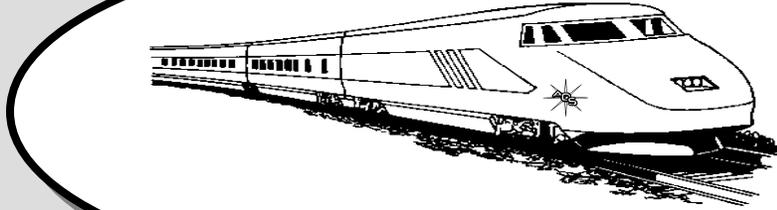


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President's Message

By Pete Goetz

Well fellow Opalholics, and speaking of Well...Jim Pisani, Bob Dixon, and myself drove out to Stoddard Wells last week. Had a great time. Saw some old friends, made some new ones, spent more money on things I am not sure what to do with, but had fun anyway. Show was in good health. Wasn't sure when we first got there, looked kinda-sorta small this year. Didn't have climb as far up the hill as usual. Turned out they staged vendors closer to the "main road".

Last month at the monthly meeting, we had an OPAL cutting session. Lots of folks present. We shared cutting tips, techniques, and of course OPAL stories related to OPAL hunting trips, etc...

This month we month's speaker is Janie Duncan. She will present a talk on Beads around the World. See the announcement on page 10.

As I indicated before, we, that is the AOS, needs members to help with the various tasks that will help make our society stronger and more professional. Tasks that we could use help with: Membership Chairperson, More field trips, show issues, and our monthly meeting preparation to include; setting-up and breaking down the meeting room, audio and visual equipment, and a refreshment coordinator.

On a sadder note, we lost a long time member and friend Barbara McCondra in late March to pancreatic cancer. We had just talked to Barbara at the March meeting and she seemed well. Barbara was one of kind, and was well known in the opal world. We will miss her.

Well, I guess I have nagged enough for the moment, hope to see you at the monthly meeting.

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Pitfalls of Rock Tumbling

1. NEVER pour the waste product from your barrels down the sink - it sets rock-hard even under water and will rapidly cause a blockage in your pipe work. Find somewhere else to pour it - on the garden or I prefer to use a large outdoor water barrel - pouring the water out and then taking the slurry to the tip from time to time.
2. NEVER use a barrel which has had grit in it for the final polish phase - always ensure that you have one barrel especially designated for this purpose only.
3. NEVER allow any grit to contaminate any machinery - your washing machine, your tumbler, your dishwasher etc - GRIT DESTROYS ALL MACHINES QUICKLY AND EFFICIENTLY.
4. NEVER leave your barrels for more than 2 days without checking them - always keep an eye on them so that in the event of a problem - such as a lid popping off - you can be around to sort it out quickly.
5. ALWAYS follow the manufacturer's instructions for oiling the bearings on your tumbler, do not ignore this or you will quickly find yourself with a seized up bearing - remember these machines need to run 24/7 without a rest!!
6. ALWAYS use separate spoons/sieves/barrels for each type of grit - you must always avoid cross contamination of grits.
7. ALWAYS protect your machines from damp air conditions and wet surfaces for obvious safety reasons.
8. ALWAYS pay close attention to the washing stages - there is no point in attempting to polish stones if cross barrel contamination is occurring—they will simply never shine.

From <http://Rocktumblinghobby.com>

From "Breccia" 11/09 via The Palomar Gem, March 2010

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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: "brightness".

In sadness I am adding this tribute to Barbara McCondra from her friends in Australia. - The Editor

Barbara a Legend in Her Time

18 Mar, 2010

RIP Barbara McCondra

December 1941 – March 2010



Barbara McCondra

"Eskimo Nell" came to Lightning Ridge in Easter 1983 from a job as a security guard on the Alaska oil fields. She was not a miner but rather an adventurer who loved opal - she was born in America of Czech parents. Through 2009 she fulfilled her dreams of living either in Arizona or on the opal fields. Her grown sons, Ray and Ron, came over from USA and mined with her on occasion.

As a larger-than-life sort of woman, she slotted into the excitement of opal mining with ease. Her first mining partner was her father who brought his other daughter, Marian, to Lightning Ridge to see what all the fuss was about and paid for her first shaft. Barb worked side by side with the best of the men. Her friends helped her build a camp at Pig Hill and the day the girls launched her Purple Dunny is well documented.

For the past 15 years Barb focused her digging at Yowah but she usually returned to catch up with friends at the Ridge Opal Festival in July. She brought other American "opalholics" for a hands-on experience of life on the opal fields, an imaginative and colourful tour guide as well as an author.

She was an ambassador for the Australian opal industry - she wrote articles for Rock and Gem magazine, the monthly Opal

Express in USA and for Metal, Stone and Glass. The Yowah Nut annual newsletter was her creation in 1997 with the help of good friend, Gwen Burney. They started the Yowah Jewellery Design Awards that initiated the Lightning Ridge black opal counterpart. Barbara gave talks to the American Opal Society and was a regular at the Tucson and Quartzite Gem Shows. She is a life member of the shovel-ready Australian Opal Centre at Lightning Ridge.

Barb's writing style is jaunty and memorable; her sketches and caricatures are unique. Her Smoke Gets in Your Eyes, a Lightning Ridge Cookbook gives another dimension to cooking. Her book-a-zine, Fire in a Brown Paper Bag, about the Queensland opal fields is informative. And there are two more publications ready for the press and two still in her laptop, one a murder mystery.

Last August whilst mining at Yowah, she complained of tummy pains, was diagnosed with pancreatic cancer in Toowoomba Hospital and Ron flew over to take her back to Ray's in Dallas. She lost her battle at home in the care of her sons and in the company of her three grandchildren.

Barbara has shared a lot of herself with us - a legend in her own time. One thing is sure - Eskimo Nell's totem is at her former Pig Hill camp and part of her lurks on the opal fields. Anyone who knew her will agree that she was a one-off in our lives - we remember the vibrancy and generosity of this hard-working woman. She always had time for more.



