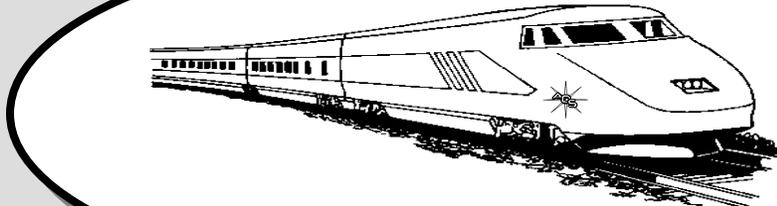


The Opal Express

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Table of Contents

President's Message	1
Anaheim Arts Council 2010 Fundraiser	1
Special Carpet Gem of an Idea	2
NC Farm Produces Emerald Shaped into Massive Gem	2
Ding, Dong, SB624 Is Dead	3
Chunk of Original Earth Found	3
Taking Care of Opals	4
Radiation, Heat - Improve Nature's Gems	4
Differences Between Obsidian, Pumice, And Scoria?	5
Minerals from Kidney Stones	6
Professor receive prestigious Award on Opal Nano-structure	6
Catch a Falling Star	7
September 2010 Gem & Mineral Shows	7

President's Message

By Pete Goetz

Hey fellow OPALHOLICS, last month we had no speaker so we had a show and tell of -assorts, we had a great time just sitting around talking about OPAL, of course, and a number of subjects related OPAL. Several people brought some eye-candy to share with the members present. In all, we had a good time.

Again, a reminder that our annual show is almost upon us. We still need a few volunteers to help with set-up, tear down, and reception desk.

We always are in need of new and different speakers for our monthly show. If you have potential speakers, please let Cory or myself know via e-mail.

Anaheim Arts Council 2010 Fundraiser

By Russ Madsen

Greetings AOS members. The Opal Society is again supporting the annual fundraiser drawing of the Anaheim Arts Council.

TICKETS Tickets for the drawing are \$10.00 each, or 7 for \$50.00, or 15 for \$100.00.

Please participate, the Opal Society is an Arts Council member organization and we are hoping to sell \$1,000.00 tickets before the end of October. To date we have sold \$150.00.

DRAWING DATE The Arts Council drawing will be Nov 4th at the Arts Council meeting. Winners need not be present.

PRIZES First prize is \$1,000.00 cash and you might be the lucky winner of a very nice black opal necklace donated for the drawing by AOS members Gene LeVan and Stan McCall. There are many other prizes donated by Arts Council member organizations.

It's Coming Soon!
Mark you Calendar!
The American Opal Society's 43rd Annual
OPAL & GEM SHOW
The Largest Opal Show in USA!
Sat. Nov. 6, 2010 - 10AM - 6PM
Sun. Nov 7, 2010 - 10 AM - 5PM

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

Same great location!
White House / West Wing Event Center
1238 S. Beach Blvd.
Anaheim, CA 92804
<http://whitehouseeventcenter.com>
Located at Hobby City
Contact Info: Gene LeVan
(562) 621-1805, e-mail: fineblackopal@sprynet.com
Corey Kuepper
Phone: (714) 736-0581, e-mail: j:rockhwnd@aol.com

You may buy tickets at Opal Society general meetings or contact any board member, or email or call Russ Madsen to discuss mailing tickets to you. Russ Madsen (cell) 562-884-2254 (email) chairman2rgm@verizon.net.

Arts Council scholarship funds and grant funds such as the grant received by the AOS for this year's show expenses are generated by proceeds from this annual drawing plus participating clubs receive back a portion of ticket proceeds. All donations are tax deductible.

Thank you in advance for your support of this important cause.

September Meeting Presenter – David Kramer

David Kramer, long time AOS member and one of our area's foremost jewelry designers and gem cutters, will be presenting this month an "Opal Potpourri", demonstrating his opal cutting techniques, hints on jewelry design, how to use small opals, etc. Don't miss it – David gives a great presentation!



Paul Sedawie with his opal carpet, the feature stone of which is a solid black opal from Lightning Ridge.

Special Carpet Gem of an Idea

May 20, 2010

Paul Sedawie from OpalAuctions recently unveiled a unique Kashmir carpet set with an array of rare and expensive opals, which is to promote opals at local and overseas gem and jewellery shows.

