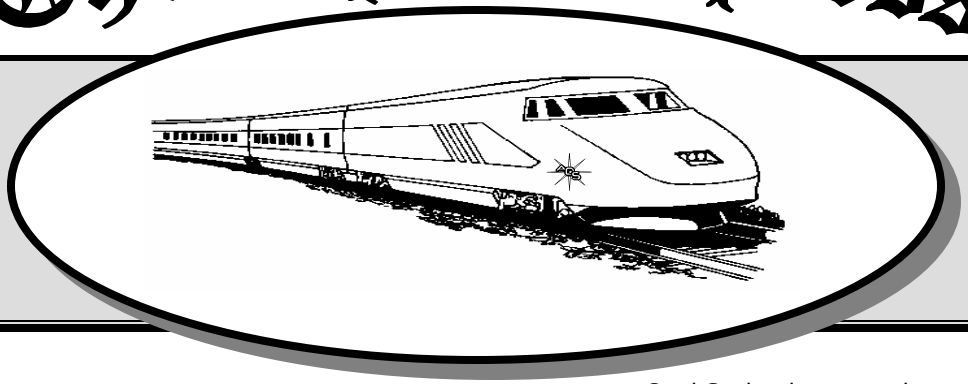
The Opal Express



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President's Message

By Gene LeVan

AOS has a lot of new things happening like the super auction last month lead by Will Shaw, he did great job on this meeting.

We had very good support from our members and board for this successful auction. Be sure to come to the Ball school for the opal cook out by Stan McCall on Monday at 7:30. Remember to bring some rough to cut on our machines at the school. It is fun to do and our members will show you how to do cut opal stones.

Come and bring a friend to the April meeting for more fellowship, learning and just fun. The opal adventure continues…

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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: "knobby".

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Opal Society Workshop

The American Opal Society's workshop is open at Ball Jr. High School every Monday from 7:00 to 9:30 p.m. The school is located at 1500 W. Ball Road in Anaheim. This is between Euclid Ave. and Harbor Blvd. If you are traveling east on Ball Rd. the parking lot entrance you need to use is just before the railroad tracks. If you are traveling west, the lot is just after the railroad tracks. Room 34 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. 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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O-Bay Live Auction a Big Hit!!

By Will Shaw

The AOS's first O-Bay live auction was fun, and fund-raising, and what we like to call "edu-tainment." Will Shaw took up the auctioneer's gavel during the general meeting March 8th, and offered up about 30 lots of opals, jewelry, display cases, a buffer, and opal rough to the group. Vendors - who must be AOS members - registered their items with Fran Todd at the laptop computer station, and agreed to donate 10% of their sales to our club to help with workshop costs and to promote our annual Opal Show.

Bidders - guests and members - signed up for paddles with Rob Sandoval, who graciously gave up one of his "free Father" nights to help out. (Rob's the proud Father of a new son, Gabriel, and looks hollow around the eyes from lack of sleep, lately!) Treasurer Russ Madsen and his consort Vicki took payments, and issued checks to vendors.

If the profit was just enough to buy a cab fare across town, it was incredible, really, figuring that just 30-40 folks were present! With the right cross promotion to the Searchers, posting the date on the website, and word-of-mouth now spreading for the next time, we might eventually attract 100 people, and who knows how many more might lurk out there on the web!

Next time we'll promote better, invite the Searchers members, perhaps, and get an email list of local jewelers, crafters, and dealers who might appreciate the bargains the AOS can provide! Jim and Will are anticipating preview items placed up on the AOS website to further whet the bidder's appetites --opals in color, mounted in gold, and in the glittering rough! The website may also open our O-Bay to anyone who can log onto the world wide web!

Jim Pisani noted an email from a bidder who wished to bid from afar - our first remote web inquiry - so it ain't science fiction! Remote, proxy bids are technically possible, and these bidders might raise the bids, and therefore increase revenue to the club!

The Board was impressed enough to want to do it again, say, perhaps quarterly, beginning in June or July. The AOS may eventually set up a formal live auction committee, and volunteers are welcome--contact Will Shaw.

Thanks to all the wonderful volunteers -- Russ M for extreme mental tenacity as we figured out the "what-ifs" and the legal boilerplate stuff. Will for his congenial auctioneering, Fran T for stepping up to man the computer auction Tracker program. Mike K for the loan, again, of his stellar laptop computer! Rob Sandoval for logging in bidders, and issuing paddles, etc. and Jim Pisani for promoting our O-Bay in the newsletter!

April Presentation: Opal Photography

Will Shaw and Fran Todd will demonstrate their "tried and true" methods for photographing opals.

Will will demonstrate his $E=MC^2$ U method... so simple, even a Baby Einstein with a digital camera could do it!

Members are encouraged to bring their digital cameras for this demo--the operator's manual, if they have it-- and any gem they may want to photograph (up to 1" wide). Three lucky guests will receive Will's secret diffuser stand absolutely free!

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February Guest Speaker
Clare Gagnon on Gemstone Identification

By Russ Madsen

The Opal Society was pleased and honored to have as our guest speaker for February longtime gem expert and faceter, Clare Gagnon. Clare is well known for his range of knowledge of all (ahem) facets of lapidary and gemstones.

For this evening Clare talked about identifying gemstones in three different scenarios: (1) field testing, (2) gem formation, and (3) laboratory testing. Guests were able to try some of the following tests on interesting samples Clare passed around during his presentation.

Field Testing

There are a variety of gemstone tests and observations that can be made in the field while on a rockhounding expedition.

Eyes: One may use one's eyes to note gemstone features such as shape of a specimen, crystal structure, or structural features. Examples: quartz crystals have horizontal striations formed during growth of the crystal; garnet forms as dodecahedron; tourmaline is trigonal and crystal layers grow in a spiral so the corners are stacked offset which forms vertical striations.

One might observe breakage patterns and shapes. Opal, for example exhibits conchoidal fracture. There may be a powdery residue from the breakage area. Is it colored? White? A scratch test can reveal the hardness of the material. One might use a rock hammer to window a specimen and examine a fresh surface or see inside. The color and observed texture of a specimen might be definitive. Touch: The "feel" of material may provide clues. Topaz is very cold when held to the cheek. Jade feels cold and 'greasy'. Ears: One might tap on a material and listen. Flint makes a ringing sound. Smell & Taste: NEVER taste a specimen. "Hmmm... this substance tastes like arsenic." (ulp)

Formation

Tectonic forces produce great heat and pressure within the earth. As tectonic forces are produced, landforms bulge because they cannot be pushed or sink down. Over time these bulges get cracked, creating passages into which molten material may flow. The molten material may be intruded from below or formed from the melting of existing rock as it is being reheated by the friction of tectonic forces. This molten "soup" (technical term) rises, filing cracks and weaknesses in the bulged host rock and accumulates as a body of molten material. Over a period of time, the "soup" cools and becomes solidified into a formation called a pegmatite.