Barbara McCondra

From <http://www.theridgenews.com.au/>

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Member Randy Lord, Canadian opal miner & gem prospector extraordinaire, has discovered an interesting phenomena! - The Editor

Opal Essence

By Randy Lord

The definition of opalescence is the quality of being opal-like either by showing a play of colour or being milky iridescent. This optical effect found in precious opal is due to the diffraction of visible light by an ordered array of uniform layered silica spheres. This is not mysterious or so I thought until recently.

Every opal lover has bought small jars or bottles filled with flashy opal chips in water. Generally, they sit on a shelf for a long time and are admired. I had one such mini vodka bottle filled with what I believe was white base Coober Pedy chips that sat for about 40 years. The cap was airtight so it appeared to be in equilibrium. To my amazement, when I emptied the opal chips the inside of the glass bottle exhibited a white opalescent coating. Distinct colours of red, green, blue and purple can be seen flashing in a microscopically thin layer. I did not consider this remarkable, as silica is obviously soluble in water under standard surface temperature and pressure conditions. The many ways that opal fills or replaces subsurface openings make that obvious. The

mechanism of silica emplacement is well understood, hence man made opal.

I believed most opal folk had this awareness until a trip through Australian gem fields in early 2009. Their extensive opal deposits are thought to be the product of deep chemical weathering with dominantly kaolinized and silicified components. When noodling on some open cuts and dumps at a friends claim north of Coober Pedy, my pal and I found exposed man made debris from the earlier underground tunneling days. Being miners, this naturally included plenty of empty bottles. All except one were fragments and many showed a distinct opalescent coating. Shops in town even had on display a few of these flashy, iridescent bottles.

When I mentioned this phenomenon at the Australian Opal Center in Lightning Ridge, the staff was interested and surprised. This must-see museum has many amazing one-of-a-kind opal and fossil specimens and will one day rival Alberta's Royal Tyrell. They have the best of the best and are presently downtown LR. Showing our sole intact bottle prompted photos and even a call to an "authority". Unfortunately I was unable to leave a sample having tossed the sharp fragments (luckily I was able to donate my last cab of Whitesail matrix opal mined in BC instead). Although not common in LR, I assured the folk that there were many pieces of opalescent glass to be found from Andamooka to Mintabe.

As usual, just when you believe you have a simple answer to a mystery the story changes. An internet search yielded a report (http://www.dmg-home.de/DMG-CD/filedir/12_abstract.pdf) that scientists had examined samples of South Australia opal fields opalescent glass using an electron microprobe and radiogenic isotope methods to determine if opal precipitation had occurred. Their results showed no opal layer at all. Rather, the colour effect resulted from thin film interference in surface alteration layers characterized by surface parallel cracks. Sub-micrometer plates with perfectly even surfaces peel off the glass surface with the distances between the parallel plate-to-plate interfaces in the range of the wavelength of visible light. The chemical process is described as similar to lateritization (the dissolution of easily soluble elements with a rise in the concentration of less soluble notably iron and aluminum) There is some enrichment of the surface layers with the largest increase being aluminum oxide (Al2O3) from 1.2 to 4.5 wt%. These surface layers also contained about 1 wt% chlorine (Cl) versus .05 wt% in unaltered glass. So the beautiful iridescence on this locality glass is a product of weathering.

According to the local opal miners this effect only happens to bottles buried in the "opal layer" where precious opal is found. The scientists analyzed clay and laterite samples (note: many laterites contain resilient relic quartz from parent rock) from this horizon and determined that the isotopic shift at the glass surface indicated mixing with pore water components. Since it is extremely unlikely that the water drained from my mini bottle of opal chips originated anywhere other than a tap here in Canada it leaves me to question if the effect I see is a result of this process. As I do not have access or experience with the sensitive equipment these scientists employed I am going to work with the assumption that there are many ways for this most noble of gems to present itself.

It pays to never ignore or discount local knowledge. But also consider that naturally most of these now iridescent Australian bottles were left at the opal layer as this was the miner's target. Other horizons were not excavated in those days. Precious opal is where you find it. If there is a lesson here it is always to be curious and keep asking questions.

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They don't make them any tougher than an Opal Miner! The Editor

Lone Opal Miner Dug His Way Out Despite Injuries

Sydney Morning Herald - January 12, 1987

ADELAIDE: A Coober Pedy opal miner, Mr Joe Seric, has shown an extraordinary will to survive.

The Opal Express

The American Opal Society

On Friday he was working alone 20 metres underground in his mine when the tunnel caved in on top of him.

Despite a fractured cheek and broken left wrist and left ankle, Mr Seric, 47, dug his way out of the rubble to the foot of the mineshaft.

Then he used his good hand to pull himself up a rope ladder to the top and set off for town in his car.

He had covered about half the 25-kilometre journey when two opal buyers found him and rushed him to the Coober Pedy base hospital.

Yesterday, recuperating in the Royal Adelaide Hospital, he said he could not remember much of his ordeal.

"I vaguely remember waking in darkness, with bad pain in my left foot, and trying to shift a mountain of rubble with just my right hand," he said.

"I remember the crushing feeling, and telling myself that if I didn't get free I might be dead before someone found me.

"But I have no memory of crawling out of the tunnel, and climbing the ladder, or of driving my vehicle towards town.

"I'll never know how I managed the gear-stick and the clutch with my left hand and foot so badly hurt.

"It's the first accident I've had in nearly 20 years at Coober Pedy, but I'll go back as soon as I'm fit. I know I've had a miraculous escape, but I thank God for that."

Mr Seric's wife Joyce said she has feared her husband would have an accident while working on his own.

<http://www.opalbuyers.com.au/>

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Here's a great reprint from a past Opal Express. I don't believe Gilson is made anymore. If you can find it, grab it! The Editor

Gilson Synthetic Opal

It's The Best Synthetic Opal Ever Made, and the Most Expensive.

By Earl Spendlove

Here's some Gilson opal." Mark Rasmussen said when I asked if he had anything new, and he brought out a shallow plastic platter containing what looked like 15 or 20 Spencer opal starts.