Mr Sedawie said he came up with the idea to create the carpet after someone from Austrade approached him looking for something to promote Australian opal in the emerging markets of India and China. Mr Sedawie said he was looking to create something different and thought an opal carpet might grab people's attention.

"It usually blows people away because there's just so much colour," he concluded.

The carpet consists of 400 Australian opals, which are set in silver with little hooks and hand-sewn onto the carpet. The opals are from all of the main opal fields in Australia - there are black opals from Lightning Ridge, boulder opals from Queensland and white opals from Coober Pedy. The feature stone is a stunning 45.40 carat solid black opal from Lightning Ridge. The retail value of this unique masterpiece is more than \$100,000 but the carpet is not for sale.

The carpet will be in Lightning Ridge for the Opal Festival in July and August this year. It will also be featured at the Australian Opal Exhibition on the Gold Coast in August.

From The Ridge News

<http://www.theridgenews.com.au/news/local/news/general/special-carpet-gem-of-an-idea/1835690.aspx#>

North Carolina Farm Produces Emerald Shaped into Massive Gem

By Emery P. Dalesio, Associated Press Writer – Aug 30, 2010

RALEIGH, N.C. – An emerald so large it's being compared with the crown jewels of Russian empress Catherine the Great was pulled from a pit near corn rows at a North Carolina farm.

The nearly 65-carat emerald its finders are marketing by the name Carolina Emperor was pulled from a farm once so well known among treasure hunters that the owners charged \$3 a day to shovel for small samples of the green stones. After the gem was cut and recut, the finished product was about one-fifth the weight of the original find, making it slightly larger than a U.S. quarter and about as heavy as a AA battery.

The emerald compares in size and quality to one surrounded by diamonds in a brooch once owned by Catherine the Great, who was empress in the 18th century, that Christie's auction house in New

York sold in April for \$1.65 million, said C.R. "Cap" Beesley, a New York gemologist who examined the stone.

While big, uncut crystals and even notable gem-quality emeralds have come from the community 50 miles northwest of Charlotte called Hiddenite, there has never been one so big it's worthy of an imperial treasury, Beesley said.

"It is the largest cut emerald ever to be found in North America," Beesley said in a telephone interview from Myanmar, an Asian country rich in precious gems.



This undated handout photo provided by gemologist C.R. 'Cap' Beesley shows the Carolina Emperor emerald. AP/Courtesy of Terry Ledford

The discovery is a rarity for emeralds found not in the rich veins of South America and Asia but in North America, said Robert Simon, owner of Windsor Jewelers in Winston-Salem.

"Most of the stones that have come out have not been gem-quality that I would mount in jewelry," said Simon, who was part owner of a 7.85-carat, dime-sized emerald found in the same community in



Rough emerald next to a quarter.

1998 that has since been set in jewelry and sold to a private owner. Terry Ledford, 53, found the roughly 2-inch-square chunk rimmed with spots of iron a year ago on a 200-acre farm owned by business partner Renn Adams, 90, and his siblings. The rural community of Hiddenite is named for a paler stone that resembles emerald.

"It was so dark in color that holding it up to the sun you couldn't even get the light to come through it," a quality that ensured an intense

green hue once the stone was cut with facets that allowed light into the gem's core, Ledford said.

The North Carolina stone was cut to imitate the royal emerald, Ledford said. A museum and some private collectors interested in buying the emerald have been in contact, Ledford said.

Modeling an empress's emerald is likely to have less influence on the North Carolina stone's sale price than its clarity, color and cut, said Douglas Hucker, CEO of the [American Gem Trade Association](#), a Dallas, Texas-based trade association for dealers in colored gems. "A 65-carat cut emerald from North Carolina is a big, big stone," he said. But "once an emerald is cut, it's subject to the same type of



Finished Cut Carolina Emperor Emerald

market conditions that any emerald would be."

Emeralds are part of North Carolina's mineral claim to fame, though other places in the U.S. also are rich in gems. Maine mines have yielded aquamarine and amethyst, Montana bears sapphires, Idaho is known for star garnets, and Arkansas has diamonds.

It's not fully known why small, subterranean cavities containing emeralds formed in central North Carolina, said geologist Michael Wise of the Smithsonian's National Museum of Natural History, who has studied the underground world around Hiddenite for years.

Emeralds are produced where a superheated fluid carrying the element beryllium migrated through rocks that contain chromium, Wise said.

