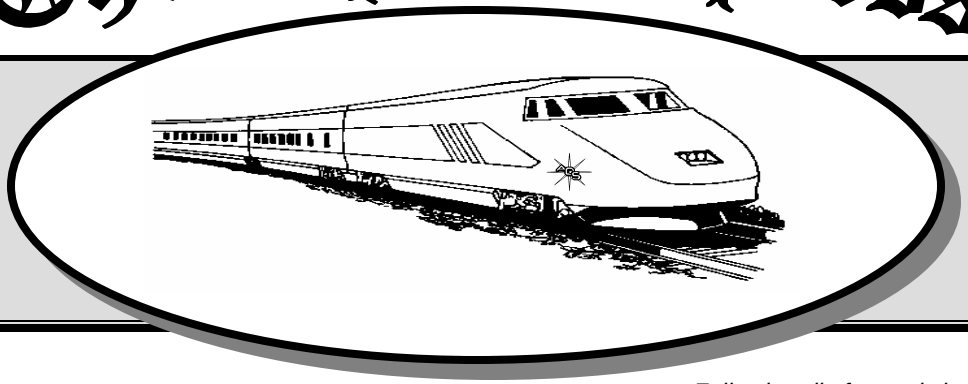
The Opal Express



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President's Message

By Gene LeVan

I have had many requests for the (Smart Chart Opal Pricing Program) and now I need names and funding of $90.00 ea. from 10 members to place the order in Australia.

My e-mail address is fineblackopal@sprynet.com , send me your information and mail your check to Gene LeVan 2201 East Willow St. D338 Long Beach, CA 90755. When have 10 signed up I will advise the whole group and order the programs. I have 4 signed up now as of this date.

Please invite a friend in August to our next opal meeting, I will be showing some very special opal photo's of collector's stones red on black and yellow/blue from $4000.00 to $152,000 the opals are very bright. Bring your own special opals to show just for fun, we all have different types that spark the eye candy just like great clothes. One guarded table will be used for showing of your stuff. A printer is on hand (make tags) to give credit to the owners during the meeting.

Also, don't miss Simon King's presentation on the famous Himalaya Mine in San Diego County. Simon will present a slide and video presentation and will have specimens and cut stones of beautiful tourmaline. He will also have tourmaline for sale.

Again members thanks for your support and attendance.

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Royal Rainbow Opal Mine Open for Business

The AOS received a letter from Richard Lee, the new caretaker of the Royal Rainbow Opal Mine:

"*Dear Sirs,*

I'm writing in regards to the Royal Rainbow Fire Opal Mine. In you newsletter Volume #39, issue #8, there was an article on the mine that Elselil Philipps was caretaker of. (Elselil Philipps has passed away). She was a very nice lady and we will miss her much.

My name is Richard Lee and in April 2006 took the caretaker job at the mine. Max & Susie still own it. I am now charging $10 a day per person to dig. Also have camping for a small fee.

Folks that dig for opals keep all their finds.

Hope this will update the opal diggers that wish to come here.

Thank you,

Richard Lee.'

Richard can be reached at the following address:

Richard Lee
P.O. Box 113
Gerlach, Nevada
89412

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Opal Society Workshop

The Opal Workshop will be closed for the next 3 weeks. Its status is stable for the foreseeable future. However, Pete Goetz will be leaving Ball Jr. High this September, but the AOS still has permission to hold the shop the there after he leaves.

As of September, the American Opal Society's workshop will be open at Ball Jr. High School every Monday from 7:00 to 9:30 p.m. The school is located at 1500 W. Ball Road in Anaheim. If you are traveling east on Ball Rd. the parking lot entrance you need to use is just before the railroad tracks Room 37 is in the center of the campus.

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

To attend, membership in the American Opal Society is a must due to insurance. A nightly fee of $2 is asked to help keep the equipment in good running condition.

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Kimberley Recovers 18.5 Carat Diamond

March 1, 2007

Diamond miner Kimberley Diamond Company NL has recovered the largest stone yet from its Ellendale mine in Western Australia.

Kimberley said it recovered an 18.5 carat yellow diamond from Ellendale Pipe 4, eclipsing the previous largest stone which weighed 14 carats and sold for over $400,000.

The company said average diamond weights recovered from Ellendale Pipe 4 increased from a drill-indicated weight of 0.14 - 0.16 carats a stone to 0.21 carats a stone.

This follows the recovery of a 12.4 carat stone and nine diamonds larger than six carats.

The group's Ellendale diamond mine is about 150 kilometers east of Derby in WA's Kimberley region.

From The Sydney Morning Herald

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: "precious".

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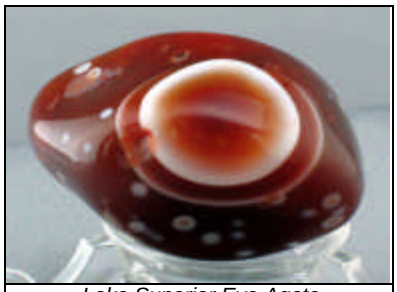
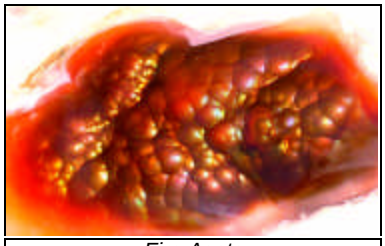
Agates

Agate is a banded, multicolored, variety of Chalcedony. It occurs in an infinite amount of colors and patterns, and no two Agates are alike. The extraordinary beauty and uniqueness of Agate is responsible for its great popularity. Agate must be polished to bring out its full charm; unpolished specimens are dull and ugly. It usually forms in rounded nodules or knobs, which must be sliced open to bring out the internal pattern hidden in the stone. Some varieties have two names that are equally used. Don't be surprised when you see the same definition for two different variety names. You will notice by some varieties that the word *Chalcedony* is used in the definition, instead of Agate (as is in the case in **Dendritic Agate).** This is NOT a mistake. These "varieties" are not really Agates, as they lack banding, and although they have the word agate in their name, are only a variety of Chalcedony. This list below cites only the well known and commonly used variety names.



Lake Superior Eye Agate



Fire Agate

Blue Lace Agate - Agate with light blue bands in a lacy or wavy pattern.

Botswana Agate - Agate from Botswana banded with fine, parallel lines, often with a preponderance of pink blending into white.

Brecciated Agate - Agate with broken fragments naturally cemented together

Cloud Agate - Grayish Agate with blurry, foggy patches of inclusions.

