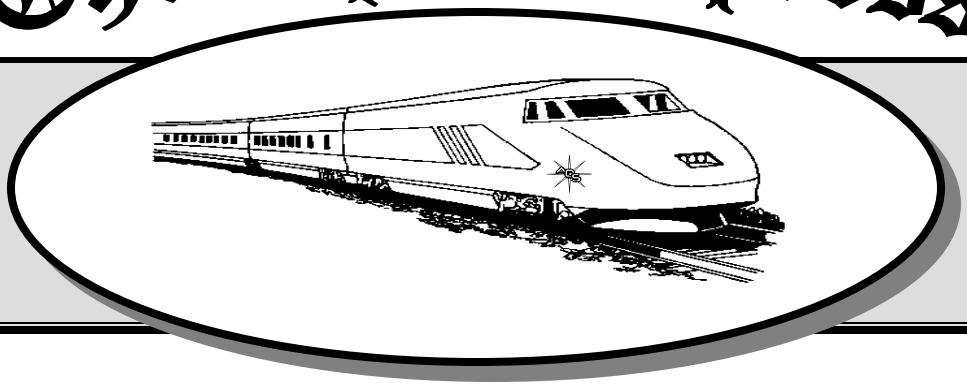
The Opal Express



Published monthly by The American Opal Society

August 2008

Volume 41 Issue 8

Table of Contents:

++

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: "silicate".

++

Opal Society Workshop

The American Opal Society's workshop is open at Ball Jr. High School every **Thursday** 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. 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.

++

Anaheim Arts Council Raffle

The Anaheim Arts Council, which the AOS is a member and active participant, is holding a raffle called the "Opportunity for Arts Fundraiser". The AOS is helping sell the tickets. The tickets cost $20 a pieced. The AOS needs to sell 50 tickets and gets money back for each ticket.

Grand prizes are $2000, $1000, or $500. In addition, there are many other prizes that will be raffled that have been donated by the member organizations. The probability is fairly good for winning something.

The Drawing is October 2, 2008, at the Anaheim Arts Council Membership Meeting. There will be an Early Bird Drawing on September 4, 2008 for an additional prize PLUS you are still eligible for the BIG prize.

The winner need not be preset. The AOS gets 10% back for all proceeds.

There are still tickets available; get them before they are gone. This is a good deal; your chances of winning are pretty good.

++

Pete Goetz on "Andamooka BBQ" or How to Treat Andamooka Matrix Opal

Don't miss Pete Goetz's presentation of how to treat Andamooka matrix opal.

Pete will have a slide show on the AOS's experimentation at the workshop on the proper technique and safety requirements needed to blacken the matrix opal with sugar and acid.

Pete will have samples to show how the beauty of the matrix opal is enhanced by the blackening process. Don't miss it!

++

IT'S Coming!!!
Mark your Calendars!

The American Opal Society's 41st Annual

OPAL & GEM SHOW

The Largest Opal Show in USA!

Sat. & Sun., November 1 & 2, 2008
Saturday 10AM - 6PM
Sunday 10 AM - 5PM

Opal and Gem Dealers from around the USA and Australia.
Rough and Cut Opals; other gemstones; jewelry & supplies.
Huge Raffle many prizes of gemstones, jewelry, tools, etc.
Free Opal Seminars on Saturday & Sunday with Paid Admission.
Free Demonstrations on gem cutting, jewelry making, etc.

Same Location Since 1991:

Clarion Hotel Anaheim Resort
616 Convention Way **ANAHEIM**, California
Close to **DISNEYLAND**
One block South of Katella on Harbor Blvd.
near the Anaheim Convention Center
For more information, contact:

Gene LeVan
Phone: (562) 621-1805, e-mail: fineblackopal@sprynet.com

Jay Carey
Phone: (714) 525-7635, e-mail: jaycarey@charter.net

Sand - Why Take It for Granted?

Death Valley Sand Dunes. Photo by W. G. Martin. Huntington Park, California

Those who come to the desert occasionally or merely admire it from a distance generally associate with it the beautiful curve of the dunes or the infinite variety of wind-rippled patterns in the sand. Desert dwellers are likely to have a less picturesque reaction, for they have felt the stinging cutting violence of a sand storm. But whether one's attitude is romantic or realistic, the nature of sand too often is taken for granted. Jerry Laudermilk's purpose this month is to give Desert's readers, rockhounds and others, a scientific basis for the appreciation of sand. Terry believes that the more one knows about this "ground up rock that looks sorta like sugar" the more one will enjoy the beauty of the desert's most advertised feature.

By JERRY LAUDERMILK Drawings by the author

SAND! There were acres of it—ridges, dunes and mountains of it. Miles of it! On both sides of the road the sand stretched away like a sea of solid water in wind-cut waves as monotonous as a landscape in burlap. Monotonous—but there is magic in this common stuff. Mystery and the power to fascinate are part of each tiny grain, like sorcery in some magic jewel.

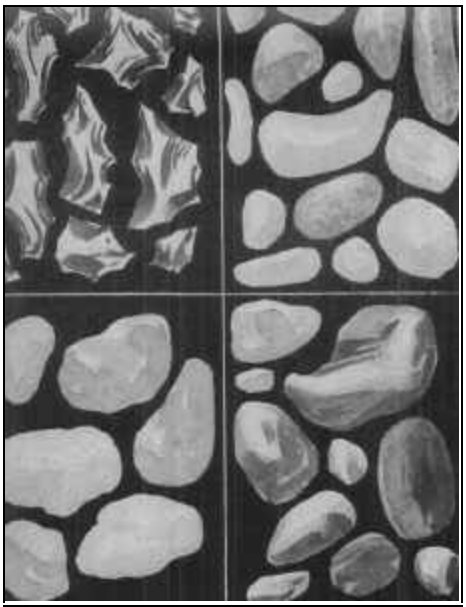
I looked at a handful gathered at random. My microscope showed me a throng of rounded grains like the faces of a mob or the tops of ten thousand bald heads. Each grain had a personality of its own, stamped with the marks of its history. This was dune sand at the height of an active career. But there are other kinds — young, inexperienced sands and old, retired sands with a past.

We are likely to take sand too much for granted. Ask someone what he means by "sand" and the chances are, unless he is a rockhound, he will be puzzled for an answer. Generally, his reply goes about like this, "Why sand is sand, little pieces of ground up rock that looks sorta like sugar." Crowd him further and he may counter with, "Well, all right, what is sand?"