"This doesn't happen frequently," Wise said. "The conditions have to be just right to make an emerald. ... It happens to be the case at this particular place."

Adams said decades ago when his parents owned the farm, they allowed anyone with a shovel to dig for emeralds on the property for \$3 a day. Virtually all of it was too full of flaws to be cut into precious stones and was mostly sold to mineral collectors, Adams said.

Ledford said they don't plan to quit after pocketing the profits from their big find, Ledford said.

"We'll definitely keep on mining," he said. "It would be good to know you don't have to go and could do it for pleasure. You feel like you've got to find something to survive but since we found this emerald, once we get it sold, there will be less stress."

From http://news.yahoo.com/s/ap/20100831/ap_on_re_us/us_carolina_emerald

Ding, Dong, SB624 Is Dead

From Andrew's Geology Blog

By [Andrew Alden](#),

Geology Guide, [My Bio](#), [My Blog](#)

Sept. 2, 2010

This is a parochial story for Californians, but I think it's of wider interest: Senate Bill 624, which would have removed serpentinite as The Opal Express

The American Opal Society

the state rock and enacted into law a "finding" that it is a carcinogen, has died in committee as the year's legislative session ended.

I'm proud of taking part in the effort to defeat this bill, and I'm proud of all of you who helped, no matter how small the contribution. I've learned several lessons from the last couple of months as this threat rose and was resolved:



- There are people ready to set examples at your expense, even when you think it's far-fetched.
- These people usually have sincere motivations, but their allies do not always share them.
- Legislation has a life of its own, often an absurd one.
- Prompt, canny and persistent action can prevail against the opposition's head start.
- A campaign needs as many allies as possible; be creative.
- It is important to stay focused, collected and generous.
- Never lie.
- Combat blog campaigns [the way Hercules defeated the Hydra](#).

From <http://geology.about.com/b/2010/09/02/ding-dong-sb624-is-dead.htm>

Chunk of Original Earth Found Pocket of Rock Survived 4.5 Billion Years without being Mixed by Plate Tectonics

By Larry O'Hanlon

Imagine you suddenly discovered part of your umbilical cord was still attached. Scientists just did that for the planet Earth. What's been found is a clear sign that beneath the crust in northern Canada there is a chunk of pristine, undisturbed rock from the time when Earth was nothing but molten rock.

The evidence comes in the form of lava rocks that, themselves, are a mere 60 million years old. But these rocks contain an early Earth mixture of helium, lead and neodymium isotopes which suggest the mantle rock beneath the crust that yielded them is a virgin pocket of Earth's original material.

That pocket had survived for 4.5 billion years under Baffin Island without being mixed by plate tectonics or erupted onto the surface.

"I was surprised that any of the (original) mantle survived," said geoscientist Matthew Jackson of Boston University. He is the lead author on a paper announcing the discovery in this week's issue of the journal Nature. "Finding a piece of the original mantle has been a



A view of Baffin Island's flood basalt lava cliffs in northern Canada. The cliffs are made from the oldest material on Earth By Don Francis .

holy grail. The original Earth was a big ball of magma. That's our (planet's) original composition."

The discovery has surprised other researchers as well.

"Even if a vestige of such material remained, it seems unlikely that it would be found in any samples from Earth's surface or the shallow subsurface that are available to geologists," observed David Graham of Oregon State University in Corvallis, who wrote a commentary in the same issue of Nature. "Yet that is what (this) new evidence suggests."

One of the obstacles in finding rocks from such ancient mantle, up to now, has been that researchers had assumed an early Earth was composed of rocks with helium and lead isotope matching those of a type of ancient meteorite called a chondrite.

That may be true up to a point, said Jackson. Some recent research by scientists at the Carnegie Institution of Washington has suggested that the Earth's early mantle would also have tell-tale neodymium isotopes that are unlike chondrites.

"That turns out to be the same as we find in these lavas (from Baffin Island)," said Jackson.

The other signs of untouched ancient mantle material -- which has not before lost any of its material to Earth's surface or been otherwise tainted -- is large amount of the isotopes helium-3 relative to helium-4. There is also an very old lead-isotope signature. It was these three criteria -- the helium, lead and neodymium -- that led Jackson and his team to the conclusion Baffin Islands massive volcanic cliffs are made of the oldest material on the planet.

As for how much of this original mantle might be around, the only way to tell is to look at lava rocks and see if they came from such stuff, said Jackson.