Crazy Lace Agate - Agate composed of twisting and turning bands of various colors.

Dendritic Agate - Chalcedony with tree-like or fernlike inclusions.

Enhydro Agate - Agate nodule partly filled with water. The water can be seen from the outside of the nodule when held up to the light. Also known as *Enhydritic Agate.*

Eye Agate - Agate with banded, concentric rings.

Fairburn Agate - Beautiful, unique, and rare; Fortification Agate from Fairburn, South Dakota.

Fire Agate - Agate with Goethite or Limonite inclusions, which cause the stone to be iridescent.

Blue Lace Agate

Fortification Agate - Agate with a pattern resembling medieval fortress (i.e. imaginary moat and castle walls can be perceived).

Fossil Agate - Agate as a replacement of organic material.

Iris Agate - Iridescent Agate exhibiting all colors of the spectrum when sliced in thin slabs.

Laguna Agate - Beautiful and colorful type of Agate from Ojo Laguna, Chihuahua, Mexico.

Landscape Agate - Chalcedony with tree-like designs closely resembling scenery.

Mexican Lace Agate - Agate consisting of thin bands in a lacy or wavy pattern.

Moss Agate - Chalcedony with dense inclusions of green Hornblende.

Nipomo Agate - Agate with Marcasite inclusions found in Nipomo, California.

Onyx - Agate where the banding lines are straight and parallel, and consistent in band size.

Oregon Snakeskin Agate - White to cream Chalcedony with a wrinkled or cracked "skin", found in Oregon.

Plume Agate - Agate with inclusions in feather-like patterns.

Pom Pom Agate - Agate with yellow inclusions resembling pom poms.

Pseudo Agate - Agate as a replacement of organic material.

Rainbow Agate - Iridescent Agate exhibiting all colors of the spectrum when sliced in thin slabs.

Sardonyx - Agate with straight parallel bands of brownish to red alternating with white or black bands.

Sagenite Agate - Clear Chalcedony containing inclusions of other materials

Scenic Agate - Chalcedony with tree-like designs closely resembling scenery.

Snakeskin Agate - Reddish brown Agate with black concentric bands.

Star Agate - Agate with banding lines in the formation of a star.

Sweetwater Agate - Chalcedony with star-shaped patterns of manganese oxide inclusions, found in Sweetwater River, Wyoming.

Thunder Egg - Nodule filled with Agate in the center.

Tube Agate - Agate with tube-like formations which are sometimes hollow.

From The Agate Licker, 02/05; via T-town Rockhound, 05/06

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Summer Vehicle Safety

By Bill Klose, AFMS Safety Chair

Spring is now officially with us and rock hounds hearts turn to field trips, rock shows, and other outdoor activities involving the family vehicle. In order to arrive safely, it must be prepared for the trip and piloted safely. Prior to leaving on a trip, make sure your vehicle is in good mechanical condition. Service the engine and make sure the brakes are in excellent condition. This may require a tune up, oil change, and brake adjustment or pad/puck replacement.

Check the tires for wear and proper air pressure, including the spare tire or "donut". If the tires show wear, rotate or replace them. A wheel alignment may be prudent if it appears that misalignment is the cause of uneven tire wear. If you are going to be traveling over long distances without services or on rural roads, especially rutted dirt roads, it may be advisable to replace the "donut" with a full sized spare tire. This will provide the ability to reach services that are further away than the recommended range and speed for the "donut" and will provide higher ground clearance for your vehicle on rutted roads, especially with the loads that rock hounds are known to carry. The tires should always be fully inflated. Soft tires provide a smoother ride, but will heat up and may fail in hot weather. Do not exceed your vehicle's tire, spring, and towing load limits.

Make sure your windshield wipers are in good working condition and the inside and outside of the windshield and other windows are clean. Adjust the seat headrests to the level of your ears, not to the lower area of your head or curvature of your neck. Ensure that the seat belts and children's safety seats are in good working condition and properly installed in accordance with the manufacturer's instructions. Make sure your headlights are properly adjusted and clean and wipers are working if installed. Adjust your mirrors so as to reduce the "blind zones". It may be advisable to

replace the inside rear view mirror with a wider type to improve rearward visibility. Avoid buying vehicles with dark tinted windows which can impair visibility. An oil change and lube will improve engine performance and mileage.

Check the supplies in the car for bottled water, a tire iron with lug nut key (if anti-theft lug nuts are installed on your vehicle), jack, flashlight with extra batteries, emergency flasher or triangle, and blanket. Extra brake fluid, engine oil, windshield wiper fluid, and transmission fluid are recommended, as well as an emergency tool kit, first aid kit and cell phone with spare cell phone battery or cigarette lighter cell phone charger.

Plan your trip before heading out, so you can concentrate on driving, not navigating. Have the maps and travel guides available in the vehicle and have someone else familiar with them to aid with navigation if the need should arise to reduce driver distraction. Make reservations in advance and plan the trip so that each day's activities will not exhaust the driver. Provide for frequent stops to rest the driver and if possible share the driving responsibilities. AARP recommends that if you are planning to take an unfamiliar route at night, try making a trial run during daylight. Avoid driving in heavily traveled or high speed areas during rush hour and bad weather.

Make sure that your prescription glasses are current and that you have both clear and tinted glasses with you as well as any prescription medicines. Carry something to eat, like energy bars, and drink, in case you are marooned alongside an isolated highway for a period of time.

Once you are on the road, keep a safe distance (three second rule) behind the vehicle ahead of you. If you are going to change lanes, signal well in advance and look in the inside and outside rear view mirrors and over your shoulder before making your move, to avoid not seeing a vehicle in the blind area in the rear quarter area of your vehicle. When passing, provide adequate space and use your turn signals prior to pulling back over into the travel lane. Do not travel in the passing lane. Do not talk on the cell phone, eat, or engage in any other activity that will distract you or keep you from having both hands on the steering wheel.

Use your headlights at least one half hour before sunset until one half hour after sunrise and whenever there is poor visibility or rain. Keep the radio volume down and be alert for emergency vehicle's flashing lights or audio warnings. Use your seat belts and keep at least 10 inches from the vehicle air bags. If your vehicle should have a flat tire or other casualty, get as far off the pavement as possible and put out a flare, flasher, or emergency triangle, so others can see you. It is better to drive a short distance on a flat tire to get the vehicle out of traffic danger. If it is not safe to change the tire or repair the vehicle yourself, call for help.