Sand, to be precise, refers to small pieces of rock of any kind, not more than 1.5 nor less than .05 millimeter in diameter. One and a half millimeters is roughly the diameter of the lead in an ordinary pencil, five hundredths is just visible against a dark background. Anything above the top limit is classed as fine gravel, anything below the lower figure qualifies as silt or clay. The name has nothing to do with the mineralogy of the grains but unless otherwise specified, quartz sand is understood since this is the most common variety.

Shape of Sand Grains

Like so many other things sand has to be understood to be appreciated. Under the microscope sand always is interesting and sometimes beautiful. Any sample will fit into one of three categories as to grain shape. The shape of the particles tells much about the adventures encountered by them after having left the parent rock-mass. Either the grains will be clean-cut with sharp edges and corners, or angular. Or they may be slightly rounded with indications of the angularity, or sub-angular.



Four characteristic types of sand. Upper left—Volcanic sand in sharply angular grains, from near Ogilby, California. Upper right—Aeolian sand from Pisgah crater, California. Lower left—River sand from near Whitewater, California. Lower right—Dune sand from near Riverside, California.

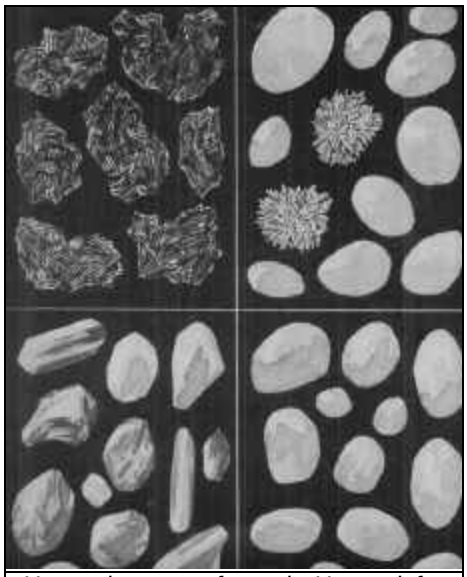
Or they may be smooth and polished, then they are described as rounded. This sounds simple, and the impulse is to say, "And so what?"

Well, the plot thickens a little. Sands with angular grains are either the result of disintegration due to slow decay or of fragmentation from violence—commonly volcanic action. Sand with angular grains has not been transported far by either wind or water. This is young sand with no experience, the raw material from which the other types are made. Disintegration sand is common in the mountains and near weathered masses of granite but may occur wherever rocks fall to pieces from natural decay.

The source of disintegration sand usually is granite but it may be a gneiss or other coarse-grained rock. The remaining grains of quartz, tourmaline, magnetite, garnet, etc., represent the most resistant parts of the rock-mass and have kept their chemical identity while the rest of the rock went to pieces. Sub-angular grains are the result of moderate handling of disintegration sand by either wind or water. Glacial sand also shows sub-angular grains. This is especially true of glacial sand that has been transported.

Rounded grains are the result of long-continued polishing of grain against grain by either wind or water—especially wind. Roundness indicates an old experienced sand. Rounded sands are common on dunes which have traveled far, as in the Sahara. Sands of any of the three types may be mixed. When this has happened it indicates that more than one factor has been an agent in its deposition.

There is a limit to the amount of polishing a sand grain can take. This is the result of size. In water, any grain less than .72 millimeter cannot be rounded further. Angular particles of this size or less remain angular. This polishing limit is the result of the weight of the grains and the buoyancy of the water. The grains tend to stay in suspension when the water is in motion and the impact of grain against grain is cushioned by intervening layers of water. The size limit to wind-polishing is .15 millimeter since the dust blast is effective down to that small size. It generally is true that any well-rounded grain less than .75 millimeter is wind-polished, or aeolian



Unusual types of sand. Upper left—Disintegration sand from devitrification of obsidian, from near Newberry, California. Upper right—Aeolian sand from Zion national park. Clumps of crystals are gypsum. Lower left—Sand from a sand crystal with conchoidal fractures. Lower right —Aeolian sand from Syrian desert, Palestine.

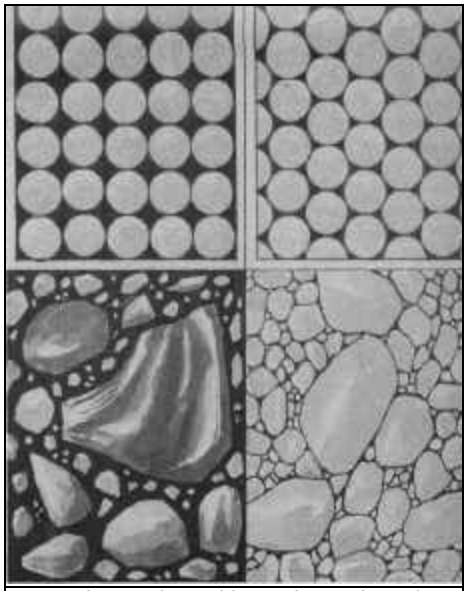
sand. Under a high magnification the surface of aeolian sand frequently shows frosting due to battering, and grains may be chipped by knocking together, showing typical conchoidal fractures on a minute scale.

Production of Sand

One of the most effective ways by which mineral fragments are released to form sand is through weathering, or rock-rot. A solid block of granite kept in a vacuum at a very low temperature probably would last forever. This condition exists in the case of the rocks on the moon's surface. Selenographers know with a fair degree of certitude, the general types of lunar rocks. They determine this from the way in which lunar rocks behave when photographed by ultra-violet and infra-red light. Terrestrial rocks of the same types react in the same way. But under ordinary conditions, rock-rot begins to some extent soon after a fresh surface is exposed to atmospheric action. Without doubt, the most effective large-scale factor is vegetation.

Vegetation from a microbe to a giant redwood can contribute to the demolition of a solid granite boulder.

All rocks contain joints or cracks or will develop them after passage of time. Eventually, water seeps into these weak places, leading to final breakup of the rock-mass. Plants secrete carbonic acid as a by-product of their growth. Water containing this acid becomes a powerful agent in dissolving out iron, manganese, lime, the alkalies and other elements from the feldspars, micas, chlorite, etc. So whenever either colonies of bacteria or roots of higher plants penetrate the cracks and fissures, breakup begins. Lichens also help in this work. We can imagine a granite boulder being broken up and partly dissolved on the inside by root acids while its outside, attacked by lichens, constantly is being scaled off in flakes exposing fresh surfaces to further action.