I was at a rock show in Panguitch, Utah, making the rounds to see what the dealers had, and when I stopped at the booth of Mark and Reva Rasmussen of Orem, Utah, he produced the opal starts. (A "start" by the way, is a thin sheet of opal. such as the material found at Spencer, Idaho, epoxied onto the backing of some kind. It is converted into a triplet cabochon by epoxying a quartz cap or slab onto the top of the opal.) The starts on the platter were covered with water and, when he moved them under the light, they fairly came alive with red, green, yellow and blue flashes of fire.

Although I had read a little about Gilson opal, I had never seen any, and I must confess that I was very much impressed with its beauty. Mark said he bought the material, which is man-made, from Charlie Smith of Teton Gems in Boise, Idaho. And, when he said he had no idea how the opal was made, I knew I had to find out and write an article about this very unusual material. Before I left that day, I talked Mark into letting me take the Gilson opal starts out into the sunshine, where I took a few pictures of this material that was sending multicolored flashes of light up through the water that covered them.

For almost as long as man has been using gemstones for jewelry, he has been trying to make imitations that look like the real thing, but cost considerably less. He has produced colored glass, and he has painted beads and cabochons made of wood and clay in an effort to make people think they were getting genuine gemstones. And, as early as 1656, Joquin, a French rosary-bead maker, learned to coat the insides of glass spheres with pearl essence." a lustrous substance obtained by concentrating water in which a certain species of fish had been washed. And his beads were passed off as pearls.

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Before I saw the Gilson material, the best imitation opal I had seen was mounted in a beautiful silver ring. The woman who owned it decided it deserved a better setting, so she took it to a jeweler and asked him to put it in a gold ring. When the jeweler tried to remove the opal, he found it had been glued into the ring. By the time he got it out, he found the "stone" consisted of some opalescent material glued onto the bottom of a quartz cap! To make matters worse, part of the material remained in the ring, while part was stuck to the cap.

Then, a few years ago, after one of my opal articles had been published in R&G. I received a letter from a firm in Hong Kong. It was a little difficult to tell exactly what they wanted, because the letter appeared to have been originally composed in another language and then translated into English. And, while the translator probably knew a lot more about grammar and punctuation than I do, he had a little trouble putting the words together so that I could understand them.

Enclosed with the letter were several artificial opal starts and triplets glued onto a piece of cardboard. Although the starts were rather pretty, they didn't look quite real, and I suspected that the backing and caps were plastic. When I offered to write an article about their product if they would tell me how it was made, they became as evasive as a Georgia moonshiner when a revenuer asks about his still!

The process, they said, was very complicated and, although they could tell from my article that I was a scholar, it would be very difficult for me to understand. Now, I've lived a long time I've been through 12 years of school, and I've studied at a couple of universities, besides, but that was the first time I had ever been called a "scholar." Although I didn't know exactly how they meant it, I decided to take it as a compliment. I guess, though, that I am a rather slow scholar, for I had to read their letter a few more times before I realized that they were trying to get me to sell their product!

After having had these experiences with man-made opal, I was surprised to see a product that looked as good as the Gilson opal. I was, however, unable to find much information on the material until I went to a rock show in Tooele, Utah. Just inside the door, I discovered the Teton Gems booth and behind the counter was Charlie's wife, Helen, wearing a beautiful Gilson opal pendant. And I looked down through the glass top of a display case to see a tray of Gilson opal cabochons of incredible brightness.

While I was waiting for Charlie to come back, I sweet-talked Helen into letting me take the tray out into the sunlight to take those pictures I mentioned. Seldom have I ever seen anything that matched the brilliance and variety of colors that the sunlight brought out. I moved the tray around so the light would strike the cabochons at different angles. When the pictures had been developed, I realized that the colors of some of the pieces had changed from red to green to gold with the changes in the light.

When Charlie returned to the booth, he was able to answer many of the questions I had on Gilson opal. The starts, he said, came from a company in France, but he didn't know exactly how they were made. He had, however, made quite a number of cabochons from this material and- he had some very helpful suggestions on how to finish the triplets. The surface of the opal, he said, was covered with epoxy which had to be ground off before the quartz cap was glued on. He also said that some of the backing was not strong enough so he put a better backing on the triplets he made.

I still had a lot of questions when I left Charlie, but I couldn't help but marvel at the wealth of information I get from rock shop owners and rock show dealers. So I was not too surprised at the help I got and the things I learned at the very next booth. Gene Hardgrove, owner of the Rock Art shop in Yermo, California, didn't know who I was but, when I asked about Gilson opal, he took time to talk to me. When I left I had the information I needed to write this article.

Until I stopped at Hardgrove's booth, all the Gilson opal I had seen had been on starts or in triplet cabochons, and I had assumed

the material had been manufactured or grown somehow on the thin black backing. So I was surprised when I looked into a Rock Art case and saw pieces of this material as much as a half inch thick. When Gene took a couple of pieces out of the case and let me hold them under the light, they appeared to be made up of tiny red, blue, green and yellow columns of material that shimmered and changed colors as I moved the Gilson opal about.

The fact that the material is made up of different-colored columns somewhat limits the finished, products to either a pinfire or modified broadflash pattern. And the broadflash pattern, which is obtained by cutting parallel to the columns, can only be achieved with the thicker material. The thickness of the piece, of course, limits the width of the triplet or solid cabochon to about a half inch. When the material is cut at right angles to the columns to produce the pinfire pattern, much larger triplets and cabochons can be made.

Gene had some beautiful triplets and solid cabochons in his case as well as very unusual beads made from solid pieces. The pattern of each bead varied with the way the bead had been cut or with the direction in which the hole had been drilled through it. The ones I liked best were those with holes parallel to the colored columns. These beads looked like tiny, round, striped watermelons.

When I asked if he had any details concerning how Gilson opal is made, Hardgrove gave me a copy of his catalog, which contains a brief explanation of the process, and he brought out a loose-leaf notebook containing a few articles he had clipped out of newspapers and magazines. I borrowed his information just long enough to read it and make notes for this article.

The process for making Gilson opal was invented or discovered some years ago by French scientist Pierre Gilson, who also produces synthetic turquoise, coral, emeralds and lapis lazuli. His first opals were white with flashes of green and orange. Later, he was able to produce an opal with a dark, almost black background and a matrix that gives off brilliant flashes of red, orange, blue, green and yellow.