When traveling with trucks, drive so you can see the truck's rear view mirror, to ensure that the driver can see you. When stopped at a traffic signal or stop sign, especially on up grades, stay back from the vehicle ahead to allow for possible roll back when starting out, which is quite common with standard transmissions.

Do not encourage road rage by making gestures, looking at other drivers, or exhibiting aggressive driving habits. If you should be pursued by another driver, proceed to a populated area, preferably a police station. Do not go to your home and do not get out of your vehicle. Always be alert for the unexpected.

From AFMS Newsletter, 5/05; via BEMS Tumbler, 5/06

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The Fascinating World of Opal

A Gemologist's View of Australian Opal

By Elisabeth Strack

In 1922, mining was officially ceased in the Dubnik opal pits in eastern Slovakia. This was the deposit at Czerwenitza that still belonged to Hungary before the First World War and that was renamed Dubnik in 1920. At that point in time, the Australian opal industry had already experienced its first blossoming including the period from approximately 1890 to the First World War.

The first opals were found in 1872 in the area of White Cliffs in New South Wales, although they were only successful at mining them in the nineties. They couldn't have been discovered at a more favorable time. England, in whose political arena of responsibility the colony of Australia was in, was at the zenith of its political and economic power. Broad groups were successful and prosperous and there was new bourgeois jewellery that selected the opal as its fashionable stone. Queen Victoria (1837–1901) was especially enamored of the new stone from English colonial areas.

Opal was also fashionable on the continent and especially in Germany, where large groups had also become prosperous since the years of the founding of the German republic. Special tribute was paid it in Art Nouveau, but also in historical and naturalistic jewellery of the end of the 19th century. Germany had a special importance during the first opal boom. Idar-Oberstein and especially the village of Kirschweiler in the immediate area developed into the most important grinding centre for opals. Even before 1900 the first purchasers and grinders took the journey upon themselves to far-away Australia and Kirschweiler was able to proudly call itself as the richest village in the German Reich in the years before the First World War. The "opal village" is still known in the international market because some of the established German opal companies are still at home there.

The Australian opal industry has experienced a history of successes in its 130 years. The first opals came from White Cliffs into New South Wales. They were bright opals that they called white opals. The Hungarian opals that were the only ones known at the time. In comparison to them, white opals were so opals were discovered in 1887 in the area of Lightning Ridge. The fields in the surrounding area of the Ridge continue to be the exclusive supplier for fine black opals.

The first opal diggers came from White Cliffs approximately 500 kilometers away after the deposits there were exhausted. White Cliffs was quickly forgotten and there were only new opal finds in 1980. Mining began in Lightning Ridge in 1901 and the first stones were only sold to jewelers in Sydney one year later. They didn't quite know what to do with the peculiarly colorful stones because in the meantime the white opals from White Cliffs had already established themselves as the new standard again. Fine black opals can seldom be found in the jewellery of the early 20th century. They only receive their proper tribute in the magnificent pieces of jewellery of Art Déco. In 1915 the fields of Coober Pedy in southern Australia that were mined beginning after the First World War. Coober Pedy still supplies the largest amount of bright opals. In 1960, Coober Pedy only had about 60 inhabitants. Today, several thousand people live in this city. Many of them live in the dugouts that they have built in the earth to protect themselves from the extreme heat. Coober Pedy can be reached by airplane from Adelaide 3,000 kilometers away. The deposits of Andamooka that are south-east of Coober Pedy and that have become known primarily because of the opal matrix found there were only discovered in 1930. Mining only began on the deposits of Mintabie that is in the north-west of the state, in 1978. From the beginning, the mining methods were corresponding more progressive than with the other deposits. Queensland is the third Australian state that is of importance for mining opal. The first blossoming began in the years after 1895. However, at the beginning of the new century, Queensland was overtaken by Lightning Ridge and it only was important in the sixties. This is the time of increasing demand from Hong-Kong and Japan, that were to have such a supportive effect upon the opal market of the last thirty years. Since then, Australia has been exporting the greater portion of its opals to Hong-Kong and from there they go to Japan after processing. In the middle of the seventies and end of the eighties there were new boom times for "boulder opal" that is characteristic for Queensland. This designation comes from the fact that opal is preferably found in what are known as boulders. The opal fields are in a belt of approximately 300 kilometers that stretches over approximately 1,000 kilometers from the south to the middle of the state. The cities of Quilpie, Opalton and Yowah have become

especially famous. The opal fields of Australia have their own world. Opal searchers come from everywhere. Opal offers each of them the possibility even today to find their fortune. And they're not just adventurers and desperados who are succumb to their attraction. Life here is diverse in spite of its disappointments and privations. Many opal diggers turn their backs on an orderly life in so-called civilization forever and stay in Australia. Their opals are sold directly where they are. Traders from the great Australian cities are there at all times and purchasers from all around the world visit the deposits on a regular basis. At this point, we have to mention the fact that it only makes sense to take a trip to Australia if you have the corresponding experience. If you do not know your way around and if you let yourself be overcome by your own enthusiasm, you will probably end up paying excessive prices. The really fine qualities find their way to the international market directly. In the last ten years, the Australian opal industry has had to fight with a lot of difficulties and production is on the decline. The well-known deposits seem to be coming to an end and new ones cannot be found primarily because the Australian Aborigines are lodging claims to the land. Their interest is probably not the opals, but restoring the things the way they used to be when they still lived in harmony with nature.

Opal Mining The gaps and cavities containing opals are found at a depth of approximately 5 to 40 metres. From the start, the Australian opal diggers used two methods, which one could describe as open-pit mining and shaft mining. The initial stage in the first method was to dig a pit with a diameter of 3 to 25 metres until reaching the horizon with opal contents. If the deposits were located too far down, then a round shaft was dug down to the relevant layer from where tunnels were built into the surrounding rock. They followed the opal loads, which are usually only a few centimeters thick. Australia is known for a whole series of large opals, the largest of which is still most probably "The Desert Flame of Andamooka". This opal was discovered in 1969 and weighs 6,843 kilograms. It is on display in the Mining Museum in Sydney. "The Olympic Australia", a 35-kilogram opal, which was found near Cooper Pedy in 1956 during the Olympic Games, is also famous. The "Burning Troy" was a famous stone in the 19th century, an opal with a brilliant, red play of colors, which Napoleon III gave to his spouse Eugenie.