Gems and other minerals naturally separate during cooling as each material solidifies at a different temperature. Most materials sought by rockhounds and lapidaries are found at the boundaries of pegmatites. The central portion is usually a massive form, mostly silica, and not typically of interest to rockhounds.

In answer to a question from the audience Clare noted the temperature of the molten "soup" is typically 4,000F' to 6,000F'.

Laboratory Testing

Various laboratory instruments are used to obtain precise measurements of a material's properties.

Refractometer: A refractometer measures refractive index (the degree to which light bends as it passes through the material) and usually produces a definitive identification of gemstone material.

Specific gravity: Specific gravity measures a substance's weight relative to the weight of water. Specific gravity is determined in a simple process of weighing the sample out of water and in water.

In Conclusion

As a final tool for gemstone identification Clare shared a new software product that is available for personal computers. He mentioned the price is about $60.00.

Clare demonstrated the software on a laptop and it looks to be a great tool. It includes several hundred minerals and gemstone materials. Each entry includes physical characteristics of the material.

The software has a search feature with a screen where the user may input any of several gemstone identification characteristics based on information the user has gathered (laboratory tests, field observations etc.) and the software will provide a list of possible materials. For example, one might enter hardness 7.0. The software will return a list of the various gemstone materials of this hardness and the user can then refine the list by adding more information such as color or crystal structure.

The software also includes photos of each material to assist in visually identifying a specimen.

There is a screen for determining the value of a diamond. Clare asked the Opal Society to provide its opal valuation system to the software author to be included in a future version of the software. This is an exciting opportunity for the Opal Society; the board of directors is reviewing the suggestion.

Our thanks to Clare Gagnon for giving a well thought-out informative talk.

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Opal Fields of South Australia

Opal ($SiO_2.nH_2O$) is a form of silica chemically similar to quartz, but containing a variable amount of water within the mineral structure. Water content varies between 2 and 20%, with precious opal generally containing 6–10%.

Precious opal is composed of small spheres of amorphous silica packed in a regular array. White light is diffracted by these

layers and broken up into the colours of the spectrum, causing the characteristic display of colours for which opal is so highly prized. The colour observed is dependent on the layer spacing, which is determined by sphere size. In opal which shows dominant red fire, the spheres are ~4000 Å (Angstrom units; 1 Å = 10^{-7} mm) in diameter, while green opal spheres are ~2500 Å. The body colour or background for the diffracted colour play may be milky white, grey, blue, black or colourless. Black opal is the most highly sought after

variety as the dark background shows off the colour play best.

In common opal or *potch*, which shows no play of colours, the silica spheres are either of assorted sizes which do not produce the regular array required for colour diffraction or are too small to produce a visible play of colour.

Opal is used as a gemstone or ornamental stone in jewellery, carvings, inlay material and mosaics. In jewellery it is most often cut and polished as a cabochon, with a domed top, flat base and oval, round or free-form shape. Transparent or jelly opal and honey potch is occasionally faceted for jewellery.

Opal is found as two types: volcanic opal which infills vesicles and cracks in igneous rocks, and the more familiar sedimentary or sandstone type which is found in Australia's main fields. Most deposits in other countries are volcanic opal, much of which is prone to crazing.

More than 95% of the world's precious opal comes from South Australia, New South Wales and Queensland. During the 1990s, the value of South Australia's annual production of rough opal averaged ~$40 million, about half of the total Australian production.

Most of South Australia's opal is sold in the rough on the opal fields and exported to Hong Kong, Taiwan, China and other overseas countries for cutting and marketing. However, much of the State's top quality opal is cut in Australia, generally increasing its value four to five fold, and in some cases by up to 10 times.

Opal in South Australia

Origin of opal

During the Tertiary Period, Cretaceous sediments in the Great Artesian Basin, and Palaeozoic and older rocks near its margins, underwent deep weathering and alteration to kaolin. Soluble silica released during this process percolated downwards in groundwater through the rock mass via faults, joints, fractures and other planar discontinuities. It precipitated as a gel composed of silica spheres which hardened and cemented together during a slow drying process in a zone of fluctuating water table levels. In some areas, impermeable clay lenses or fossils formed favourable sites for the deposition of opal. Most of the opal is believed to have been emplaced 15–20 million years ago.