The exact method for producing Gilson opal is, of course, a well-kept secret, but from the material that Gene let me read I gathered that it is a sedimentation process. Large beakers of a hydrated silica solution containing certain other ingredients (unnamed in the literature) are set in a quiet place and left undisturbed for at least a year. During this time, molecules in the solution, which are constantly moving about, bombard microscopic particles of colloidal silica held in suspension in the solution. (For those of you who remember your chemistry, this phenomenon is called Brownian movement. It was discovered in 1827 by Robert Brown, a Scottish botanist who observed pollen grains darting about in a zigzag fashion and concluded that they were being hit by moving molecules in the solution.)

The theory at work in the development of Gilson opal is that molecules in the solution, striking particles of colloidal silica, cause the formation of billions of spherical particles of amorphous silica, which settle to the bottom of the beaker and arrange themselves in regular patterns, much like the silica spheres in natural opal. The play of colors is caused by the diffraction of light and the variation in the refractive index of the tiny spheres. The angle through which the light is diffracted varies continuously with the wavelength, so different colors appear at different angles, thus producing a colorful display.

According to the information I read, the Gilson opal slabs are taken out of the beakers when they are four to seven millimeters thick and are stabilized with a silica gel or possibly epoxy. The parts of the slab that touched the glass of the beakers are generally an orange or green, but soon give way to the tiny multicolored columns. When I think about these little columns, I can't help but wonder if they could have been formed in about the same manner as stalactites and stalagmites.

The Rock Art catalog contained a table that compared a number of the characteristics of Gilson and natural opal, and I was amazed at how similar the two are. Both have the same chemical

formula, both are amorphous, both break with a conchoidal fracture, and both have a refractive index of 1.45. Gilson opal, with a hardness of 6 to 6.5 on the Mohs scale, can be just a bit harder than natural opal, with a hardness of 5 to 6.5.

Now, don't get the idea that because Gilson opal is man-made, it is less expensive than natural opal. Generally, it is not. The price varies with the play of colors, the size of the pattern and the attractiveness of the piece. The Rock Art catalog lists black Gilson opal rough at \$44 per gram. White opal rough sells for \$18 per gram. Black opal cabochons go for \$37 to \$84 per carat while white opal cabochons sell for \$15 to \$40 per carat. Prices of opal starts, which I was most interested in, vary with the dealer and the size and quality of the pieces, ranging from \$15 to \$50.

If you are interested in Gilson opal, your local rock shop doesn't carry it, and you can't find it at a rock show, you might want to contact Gene Hardgrove. His catalog not only lists Gilson opal, but it offers a good selection of natural and manmade stones and other interesting items. The address is Rock Art, P.O. Box 278, Yermo, CA 92398-0289. The phone number is (619) 254-2056.

A year or so ago I purchased a Spencer opal start for about \$30, covered it with a piece of quartz, and made it into a free-form cabochon. Then, I made a silver pendant to fit the cabochon and gave it to my wife. As I looked through the Gilson opal starts that the different dealers had, I spotted one that looked similar to the one I had made up. It cost about the same, so I bought it. I knew the start was covered with epoxy that would have to be ground off before the cap could be glued on. But, when it comes to grinding a paper-thin layer of epoxy off a paper-thin layer of opal, I get a little nervous. So I took it to my friend, Jim Davis—a self-confessed opalholiac—and got him to do it.

Then, using the same procedures followed in make triplets from Spencer opal starts, I glued on a quartz slab. Then I ground and shaped the cabochon to utilize as much of the opal as possible, and it turned out pretty well. It looked like the Spencer opal cabochon, had a pinfire pattern, and the flashes of red, green and gold were unbelievably brilliant. When I had mounted the Gilson opal cabochon in a silver pendant and placed it beside the pendant that contained the Spencer opal, it was hard to decide which one I like best. The Spencer opal colors were soft and subdued, while the Gilson opal looked like a fireworks display in a dark summer sky. Finally, after studying them from all angles and giving the matter much thought, I decided I liked the Spencer opal best.

When I showed them to my wife and told her my choice, she agreed with me! I was so surprised that I almost fell out of my tree! For, no matter what I say, she always takes the opposite stand. I'll have to admit that there have been a couple of times that she was right. I guess she thinks it's only natural for me to be wrong since I'm a scholar. And what do scholars know about anything? R&G

From the 11/88 Opal Express

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Cabochon Tips

How to Remove Flat-Spots

(And ensuing scratches from your cabs as you are cutting them)

By Thomas Clark

I scribe a series of axial lines over the face of the cab with an aluminum scribe. I make these up from 6" length of aluminum 1/8" welding rod, and sharpen the point on the genie from time to time. I usually make what amounts to a 6 or 8 pointed star (looks like a star sapphire) covering the entire top of the cab. I do this once just before I leave the 220g galaxy wheel, and once again as I'm finishing up with the 280 nova wheel.

Once you have the scribe marks on your domed cab face, do another quick once over the entire cab face on the 280 nova, making sure to keep your wrists in constant motion, never allowing the cab to sit still as you are against the wheel. Even while the cab is wet, it is a snap to see any residual scribe marks, which is a sure

sign there is a flat spot in that area. Before I start sanding on the 600 wheel, I will dry the cab completely, and check to see that the entire surface is a consistent 28-g matt surface with no deeper marks showing, and no remaining traces of the scribe marks. This is also an excellent time to spot and treat any partially healed fractures or tiny flaws with a drop of hot stuff, or similar crack sealer. Once your sealer has dried, re-sand the surface of the cab on the 280 nova wheel, before moving on to the 600g and finer wheels. I advocate sealing any cracks, because it will help keep the polish out of the cracks at the final stage.

After the pre-polish on the 3000g wheel, I dry the cab again, and attempt to read the reflection of the printing from the face of my 60W incandescent light bulb, which should be clean and crisp on the surface of the cab as I rotate it under the work light, with no variations from any location on the cab. Now I can go to polish, with no reservations, and very few disappointments.

Excerpt from LA Rocks forum –via The Palomar Gem, March 2010.