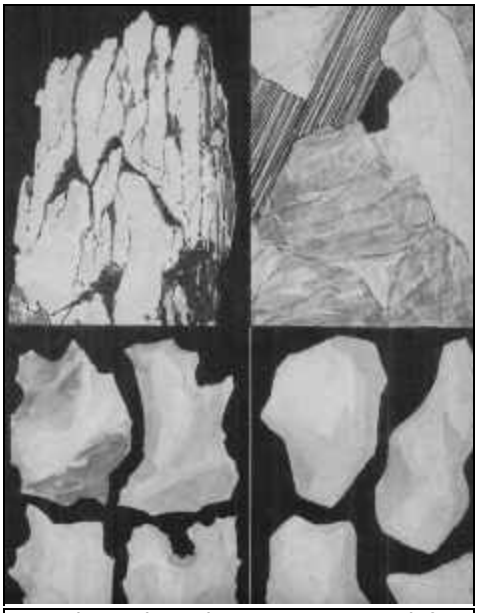


Porosity and packing of sand grains. Upper left—Open arrangement of ideally spherical grains. Porosity is 47.64 percent. Upper right—Close arrangement, porosity 26 percent. Lower left—Unsorted sand from concretion. Lower right—Mosaic arrangement of same type sand showing small porosity. Sand grains mosaic when wet.

The final product of rock-rot is a pile of decomposed granite. If decomposition has reached the limit, all that remains is a lot of clay from the breakdown of the feldspar and angular fragments of disintegration sand from the quartz. Ordinarily rock rot doesn't go so far in one operation. Crystalline rocks like granite, granite porphyry, pegmatite, etc., are likely simply to crumble, much of the quartz and feldspar being left intact to form sand.

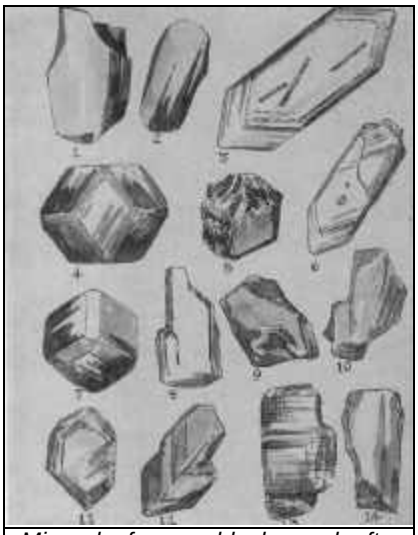
The chemistry and mechanics of rock-rot are interesting. In fresh rock, crystals of quartz and feldspar will be mixed in every possible combination. The crystals are not held together by any cementing substance but simply cling together through the effect of cohesion of the molecules of adjacent crystal faces. These interfaces are the weakest part of the rock and while they press together so closely they may not show even a microscopic joint, water can creep in between the crystals. When this takes place between quartz and feldspar and the water contains carbonic acid, the surface layers of the feldspar crystals are attacked and softened to a tremendously thin film. Sometimes pebbles and cobbles from ancient flood plains have decomposed in place so slowly that although they appear perfectly sound they actually are rotten all the way through and can be crushed with the bare hands. Sand which has resulted in such cases frequently will show signs of the original crystalline structure of the grains.

Not only is rock-rot the result largely of chemical action but the mechanical effect of pressure by growing roots which have forced their way into cracks also is effective in furthering disintegration. Hydration of certain minerals sometimes causes the surface layers of a boulder actually to swell and shell off in large flat pieces. This effect is called exfoliation. Another agent thought by some to be effective is insolation, or alternate chilling and heating of a rock so that its structure is weakened. Cold also does much work in certain climates. In Canada polished granite monuments do not last long because during the winter, moisture that has penetrated the outer layers freezes and the surface scales away in flakes. In any of these cases the final result is disintegration sand.



Granite-and-sand story. Upper left—Decomposed granite crumbling from solution of feldspar. Upper right—Thin section of fresh granite. White areas are quartz, grey are feldspar and striped areas are biotite mica. Breakup of granite releases quartz unchanged as disintegration sand. Lower left—Disintegration sand. Lower right—Sand slightly rounded by beginning of stream action.

When, from any cause, disintegration sand finds its way into a stream bed some rounding soon begins but does not go far until the water has had a long time to get in its work. At first sub-angular grains form but eventually the running water makes rounded grains.



Minerals from a black sand after removal of magnetite. 1 and 2 are Tourmaline. 3 and 6 Zircon. 4, 5, 7 and 8 Garnet. 9 and 10 Epidote. 11 Sphene. 12 Rutile. 13 Microcline. 14 Zoisite.

The round, highly polished grains are typical of wind action. When grains of this type are found mixed with sands of other types they probably have been transported from a foreign source. This is not always true. Sometimes sand on the dry, upper part of a beach may be tossed about by the wind and the grains rounded, and this later may be mixed with the sub-angular grains of the wet beach.

Sand formation probably has gone on continuously since dry land first appeared. Well rounded quartz pebbles less than a quarter of an inch in diameter occur in some of the Precambrian formations of Utah and it is reasonable to suppose that the same rounding process applied to sand grains in favorable situations. Aeolian sand undoubtedly was formed as far back as the Silurian period.

Distribution of Sand

The vast accumulations of sand in the Sahara and other deserts is of continental origin—not the remains of old sea-bottoms as is sometimes thought. In fact, deserts are normal features of the earth's surface. As Weldon Heald says in his paper "Why Deserts?" (Desert Magazine, August, 1942) they probably have existed some place during every geological age. Like all surface features of the earth, the Sahara is filled with contradictions. There was a Sahara as far back as the Silurian, yet as lately as the last Ice Age the Sahara was well watered. Its present state is the result of prolonged desiccation and erosion of the old rocks which themselves, as E. F. Gautier in his work "Sahara the Great Desert" shows, mainly were sandstones made up from even more ancient deposits.

Cluster of sand crystals. Sometimes when calcite crystallizes from solution in presence of much free sand, crystals may be composed largely of sand grains enclosed in crystal structure. Specimen shown, from Snake Butte, Montana, contains 71.42 percent sand.