"We have no idea how common it might be," Jackson told Discovery News. Models suggest that up to 10 percent of the early mantle might still be around. But the new discovery could change those models and their predictions. "It turns everything on its head."

© 2010 Discovery Channel

From

http://www.msnbc.msn.com/id/38661354/ns/technology_and_science-science?GT1=43001#

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Almost Everything You Need To Know About...

Taking Care of Opals

By Ron Fulmer

There seems to be much confusion about the proper way to care for and clean opals. This is a simple guide that will let you preserve your beautiful opals and keep them looking their best.

To care for Opal correctly, two of the basic physical properties of this unique and beautiful gemstone must be understood.

Precious Opal contains around 6%-10% water (sometimes higher).

Opal has a hardness of 5.5 - 6.5 on the "Mohs" scale of hardness. First and foremost you must determine if your opal is a natural occurring solid, doublet or triplet. The care instructions for each can differ significantly.

When purchasing Opal, buy quality stones only from knowledgeable dealers or jewelers, preferably someone who is a cutter. The reason for purchasing from a cutter is, many jewelers don't understand Opal, and therefore cannot offer you the right care advice for a particular Opal. If you know precisely the type of Opal you have purchased, you will know how to care for it.

What can I do if my stone loses its polish or becomes scratched?

This is the main reason for recommending you buy from people who cut Opal. For example, if you get an Opal from a cutter and after prolonged periods of wear and tear your Opal may need repolishing (in most cases it can be re-polished at a reasonable price). Or alternatively, if you have damaged the opal and it needs to be "reworked", then this is the person to do it for you, or at least give you the best advice.

Can I put Opals in water?

Yes! Solid Precious Opal should be placed in a dish of clean room temperature water for at least 10 - 15 minutes, every 12 months or so.

From personal experience (gained from over 27 years of cutting, collecting and handling opals) this allows the gemstone to absorb moisture it may require therefore preventing any crazing or cracking caused by drying out (especially if the opal has been subjected to harsh or dry conditions).

Basic Care Practices:

Always remove rings when "Washing Up". Even solid Opals can be adversely affected if subjected to sudden temperature changes (such as being placed in very hot water).

If the stone is an opal doublet or triplet, it is unwise to place it in water (particularly hot water with detergent, as in washing up) for any length of time as it may effect the cement that is used to bond the stone segments together (Doublet - 2, Triplet - 3).

Don't wear OPAL when gardening. Sand or soil is abrasive and will wear the polish off the stone over time. Also there is the chance, if you are doing any sort of work that could bring the stone in contact with hard surfaces, a flick of the wrist in the wrong direction could chip it.

How do oily substances affect an opal?

It is recommended you do not place Opal near oils or oily substances, however oily hand and face creams will usually not damage Opal (except that they may "build up" around a ring and make it look unsightly).

How do I store Opals for long periods of time?

De-humidified atmospheres, (such as bank vaults and safety deposit boxes) are to be treated with caution when storing Opals for long periods, as they can extract the water content from an Opal over time, causing the Opal to crack or craze.

If Opal must be stored in these conditions, it is strongly advised to put them in a sealed plastic bag with a little water to prevent drying out.

Also it is advisable to check your Opal every 6 - 12 months to ensure it has not "dried out". Otherwise, it is generally safe to store them away, as long as the area is not overheated.

Displaying Opal:

Don't store Opal for prolonged periods of time under hot lights, as this could crack the stones if the heat builds up and is magnified (as in a showcase).

If Opal is to be displayed under these conditions it is strongly advised to place the Opal in or near a source of moisture (ie; a bowl of clean water or wet sponge).

Cleaning Opal:

Opal can be cleaned in soft detergent (washing up detergent) in lukewarm water using a cloth or soft brush. After cleaning, Opal should be rinsed in clean room temperature water.

By following these few simple rules on basic Opal care, your Opals will last forever as a source of enjoyment and natural beauty.

Author - Ron Fulmer

Director of Processing and Sourcing,

Gemstone Services Australia Pty Ltd,

via The Tumble Rumble 7/01,

From the Ventura Gem & Mineral Society

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Radiation, Heat - Improve Nature's Gems

Caltech News Release via California Geology (1/79)

As the demand for gems rises and the supply diminishes, technology is rapidly developing to duplicate and even improve on nature's handiwork. The practice of improving gemstone color by subjecting

the minerals to radiation, or altering their natural radiation by heat, has become increasingly common during the past two years and will continue as naturally attractive stones become scarcer, according to Dr. George R. Rossman, professor of mineralogy at the California Institute of Technology.

