probably is!"

AGAIN, perspective is the key. Our perspective (and our experience) is that every opal has at least one surprise in it - sometimes good and sometimes not so good. The goal is to reduce the latter and increase the former.

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The American Opal Society thanks Tim & Barbara Thomas for allowing the AOS to reprint their excellent Opal Seminars. Stay tuned for more in future issues.

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