Basic Color / Transparency The evaluation of opals is based on a fundamental classification in types, dependent on the basic color. The basic color is the body color of the opal substance. In this, the terms "light opal" and "dark opal" are used as main headings. The light opals account for the majority of Australian production. The previous term had been white opals, a term that is still used in retail trade today. The Australians believe that the term white opal should be reserved within the light opal group for the stones that actually do have a white body. These stones make up the majority of the most widespread, normal type of transparent to opaque precious opal without any noteworthy play of colors. They are followed in the evaluation by light opals that are more transparent and in which the play of colors is more prominent. The so-called jelly opals (transparent, hazy play of colors), the grey opal (light grey body color, translucent to opaque) and the crystal opal (transparent to translucent with pronounced play of colors on the surface and in the heart of the stone) are valued even higher. The term crystal opal is only the designation of quality.

Opals are considered dark or black opals when the body color appears dark when viewed from above. Opals with a dark grey body color are described as semi black. Black crystal opal is transparent; the play of colors is visible beneath the surface as well. However, it is not valued as highly as actual black opal, which can be divided in turn into black 1, black 2 and black 3. These opals are extremely rare. Their black base provides a particularly attractive setting for the play of colors. There is a rule of thumb that the most valuable opals are those with the blackest body color. Although opals with an extremely thin opal layer on a dark base of potch can achieve a high price (the same applies to dark boulder opals). The price is multiplied several times if the opal substance is solid. Occlusions of the mother stone on the lower part of a fine black opal will only pull the price down slightly, provided that they are not visible from the surface.

Accordingly, the manner in which the opal is cut affects the value in that domed Cabochon cuts with a symmetrical outer form are valued higher than flat Cabochons or the so-called free forms, which one finds among boulder opals. The cut is valued individually in high quality stones. In Australia, opals of medium quality are now frequently cut to calibrated sizes in machines. Boulder opals, which are found exclusively in Queensland, represent a separate quality category. These are precious opals that are cut to preserve parts of the mother rock, a ferrous stone.

One expects that the opal layers in boulder opals of fine quality no longer contain any occlusions from the ferrous stone. One often follows the contours of the raw stone when cutting boulder opals, so that the outer form of the cut stones may be irregular and the surface of the opal frequently has small waves. The most expensive boulder opals are those with a dark body color, comparable with black opals. The boulder matrix describes a variation in which fine arteries of ferrous stone remain in the precious opal. Their value rises the more opal they contain. In general, however, they are less expensive than other boulder opals. Other categories of boulder opals are the so-called fun stones, which have clear traces of ferrous stone on their surface. The so-called splits are boulder pieces with a slightly thicker artery of opal, which is split in order to create a pair. If the split surface contains precious opal with a good play of colors, they may be very valuable.

Deposits outside of Australia In his Historia Naturalis, Plinius, a Roman, describes the opal as a precious gem that offers the eye a perfect aesthetic pleasure as it displays the whole magnificent spectrum of colors found in nature in a very small space. Plinius, whose last position was as Commander in Chief of the Roman fleet, rose to fame in his age as a private academic and author. He lived from 24 to 29 AD (he died during salvage work following the Great Eruption of Vesuvius).

Romans believed that opals brought good luck, uniting the colors and miraculous powers of all of the most valuable precious stones in itself: the red of the ruby, the green of the emerald, the blue of the sapphire, the violet of the amethyst and the golden yellow of the topaz. The Latin term "opallus" and the Greek term "opallios" are most likely derived from the Sanskrit word "upala", which was used in India to denote precious gems in general. In the Orient, opals were regarded as symbols of hope; people believed also that it helped improve vision. In this context, the origins of the word "opallios" are often connected to the Greek word "ophtalmos" (= eye). During the Middle Ages, the opal was regarded as an "Oculus Mundi" or the "Eye of the World", thus adopting the conceptions that had prevailed in antique ages also. In Medieval times, the sun was generally seen as the "Eye of the World" or the "Eye of the Worlds". It is interesting to note in this context that in the Arab and Persian languages, opals are still described as "Eyes of the World" or "Eyes of the Sun". Precious gem traders only use the European term opal in modern colloquial speech.

Other Deposits in Central America There are opal deposits in Honduras, Guatemala and Nicaragua. In a certain sense, these represent a continuation of the Mexican deposits in the Western chain of volcanoes in Central America. The deposits in Honduras are the best known. A German mineralogist mentioned them in 1843. Opals from Honduras are similar to their Mexican cousins. These deposits, which were most likely mined in the pre-Columbian age, have never been researched systematically and they remain without commercial significance to the present day. In 1880, one large piece of opal was used to cut two stones weighing 23 and 15 ct. respectively. These stones bear the names "Oberon" and "Titania".

Indonesia It is possible that the Indonesian deposits on Java were already mined in antiquity; this at least would explain the early popularity of opals in Oriental regions. It is also possible that Indonesian opals were imported to the Mediterranean areas very early on. Some sources assume that a German geologist discovered the deposits at the start of the 20th century. Mining has been

confirmed in the thirties of last century, although it did not resume until the seventies. In the local language, the deposits are called "Kali maya", which means something like "River of Illusion".

The mining, which resumed a few years ago under a young American entrepreneur, is concentrated around the weathered volcanic rock in the lofty regions of Java. The significance for world trade is low. Within the country, however, several firms process the opals to produce jewellery, which is sold to tourists in the major hotels and at airports. Javanese opal is similar to Mexican opal, and some of them are of fine quality.

Kazakhstan and Ukraine The deposits in Kazakhstan and Ukraine should be mentioned in the former Soviet Union. The deposits in Central Kazakhstan, which were discovered during prospecting for uranium, provide fire opals, which rarely possess a play of colors. Only a few cut examples are known. Some fire opals from Ukraine have been marketed occasionally for a few years.

Turkey The Turkish deposits by Simav in West Anatolia were discovered in 1860, although they may indeed have been known in antiquity. The opals are colorless or have a yellow to red basic color, quite similar to the Mexican opals. Fire opals are also found. These deposits, which were mined regularly at the start of last century, have no commercial significance any more. So-called dendrite opals from Turkey have also been found. These are common opals that reveal deposits and patterns with a coloration that is similar to dendrite. Their appearance is not unlike dendrite agate. The material is used for decorative purposes. In Europe, dendrite opal from the deposits in Doberberg, Lower Austria, and in Böhmisch-Krummau, South Bohemia, was made into boxes and other souvenir items as early as in the 18th century. Dendrite opal is common in many deposits, also in Australia and Peru.

Europe and other deposits Europe has a number of deposits, most of which are only interesting for collectors, however. There are several sites in France alone, where a pink-colored opal was used as jewellery stones and in cameos during the 19th century. It was known locally as the Quincyit due to the place it was found, Quincy-sur-Cher, located between Tour and Bourges.