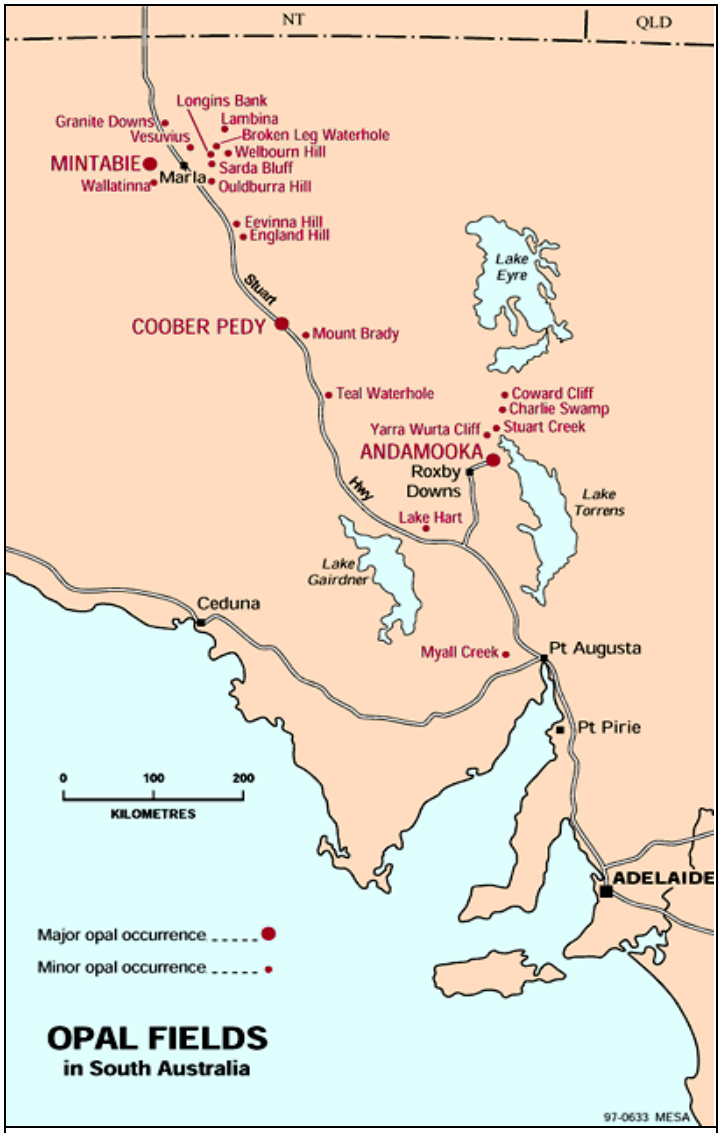

Figure 1: Opal Fields in South Australia

Mining methods

The simplest and earliest form of mining was pit or shaft sinking with pick and shovel, and a hand-operated winch to remove mullock, but the industry gradually became more mechanised. Bulldozers are now commonly used to expose the opal level when it is at relatively shallow depths, then the opal is carefully removed by pick. In deeper areas, shafts are generally sunk by large diameter bucket drills (Calweld drills), then reamed out to allow tunnelling machines, bobcats or boggers to be lowered.

A variety of methods are used to remove the mullock from underground workings:

- Self unloaders haul a bucket to the surface on two parallel rails which are curved above the ground such that the bucket empties a few metres away from the shaft. An automatic reversing switch is tripped to return the bucket underground.
- Blowers are truck-mounted machines similar to large vacuum cleaners. A fan or blower driven by a stationary diesel engine draws mullock out of the shaft through connected metal pipes to collect in a bin at the surface, which empties automatically when full.

Opal occurrences

In South Australia, precious opal was discovered at Coober Pedy in 1915, at Mintabie during 1921–22 and at Andamooka in 1930 (Fig. 1). Numerous other smaller deposits were discovered after the larger fields, including Lambina (1930s) and Stuart Creek (1947).

Andamooka

Opal at Andamooka occurs in the shallow marine Bulldog Shale, part of the Marree Subgroup of Early Cretaceous age, which overlies Algebuckina Sandstone or laps directly onto pre-Mesozoic rocks (Fig. 2). The top sub-unit of Bulldog Shale, called *kopi* by the miners, consists of highly weathered white sandy clay with scattered, large erratic boulders. At the base of the kopi there is an extensive sandy boulder bed, called the *concrete* or *conglomerate band*, which contains numerous pebbles, cobbles and boulders of pre-Mesozoic rocks, chiefly Arcoona Quartzite. Beneath the conglomerate band is a pale brown, grey or yellow claystone with a low sand content referred to as the *mud*.

Opal at Andamooka occurs predominantly at one horizon, referred to by miners as the *level*, at the contact of the conglomerate band and the mud. Other sub-levels (*squibby levels*) occur above the main level but none are as prominent, continuous or productive.

The main opal varieties produced are *crystal opal* (transparent to translucent), white opal, and some black opal. *Painted ladies* are boulders, generally of quartzite, which split along a fracture to reveal a coating of opal. *Matrix opal* is cloudy stone with flashes of colour, which is thought to form by replacement of limestone boulders in the conglomerate band. *Opalised sandstone* or *opalstone* forms by deposition of opal in the spaces between the quartz grains in sandstone boulders. Both matrix and opal sandstone can be treated by soaking in sugar solution and boiling in sulphuric acid to darken the body colour and enhance the play of colour.

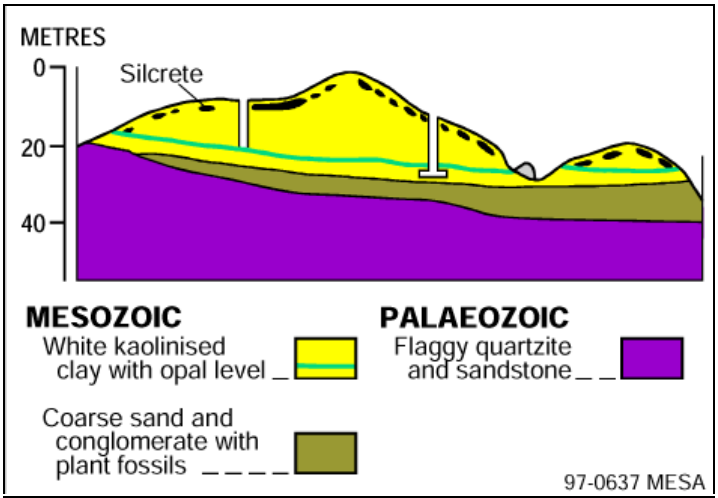

Figure 2: Schematic geological cross section through the Andamooka opal field

Coober Pedy

As at Andamooka, opal occurs in Early Cretaceous Bulldog Shale (Fig. 3). The weathered rock, termed *sandstone* by the miners, is ~50 m thick, the base approximating the base of the Stuart Range escarpment. In this weathered zone the rock is bleached white or varicoloured, silty or sandy claystone, with kaolinite as the dominant clay mineral. The nature of the weathered profile varies, and opal miners consider even subtle variations important in finding opal. Below the sandstone, the profile changes

to denser, less porous, mauve, grey or brown claystone, sometimes called *mud* by the miners. Opal is found in the sandstone in sub-horizontal to sub-vertical veins infilling cracks and joints up to 100 mm thick, but generally less than 10 mm. It also fills spaces left by dissolution of the calcareous parts of fossil animals, generally bivalves (*shells*), and a few examples of opalized vertebrae of marine, fish-like reptiles (plesiosaurs and icthyosaurs) have been found. Most opal is found in levels, several of which can occur at any one locality. Levels are not consistent, even for short distances within fields, and disruption by *slides* (steeply dipping faults or joints) adds to the difficulty of correlation. Although opal occurs throughout the sandstone, the most productive zone is usually from ~5 m above to 1 m below the change to darker colored, denser claystone (mud).