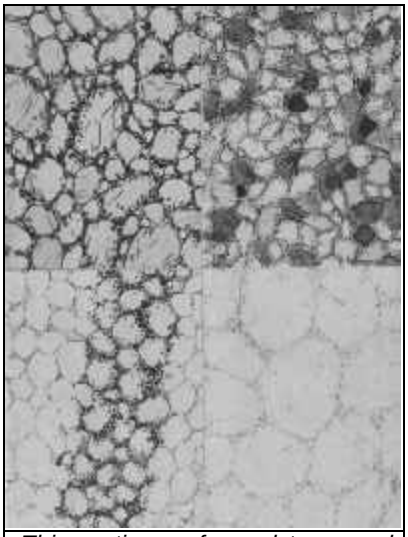
The dunes of our own Colorado desert are sand from the ancient delta of the Colorado and, to a smaller extent, from the sands of ancient lakes. The wind has been the most important factor in this case as it is in all desert deposits.

Light winds merely roll the rounded grains up the gentler slope of the dune or at most lift it but a few inches. But high winds carry both dust and fine sand great distances and aeolian sand may be found in deposits far from its place of origin. One night in the winter of 1915 at Kansas City, Missouri, there were three falls of snow. Sandwiched in between two white layers was a layer of red snow more than an inch thick. I collected a dishpanful of this and recovered much brick-red sediment. Microscopic examination showed it to consist of sand and dust rich in hematite. Later, its source was traced to the iron mine region of Minnesota about 500 miles away. Besides transporting sand through the air, the wind moves enormous volumes more slowly as dune sand.

Composition of Sand

Several paragraphs back I said that quartz was the principal mineral in any sand. This is so, first because silicon and oxygen are the two most abundant elements on the earth's surface, and second because silicon dioxide (quartz) is unchanged by weathering. J. W. Retgers in 1892 made a study of the dune sands of Holland and found 23 minerals to be present. In most cases 95 percent of the grains were quartz. In places where there was a concentration of heavy minerals, it was possible to walk along the strand and distinguish areas red with garnet and others black with magnetite. Enrichment by heavy minerals is common and the concentrates generally are dark due to iron oxide but sometimes to hornblende.

If one of these black sands is spread out on a piece of smooth paper and a magnet applied beneath, the magnetic fraction can be segregated and the residue is likely to be astonishingly beautiful under the microscope. Viewed by reflected light it may show glittering, highly colored fragments and crystals of garnet, tourmaline, epidote, zircon, vesuvianite and other minerals. Light colored sand like the silvery tan sand of the Hassayampa River of Arizona generally shows much mica. Tenderfeet sometimes have been fooled by this mineral. Biotite, when looked upon with eyes of hope, frequently resembles gold, especially if seen through a layer of water. I once was called upon to act as technical referee in a gold recovery scheme where the end product was a nice showing of biotite. Even a fire-assay failed to convince these people that their's was but "fool's gold." In fact, I was accused by all interested parties of having jinxed the demonstration by "holding bad thoughts."



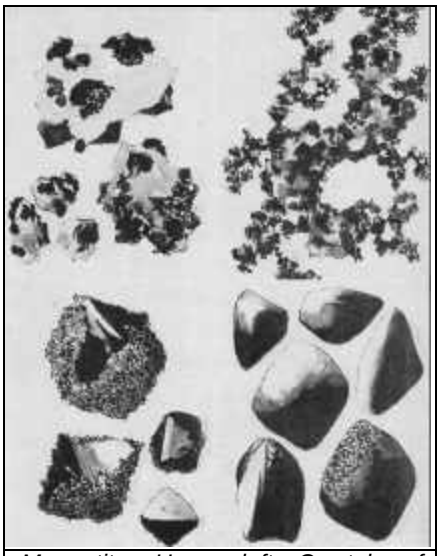
Thin-sections of sandstone and quartzite. Upper left—Red sandstone from Yermo, California. Color due to particles of earthy material between the grains in the cementing material. Upper right—Pink sandstone from Yermo. Angular grams, probably volcanic, are cemented as a mosaic by calcite containing scattered particles of claylike material. Lower left—Banded Uinta sandstone, Utah. Dark area shows part of one of the red bands. The red particles occur in evenly spaced layers among the aeolian grains. Lower right—Pink quartzite from Yermo. Sand in this area evidently is from an ancient beach. The rounded grains are firmly cemented with silica.

Geology Clues in Sand

Aside from mica, other minerals may tell much about a sand's origin. The mica in the Hassayampa has, in all probability, weathered out of the granites of the Bradshaw mountains and doubtless an expert in sedimentary petrography could by a study of the sands give a reliable description of the geology of the country upstream.

Some minerals such as gypsum and calcite are too soft to be transported far. Their presence in a sand indicates nearness of the parent rock-mass. Minerals like tourmaline and staurolite always indicate a derivation from metamorphic rocks which may be far away since these minerals will bear much transportation.

Tracing an unusual mineral to its source sometimes is a matter of importance. One case in my experience concerned certain crystals of ruby (corundum). Once ruby of gem quality had been found. Other corundum of low grade was frequent. As I worked my way up stream the mineral became more common and pebbles of corundum syenite began to occur. These finally gave place to boulders and then, abruptly, there were no more traces of the mineral. This indicated that I had passed the tributary which carried the float into the main wash.



Magnetite. Upper left—Crystals of magnetite "panned" from decomposed granite. Crystals partly embedded in grains of quartz. Upper right—Clumps of self-magnetic grains of magnetite from disintegrated granite. Lower left—Octahedral crystals of magnetite from disintegration sand. Lower right—Rounded grains from typical black sand.

The canyon finally was located. It was very small but had abundant traces. I was making encouraging headway until again there were no more traces nor any place for a tributary canyon. Finally the source was located high up on the side of the canyon as a wet-weather waterfall.

Scaling this took me to a higher stretch of canyon, which was steep, wild and rugged but full of corundum which reached its greatest abundance at the foot of a landslide where this debouched into the main canyon. Farther on there were no more traces but up the slope in the direction indicated by the slide was the source. One coming upon it from any other approach easily might have overlooked the interesting nature of the rock since it was thickly overgrown by brush and the outcrop itself covered with moss and lichens.

Sands which are typical from the presence of some unusual mineral will be recognized later if once they have been studied carefully. This is important in some criminal cases where the scene of a crime must be located by identification of the type of soil. I once was called upon to identify the previous place of concealment of a cadaver which had been found in a gunny sack. The only type material I had was about half a teaspoonful of sand which accidentally had been scraped up between the pages of a book the victim had had with her at the time of the murder. The sand finally was traced to a spot known to have been frequented by the victim.