At the end of the 18th century, opal rose to fame from the region of Hubertusburg in the Northwest of Saxony. This is so-called hydrophane, which does not reveal its play of colors until it has been immersed in water. When dry, it is milky and opaque. A characteristic feature of hydrophane is that it sticks to the tongue. Processed hydrophane was traded for a while under the aforementioned designation "Oculus mundi" (Eye of the World), another is the name "Lapis mutabilis" (Changing Stone). It is important to refer to the term "pyrophane" in this context. This was hydrophane, dripped in wax, which reveals its reddish play of colors when warmed up.

There is a second deposit in Saxony, in the Ore Mountains by Eibenstock. It was mined as early as the end of the 17th century, probably providing the opals for the Miner's Regalia owned by the Electoral Prince Johann Georg II. Together with the chrysopras, Frankenstein in Silesia provided a green opal, which was known as prasopal. Prasopal gains its color from a low nickel content, transferred from weathered serpentine. Prasopal also comes together with the so-called kascholong from Tanzania, Brazil and Oman. The name "Kascholong" comes from the Mongolian language. It describes a translucent, white or colored, common opal with a porcelain appearance or with similarities to mother of pearl. This is why it is also known as the "mother of pearl opal". It is extremely porous and was used for carving work and for perfume stones, which, submerged in perfumed oil, release a pleasant aroma.

Africa Tanzania is the home to the aforementioned deposits of prasopal. In Muscat, Oman, different kinds of opal were found, although they are only interesting for collectors. Africa has other deposits in Mali and Ethiopia. The first stones were marketed around the middle of the nineties. In Ethiopia, opals are found in bunches, the so-called thunder eggs. Opals from this region are red-orange to dark brown and transparent. A play of colors has been observed in some instances. The site in Mali is in Nioro du Sahel, Djudigui. The appearance of the transparent, lightly blue opals with a clear play of colors is reminiscent of Mexican opals. Common opals are also found in yellow, green and brown tones with a milky-opaque appearance.

Other countries There are reports from the Canary Islands of opals of volcanic origins together with other silicic acid minerals. It is possible that New Zealand will soon develop to become an opal country of the same significance as Australia, as a magnificent, light opal was found several years ago in a volcanic deposit in the East of the Northern island.

The physical characteristics of opals. Opals are not particularly hard, ranging at only 5.5 to 6 on the Mohs scale. Due to this fact, opals are not only sensitive to impact and pressure from outside, they also turn slightly matt quite easily as a result of the fine sand dust that is always present in the air. Women wearing opal jewellery should make sure to protect their opals against hard impact, especially if the stones are worn in rings. The refractive index is also low at 1.45 (simple refraction). It is not far from the refractive index for water (1.30) and can change, depending on the water contents. The chemical composition of opal is SiO_2, or the same as silicic acid. Opals also have water contents of between 3 and 10 % on average. There are almost always trace elements, for example iron, cobalt, copper, nickel, silver and such like. The trace elements may determine the color. Drying cracks form when opal dries. This reduces their value. The specific weight is between 2.1 and 2.2 and around 2,0 for fire opal. The specific weight of porous opal may be below 1.30. The low specific weight means that opals do not weight very much in a ratio to the size and the appearance. Light Australian opals reveal a clear white to blue fluorescence in long and short-wave, ultraviolet light (366 nm or 254 nm), which is almost always accompanied by phosphorescence. This means that the fluorescence remains once the lighting has been switched off. Black opals are more rarely fluorescent. Fire and water opals reveal varying fluorescence. Uranium contents may cause a strong green fluorescence.

Imitations There are rumors that the Romans placed peacock feathers and fish scales behind glass to imitate opal. This does not appear surprising, as we now use aluminium inserted in glass. Imitations made of so-called "opal glass" rose to fame at the end of the 19th century. It had a clear blue and red opalescence and a fine iridescence. The production of opalescent glass was particularly popular in the era of Art Deco, when it was also used in jewellery to imitate opal. In the centuries before, people had been satisfied with simple, colorless glass, which was cooled drastically immediately after production in order to generate cracks with iridescent effects on light. This method is known as quench crackling and it is also used on mountain crystal. Orange glass still produces convincing imitations of fire opal.

The so-called "Slocum Stone", which was developed by an American of the same name in 1974, can be seen as a successful glass imitation. There are light, yellow and dark variations. The yellow variation is intended to imitate the fire opal. The light "Slocum Stone" is grey-white and translucent; it is a successful imitation. Conversely, the black "Slocum Stone" is less convincing. These are silicate glasses into which extremely thin, ground metallic forms are melted. The play of colors is due to interference of the light on the extremely thin slivers, which are sized in a magnitude of less than 0.5 mm. The slivers, which are reminiscent of broken Christmas tree balls, are clearly visible beneath an optical microscope. Gas bubbles are also visible. The refraction index of the "Slocum Stone" is around 1.49–1.52 (simple refraction), while the specific weight is between 2.41 and 2.51. The hardness is approximately 51/2, while the specific weight is roughly 2.41. Milky, plastic imitations, which were reminiscent of cheap opals, were marketed from Australia and Japan at the end of the seventies and start of the eighties. The specific weight is around 1.17, while the refraction index is approximately 1.465–1.480 (simple refraction).

The imitations have a structure made of plastic balls that is similar to opal structure. In some cases, the Japanese marketed the imitations under the name "Pastoral Opal" or "Neo Noble Opal". In 1979, a Japanese imitation made of latex, the milk of the Indian rubber tree, rose to fame. It also had the balled structure of opal. The imitation, which was designed to look like light opal, has a specific weight that is around 1.0. It reveals a characteristic brush stroke pattern under the microscope.

Synthetic opal The first synthetic formations that were similar to opal were created during tests on synthesizing quartz around 1900. Opal synthesis did not succeed until 1965, when the uniform, balled structure of the opal was recognized. The synthetic manufacturers were faced with the problem of manufacturing balls of silicic acid that were identical in size and suitable and of arranging them in a regular spatial grid. The sedimentation process for this necessitates a long time. At the start it took up to a year and even longer. This process is followed by stabilization in order to reduce the porosity. Silicic gel or plastic is used in this process. However, if plastic is used, it is possible that the material must not be declared as synthetic opal.