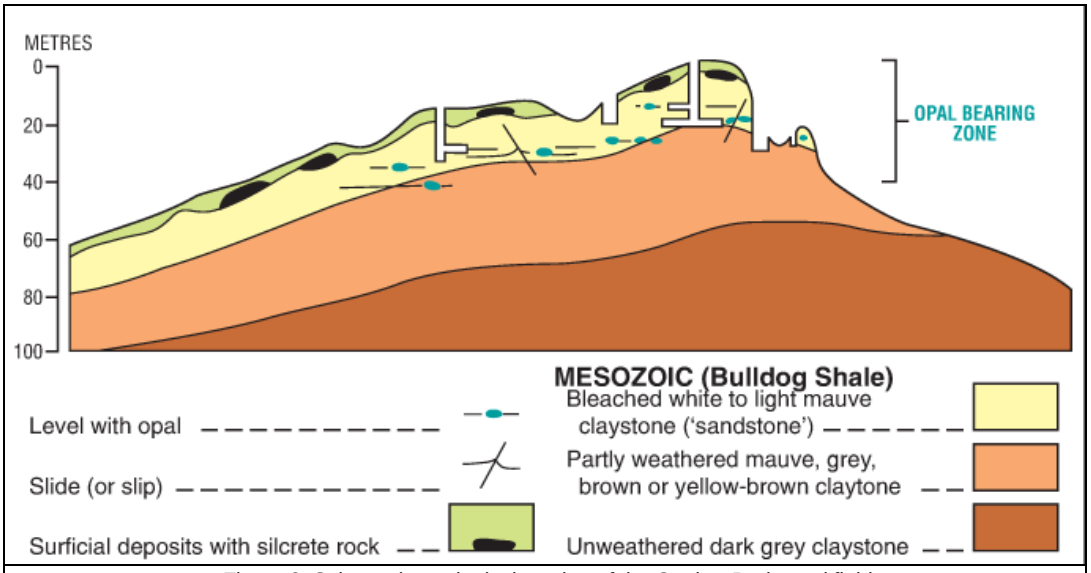

Figure 3: Schematic geological section of the Coober Pedy opal field

Predominantly light, opaque to translucent opal is produced at Coober Pedy, along with some crystal and traces of black.

Mintabie

The geology at Mintabie differs from other major opal producing fields in Australia. Mintabie is the only field producing opal from Palaeozoic rocks. The Mintabie beds in which the opal is found underlie Early Cretaceous sediments, and are considered to be of Ordovician age. They comprise well-sorted, kaolinitic, white sandstone with minor claystone interbeds, and exhibit large-scale cross-bedding which suggests deposition in a fluviatile environment. They crop out extensively along the local escarpment, and in the vicinity of the workings dip south to southwest at 5–10º.

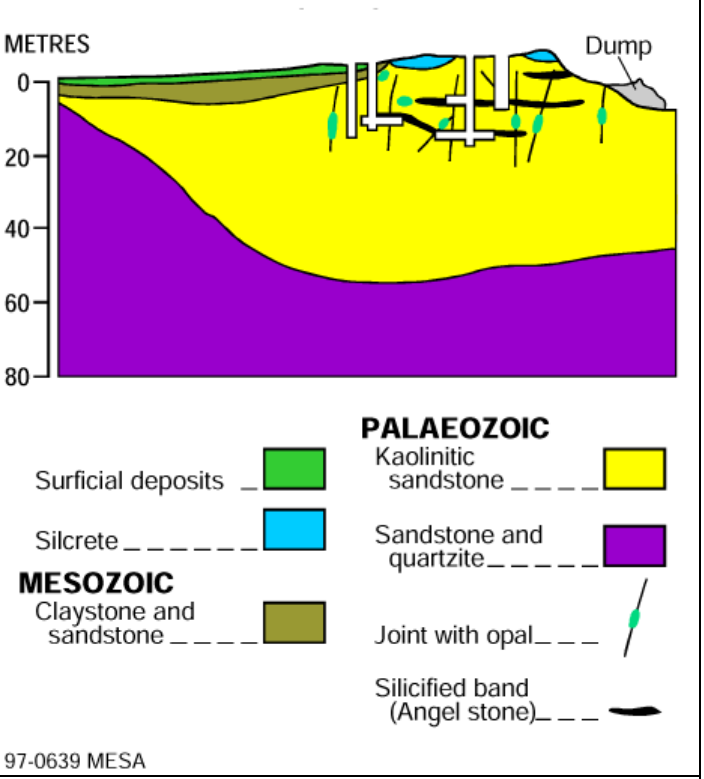

Figure 4: Schematic geological section of the Mintabie opal field

Precious opal and potch, as in other fields, are found infilling horizontal structures and vertical and inclined joints (Fig. 4). In addition, opal is often found along curved bedding planes within cross-beds. Thicker opal has frequently been found at intersections of two or more of these structures.

There appear to be no preferred depths for opal at Mintabie, and it has been found from near the surface to depths of ~30 m.

Varieties include black opal, transparent crystal and white opaque opal. Mintabie opal often exhibits distinct darker and lighter bands, with colour plays generally in the lighter bands. This type of opal can be cut so that a band with a play of colour is backed by darker opal or black potch, forming a natural doublet.

Additional Reading

Opal in South Australia. 2004. Minerals and Energy Handbook - Available from the PIRSA, Minerals and Energy Customer Services Centre. See here for contact information.

From *http://www.pir.sa.gov.au/pages/minerals/commodity/opal.htm:sectID=2196&tempID=1*

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The History of Opal

FAQ: What is the history of opal / opals? Who discovered opals? When was opal first found?

In a cave in Kenya, Louis Leakey, the famous anthropologist, uncovered the earliest known opal artifacts. Dating back to about 4000 B.C., they most likely came from Ethiopia. Historically, opal discoveries and mining progressed similarly to the ways diamond, emerald, ruby and sapphire were produced. As early humans found various gemstones, they slowly learned to work them into decorative shapes. As communities developed, gems became symbols of wealth.

In the Old World, Hungary mined opal for Europe and the Middle East, while Mexico, Peru, and Honduras supplied their own native empires with the gemstone. Conquistadors introduced New World opal to Spain when they returned with stones in the early sixteenth century.

Since the late 1800's, Australia has dominated opal production with more than ninety per cent of the global output. Opal of differing qualities occurs in more than twenty other countries, including Zambia, Ethiopia, Guatemala, Poland, Peru, Canada, New Zealand, Indonesia, the USA, Brazil, and Mexico.

The modern name of the gem opal is derived from ancient sources: the Sanskrit Upala - which means "precious stone"; the Latin Opalus; and the Greek Opallios which both mean "to see a color change".