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Now you may ask – what in world does grass have to do with Opal? You will be surprised... read on! The Editor

Evolution by the Grassroots

By Olivia Judson

March 2, 2010

Imagine the Earth without grasses.

There would be no lawns or meadows. No prairies. No savannahs or steppes. No wheat fields or rice paddies. No sugar cane.

No sheep, elephants or horses.

No people.

We live in the age of grass. Indeed, from our point of view, the evolution of grasses was one of the most momentous events in the history of the Earth. Which is why I'm nominating them for Life-form of the Month: March.

Let's limber up

with a few facts. In general, grasses spread their pollen by wind, so they are not dependent on bees or other insects. Grasses also grow fast, and can easily colonize patches of bare ground, or move into a landscape after a fire. They can withstand being eaten (or mown) better than most other plants, because their leaves grow from the base, not the top.

Like all plants, they make energy from the sun by means of photosynthesis. However, grasses have repeatedly evolved a variation — known as C4 photosynthesis — that uses less water, and is thus a particular advantage in hot, dry places, or when carbon dioxide levels are low. This has allowed them to flourish in difficult habitats, like rocky outcrops and dry soils. One other detail: grasses fill their leaves with silica. That is, they are factories for tiny opals.

As a group, grasses have been wildly successful. Today, the grass family contains more than 10,000 species — that's more species of grass than species of bird — and grasslands cover about a third of the planet's landmasses. ("Grassland" refers to an ecosystem, like prairie, where grasses dominate; it doesn't mean they are the only plants there.) Grasses can be tall (think bamboo) or short (think lawns), and they include our most important crops. Rice, wheat, rye, oats, maize, millet, barley, sorghum and sugar cane are all grasses.



Grasses have had a profound effect on the animals that have come to depend on them, including humans.

We humans are dependent on grasses: we get more than half our calories directly from the tetrad of rice, wheat, maize and sugar cane, and we feed grasses to our sheep, goats, horses and cows.

But I'm getting ahead of myself.

The early history of grasses is obscure. However, we do know that they blew onto the scene relatively late — around 80 million years ago, shortly before the dinosaurs went extinct. In evolutionary terms, that's yesterday.

And having arrived late, their rise to prominence got off to a slow start. If you climbed into your time machine and set the dial for 55 million years ago, you wouldn't find much in the way of grasses when you got there: at that point, they were still minor players on the Earth's stage. But by 15 million years ago, that had changed. Grasslands had become abundant.

Exactly why this happened is a matter of debate. But whatever the reasons, the effect on other life forms has been profound.

Grasses affect the landscape both above and below the surface of the Earth. Below: they alter the texture of the soil. Grassland soil is typically characterized by small crumbs that are rich in organic matter. This is partly due to the way that grass roots grow, and partly due to the animals that grasses encourage — like earthworms and insects. Many of our richest agricultural lands were made so by grasses.

Above ground, grasslands create wide open spaces where large animals can run fast and go about in big herds. Hence, the spread of grasses triggered the evolution of big, herding mammals with long legs and hooves — horses and antelopes, for example. Moreover, all those opals are hard to eat: they wear down teeth. So the rise of grasses was also met with the evolution of "hypsodonty" — long teeth.

(Just as grasslands sculpted the evolution of certain mammals, so too mammals sculpted the evolution of grasslands. Many mammals eat young trees — and thus prevent trees from invading a grassy area. Elephants can — and sometimes do — uproot big trees. The high opal-content of grasses is, in part, an evolved response to being eaten.)

Now pause for a moment to imagine these savannahs with their big herds of galloping mammals. For these are also the landscapes in which, perhaps, our earliest ancestors stood on two legs and learned to hunt — though again, this is a matter of debate.

Yet regardless of how much grasses shaped our earliest evolution, in the recent past they have transformed us. We usually talk of our domestication of grasses, and the ways in which we have evolved them: we have made plants with bigger, more nutritious seeds that don't fall to the ground, for example.

But their effect on us has been far more profound. Our domestication of grasses, 10,000 years ago or so, allowed the building of the first cities, and marks the start of civilization as we know it. Grasses thus enabled the flowering of a new kind of evolution, a kind not seen before in the history of life: the evolution of human culture.

From <http://opinionator.blogs.nytimes.com>

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Vacation time is coming for those of us who live in Southern California. Here's a good reference for those who like to add some rockhounding to their travels. The Editor

Rockhounding near Mammoth Lakes, California

It's a passion for some, and a hobby for others, and the Eastern Sierras can fill any rock hounds sample books and charts with a ton. There are over 200 rocks and minerals listed for Inyo County in the California Mineral book published by the State of California. Some areas are private land and thus you need their permission before you can pocket a few samples. Protected areas are marked, so please don't remove pieces of nature if you are asked not to.

Going South from Mammoth on Hwy. 395

Rossi Mine - 10 miles.

Follow Sunland St. Minerals found - Garnets, Epidote, Geodes, Molybdenum.

Round Valley - 25 miles - Bishop Tuft. Minerals found - Garnets, Epidote.

Owens Valley Gorge - 30 miles. Minerals found - Monzonite.

Swall Meadows - 40 miles - Past houses. Minerals found - Garnets, Granite.

Crowley Lake - 45 miles - Eastside. Minerals found - Obsidian, Pumice.

Casa Diablo - 55 miles - Turn East at Junction of Hwy. 395 and 203. Minerals found - Chalcedony, Agate, Red and Black Obsidian

Red's Meadow - 70 miles - Go to end of Hwy. 203 into canyon. Minerals found - Silver, Galena, Sphalrite, Tramolite, Cirrusite.

Agnew Meadow - 75 miles - Go to end of Hwy. 203, then to Agnew Camp, follow Shadow Lake trail 1 mile, left 1/2 mile. Minerals found - Rhodochrosite, Hematite, Garnets, Diopside, Epidote, Actinolite, Galena.

Mono Lake - 75 miles - South shore. Minerals found - Thinolite, Schist.

Mono Craters - 75 miles. Minerals found - Pumice, Obsidian.

Bodie - 75 miles - Turn East at signs, 12 miles to ghost town, go beyond. Minerals found - Jasper, Agate, Gold, Geodes, Obsidian, Galena, Hematite.