Impurities In Gemstones

Gems derive their beautiful hues from mineralogical impurities. For example, jadeite, $\text{NaAl}[\text{Si}_2\text{O}_6]$, (one of two minerals commonly called jade) is green because it contains chromium, an element that absorbs red, blue, and violet, but not green, light waves. Iron also absorbs these hues, but its absorption capacity is weak compared with chromium. For this reason nephrite, $\text{Ca}_2(\text{Mg},\text{Fe}+2)_5[\text{Si}_8\text{O}_{22}](\text{OH},\text{F})_2$, (a mineral called jade but with iron as its impurity) is a pallid green compared with the deep green of the jade that contains chromium.

Beryl, which is colorless in its pure mineral form, $\text{Be}_3\text{Al}_2[\text{Si}_6\text{O}_{18}]$, becomes emerald with chromium impurities. With manganese impurities beryl becomes pink morganite; with iron, aquamarine. In aquamarine, the impurities that cause the colors occur in atom-sized, straw-like channels in the mineral's structure.

Gamma Radiation

The most common means of altering gemstone color by radiation is with gamma rays (cobalt 60 radiation). Gamma rays release electrons from their normal location in the gem. The color change depends on where the electrons relocate and on the charge of the atoms near them. These factors control the way the stone absorbs light, and thus they dictate its color.

There are no guarantees of success for gemstone enhancers because it is impossible to predict how irradiation will affect a stone. Certain mineral impurities must be present and the radiation must shift electrons to desirable color-producing locations. Normally, many gemstones must be irradiated in order to obtain a few stones that are altered to the desired color.

Topaz, $\text{Al}_2[\text{SiO}_4](\text{OH},\text{F})_2$, which is colorless in its pure mineral form, is one gemstone suitable for irradiation. When exposed to cobalt 60 radiation, the stone may change to a cinnamon brown color, but this tone normally fades over several months when exposed to light. Recently, however, gem dealers have developed the technology to produce a brilliant and permanently blue topaz through irradiation, equal in its attractiveness to rare natural blue topazes. An irradiated blue topaz exhibits all the chemical and optical properties of the natural stone, and can be distinguished only through an analytical process of measuring the light emitted by a gemstone when it is heated.

Irradiation is also used to change quartz (clear and colorless in its pure mineral form, SiO_2) to the more attractive and valuable smoky quartz. But this transformation only occurs when the colorless quartz contains traces of aluminum, and ultimate success depends on where the electrons settle after irradiation. Amethysts can be produced by irradiating quartz that contains iron impurities, but attractive amethysts occur so abundantly in nature that it is not commercially economic to create them synthetically.

Diamonds, C, which occur naturally in many colors, can be irradiated to produce different hues. Irradiation can change lightly tinted diamonds to brilliant yellows or greens. However, the dealer irradiating such expensive stones as diamonds is taking a heavy risk, since a valuable, lightly tinted diamond may turn out a muddy brown.

Not all artificially induced color changes are permanent. Kunzite, a lavender variety of spodumene, $\text{LiAl}[\text{Si}_2\text{O}_6]$, emerges a brilliant green if bathed for 15 minutes in cobalt 60 radiation. The radiation changes the electrical charge of manganese ions responsible for the gem's color from +3 to +4. But when exposed to light, the +4 ions begin to add more electrons to their structure and the stone reverts to spodumene, drab and colorless in appearance.

Heat Treatment

Irradiating gemstones to change their color is a relatively new process, but altering their internal structure by heat has been practiced for many years. Stones are often heat-treated at the mines by persons who developed simple procedures through experimentation.

Among the stones that benefit from heat treatment is aquamarine, which occurs naturally in many colors -- yellow, yellow green, blue green, and blue -- depending on the atomic charge and location of the iron atoms in the mineral. Heat that changes the atomic charge of iron atoms from +3 to +2 transforms a yellow aquamarine into a more valuable blue aquamarine.

The preceding article was published in the June 1993 issue of Lithosphere, the official bulletin of the Fallbrook [California] Gem and Mineral Society, Inc; Richard Busch (Editor).

The material is in the public domain, and may be republished freely.