Early races credited opal with magical qualities and traditionally, opal was said to aid its wearer in seeing limitless possibilities. It was

believed to clarify by amplifying and mirroring feelings, buried emotions and desires. It was also thought to lessen inhibitions and promote spontaneity. The early Greeks believed the opal bestowed powers of foresight and prophecy upon its owner, while in Arabian folklore, it is said that the stone fell from heaven in flashes of lightning. To the Romans, it was considered to be a token of hope and purity.

Ancient Romans provided the first real market for opal. With a rich powerful empire, wealthy citizens acquired disposable income and a passion for gems. Opal, whose colours changed with every shift of light, was rarer than pearls and diamonds and destined to be the stuff of myths and dreams.

Mark Antony loved opal. Indeed, it is said that he so coveted an opal owned by Roman Senator Nonius that Mark Antony banished the Senator after he refused to sell the almond sized stone, reputed to be worth 2,000,000 sesterces. (US $80,000) Mark Antony is said to have coveted the opal for his lover, Cleopatra. Legend states that one Roman Emperor offered to trade one-third of his vast kingdom for a single Opal.

Writing before his death in 79 A.D., the Roman Pliny wrote of the opal as "Having a refulgent fire of the carbuncle (ruby or garnet), the glorious purple of amethyst, the sea green of emerald, and all those colours glittering together mixed in an incredible way."

Pliny thought the opals came from India, but the gems so eagerly sought by Rome probably came from open cut mines in Hungary, situated near Cervenica or Cernowitz (now Czechoslovakia). He had been deceived by dealers who had probably hoped to capitalize on the appeal of "oriental" imports. Hungarian opals have a milk-white background, usually with a pin-fire, small-size colour display. During the Middle Ages, more than three hundred men worked the mines in Hungary. The mines in Eastern Europe were the only source of European opal until the Spaniards returned from the New World with Aztec opal.

In the Middle Ages, the opal was known as the "eye stone" due to a belief that it was vital to good eyesight. Blonde women were known to wear necklaces of opal in order to protect their hair from losing its color. Some cultures thought the effect of the opal on sight could render the wearer invisible. Opals were set in the Crown jewels of France and Napoleon presented his Empress Josephine a magnificent red opal containing brilliant red flashes called "The Burning of Troy."

In the late 18th and early 19th centuries, opal began to fall out of favour in Europe. It was wrongly branded as bringing 'bad luck', and was associated with pestilence, famine and the fall of monarchs. Queen Victoria, however, did much to reverse the unfounded bad press. Queen Victoria became a lover of opal, kept a fine personal collection, and wore opals throughout her reign. Her friends and her five daughters were presented with fine opals. Opal became highly sought after because the Royal Court of Britain was regarded as the model for fashion around the world and fine quality opal had recently been discovered in far-off Australia. In the latter years of her long reign, various Australian opal fields were discovered and worked.

The first discovery of common opals in Australia was made near Angaston (SA) by the German geologist Johannes Menge in 1849. Both the Queensland Boulder Opal and Lightning Ridge fields attracted miners in the 1880's. Production of precious opal began at White Cliffs (NSW) in 1890, from Opalton (Qld) in 1896, and at Lightning Ridge (NSW) in 1905.

Before 1900, rough opal was sent from White Cliffs, the premier NSW opal field, to Germany to be cut and polished. Gradually, professional cutters began appearing on the fields. They rigged up old treadle sewing machines or bicycles, designing innovative cutting/polishing gear. In 1907 at Old Town, on the Wallangulla Opal Fields (later known as the Lightning Ridge Opal Fields), the first recorded cutter was Charles Deane. When the 3-Mile broke out in 1908, cutters worked at Nettleton on 3-Mile Flat. Lorenz had learned to cut in Germany. He used horizontal wheels with a hand crank and was an expert. He made doublets, jewellery, and was one of the first to buy opal by the carat. Many miners cut their own opal, and often very roughly.

A study of the many written accounts of the time suggests that most of those early Australian discoveries were accidental - a horse's hoof kicked up opal-bearing rock, a boundary rider's wife discovered a pretty pebble in a creek bed, a flock of sheep was struck by lightning during a rainstorm and the run-off from the storm uncovered opal at 'Lightning Ridge'. A number of Queensland locations also came into their own during the Depression years, when men without work were willing to chance their luck.

When Australian opals appeared on the world market in the 1890's, the Hungarian mines spread the idea that it was not genuine, probably because gems with such brilliant fire had not been seen before. By 1932, the Eastern European mines were unable to compete with the high quality stone being produced in Australia and ceased production, allowing Australia to assume the mantle of premier opal producer of the world, becoming famous for Lightning Ridge's colorful and rare black and crystal stone.

In South Australia, Angaston was followed by Coober Pedy in about 1912, Andamooka in about 1930, and then Mintabie. During the depression of the 1930's the industry declined until new finds in 1946 stimulated mining and, since then, there has been a spectacular increase in production. Now over 50% of world production comes from South Australia.

A History of Opal Mining in Queensland

The history of opal in Queensland is one of heartbreak, frustration, determination and at times success at incredible odds. Rich in myths and legends, Queensland is the birthplace of the Australian Opal Industry. Opal was first discovered in Queensland on Listowel Downs, south of Blackall in 1869. The first registered mine was in 1871 south of the present town of Quilpie. Among the early miners were Berkelman and Lambert, who worked a deposit on the Barcoo in 1872-1873, and whose opal attracted great interest at the Queensland Annexe of the London International Gem Exhibition in 1873.

By 1875 there had been a number of Wonderful finds and interest began to grow, but it wasn't until, 1888 that Tullie Wollaston , a young surveyor turned entrepreneur from Adelaide made a determined effort to market the gem. In so doing he engraved his name forever across the annals of history. It was due to his sheer determination in convincing the gem merchants of the world to accept the gem that we now have a viable Industry.

Opal gougers of last century were mostly shearers and station-hands who had little or no geological knowledge. George Cragg, a young stockman, discovered the northern opal fields on Warronbool Downs 100 kilometres south of Winton where the Opalton Field exists even to this day.

Two World Wars and droughts slowed the progress of Boulder Opal realizing its full potential on the world stage. Although mining on a small scale continued it was relatively dormant. It was not until 1967, when Des Burton , a pharmacist from Quilpie become involved with Boulder Opal, unwittingly through his efforts, helped revitalize an industry. In the 1970's he introduced modern opal cut mining techniques which revolutionized the opal mining industry.