Aurora - 105 miles - Continue East past Bodie. Minerals found - Cinnabar, Pyrites, Pink Opal, Geodes, Chalcopyrite, Quartz, Rose and Lilac Chalcedony, Jasper, Smokey Crystals.



From Big Pine, Going North on Hwy. 6

Jeffery Canyon - 40 miles - Champion Spark Plug Mine. Minerals found - Pyrophyllite, Lazulite, Andalusite, Corundum, Sillimanite, Rutile.

Hammil Valley - 45 miles. Minerals found - Wulfenite, Pyrophyllite.

Black Rock Mine - 45 miles - Turn West, 5 miles to mine. Minerals found - Garnets, Pumice.

Benton - 50 miles - Turn West, old mining dumps. Minerals found - Quartz, Pyrite, Galena, Marcasite, Epidote.

Montgomery Pass - 60 miles - McQueen Mine past Janie's Ranch. Minerals found - Obsidian, Schist.

Coaldale - 90 miles - To the sump. Minerals found - Petrified wood, Jasper, Fossils, Agate, Obsidian, White, Chalcedony.

Gabbs Valley - 90 miles - Turn North at Hwy 95 then East at Mina, into mountains. Mineral found - Agate, Jasper, Fossils, Opalized Wood, Geodes, Nodules, Lace Agate, Green Petrified Wood.

lone - 95 miles - Past Gabbs Valley. Minerals found - Opalite, Leaf Imprints in Diatomaceous Earth.

Jasper Mountain - 105 miles - Turn North at Blair Junction, go to Gilbert, go past Devils Post Pile, past two stone chimneys. Minerals found - Monte Cristo Agate, Variscite, Agate.

Candelaria - 105 miles - Turn West at Blair Junction, past old cemetery to Pick Handle Gulch to Columbus Salt Marsh. Minerals found - Mexican Blue Agate.

East and Northeast of Big Pine

Bristlecone Road - 13 miles - Turn East on Hwy. 168, watch for signs, turn North, go to end of road. Minerals found - Fluorite with Muscovite, Mica, Dolomite, Coral-like fossils.

Silver Canyon - 20 miles - Through Bishop, past Laws into White Mountains. Minerals found - Quartz crystals, Garnets.

Poleta Canyon - 20 miles - Turn East on Line St. in Bishop. Minerals found - Calcite.

Black Rock Canyon - 22 miles - Turn East on Line St. Minerals found - Slate.

Deep Springs - 25 miles - East on Hwy. 168, turn North at first cattle guard, 1/2 mile off hwy, then East 10 miles. Turn South at first cattle guard, go 18 miles. Minerals found - Smokey and Clear Crystals, Analcime, Epidote, Garnets, Calcite, Natorolite, Sulfur, Variscite, Clear Quartz.

Marble Canyon - 25 miles - Turn East on Hwy. 168, South on Saline Valley road, watch for signs. Minerals found - Gold Nuggets, Fluorite.

Eureka Valley - 30 miles - Hwy. 168 to Death Valley Rd. Minerals found - Sulfur Ore.

Saline Valley - 35 miles East from Death Valley Rd. Minerals found - Quartz Crystals.

Fish Lake Valley - 50 miles - Over Westguard Pass. Minerals found - Petrified Wood, Apache Tears, Fossils, Agate, Red Cinnabar.

Lida - 60 miles - Over Westguard Pass. Minerals found - Quartz Crystals.

West and Northwest from Hwy. 395

Coyote Hills - 10 miles. Minerals found - Garnets, Green Epidote.

Red Hill Road - 20 miles West on Line St., Bishop. Minerals found - Red Cinder.

Tungsten Hills - 20 miles - West on Line St., Bishop. Minerals found - Garnets, Quartz.

Bishop Creek - 25 miles - West on Line St. in Bishop. Minerals found - Tourmaline.

Buttermilk - 25 miles - West on Line St. in Bishop, Near Mt. Tom. Minerals found - Amethyst Crystals, Clear Quartz, Limonite.

Long Lake - 40 miles - West on Line St. in Bishop to South Lake, hike 2 miles to Chocolate Peak. Minerals found - Cabalite.

South along Hwy. 395

Independence - 25 miles - East on Colosuim Rd. , 3 miles, follow power lines 5 miles, South 2 miles to Crystal Ridge, continue into Inyo Mountains. Minerals found - Clear and Smokey Quartz, Amethyst with red tint, Hematite, Snail Fossils.

Kearsarge - 35 miles - Turn West on Market St. in Independence. Minerals found - Wulfenite, Jasper, Turquoise, Hematite.

Lone Pine - 45 miles - Turn East on road past railroad station, cross river, to next railroad, turn South 1/2 mile to Kern Knob Gem Valley. Minerals found - Crystals, Obsidian, Beryl, Orthoclase.

Mazourka Canyon - 45 miles - East on Mazourka Canyon Rd. Many mines. Minerals found - Green Dendrite, Opalite.

Kennedy Meadows - 50 miles - Turn West at Lone Pine. Minerals found - Agate, Quartz.

Cerro Gordo - 60 miles - Turn East at Lone Pine to Keeler, into mountains. Minerals found - Gold, Silver, Amazonite, Opalite.

Owenyo - 60 miles - East of Lone Pine. Minerals found - Barite, Fossils, Pink Orthoclase.

Keeler - 60 miles - East of Lone Pine to Jackass, Dobbs and Goldbelt Springs. Minerals found - Azurite, Malachite, Galena, Anhydrite, Silver, Gold, Quartz, Chalcopyrite, Talc, Anglesite, Stibnite.

Darwin - 65 miles - Turn East at Lone Pine on Hwy. 136. Go 12 miles. Minerals found - Iceland Spar, Garnets, Wulfenite, Erussite.

Darwin Mines - 65 miles - Turn East on Hwy. 190 at Olancha, go 5 miles South to Ophir Mountain, many mine dumps. Minerals found - Scheelite, Pyrite, Iceland Spar, Silver. Over 60 minerals available.

Lee Mines

70 miles - Turn East on Hwy. 190 at Olancha, go 7 miles. Minerals found - Lazurite, Agate, Jasper, Chalcedony, Obsidian.