Last updated: 18 September 2002

<http://geopress.rbnet.net/impgems.htm>

From the Lithosphere (June 1993); Fallbrook Gem and Mineral Society, Inc.; Fallbrook, CA

You May Have Wondered...

What Are The Differences And Similarities Between Obsidian, Pumice, And Scoria?

You probably have heard that they are all of volcanic origin and are born from a magma that has erupted through the earth's surface as a volcano.



Obsidian.

Obsidian is a natural glass formed when hot lava flows onto the surface of the earth and cools quickly. Obsidian has the same chemical composition as granite, but is quenched to make glass rather than cooled slowly to form crystals. Most obsidian is black, or black with red bands. It is brittle. Indians used it to make arrow heads and knives. Today many flint knappers use it to make perfect glass tools.

Pumice is a grayish white natural glass with many tiny holes. It is a valuable scouring, scrubbing, and polishing material in both powdered form and as pumice stone. Pumice forms when lava from a volcano flows onto the earth's surface or erupts violently into the air. The hot gas-filled lava cooled quickly to form glass. Many tiny holes remain after the volcanic gasses escape from the cooling lava. Pumice floats on water.



Pumice

Scoria is a frothy volcanic glass slightly heavier than pumice. A coarser grained rock, with fewer and larger air spaces, it is usually associated with dark-colored igneous rocks. Generally a little too heavy to float on water. It can float just under the surface of water like an almost rotten egg when tested.

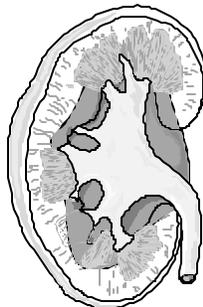


Scoria

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Minerals from Kidney Stones

Rockhounds are often told that they have rocks in their head. It turns out that the human body does make lots of minerals. Bones and teeth are two obvious examples. We may argue that these aren't minerals by strict definition, because they are made by living organisms not inorganically, but they are otherwise the same as minerals found in rocks.

When I was a graduate student at Indiana University, my office mates were helping with a research project on minerals in kidney stones (which are concretions technically called urinary calculi). They received daily packages of rather disgusting samples from many hospitals, which they saw fit to open and analyze in my presence. One of my office mates wrote up a summary of the minerals they found.



The most common minerals were, not surprisingly, phosphates. These include apatite, brushite and whitlockite. Apatite is the most common mineral in many kidney stones, forming crumbly to solid white, yellow or brownish masses. Various forms of apatite were interlayered, like the layers in hailstones. Brushite occurs as tabular to bladed yellow to white crystals typical of kidney stones formed under more acidic conditions. Whitlockite forms amber to brown coatings on some stones, and is particularly common in prostatic stones.

Two calcium oxalates, whewellite and weddellite are abundant in kidney stones. Outside the body, these minerals are rare, found most often on the deep sea floor, in coal seams and in sedimentary nodules. In kidney stones the whewillite forms globular to radiating masses of crystals while weddellite forms sharp dipyrimal crystals up to 5 mm long (ouch).

Magnesium phosphates, such as struvite and newberryite are rare minerals found outside the human body only in bat guano. They are apparently deposited in kidney stones by particular bacterial infect ions. Struvite forms colorless crystals lining cracks in the stones formed under alkaline conditions. Newberyite forms pale green to white spherules on the surface of some stones.

Some minerals found in kidney stones are more familiar to rockhounds. Calcite and aragonite are rare as granular material intergrown with the phosphates in kidney stones. Stones from the human pancreas are often calcite. Halite was found a few times and could be a contaminant from salty fluids in which the stones are stored during shipping. Gypsum was found three times as white crystals encrusting the oxalates.

Why study minerals in kidney stones? Their composition gives doctors important clues to their treatment and prevention. For example, certain people consistently produce stones of certain mineralogy. Sometimes these stones can be dissolved or even prevented by certain treatments. Any one who has ever suffered from these knows that an ounce of prevention is worth a ton of cure!

- Dr. Bill Cordua, U. Wisconsin - River Falls

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Laurier Professor Receive Prestigious Early Researcher Award on Opal Nano-Structure

WATERLOO – A professor at Wilfrid Laurier University's Faculty of Science have been awarded prestigious Early Researcher Award from Ontario's Ministry of Research and Innovation.

Chemist Vladimir Kitaev has been awarded \$100,000 over a five-year term to facilitate their innovative research. The professor will also receive a \$50,000 matching award from Laurier.