In 1972, the French manufacturer Gilson marketed a light, synthetic opal, which was followed by dark synthetic opals. A honey-colored opal was manufactured for a brief period, which was intended to imitate the Mexican opals. It was not allowed to be declared as a synthetic, as it contained organic constituents in its structure. Gilson has produced a transparent synthetic opal since 1994, which imitates crystal opal. Since the start of the eighties, the Japanese company Kyocera has marketed its so-called synthetic "Inamori-Opals", which, after difficulties at the start, are now also recognized as synthetics. There is a colorless, transparent, synthetic water opal, which should be classified as a type of opal, and a synthetic black crystal opal. The Gilson synthetics can be recognized by their structures under an optical microscope; in some cases, ten-fold magnification may be sufficient. The characteristic features include a clear delimitation of the color stains, which create the impression of lizard skin. A pillar-like structure can be seen from the side, as a vertical pillar throughout the whole stone is part of each color stain. The light synthetics have a board-like structure, created by depletion cracks.

Synthetics produced in the last ten years may be more difficult to identify. There are slightly different, but effectively corresponding characteristics in the Kyocera synthetics. Since 1993, Kyocera has marketed a plastic-impregnated, synthetic opal; it must be declared as an imitation due to the impregnation. The plastics that are used in this process are colorful and cover the opal's play of colors. Gilson and Kyocera are still the most successful manufacturers of synthetic opals. Other manufacturers have not progressed further than test stages. Russia and China have marketed light, dark and transparent synthetic opals since 1994. The Russian synthetics are offered on international trade fairs and may even have secured some significance by now. There are similarities with the opals in terms of optical and physical characteristics of the synthetics. The synthetics have a different, but not uniform fluorescence under UV light. Finally, it is important to mention doublets, which use thin layers of synthetic opal or "Slocum Stone". Doublets of this kind must be seen as forgeries and must not be seen in a context with the opal doublets we have already dealt with.

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Diamonds, Coal, and Carbon
With all the coalfields in North America, why aren't more diamonds found here?

By Andrew A. Sicree

Both diamonds and coal are carbon, right?

Diamonds are pure carbon. *Coal,* however, is a complex mixture of carbon and large organic molecules consisting mainly of carbon, hydrogen, and oxygen with some nitrogen, sulfur and other elements. Coal beds formed from thick layers of plant matter that were buried, compacted, and *lithified* (turned to rock). Diamonds and coal are quite different.

Can we find diamonds in coal mines?

In nature, diamonds form in the Earth's mantle under very high pressures (54,000 times atmospheric pressure). In order to be turned into diamond, coal would have to be pushed down to depths of at least 100 miles. None of our coals were ever buried anywhere that deep! Even the *anthracite*, or hard coal, from eastern Pennsylvania was never buried any deeper than about three to six miles. So don't go looking in the coalfields for diamonds.

You may hear the term "black diamond" used for shiny black anthracite coal; this is a miner's nickname for coal, not a geological term. Dark or black diamonds are called bort or carbonado, but they have no relationship to coal. Most bort is from the Congo, and most carbonados are from Brazil or the Central African Republic.

Formation of diamonds

Diamonds are as interesting to the mineralogist as they are to the jeweler. They are important to earth scientists because they carry information about the nature of the Earth's *mantle* where they formed. [The mantle is that layer of the Earth's structure which lies between the Earth's crust and its core: under most continents it lies about 20 miles down and continues to 1800 miles in depth.] The most common way diamonds can be carried out of the mantle is during a volcanic eruption of a very unusual igneous rock called *kimberlite.*

Diamond host-rocks

Kimberlite is typically a gray or bluish rock with large crystals of a dark brown mica, the mineral *phlogopite,* visible in it. The fine-grained matrix is mostly *peridotite,* a blue- or green-gray rock made up mostly of the minerals *olivine* and *pyroxene.* Kimberlites may also contain small crystals of bright green *diopside,* blood-red *pyrope garnets,* and glossy black *ilmenite,* as well as other minerals. Fragments of other rocks from the Earth's mantle and crust in the form of *xenoliths (i.e.,* "strange rocks") may also be trapped in the kimberlite matrix.

Of course, the included mineral that really interests everyone is *diamond.* Sometimes, diamonds occur as crystals with octahedral shapes, reflecting their underlying cubic crystal structure. More often, diamonds are odd-shaped because they were fragmented or redissolved before the kimberlite host-rock formed.

Diamonds are also found in another unusual mantle-derived igneous rock called *lamproite*. They also occur in meteorites and in rocks that have been shocked by the impact of large meteorites. Meteoritic diamonds are quite small and often imperfect, rather than large gem-grade, specimens. Carbonado diamonds are thought to have been formed in inter-stellar space and have been carried to Earth in meteorites.

Stability of diamond and graphite

Diamonds, with a cubic crystal structure, are crystals of pure carbon formed under high pressure. Temperature is also important: typically, diamonds form only in those parts of the mantle where the pressures are greater than about 54,000 atmospheres and the temperatures are less than 1300°C (2370°F).

The only truly stable form of pure carbon at the *surface* of the Earth is the mineral *graphite.* Like diamond, graphite is pure carbon,

but graphite has a planar hexagonal crystal structure. Between the hexagonal layers of carbon, weak bonds make graphite soft and slippery-feeling. Writing pencil “lead” is really graphite – used because it is so soft that it rubs off on paper and makes a black mark. Thus, the hardest mineral and one of the softest of minerals share the same chemical composition: crystal structure is what matters!

Because diamonds form in the mantle, the fact that we find them on the surface implies that rocks can escape from the Earth’s mantle to its surface. The magma that solidifies to form kimberlite must move rapidly from the Earth’s mantle to the surface, and cool quickly, if diamonds are to avoid conversion into graphite. It has been calculated that a kimberlite eruption may occur at twice the speed of sound! You wouldn’t want to be nearby when one blew, but there have been no kimberlite eruptions during historic times.

Pseudomorphs after diamond

One of the most interesting, if not also among the most disappointing, of the *pseudomorphs* (pseudomorph = “false-form”) is that of graphite after diamond. Small octahedrons of graphite have been reported in rocks in North Africa. Because graphite is hexagonal and diamond is isometric (cubic), these are thought to have been diamonds, formed at great depths, but converted into graphite as they were carried upward slowly out of the Earth’s mantle by the process of *obduction.* Although they are now graphite, they retain the shape of the original octahedral diamond crystals — disappointing to the would-be miner, but interesting to the mineral collector.

Where are the kimberlites?