Porosity of Sand

One more interesting feature about sand has to do with porosity and water storage capacity. A sand of uniformly spherical grains can pack only in one of two ways. Either each grain is bounded by six adjacent grains stacked one above the other like eggs in a crate or they stack with each grain over the space left between three adjacent grains like stacking cannonballs. In the first system the porosity or space between the grains amounts to about 47 percent of the total volume. In the second system it amounts to about 26 percent. The remarkable feature is that the size of the individual grains makes no difference. If they all are spherical and of the same size the porosity for any volume of sand, whether the grains are large, medium or even microscopic, remains the same.

From The Desert Magazine, Jan. 1944.

++

Lightning Ridge, Black Opal Mining Industry

The start of the black-opal-mining-industry, as it is, was around the time the very first mineral claim was registered at the Lightning Ridge Police Station. The sergeant at the police station, was also an opal miner. Claim registrations consisted of placing a cross on a map of the area where the Claim had been pegged.

There are stories of mineral claim pegs moving over night. A miner would mine an area for a while and decide to move his claim further down the hill, or in another direction. Even over lap someone else's claim. Then there would be a dispute over who moved their pegs.

At that time, anyone from around world could come to Lightning ridge and enter the black-opal-mining-industry. There are about twenty-three different nationalities in Lightning Ridge. A tourist with no under ground mining experience at all could register a claim and begin mining.

It was not until the early 1970's that the Department of Mineral Resources began to control the registration of mineral claims in the black-opal-mining-industry, and record accidents in the Lightning Ridge Opal Fields. From 1977 until 1997 there was an average of one fatality every year. These deaths were the direct result of people with absolutely no underground mining experience at all attempting to find opal. These statistics showed the black-opal-mining-industry to be a very high risk section of the Australian mining industry, considering the number of fatalities to the number of miners working in the black-opal-mining-industry. Falling down uncovered mine shafts and roof falls were some of the common causes of these fatalities.

In 1997 The Department of Mineral Resources started to faze in a compulsory Mine Safety Course., that every claim holder has to complete to enable them to register, or reregister their claims. The black-opal-mining-industry has been fatality free for 7 years. These figures are an obvious reflection of the safety courses.

To register a claim today, in the black-opal-mining-industry, a miner has to ensure the area he pegs, does not overlap another persons claim, and is inside the designated mining reserve. The area can be no larger then the equivalent of 50m+ 50m. (2500 sq m) The Department of Mineral Recourses has master survey pegs placed around the opal fields for miners to do an exact survey of their proposed claim. The miner then takes a copy of the survey and an Application to Register a Mineral Claim form to the Mineral Resources office with a registration fee of $100 and a $250 bond. After paying the fee he receives a number for his new claim, a photocopy of the opal field where he has registered his new claim and four metal tags which he takes to the stamping block at the back of the office where he stamps his claim numbers on them. The tags have to be attached to his claim posts with in fourteen days of registration.

A miner is permitted two claims of this size in his name. But he can have his wife and relatives do the Safety Course to enable him to have more than two claims. The registration has to be renewed every year, but there are no reminders issued by Mineral Resources, so if a miner forgets to renew his claim by the required date, it is automatically cancelled. This allows another miner to peg and register the lapsed claim. There have been some very rich claims change hands this way.

Once the claim is registered it is wise to put down some exploration holes with a prospecting drill which drills a small diameter hole, to try to locate where the opal is in the claim. Some miners in the black-opal-mining-industry use divining rods , the same used for divining water, to try to find a concentration of fault junctions. There is a better of chance of opal forming at these sites. A Caldwell Drilling Rig is used in the black-opal-mining-industry to

drill a hole 42 inches in diameter down to the opal level that can be any where between 17 feet to 80 feet deep. A miner then goes down ladders and begins to bell out out the clay opal level with a jack hammer. He continues this until he has an area large enough to lower the rest of his mining gear down, and commence serious digging.

The low cost method used in the opal mining industry at lightning Ridge is with a jackhammer, a rickshaw and a hoist(a rickshaw is a two wheeled wheel barrow). This does not cost much money to set up but it is very hard work and production can be very slow.

The most costly way is using a hydraulic digger and a blower. A digger is a like a backhoe but it is smaller and built much stronger. It has hydraulic rams that clamp it between the floor and the roof. It is used to dig the hard clay level. Miners in the black-opal-mining-industry have been very ingenious by inventing equipment to efficiently mine opal.

A blower is like a giant vacuum cleaner that sucks the dirt up to the surface through a ten inch diameter pipe and deposits it on to a truck. This way is by far the most expensive method used in the black-opal-mining-industry because the huge fan that creates the suction needs a lot of horse power to drive it.

The most economical method of mining in the black-opal-mining-industry is using a hydraulic digger, a bogger and a super hoist , which can haul half a ton of opal dirt to the surface in each bucket. The bogger is a small self filling, self tipping, skid steer truck that holds half a ton of opal dirt. This type of set up is very mechanical and requires quite a bit of skill to keep it all operational. A 40 KVA generator runs this mining equipment and is very economical in comparis on to a blower. I have no idea why it was called a blower because it actually sucks.

When a miner no longer wants a claim he can transfer it, sell it, or cancel it. To cancel a claim he has to ensure the entire area is free of opal dirt, all drill holes filled in, and submit an Application to Cancel a Mineral Claim form, to Mineral Resources who then come and inspect the claim before returning his bond.

Miners who have been fortunate enough to have a very good claim can sometimes have opal stolen from there mine. The people that do this are called ratters. They are the most despised people in the black-opal-mining-industry, because, not only do they steal a miners hard earned opal, but because they are in such a rush when digging it out a lot of opal gets smashed into little pieces. This is one of the reasons why opal miners are very secretive about how much opal they are finding.

In the black-opal-mining-industry at Lightning, the term used for fossickers is Noodlers. These are people that go through a miner's discarded dirt looking for opal that may have been missed. There are allocated dirt dumps around the black opal mining fields where all excess opal dirt is dumped. A miner who dose not have processing facilities may use this as an indicator to check if he is throwing opal away. If he returns to the dump with a load of dirt and sees the previous load has been totally leveled with noodlers still going through it, he would know he had made a big, big mistake. Some people treat noodling like a job and do quite well from it.