The title of Kitaev's research project is "Nanostructured Materials for Advanced Optical Applications via Synthetic Control and Self-Assembly of Nanoscale Building Blocks."

Nanoparticles are extremely small — a nanometre is one billionth of a metre.

Kitaev and his students have produced several well-defined nanoshapes including cubic, decahedral (10-sided) and pentagonal rod silver particles. The importance of this is that "metals at nanoscale, with a uniform shape, have well-defined optical properties."

To visualize what this means, think of an opal. Gemstone opals contain spheres of silica, about 150 to 300 nanometres in diameter, organized in a tightly packed hexagonal or cubic lattice. These ordered spheres of silica produce the sparkling colours that make gemstone opals so beautiful. They do so by interfering and diffracting the light that passes through the opal's ordered microstructure.

Kitaev and his students aim to create something similar using their silver nanoparticles.

To demonstrate, he produces a vial half-filled with aqueous solution containing nanoscale particles of silver. If you look at direct sunlight through the vial, the liquid is reddish. If you look at reflected light through the vial, the light is greenish. You can control the colour by

controlling the conditions of synthesis to produce all the colours of the rainbow. It will change colour in the presence of targeted chemicals.

These optical properties — Kitaev has coined the term "nanorainbows" — have great potential. Nanoscale metals could be used in optical sensors to, for example, "detect proteins, DNA or whatever you want by appropriate nanoparticle modifications."

Kitaev's research has been funded by a Natural Sciences and Engineering Research Council Discovery Grant. In his case, discovering nanorainbows really was a discovery: "We left the solution on the windowsill and it became bicoloured. Then we had to find out why. After one year of research we were the first to report on silver decahedra. We became greatly fascinated by and involved in the beauty and science of metal nanoparticles.

"With this ERA funding, producing ordered materials for use in sensors and optical application becomes possible."

From

<http://www.exchangemagazine.com/morningpost/2010/week34/Monday/072519.htm>

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Catch a Falling Star

By Stephen J. Bessalko

On October 3, 1996, a large fireball was seen over many parts of the southwestern United States. The size of the meteor appears to make this a very rare event, and offers club members the opportunity to hunt for a piece of the meteor, which is believed to have made it to the ground. Additionally, there is an opportunity to help internationally renowned scientists with their investigation of the meteor fall, along with the possibility of winning a reward for finding a piece of the meteorite. (Also, it wouldn't hurt to have a chunk of this baby in your collection.)

Mark Boslough, of Sandia National Laboratories, and John Wasson, of UCLA, have developed a hypothesis of what happened. They suggest that the object first entered the earth's atmosphere at about 8 p.m. MDT on October 3, 1996, east of Las Cruces, New Mexico. The trajectory of the meteor was roughly east-north-east from there, towards the Texas Panhandle. While it descended at a shallow angle, it slowed and aerodynamic forces began to break it apart. Fragments could be seen falling from the main body of the meteor along the path that the meteor followed.

Boslough and Wasson believe that the main meteor fragment had sufficient momentum to carry it back into space, where it circled the earth once before reentering the atmosphere over California. Until fragments of the meteor are collected in both California and Texas (or possibly New Mexico), they can't prove that the two fireballs seen that night are part of the same meteor; however, the likelihood of the two events being linked is quite high, Boslough asserts. The fact that the two fireballs were on such a similar path, the time between the events, and the location of the two meteor falls all lead them to suspect that the two events are linked.

Since I work at Sandia National Laboratories, I gave Dr. Boslough a call to find out what new information had come to light since the latest set of news articles on the meteor were published in the papers. He told me they had just completed the analysis of the seismic signals from the earthquake sensing system in California. The fact that the instruments intended for detecting earthquakes were able to record the sonic boom from the (hypothesized) reentry of the meteor is an indication of how large an event this was. Enough of the sensors picked up the sonic boom to give scientists a very accurate indication of the California trajectory. They believe that the bulk of the meteorites fell just west of Little Lake, California, in and around the China Lake Weapons Testing Area, and perhaps as far east as the Panamint Valley.