We all know of the great diamond mining districts in Africa and the more recent diamond discoveries in northern Canada. Diamonds always seem to be exotic and far away. But kimberlites are more common in North America than many might suspect. Kimberlites and related rocks have been found in Arkansas, Kentucky, Wyoming, Colorado, New York, and elsewhere. Colorado and Arkansas have even produced some diamonds, but efforts to mine diamonds in those states have proven to be uneconomical.

Kimberlites even occur at three locations in Pennsylvania. Interestingly enough, two of these kimberlites were actually encountered in coal mines in Indiana County, Pennsylvania. They haven’t yet been detected on the surface. But the third kimberlite can be seen on the surface near Masontown in Fayette and Greene Counties. These kimberlites have been determined by Professor Michael Bikerman of the University of Pittsburgh to have been formed about 147 million years ago during the Late Jurassic Period.

While in theory any kimberlite could carry diamonds, only one kimberlite in a hundred is diamondiferous. No diamonds have yet been found in any kimberlite in the eastern United States, but we keep looking! - *A. A. Sicree*

Dr. Andrew A. Sicree is a professional mineralogist and geochemist residing in Boalsburg, PA.. Popular Mineralogy provides technical answers to your general mineral questions. If you have a question you’d like to have answered, please send e-mail to sicree@verizon.net ©2007, Andrew A. Sicree, Ph.D.

From Popular Mineralogy via http://hgms.org/, May 2007 the Backbender’s Gazette

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Grading and Pricing of Gemstones

Years ago, the world generally referred to two types of gemstones – precious and semiprecious. Diamonds, rubies, emeralds, sapphires (and sometimes opals and pearls) were considered precious, and all other stones, semiprecious. Today this distinction is obsolete and meaningless, since poor examples of the so-called "precious" stones can be bought for just a few dollars per carat, while fine specimens of so-called "semiprecious" stones such as tsavorite (a green garnet) or tourmaline (especially Paraiba tourmaline) may sell for thousands of dollars per carat. Clearly, the old terms are inappropriate in such situations. (Besides, the term "semiprecious" always seems to have a connotation of "semiworthless" and seems disrespectful of gemstones that are highly desirable in their right.) Today, the gem market is roughly divided into two separate domains -- diamonds and colored stones. Even this distinction is arbitrary and misleading, since many diamonds are colored and many "colored stones" are not. However, the same basic principles are involved in grading gemstones of both types.

You have undoubtedly heard of the "4 C's" -- color, clarity, cut, and carat weight. Organizations such as the Gemological Institute of America (GIA) and CIBJO (Confederation Internationale de la Bijouterie, Joaillerie, Orfevrerie, des diamants, perles, et pierres precieuses) have well established, widely respected standards for judging these qualities in diamonds. However, there are no similarly accepted standards for judging other stones, although several systems enjoy limited success.

One major difference between the diamond and colored stone markets is that the diamond market is largely controlled by one organization -- De Beers Consolidated Mines. Through their near-monolithic control of diamond mining and distribution, this company has done much to create a fairly stable market for diamonds, and relatively small diamonds are readily available in a wide variety of qualities. In contrast, most colored stones are mined with more primitive methods, by much smaller companies, and supplies are much more variable. Many colored stones are much rarer than diamonds of comparable size and quality and are often unavailable. A sizeable deposit of a stone may be discovered and quickly distributed to the market, only to become scarce again in a couple of years. Such uneven supply and less regulated distribution often contribute to wide price variations.

The following general rules apply to all gemstones:

Vivid, saturated colors are more highly prized than subdued or grayed-out colors. Deeper colors are more highly prized than lighter ones, unless the depth of color is so great as to make the stone appear blackish. The best color for any gemstone should be obvious from several feet or even several yards away. For example, a ruby should be intensely red from across a room, and a blue sapphire should be obviously blue, not black. The exception to the rule occurs when the extremes are desired -- truly colorless diamonds are valued more highly than those with pale colors, and a truly black diamond would be worth more than one that is merely dark gray.

Larger stones are more highly prized than small ones, although stones too large for use in jewelry tend to have lower per carat prices.

Gems with fewer and smaller inclusions are more highly prized than those with more numerous and larger inclusions, unless the inclusions contribute in a positive manner to the appearance of the stone. For example, insect inclusions increase the value of amber. Fine inclusions that cause star or cat's eye effects increase the value of stones such as corundum or chrysoberyl. Quartz containing large included crystals of rutile or tourmaline is often more valuable than quartz without. Characteristic "horsetail" inclusions are preferred in demantoid.

More durable stones are generally more prized than those of lesser durability.

Rarer stones are more highly prized than more common varieties. However, if the stone is so rare that it is essentially unknown to the general public, its value suffers and it is relegated to the status of a "collector stone." Stones such as boracite, childrenite, ekanite, eosphorite, painite, and simpsonite are extremely rare, attractive, and durable, but they are unlikely to command prices appropriate to their rarity, because there are fewer persons aware of them and eager to buy them.

Well cut stones of good symmetry, attractive design, and fine polish are more prized than poorly cut stones. Unfortunately, many

higher priced stones, such as ruby and emerald, are often poorly cut in order to maximize weight at the expense of appearance.

Stones of famous provenance are more prized than those lacking in personal history.

Pairs or suites of stones matched for color, clarity, and cut are more highly valued per carat than single stones, especially if the stones are rare on an individual basis.

Stones that have been enhanced in color or clarity by artificial means are worth considerably less than unaltered stones of the same appearance.

Some gemstones are occasionally more in demand due to their use by well known personalities or due to intensive marketing, such as the various television shopping networks. Such increases in demand are faddish in nature and tend to be fairly short-lived.

From http://tradeshop.com/gems/grading.html.

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August 2007 Gem & Mineral Shows

3-5--BUTTE, MT: 67th annual show, "Richest Hill on Earth"; Butte Mineral & Gem Club; Civic Center, 1340 Harrison Ave. (I-90, Harrison Ave. exit, turn north); Fri. 10-5, Sat. 10-5, Sun. 10-5; contact Pete Knudsen, (406) 723-8524.

4-5--NORTH BEND, OR: Show; Far West Lapidary & Gem Society; North Bend Community Center, 2222 Broadway; Sat. 10-6, Sun. 10-5; displays, exhibits, demonstrations, kids' activities, silent auction, raffle, hourly door prizes, dealers, rough and finished rock, gems; contact Carolyn DeMetz, (541) 267-5008; e-mail: czdemetz@earthlink.net.