From <http://www.mammothcityconciierge.com/activities/rock-hounding.asp>

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April 2010 Gem & Mineral Shows

More shows can be found at

<http://www.rockngem.com/showdates.asp>

9-11-EUREKA, CA: 9th 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; adults \$3, students and seniors \$1.50, children free; minerals, gemstones, crystals, beads, pearls, gold nuggets, fine jewelry, gold, quartz, fossils, tools, door prizes; contact Diana, Kasey Enterprises, P.O. Box 2927, McKinleyville, CA 95519, (707) 839-1358; e-mail: kaseyent@sbcglobal.net

9-11-OGDEN, UT: 59th annual show, "2010 Gemstone Junction"; Golden Spike Gem & Mineral Society; Golden Spike Event Center, Weber County Fairgrounds, 1000 N 1200 W; adults \$2, students \$1.50, children under 12 free with adult; Fri. 9-6, Sat. 10-6, Sun. 10-4; more than 25 dealers, more than 30 display cases, geodes, faceted stones, dinosaur bones, fossils, minerals, beads, jewelry, healing stones and crystals, petrified wood, lapidary tools and equipment, demonstrations, rock bags, Wheel of Fortune, door prizes, silent auction; contact Cindy Aeschlimann, P.O. Box 12835, Ogden, UT 84412-2835, (801) 648-5060; e-mail: club@goldenspikegem.org; Web site: www.goldenspikegem.org

9-11-TACOMA, WA: Show, "Gem Faire"; Gem Faire Inc.; Tacoma Dome/Exhibition Hall, 2727 E. "D" St.; Fri. 12-7, Sat. 10-6, Sun. 10-5; \$5 weekend pass; contact Yooy Nelson, (503) 252-8300; e-mail: info@gemfaire.com; Web site: www.gemfaire.com

10-11-BELLINGHAM, WA: 49th show; Mt. Baker Rock & Gem Club; Bloedel-Donovan Park, 2214 Electric Ave.; free admission; Sat. 10-6, Sun. 10-5; rocks, fossils, gems, jewelry, dealers, door prizes, club sales, silent auction, raffle, demonstrations, exhibits, special kids' activities; contact Candi Gerard, (360) 384-3187

10-11-KINGMAN, AZ: Show, "Gems of AZ"; Mohave County Gemstoners; Kingman Academy of Learning High School, 3420 N. Burbank St.; Sat. 9-5, Sun. 9-4; free admission; demonstrations (obsidian knapping, faceting, wire wrapping), mineral displays, silent auction, dealers, cash raffle, hourly door prizes, children's activities; contact Nan Russell, (928) 846-0927, or Donna Robinson, 3202 E. Leroy Ave., Kingman, AZ 86409, (928) 263-1480; e-mail: gemstoners@live.com; Web site: www.gemstoners.org

10-11-LANCASTER, CA: Show; Antelope Valley Gem & Mineral Club; Lancaster High School, 44701 32nd St. W, between Lancaster Blvd. and Ave. J; Sat. 9-5, Sun. 9-5; free admission; demonstrations, vendors, tailgaters, silent auction table, raffle drawing, games; contact Jules Ficke, 4233 W. Ave. L-4, Lancaster, CA 93536, (661) 943-5157; e-mail: av_gem@yahoo.com; Web site: www.avgem.weebly.com

10-11-MARIPOSA, CA: 10th annual show; CA State Mining and Mineral Museum, Mariposa Gem & Mineral Club, CA State Mining and Mineral Museum Association; Mariposa County Fairgrounds, Hwy. 49; Sat. 10-6, Sun. 10-4; gems, minerals, crafts, speakers, mineral exhibits, educational activities, raffles, silent auctions; contact Dianne Vereschagin or Darci Moore, (209) 742-7625

10-11-PARADISE, CA: Show, "Paradise of Gems"; Paradise Gem & Mineral Club; Elks Lodge, 6309 Clark Rd.; Sat. 10-5, Sun. 10-4; adults \$2; contact Manuel Garcia, 5659 Foster Rd., Paradise, CA 95969, (530) 877-7324; e-mail: mmpg@earthlink.net

10-11-POCATELLO, ID: Show; SouthEast ID Gem & Mineral Club; Bannock County Fairgrounds, 10588 Fairgrounds Rd.; Sat. 10-6, Sun. 10-5; contact Martin Rakatansky, (208) 233-2538; e-mail: rak80@cablone.net

16-18-ALPINE, TX: Show, "Wonders from our desert and beyond"; Chihuahuan Desert Gem & Mineral Club; Kokernot Lodge, Rte. 223 bypass; Fri. 9-6, Sat. 9-6, Sun. 11-5; free admission; Kids' Corner, door prize, dealer demonstrations, video "What's Hot in Tucson"; contact Mary Brogan, P.O. Box 1111, Alpine, TX 79831, (432) 837-3824; e-mail: marybrogan@rocketmail.com; Web site: www.agates123.com/cdgm/c

16-18-RICKREALL, OR: Show, "Rocks of OR"; Willamette Agate & Mineral Society of Salem; Polk County Fairgrounds, 520 S. Pacific Hwy. W; Fri. 9-6, Sat. 10-6, Sun. 10-4:30; contact Kristi Edwards, 1236 SE Seaport Circle, Corvallis, OR 97333, (541) 738-6811; e-mail: edwardskk@gmail.com

16-18-SAN JOSE, CA: Show, "The Art of Stone"; Santa Clara Valley Gem & Mineral Society; 344 Tully Rd.; Fri. 9-5, Sat. 10-5, Sun. 10-5; adults \$6, children under 12 free; dinosaur speaker, antique appraiser, kids' education program, demonstrators, flint knapping, fluorescent minerals, dealers, displays; contact Marc Mullaney, (408) 691-1584; e-mail: geologistm@aol.com; Web site: scvgrms.org

17-18-WALNUT CREEK, CA: Show, "Contra Costa Crystal Fair"; Pacific Crystal Guild; Civic Park Community Center, 1375 Civic Dr. at Broadway; Sat. 10-6, Sun. 10-4; admission \$6; contact Jerry Tomlinson, (415) 383-7837; e-mail: sfxlt@earthlink.net; Web site: www.crystalfair.com