When mining the fields closer to Lightning Ridge, we have to process our opal dirt because the opal is in the form of nobbies, which is very hard to see while mining. This dirt is washed in a cement truck agitator so as to achieve a %100 recovery. These agitators are mounted on a large dam wall and use a conveyor belt to feed the opal dirt into it. The dirt is fed onto this conveyor from a small opening in the tailgate of a tip truck. Water is pumped into the agitator and mixed with the opal dirt. The water and slurry is washed out through sieves cut in the sides of the agitator bowl. This process breaks the opal clay down, until the only thing left is the very hard material, which is mostly opal and potch. There is very little noodling done on these fields because all of the opal dirt is processed.

There are two small dams at the Grawin opal fields for processing opal dirt with one privately owned. A very large 25 site dam is proposed for the Grawin area but is still to be built. This dam will be of great benefit to the black-opal-mining-industry in this area. These dam sites are sometimes a target for ratters because miner's leave opal dirt in there agitators over night. They make it hard for the ratter to steal there opal by depositing a truck load of dirt into the agitator before turning it off at night. This hides all the potch and opal in a full truck load of wet, muddy opal dirt.

The excitement of discovering a patch of beautiful opal, is why a miner endures the extremes of harsh conditions, hard work and sometimes poverty. When there are extended periods of not finding any saleable opal at all, it can be quite depressing. The best way to over come this is not get too excited in the good times, as this tends to level out the highs and lows.

There is an old saying here, "there's a lot of dirt between the opal". That's why it is almost essential to have as much mining gear as possible, and move as much dirt as possible, to hopefully find a patch of beautiful gems.

A very small number of miners, with limited equipment, have been extremely lucky and found large amounts of quality black opal. Whereas others with a lot of equipment just survive.

The serious opal miners, like ourselves, treat opal mining like any small business. Having the equipment, good luck and hard work sometimes pays off.

Until early this year opal prices have been the lowest they have ever been.

Since the beginning of 2004 opal buyers have been very active in Lightning Ridge and are paying slightly higher prices. Many miners have left the industry due to lack of working capital, so there is a shortage in supply. Of course opal miners are very happy to see this slight rise in prices. This can only be positive for the black-opal-mining-industry.

Black opal is a non-renewable resource and it is becoming rare. If you have ever wanted to own a beautiful piece of black opal then now is the time to buy, because it will never be this low priced again.

have been very active in Lightning Ridge and are paying slightly higher prices. Many miners have left the industry due to lack of working capital, so there is a shortage in supply. Of course opal miners are very happy to see this slight rise in prices. This can only be positive for the black-opal-mining-industry.

Black opal is a non-renewable resource and it is becoming rare. If you have ever wanted to own a beautiful piece of black opal then now is the time to buy, because it will never be this low priced again.

From http://www.blackopalbargains.com/black-opal-mining-industry.html .
Reprinted for educational purposes under the "fair use" provision of the U.S. Copyright Act.

++

UA Museum to Observe 50th Anniversary of Hodges Meteorite

November 24, 2004

TUSCALOOSA, Ala. – One of the world's most famous rocks – a meteorite that struck an Alabama woman 50 years ago this month – is the subject of a Nov. 30 presentation sponsored by The University of Alabama's Alabama Museum of Natural History, home to the legendary stone.

The "Hodges Meteorite" fell from the sky on Nov. 30, 1954, punching a hole in the roof of a house in the Oak Grove community, near Sylacauga, smashing a wooden radio cabinet and then landing on 31-

Dr. John Hall will give a 7 p.m. Nov. 30 presentation recognizing the 50th anniversary of the so-called "Hodges Meteorite," billed as the only known meteorite to have ever struck a human.

Traffic jams reportedly extended for several blocks surrounding the Hodges home (shown here, circa 1954), as some 200 reporters flocked to the scene of the meteorite crash.

year-old Ann Hodges, as she lay dozing on her couch. The meteorite, which weighed about 8.5 pounds, hit Hodges' hand and hip and caused extensive bruising, according to published reports from the period.

The only confirmed occurrence of a meteorite hitting a human, the incident resulted in an Air Force investigation, a mini bidding war, a flurry of media attention and a lawsuit. Hodges, against her husband's wishes, donated the internationally publicized meteorite to the University's Alabama Museum of Natural History in 1956, said Dr. John C. Hall, retired assistant director of the UA museum.

Hall will give a talk, "Ann Hodges and the Day the Star Fell" at 7 p.m., Nov. 30 in room 205 of Smith Hall. The public is invited, and admission is free. A reception will be held in the Grand Gallery following the talk.

Hall, former director of the Alabama Museums Association, said meteorites in space may travel at a rate of more than 30,000 miles per hour. Smaller ones break up and are slowed down, and burned, as they enter the earth's atmosphere.

"Still, the Hodges meteorite was clearly traveling several hundred miles per hour when it struck the house," Hall said. The object is known as a chondrite, a common form of stony meteorite. Scientists have dated meteorites similar to this one as having been formed during the early years of the solar system, approximately 4 to 5 billion years ago, Hall said.

Media reports at the time indicated people from Georgia to Mississippi reported seeing a bright light in the sky and some heard an "explosion" near the time Hodges was struck.

A representative of the Geological Survey of Alabama, who was in Sylacauga at the time of the incident, first confirmed the meteorite's authenticity. Hall said the loud noise people reported hearing was likely a sonic boom produced by meteorites traveling many times the speed of sound. A second, smaller fragment was discovered the next day about two miles from the Hodges' home, he said. It is on display in the Smithsonian, whose representative unsuccessfully attempted to obtain the more famous meteorite from the Hodges.

Ed Howard, then Sylacauga mayor, Ann Hodges and then Sylacauga Police Chief W.D. Ashcraft pose with a meteorite underneath the point where it crashed through Hodges' house in 1954. Hodges donated the meteorite to UA's Alabama Museum of Natural History in 1956.

A helicopter crew from Maxwell Air Force Base flew to Sylacauga later that afternoon, Hall said, and went to the Hodges' home – which, ironically, was located near the Comet Drive-In – to examine the meteorite. With the threat of atomic bombs and fears associated with Communism serving as a backdrop in the early 1950s, the Air Force was under orders to confiscate any items from space, the retired UA naturalist said. So, the Air Force took the meteorite to Wright-Patterson Air Force Base in Ohio. Quickly confirming the meteorite was not part of a spacecraft, the Air Force lost interest in the rock, Hall said, and it was later returned to the Hodges.