Boulder Opal and the people that mine and deal with opal have supplied the industry a rich and colorful history, which has become part of Australia's heritage. Opal has been discovered in Queensland from the Southern Borders of Western Queensland to as far north as Kynuna, this probably would be the largest opal field ever known, with opal mining centers in Winton and Quilpie.

Today the opal miner still exists, supplying the markets of the world with this most exquisite product, Queensland Boulder Opal.

Timeline - A History of Opal Mining in NSW

- 1877 - Mining for precious opal in igneous rocks begins at Rocky Bridge Creek, a tributary of the Abercrombie River, in the Central West.

- 1881 - Opal is discovered at Milparinka, near Tibooburra in the Far West.
- 1884 - Opal is discovered in sedimentary rock at White Cliffs in the Far West.
- 1889 - Precious opal is discovered at White Cliffs.
- 1880s or 1891 - Opal is discovered in sedimentary rock at Lightning Ridge (Wallangulla) and other localities in the area, but its commercial value is not recognised.
- 1890 - Precious opal mining begins at White Cliffs (continuing to 1915 then going into decline).
- 1896 - Opal is discovered at Purnanga and Grenville-Bunker Field. These occurrences are near White Cliffs and so extend the size of that opal-bearing district.
- 1897 - Opal is discovered in igneous rock at Tooraweenah, near Coonabarabran.
- 1901 - Opal is discovered in igneous rock at Tintenbar, on the Far North Coast.
- 1901-1905 - Opal mining begins at Lightning Ridge. The first shaft was put down around 1901 or 1902 by Jack Murray, a boundary rider who lived on a property nearby. Some time later, possibly a few months, a miner from Bathurst named Charlie Nettleton arrived and commenced shaft sinking. It was he who in 1903 sold the first parcel of gems from the field for $30, not a fiftieth of the price that could have been obtained five years later.
- 1908 - Opal mining begins at the Grawin-Sheepyard Field in the Lightning Ridge area, increasing the importance of the opal fields in the district.
- 1919 - Opal mining begins at Tintenbar, continuing to 1922.
- 1920 - The Newfield opal area is discovered.
- 1985 - Seminal work by the Geological Survey of New South Wales leads to better, more scientifically controlled exploration for opals.
- 1989 - The Coocoran opal area is discovered in the Lightning Ridge district.
- 1998-1999 - The estimated value of opal production in the State is about $44 million. New South Wales (and Australia) is a leading world producer of opals.

Sources :

- "Opal in South Australia", Mines & Energy Resources, SA
- "Opal", Qld Dept. of Mines & Energy
- www.minerals.nsw.gov.au
- "Make your own Luck with Opal", Jewellery World, June 2000.
- Queensland Boulder Opal Association
- "Opals", by Fred Ward, Gem Book Publishers, 1997.
- "Australian Precious Opal", Andrew Cody, 1991.

From http://www.opalsdownunder.com.au/articles/history.php

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Answers to Test Your Knowledge, found on p. 7

1-G, 2-M, 3-R, 4-D, 5-L, 6-N, 7-Y, 8-S, 9-E,.10-H, 11-X, 12-V, 13-K, 14-I, 15-O, 16-W, 17-B,.18-Q, 19-T, 20-F, 21-U, 22-P, 23-C, 24-J, 25-A

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Buried?

By Merle A. Reinikka

I'd rather not be telling about this... in fact, I wish it had never happened to be written about. But, in the hope of averting future pain and possible tragedy for other FACETS readers, I tell this tale of woe. Pin wearing a rather uncomfortable back brace these days - and have been for the past seven weeks. All because of neglected safety precautions.

A midsummer trip to the sapphire diggings in Montana yielded some fine stones for me, Anxious for a repeat of that good luck, I and two faceting friends returned to the scene in early September. FACETS readers who similarly dig their own sapphires are familiar with the situation - vertical walls of alluvial sand and gravel from which the sapphire-bearing concentrate must be extracted,

A cardinal rule in this endeavor is: DON'T UNDERCUT! The collapse of overburden is always a hazardous potential. Land that countless others have dug for years, without accident or injury and, I suppose because of that, the tendency to become less cautious follows as a result. Well, I can attest to the fact that undercutting - even a little - is flirting with disaster!

My digging partner and I were working the six foot wide face of a gravel embankment, trying to dig out as many buckets of lower-level gravel as possible before it became necessary to remove the overburden, about 20 inches of which we would have to knock down and shovel away. For about half the length of the face, we had undercut to the depth of 18 inches - not really a lot, in comparison to some of the three and four-foot undercuts wed witnessed.

Nonetheless, as I hunkered down and took a couple of whacks with the pick at the lower portion of the embankment - WHUMP!! - the entire upper level of the bank collapsed.

I hadn't even been directly under the ledge, but when it cut loose, it spread outward in a pile that completely buried me in a stooped position.

I was only fleetingly aware that something was happening, for my head and shoulders were suddenly thrown forward under the weight of nearly a ton of cascading sand, gravel and rock. I was immediately knocked unconscious. Only the back of my head was visible to my two friends who hurriedly began scooping the fallen material away from my head and face. Within moments I came to, but with excruciating pain sweeping across the middle of my back. When enough of the debris had been removed and I had regained my sensibilities to the point of determining that I could move my legs. I was able to get up with some difficulty.

That ended my digging, of course, because the back pain connected with any lifting or bending was more than I could take. With limited movement. though, gradually the pain lessened. I figured I must have either suffered a bad sprain or torn muscles at most.

At the doctor's office the day alter I arrived home, Xrays indicated that I had sustained a compression fracture of one of the vertebra in my spine. Prescription: wear a back brace for up to two months, pain pills as needed, and a program of exercise to strengthen the back muscles after the brace comes off.

Three weeks later, at the same mine, a woman - digging by herself - was pinned under the collapse of a similar gravel bank. She died of suffocation before anyone could reach her.

The realization that your life can be snuffed out in the blink of an eye is a sobering one, believe me. I've certainly learned by painful experience that it's not just the "other guy' that harm can befall, and if there's a lesson to be learned or a moral to this story - I've learned it first hand!

From UKFCG Issue No. 68, Faceters' STONE CHAT, July/August 2006 Page 14. Article courtesy of Columbia- Willamette Faceter's Guild Newsletter FACETS Publication 376 June 2006. First published in FACETS, Nov. 1980.