23-25-SAN DIEGO, CA: Show, "Gem Faire"; Gem Faire Inc.; Scottish Rite Event Center, 1895 Camino del Rio S; Fri. 12-7, Sat. 10-6, Sun. 10-5; \$5 weekend pass; contact Yooy Nelson, (503) 252-8300; e-mail: info@gemfaire.com; Web site: www.gemfaire.com

24-25-ELMA, WA: Show, "Earth's Treasures"; Grays Harbor Gem & Geology Society; Gray's Harbor County Fairgrounds, 32 Elma-McCleary Rd.; Sat. 10-5, Sun. 10-5; contact Gary Emberly, 624 Fairmont Place, Aberdeen, WA 98520, (360) 533-6196; e-mail: Melissa624@hotmail.com

24-25-FRANKLIN, NJ: 38th annual show and swap; Franklin-Ogdensburg Earth Science Association, NJ Earth Science Association, Sterling Hill Mining Museum; Franklin School, 50 WA Ave.; Sat. 9-5:30, Sun. 9-5; adults \$5, children under 14 free with paying adult; contact Sterling Hill Mining Museum, (973) 209-7212

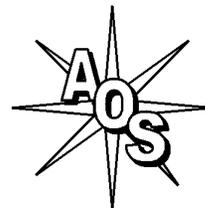
24-25-NEWBURY PARK, CA: 36th annual show, "Pageant of a Thousand Gems"; Conejo Gem & Mineral Club; Borchard Park Community Center, 190 Reino Rd., at Borchard Rd.; Sat. 9-5, Sun. 10-4:30; free admission; exhibits, sales, gems, jewelry, rocks, minerals, fossils, special youth activities, lapidary and jewelry making demonstrations, silent auction, door prizes; contact Robert Sankovich, (805) 494-7734; e-mail: rmsorca@adelphia.net; Web site: www.cgamc.org

24-25-SANTA CRUZ, CA: Annual show; Santa Cruz Gem & Mineral Society; Santa Cruz Civic Auditorium, corner of Church St. and Center St.; Sat. 10-5, Sun. 10-5; adults \$6, children under 12 free; fluorescent room, treasure wheel, exhibits; contact Dean Welder, P.O. Box 343, Santa Cruz, CA 95061; e-mail: wdewelder@yahoo.com; Web site: www.scmgs.org

30-2-BISHOP, CA: Eastern Sierra Gem & Mineral Show; Lone Pine Gem & Mineral Society; Bishop Fairgrounds, Sierra St.; Fri. 6-9, Sat. 9:30-4, Sun.

10-3; free admission; demonstrators, displays, gifts, minerals, rough rock, beads, fused glass beads, many vendors, mineral identification, "The Famous Spinning Wheel", geode sales and cutting, tools, door prizes; contact Francee Graham, P.O. Box 667, Lone Pine, CA 93545, (760) 876-4319; e-mail: franceem@qnet.com

30-2-SANTA ROSA, CA: Show, "Gem Faire"; Gem Faire Inc.; Sonoma County Fairgrounds/Grace Pavilion, 1350 Bennett Valley Rd.; Fri. 12-7, Sat. 10-6, Sun. 10-5; \$5 weekend pass; contact Yooy Nelson, (503) 252-8300; e-mail: info@gemfaire.com; Web site: www.gemfaire.com



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 Jim Pisani
 P.O. Box 4875
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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 #43 Issue #4
April 2010**

Some Topics In This Issue:

- Pitfalls of Rock Tumbling
- Barbara McCondra In Memoriam
- Opal Essence
- Lone Opal Miner Dug His Way Out
- Gilson Synthetic Opal
- Cabochon Tips
- Evolution by the Grassroots
- Rockhounding near Mammoth Lakes,

Important Dates:

April 5 - Board Meeting

April 8- General Meeting

Janie Duncan on Beads Around The World. Janie will share her collection explaining about through history & how they are made. She will show beads from 6000 years ago to today, made of stone, bone, glass, and metal.

TO:

April 8

Janie Duncan on Beads Around The World

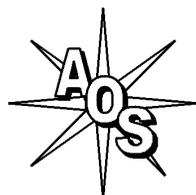
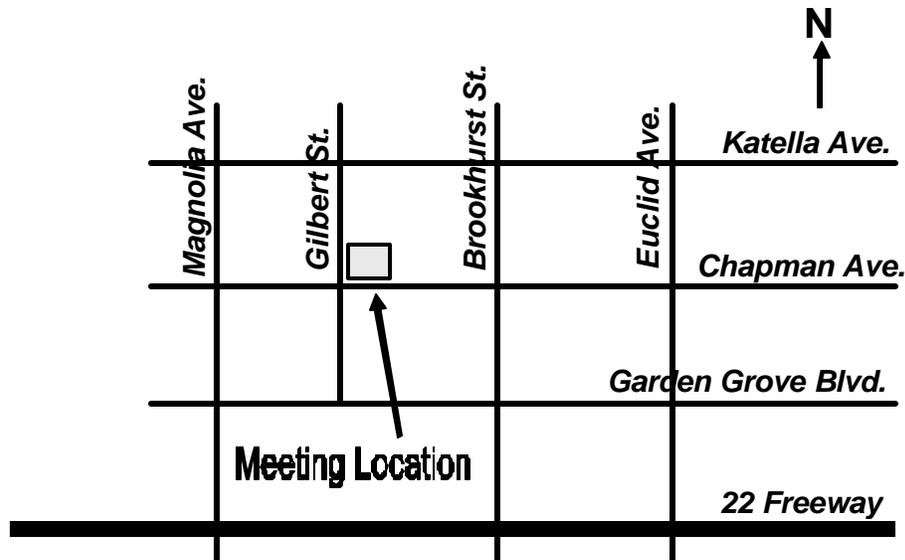
— GENERAL MEETINGS —

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



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email: mpg1022@aol.com
email: rockhwn@aol.com
email: laverne@socal.rr.com
email: editor@opalsociety.org
email: fineblackopal@sprynet.com