However, the Hodges' landlord sued for possession of the grapefruit-sized rock, but the sides reached an out of court settlement, and the Hodges retained possession.

The late Dr. Walter B. Jones, Alabama State Geologist, was director of the Alabama Museum of Natural History when the famous meteorite came to call UA home.

The 7 inch by 5 inch by 5 inch rock, displayed at the Museum underneath a glass case, is covered with a thin black coating from its heated entry, Hall said. It contains several chips, and a patch of tar from the Hodges' roof remains visible on one tip, he said.

The stone was likely a fragment from a meteorite that probably weighed more than 150 pounds when it entered the atmosphere. Meteorites smaller than 150 pounds generally do not survive passage through the earth's atmosphere, he said.

Hall called the meteorite the Museum's "most memorable" exhibit. "This is the main thing that people from outside the state come to the Museum to see," he said.

UA's Alabama Museum of Natural History is located in Smith Hall on 6th Avenue near the Quad on The University of Alabama campus. The typical hours of operation are Tuesday through Saturday, from 10 a.m. to 4:30 pm. Standard admission is $2 for adults and $1 for children and seniors. To see a complete list of upcoming activities and events visit the website at www.museums.ua.edu.

++

August 2008 Gem & Mineral Shows

1-3--EUGENE, OR: Show, "Gem Faire"; Gem Faire Inc.; Lane County Events Center/Exhibit Hall, 796 W. 13th Ave.; 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

1-3--NIPOMO, CA: Show, "Rainbow of Gems"; Wes Lingerfelt; St. Joseph's Church; 298 S. Thompson Ave.; Fri. 10-5, Sat. 10-5, Sun. 10-5; free admission; raffles, prizes; contact Wes Lingerfelt, 110 W. Bennentt St., Nipomo, CA 93444, (805) 929-3788; e-mail: Rocks4u@prodigy.net; website: Web site: www.omsinc.org

1-3--PRESCOTT, AZ: Show and sale; Prescott Gem & Mineral Club; Embry-Riddle Aeronautical University Activity Center, 3700 Willow Creek Rd.; Fri. 9-5, Sat. 9-5, Sun. 9-4; adults $2, children 12 and under free with paid adult; dealers, fine jewelry, beading components, mineral specimens, tools, lapidary equipment and rough, door prizes; contact Larry Jackson, P.O. Box 3923, Chino Valley, AZ 86323, (928) 636-9188; e-mail: lpjack65@cableone.net; Web site: www.prescottgemmineral.org

2-3--NORTH BEND, OR: Show; Farwest Lapidary & Gem Society; North

Bend Community Center, 2222 Broadway; Sat. 10-6, Sun. 10-5; displays, jewelry, demonstrations, kids' activities, exhibits, silent auction, raffle, hourly door prizes, dealers, faceted and rough gems, minerals, gold, silver, crystals, beads, mountings, tools, jewelry; contact Don Innes, 54416 Arago-Fishtrap Rd., Myrtle Point, OR 97458, (541) 396-5722

2-3--SAN FRANCISCO, CA: 54th 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

8-10–COSTA MESA, CA: Show, "Gem Faire"; Gem Faire Inc.; OC Fair & Event Center/Bldg. 10, 88 Fair Dr.; 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

9-10–LAKEVIEW, OR: Show, "Tallman Rock Round-up"; Tallman Rockchippers; Lake County Fairgrounds, N. 4th St.; Sat. 10-5, Sun. 10-4:30; field trips (OR sunstone, etc.), dealers, demonstrations, children's activities, silent auction; contact Johanne Diedrich, Hi Desert Craft Rock Shop, (541) 947-3237, or LeRoy Johnson, 39 N. L St., Lakeview, OR 97630, (541) 947-4267; e-mail: lostmymarblesOR@yahoo.com

9-10–MELBOURNE, FL: Show; Lane Enterprise Foundation; Melbourne

9-10–WALNUT CREEK, CA: Show, "The Great Contra Costa Crystal Fair"; Pacific Crystal Guild; Civic Park Community Center, 1375 Civic Dr., at Broadway; Sat. 10-6, Sun. 10-4; adults $5, children under 12 free; gems, jewelry, crystals, beads, psychics; contact Jerry Tomlinson, (415) 383-7837; e-mail: sfxtl@earthlink.net; Web site: www.crystalfair.com

15-17–SACRAMENTO, CA: Show, "Gem Faire"; Gem Faire Inc.; Scottish Rite Center, 6151 H St.; 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

15-17–SEASIDE, OR: 12th annual show, "Seaside Gem, Mineral, Jewelry & Fossil Show"; The Millers; Seaside Convention Center, 415 1st Ave.; Fri. 10-6, Sat. 10-6, Sun. 10-4; ugly jewelry contest, donations collected for OR National Guards families Emergency Fund; contact Jean Miller, P.O. Box 136, Molalla, OR 97038, (503) 829-2680; e-mail: shadow92337@netscape.com; Web site: www.ogmshows.com

15-17–TEHACHAPI, CA: 4th annual show, "Tehachapi Gem & Mineral Show"; Eonic Endeavor; Tehachapi Academy of Performing Arts, 48771 Valley Blvd., Fri. 8-7:30, Sat. 8-7:30, Sun. 8-5:30; free admission; geode cutting booth, Tehachapi Valley Gem & Mineral Society booth, polishing and crafting display and instruction; contact Chuck Overall, 26860 Columbia Way, Tehachapi, CA 93561, (661) 821-4650; e-mail: Luckydog5433@aol.com

15-17–VERO BEACH, FL: Show; Lane Enterprise Foundation; Vero Beach Community Center, corner of 14th Ave. and 23rd St.; Fri. 10-5, Sat. 10-5, Sun. 10-4; $4 weekend pass, children under 12 free with parents/guardian; 30 retail dealers, jewelry, gemstones, wire wrapping, beads, pearls, minerals, fossils, tools; contact Anita Lane, (321) 723-0742

16-17–YELM, WA: Annual show; Nisqually Valley Rockhound Society; Yelm Middle School, Hwy. 510; Sat. 10-6, Sun. 10-5; contact Mike Smith, (360) 458-8747; e-mail: msmith2012@ywave.com