4-5--SAN FRANCISCO, CA: 53rd annual show, "Golden Gateway to Gems"; San Francisco Gem & Mineral Society; San Francisco County Fair Bldg., 9th Ave. at Lincoln Way; Sat. 10-6, Sun. 10-5; adults $6, seniors and students $5, children under 12 free; displays, demonstrations, gems, jewelry, minerals, lapidary rough, fossils, lectures; contact Ellen Nott, (415) 564-4230; Web site: www.sfgms.org.

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

10-12–GRESHAM, OR: 1st annual show; OR Gem, Mineral, Jewelry & Fossil Shows; Gresham Armory, 544 N. Division; Fri. 10-6, Sat. 10-6, Sun. 10-4; free admission; 46 vendors, gems, minerals, fossils, jewelry; contact Jean Miller, P.O. Box 136, Molalla, OR 97038, (503) 829-2680; e-mail: Shadow92337@aol.com; Web site: www.ogm.shows.com.

11-12–EDMONDS, WA: Rock swap and sell; Maplewood Rock & Gem Club; 8802 196th St. SW, 3 miles west of I-5; Sat. 9-4, Sun. 9-4; sell or buy; contact Kim Lee, (425) 481-8294; Web site: www.maplewoodrockclub.com.

11-12–WALNUT CREEK, CA: Show, "Contra Costa Crystal Fair"; Jerry Tomlinson; Civic Dr. at Broadway; Sat. 10-6, Sun. 10-4; contact Jerry Tomlinson, (415) 383-7837; e-mail: sfxtl@earthlink.net; Web site: www.crystalfair.com.

17-19–SACRAMENTO, CA: Show, "Gem Faire"; Gem Faire Inc.; Scottish Rite Center, 6151 H St.; Fri. 12-7, Sat. 10-7, Sun. 10-5; admission $5 (weekend pass); contact Gem Faire Inc., (503) 252-8300; e-mail: info@gemfaire.com; Web site: www.gemfaire.com.

17-19–TEHACHAPI, CA: Show; Eonic Endeavor; Tehachapi Academy of Performing Arts, 48771 Valley Blvd.; Fri. 9-dusk, Sat. 9-dusk, Sun. 9-5; free admission; concurrent with annual Tehachapi Mountain Festival, lapidary demonstrations, vendors; contact Chuck Overall, 26860 Columbia Way, Tehachapi, CA 93561, (661) 821-4650; e-mail: Luckydog5433@aol.com.

18-19–YELM, WA: Show, "Biggest Little Gem Sow in the Northwest"; Nisqually Valley Rockhound Society; Yelm Middle School, Hwy. 510; Sat. 10-6, Sun. 9-5; free admission; demonstrators, silent auction, kids' spin wheel, door prizes; contact Leonard Cone, (360) 491-1429; e-mail: pinecone4@comcast.net.

24-26–SAN DIEGO, CA: Gem Faire; Gem Faire Inc.; Scottish Rite Center, 1895 Camino del Rio S.; Fri. 12-7, Sat. 10-7, Sun. 10-5; admission $5 (weekend pass); contact Gem Faire Inc., (503) 252-8300; e-mail: info@gemfaire.com; Web site: www.gemfaire.com.

31-2–SANTA BARBARA, CA: Show, "Gem Faire"; Gem Faire Inc.; Earl Warren Showgrounds/Exhibit Hall, 3400 Calle Real; Fri. 12-7, Sat. 10-7, Sun. 10-5; admission $5 (weekend pass); contact Gem Faire Inc., (503) 252-8300; e-mail: info@gemfaire.com; Web site: www.gemfaire.com.

31-3–FORT BRAGG, CA: 45th annual show; Mendocino Coast Gem & Mineral Society; Town Hall, Main and Laurel; Fri. 10-6, Sat. 10-6, Sun. 10-6, Mon. 10-4; free admission; contact Don McDonell, 643 N. McPherson, Fort Bragg, CA 95437, (707) 964-3116.

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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
American Opal Society
P.O. Box 4875
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Volume #40 Issue #8
August 2007

TO:

Some Topics In This Issue:

- **Royal Rainbow Opal Mine Open**
- **Kimberley 18.5 Carat Diamond**
- **Agates**
- **Summer Vehicle Safety**
- **The Fascinating World of Opal**
- **Diamonds, Coal, and Carbon**
- **Grading and Pricing of Gemstones**

Important Info:
Board Meeting – July 30th

General Meeting - August 9th

Simon King will be our key speaker on the famous Himalaya Mine. Simon will have a slide and video presentation of one of the largest producers of tourmaline in the world. Come see rare specimens and beautiful cut stones He will also have some for sale – a great opportunity!

— GENERAL MEETINGS —

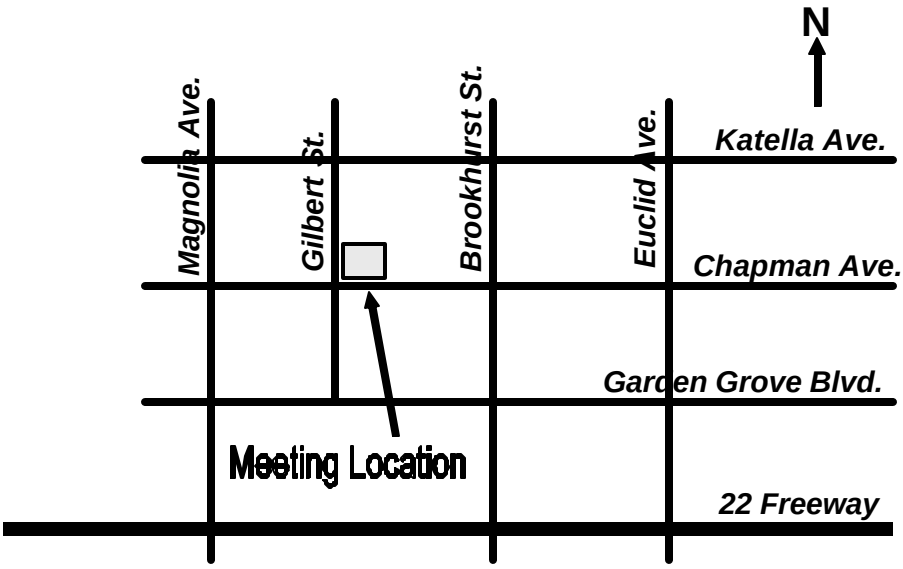
2nd Thursday of the Month
7:00 pm - 9:00 PM

Garden Grove Civic Women's Club
9501 Chapman Ave.
Garden Grove, CA 92841

(NE corner of Gilbert & Chapman)

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

August 9th:
Simon King on the Himalaya Mine and Tourmaline



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