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Untried Tumbling Tips

Adding padding: By using small pieces of Styrofoam plastic, instead of the hard round plastic beads, your polishing agent will do a better and quicker job. Those hundreds of polish-impregnated little Styrofoam pieces will really put a shine on everything in the tumbler and will disappear from sight by the end of the polish cycle.

(from The RockCollector 4/01, via The Rockhounder 11/02)

How to burp a tumbler: If you're running a tumbler and it keeps burping out gas and making a mess in your shop, here's a tip that I discovered several years ago. I even got it published. The burping is due to gas generated by acids and metals. A common example is the iron in a stone (say, bloodstone) reacting with the weak acids formed by grinding other rocks. Simply drop a couple of antacids in the tumbler and the problem will be reduced or go away. Tums for the tumbler, so to speak!

(from Canaveral Moonstone 4/00, via The Rockhounder 11/02)

Save trim saw scraps: Most tumblers produce better results if there are small bits and pieces of rock of the same hardness in with the bigger ones you are trying to polish.

From the Pegamtite, 2003-01

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Test Your Knowledge of Mineral Terms

Match the Term (on the left) with the Description (on the right). Ready? Set? GO!

1. Adamantine	A. resistance to abrasion or scratching
2. Alluvial	B. formed of slender bundles of fibers
3. Amorphous	C. Composed of closely packed grains
4. Amygdaloid	D. almond-shaped cavity, such as agate forms in
5. Asterism	E. splitting in a definite plane
6. Botryoidal	F. mineral shell filled with crystallized minerals
7. Brittle	G. brilliant luster like that of diamond
8. Chatoyant	H. firmly united
9. Cleavable	I. Having definite crystal structure
10. Compact	J. fracture surface covered with sharp points
11. Conchoidal	K. composed of crystals so tiny their form is invisible
12. Conglomerate	L. star-like effect of rays of light on gem surface
13. Crypto-crystalline	M. deposits made by running water
14. Crystalline	N. shaped like a bunch of grapes
15. Cubic	O. cube-like, applied to crystals
16. Dendritic	P. crystalline igneous rock formed mainly of quartz & feldspar
17. Fibrous	Q. formed of thin layers or sheets
18. Foliated	R. without crystal structure
19. Fracture	S. reflecting light in a pattern like that of a cat's eye
20. Geode	T. appearance of broken face of mineral
21. Gneiss	U. metamorphic laminated rock
22. Granite	V. rock made up of worm fragments cemented together
23. Granular	W. having tree-like patterns
24. Hackly	X. fracture surface curved like that of a sea shell
25. Hardness.	Y. easily fractured

From Quarry Quips, 11/02, Via the Via the Pegmatite, 2003-01. Answers are on page 6

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Opal Fields Declining as Dollar Rises

By Meredith Booth

March 27, 2007, From the Advertiser in Adelaide

AUSTRALIA'S opal industry is in crisis following falls in production and a rising Australian dollar.

Ahead of a National Opal Symposium in Coober Pedy next week, International Coloured Gemstone Association president-elect Andrew Cody said the value of Australian opal production 10 years ago was about $400 million and was believed to be half that at present.

"It's the worst crisis it has ever been in. That's partly to do with prices but it's more to do with the lack of production and the hostile environment where the industry finds itself," he said.

"Opal fields have had enormous declines with the number of people mining. Coober Pedy was the fastest declining town in SA last year." Coober Pedy's population fell by 400 to 2091 between 2000 and 2005.

Symposium chairman Yanni Athanasiadis said opal miners were leaving Lightning Ridge in New South Wales and in Queensland in large numbers, too. "There's no new generation coming into the opal fields," he said.

Mr Cody said slowing tourism numbers, a fall in Japan's economy, which is the biggest buyer of black opal, and a rise in the Australian dollar against Japan's yen and the U.S. dollar had all contributed to lower sales for the gemstone.

Australia produced 95 per cent of the world's opal but lower production had not resulted in higher prices being paid.

Mr Cody said the symposium would provide an opportunity for scientists to devise a plan which could revitalise the industry

"We need to better understand the genesis of opal. We've only scratched the surface," he said, adding that scientists were divided on how and when the gem was formed.

Symposium organiser Steve Staines said statistics on the industry were hard to determine because the gemstone created a "cash economy" with many miners not declaring earnings from opal sold. Miners do not pay royalties to the government.

Meanwhile, symposium key speaker and World Jewellery Confederation president Dr Gaetano Cavalieri said the rising cost of fuel was also a big contributor to the looming crisis in the industry surrounding Australia's best-known gemstone.An Opal Festival will be held on Saturday April 7 following a Gem Trade Show on April 5 and 6. *From http://www.news.com.au/adelaidenow/story/0,22606,21450118-5003680,00.html*

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New Opal Discussion Forum on AOS Website

The Opal Discussion Form is an open meeting place on the Internet for opal enthusiasts to discuss all aspects of opal. The Discussion Forum contains posts on opals, opal mining, opal cutting, opal jewelry, etc. It is located on the AOS website, http://opalsociety.org.

The Forum has been redesigned and has new software and a new look with many new capabilities and benefits for those who join. It will now return e-mail to you, if you choose that option.

The forum is using newer software call phpBB, which allows better moderator control. We had been getting spam and bad behavior on the older forums and the new software should allow us to eliminate it.

Click here to enter the **New Opal Discussion Forum**
http://opalsociety.org/phpBB2/index.php

The old forums are still viewable but not postable and are located here:

- Opal Discussion Forum Archive 2004-2007
- Opal Discussion Forum Archive 2000-2004

For more information on the Opal Discussion Forum, please contact: Jim Pisani, e-mail at webmaster@opalsociety.org.

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A Tough Break with a Happy Ending!

By Michael Ferguson

A few years ago, a woman fell in love with a beautiful opal ring on display in one of the finest jewelry stores in the world. Her husband remembered it and a year later, secretly bought it for their wedding anniversary.

On that evening, to her delight, he presented it, and an hour later they joined a party at a restaurant. During the evening, a friend at another table saw the ring and asked to take it to her table to show her guests.

While passing the ring around the table, someone dropped the ring on the hard tile floor ... smashing the opal.

The friend returned the ring and being of good character, she offered to have her insurance company pay for the damage.

The insurance company sent the ring and opal pieces to a local jeweler, who reported that the opal was flawed and had probably been damaged by the owner, or in the original setting of the stone, and certainly couldn't be worth the value being claimed.

The ring was returned to the jeweler, who immediately got in touch with me, bemoaning the predicament and telling of the story and the report from the other jeweler. (And not at all very happy...)