22-24–HOT SPRINGS, AR: Show; AKS Gem Shows; Hot Springs Convention Center, 134 Convention Blvd.; Fri. 10-6, Sat. 10-6, Sun. 10-4; admission $5; beading classes; contact Kay Schabilion, 4532 Kawanee Ave., Metairie, LA 7006, (504) 455-6101; e-mail: info@aksshow.com; Web site: www.aksshow.com

22-24–SAN DIEGO, CA: Show, "Gem Faire"; 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

30-1–CANBY, OR: 26th annual show, "Willamette Valley Gem, Mineral, Jewelry & Fossil Show"; The Millers; Clackamas County Fairgrounds, 694 N.E. 4th Ave., off Hwy. 99 E; Sat. 9-6, Sun. 9-6, Mon. 9-4; more than 100 dealers, donations taken for OR National Guards Emergency Fund; contact Jean Miller, P.O. Box 136, Molalla, OR 97038, (503) 829-2680; e-mail: shadow92337@netscape.com; Web site: www.ogmshows.com

30-1–SILVER CITY, NM: 25th annual show; Grant County Rolling Stones Society; Silver City Recreation Center, 11th St. and Gold St.; Sat. 10-5, Sun. 10-5, Mon. 10-4; free admission; more than 50 dealers, free daily field trips, Silent Auction, Wheel of Fortune, Rolling Sphere Fountain raffle; contact Judy Allen, 16 McKinley St., Silver Spring, NM 88061, (575) 388-4054; e-mail: show08@stockmanfamily.net

Thank you for continuing to support your American Opal Society!

American Opal Society Membership Renewal

TYPES OF MEMBERSHIP		DUES / FEES)	AMOUNT PAID
DUES: SELECT ONE	*All US Addresses including Alaska and Hawaii*	**$30**	
	International Members All addresses outside of US Addresses	**$40**	
ADDITIONAL BADGES $10 each (Your First Badge is free when joining)		**$10**	
ONE TIME INITIATION FEE All New members		**$10**	
SENIOR DISCOUNT Age 65 or over deduct $5		**-$5**	
TOTAL PAID DUES, less Senior Discount plus Badge plus Initiation Fee (if Applicable)			

Please make check or money order payable to "***American Opal Society***". Mail payment and application to:

American Opal Society; PO BOX 4875; Garden Grove, CA 92842-4875

An optional, quicker method of payment is via the **Internet**. To pay, just visit the membership page on our website at http://opalsociety.org/aos_application_by_web.htm and complete the form. You August pay with a **Credit Card** or via **PayPal** account. The transaction is completely secure and the AOS never sees your credit card number. The AOS PayPal account is **membership@opalsociety.org**.

NAME		
BUSINESS NAME		
ADDRESS		APT # or PO BOX
CITY		STATE
ZIP or POSTAL CODE	COUNTRY (IF OUTSIDE USA)	
PHONE - Home ( )	PHONE - Business ( )	FAX ( )
E-MAIL		
WEBSITE		
OCCUPATION	HOBBIES AND INTERESTS	

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

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

☐ Address ☐ Phone ☐ E-mail ☐ Website ☐ E-Mail the Opal Express Newsletter instead of Postal Mail

☐ Include my name & address on a list provided to the Dealers selling at our Annual Opal & Gem Show.

Please sign here: _____ Date _____

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

Editor-Jim Pisani
Please address all inquiries and exchange newsletters to:
The Opal Express C/O
Jim Pisani
P.O. Box 4875
Garden Grove, CA 92842-4875
E-mail: editor@opalsociety.org

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
Garden Grove, CA 92842-4875

Volume #41 Issue #8
August 2008

TO:

Some Topics In This Issue:

- **Sand - Why Take It for Granted?**
- **Lightning Ridge, Black-Opal-Mining-Industry**
- **50th Anniversary of Hodges Meteorite**

August 14

Pete Goetz on "Andamooka BBQ", or How to Treat Andamooka Matrix Opal

Important Info:

General Meeting - August 14th

- **Pete Goetz on "Andamooka BBQ", or How to Treat Andamooka Matrix Opal**

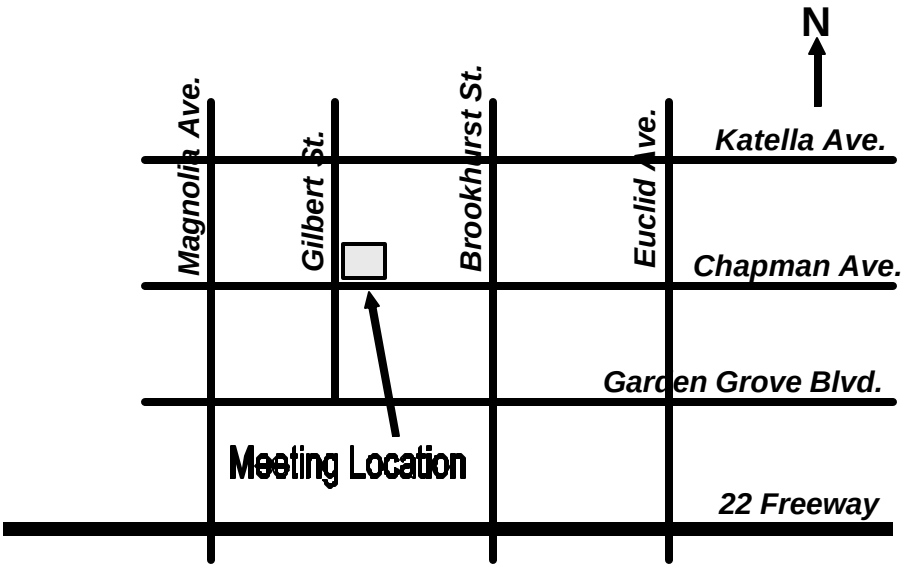
— GENERAL MEETINGS —

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



The American Opal Society
http://OpalSociety.org

Jim Lambert	President	(714) 891-7171	email: jlamb777@yahoo.com
Stan McCall	Vice-President	(714) 220-9282	email: custom-creative@earthlink.net
Russ Madsen	Treasurer	(562) 884-2254	email: chairman2rgm@verizon.net
Jim Pisani	Editor & Webmaster	(714) 815-4638	email: editor@opalsociety.org
Gene LeVan	Show Chairman	(562) 621-1805	email: fineblackopal@sprynet.com