Knowing the stone was from a very healthy and spectacular mother, I suggested that the stone and ring be sent to a 'gem laboratory' for a more professional opinion.

Within a few days, the gem lab returned a report that not only was the opal obviously damaged from the accident, but it was one of the most spectacular opals that they had ever seen!

The insurance company promptly paid for the ring, and my jeweler took a great sigh of relief!

The man and wife were relieved too, but the woman was still in grief over the loss of the ring and knowing the reputation of the original jeweler, she promptly asked that a stone be found to replace the original, in the same setting.

Now anyone in the opal business will recognize the absurdity of this request. Not only is it unlikely that a stone still exists of the original material, but finding one that the woman would love as much, and cutting it to fit the setting, are all utterly impossible.

Fortunately, the original 'mother' stone was over one ounce, and I had cut several pieces that were closely matched, in size color and pattern. The ring and the broken pieces were forwarded to me and I was able to select a piece that I then cut into a shape that so perfectly fit the setting, that the jeweler had only to slightly close the bezel. (I lost less than a carat in the process.)

The woman was ecstatic. Not only did she have the original setting, but she imagined the opal to be even more beautiful than the original.

The jeweler, who by the way had been a bit unsure of the value of the opal and therefore was a 'difficult sell', was obviously delighted not only to have sold the ring twice, but to have received such independent confirmation of its value.

And just to make things right, I re-cut the largest of the broken pieces so that he could fashion another ring from it.

But the best part is that I maintained my reputation, and I got to sell two stones to one 'bird'. The jeweler has become an avid opal-holic, and of course, my very best customer! Oh yes...the price of the ring....over $35,000 :-)

From http://www.shed.com/aom/storyfile/ringstory.html

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April 2007 Gem & Mineral Shows

7--PORTERVILLE, CA: Show, "Earth Science Play Day"; Porterville Area Gem & Mineral Society, Diamond Pacific Tool Corp.; Sat. 9-5; 248 N. Kessing St.; contact Rob Milner, (559) 359-6174; e-mail: rdmiller@verizon.net; Web site: www.pagms.org.

7-8--PARADISE, CA: Show, “Paradise of Gems”; Paradise Gem & Mineral Club; Veteran's Memorial Hall, Skyway and Elliot; Sat. 9-5, Sun. 9-4. contact Shirley Thompson, 1802 El Toro Ct., Paradise, CA 95969, (530) 872-1846; e-mail: shirley1846@comcast.net; Web site: http://goldnuggetwebs.com/PGMC/.

13-15--EUREKA, CA: 6th annual show, "Lost Coast Jewelry, Gem, Bead & Mineral Show"; Kasey Enterprises; Redwood Acres Fairgrounds, 3750 Harris St.; Fri. 12-7, Sat. 10-7, Sun. 10-5; contact Kasey Enterprises, P.O. Box 2927, McKinleyville, CA 95519-2927, (707) 839-1358; e-mail: kaseyent@sbcglobal.net.

14-15--MARIPOSA, CA: Annual show, "Mountains of Minerals"; CA State Parks Mining and Mineral Museum, CSM&MM Association, Mariposa Gem & Mineral Club; contact CSM&MM, (209) 742-7625; e-mail: mineralmuseum@sti.net.

14-15--SAN JOSE, CA: 52nd annual show, "Nature's Showcase"; Santa Clara Valley Gem & Mineral Society; Santa Clara County Fairgrounds; Sat. contact Marc Mullaney, 1685 Cross Way, San Jose, CA 95125, (408) 265-1422; e-mail: geologistm@aol.com; Web site: www.scvgms.org.

20-22--SAN DIEGO, CA: Show; Gem Faire Inc.; Scottish Rite Center, 1895 Camino del Rio S.; Fri. 12-7, Sat. 10-7, Sun. 10-5; $5 weekend pass; contact Yooy Nelson, (503) 252-8300; e-mail: info@gemfaire.com; Web site: www.gemfaire.com.

28-29--SANTA CRUZ, CA: 55th annual show; Santa Cruz Mineral & Gem Society; Civic Auditorium, corner of Center St. and Church St.; Sat. 10-5, Sun. 10-5; adults $3, contact Eleanor and Hubert Drake. 521 Cuesta Dr., Aptos, CA 95003, (831) 688-8086; e-mail: hmdrake@pacbell.net.

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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 #4
April 2007

TO:

Some Topics In This Issue:

April 12th:

Will Shaw and Fran Todd on Digital Opal Photography

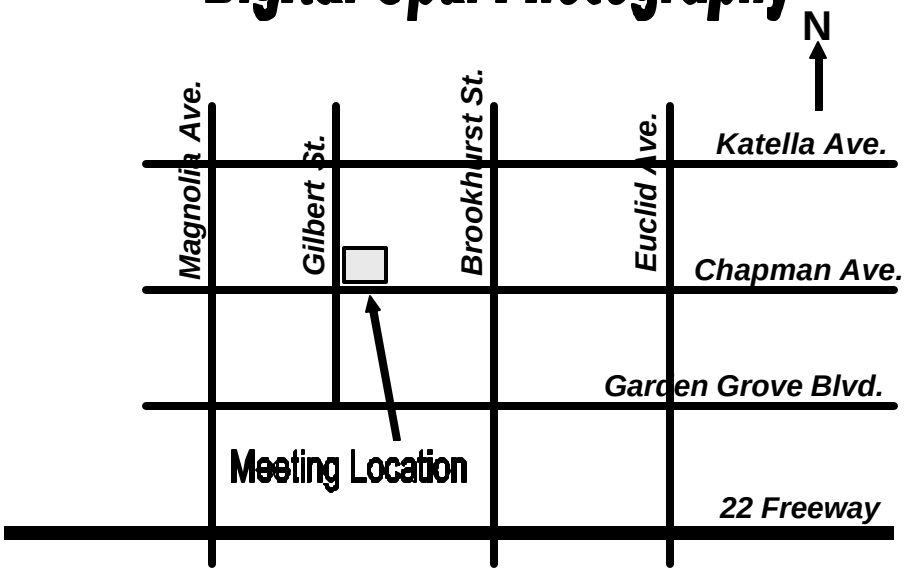
Important Info:
Board Meeting
April 3rd
At Ball Jr. High

General Meeting
April 12th
Will Shaw and Fran Todd on Digital Opal Photography

— GENERAL MEETINGS —

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

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



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