Boslough believes that the meteor is not a metal meteorite. The evidence collected so far leads him to believe that this is a "stony" or chondrite meteorite. He suspects this because metal meteors tend not to come apart in the air, while this one may have blown apart

twice. Pictures of this type of meteorite can be found in [Rocks From Space](#) by O. Richard Norton, which I reviewed in the *Lithosphere* [August/September 1994]. In particular, see Chapter 17, "Hunting For Meteorites," which shows what stony meteorites look like in the environment in which the fragments are believed to have fallen in California.

Dr. Wasson is offering a reward for a piece of this meteorite, and may be contacted at the following address: Dr. John Wasson; UCLA, Institute of Geophysics; Los Angeles, CA 90095.

For those with Internet access, the email address for Boslough is mbslo@sandia.gov. Wasson can be reached at wasson@igpp.ucla.edu. They would like to hear from anyone who saw the meteor, has video tapes or pictures showing the meteor, or anyone believing they found a piece of the meteorite.

The scientific interest in this meteor is based on the rarity of a "capture and reentry" event, as this one appears to be. There have been only a small number of similar events recorded. The most recent event of this type was the well-publicized "Peekskill Fireball" that occurred on October 9, 1992, in which a meteor crashed into a car parked in a driveway in Peekskill, New York -- thus the name. Prior to that, there was a fireball seen in August 1972: The meteor was not captured by the Earth's gravitational pull, but thrown into a new orbit after grazing the atmosphere. Based on data that included a film taken by a tourist in Grand Teton National Park, scientists believe that the meteor could return next year on August 11.

If you find a piece of the recent meteor (or any meteorite, for that matter), there are a few things you can do to help the scientific inquiry. Boslough suggests that, even if you want to keep the fragment, to document the location where the meteorite was found as accurately as possible. They would especially like pictures of the fragment before it is moved, showing the fragment in relationship to its surroundings. If you don't have a way to accurately determine the location of the fragment (such as with a Global Positioning System unit), simply mark the site and notify the scientists mentioned above. Any information they receive of this nature will greatly aid their work. Boslough indicates that he does not believe that handling the fragments will damage them in any way or diminish the information they can extract from an examination. He said he would also be interested in knowing if there are any obvious marks on the ground around the site where the fragment(s) are found.

From the Lithosphere (November 1996); Fallbrook Gem and Mineral Society, Inc.; Fallbrook, CA

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September 2010 Gem & Mineral Shows

More shows can be found at

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

3-5--SANTA BARBARA, CA: Show, "Gem Faire"; Gem Faire Inc.; Earl Warren Showgrounds/Exhibit Hall, 3400 Calle Real; Fri. 12-7, Sat. 10-6, Sun. 10-5; weekend pass \$5; contact Yooy Nelson, (503) 252-8300; e-mail: info@gemfaire.com; Web site: www.gemfaire.com

4-6--SILVER CITY, NM: 27th annual show; Rolling Stones Gem & Mineral Society; Grant County Business and Conference Center, 3031 Hwy. 180 E, next to ACE Hardware; Sat. 10-5, Sun. 10-5, Mon. 10-4; free admission; more than 55 dealers, daily free field trips, silent auction, wheel of fortune; contact Marcia Andre, 1311 Peterson Dr., Silver City, NM 88061, (575) 534-0006; e-mail: marciarandre@gmail.com; Web site: www.rollingstonesgms.blogspot.com

10-12--FERNDALE, CA: 6th annual show, "Wildcat Gem Fest"; Wildcat Gem & Mineral Society; Humboldt Co. Fairgrounds, 1250 5th St.; Fri. 12-7, Sat. 10-7, Sun. 10-5; free admission; door prizes, raffles, kids' games, demonstrations, classes, gems, minerals, fossils, jewelry, silent auction; contact Mike Martin/The Stonery, P.O. Box 189, Miranda, CA 95553, (707) 499-6194; e-mail: micknorma@directv.net

10-12--SAN RAFAEL, CA: Show, "Gem Faire"; Gem Faire Inc.; Marin Center/Exhibit Hall, 10 Avenue of the Flags; Fri. 12-7, Sat. 10-6, Sun. 10-5; weekend pass \$5; contact Yooy Nelson, (503) 252-8300; e-mail: info@gemfaire.com; Web site: www.gemfaire.com

11-12--DOWNEY, CA: Show; Delvers Gem & Mineral Society; Woman's Club of Downey, 9813 Paramount Blvd.; Sat. 10-6, Sun. 10-4; free admission; contact Fred Dexling, (562) 425-0192; e-mail: mdexling@verizon.net

18-19-PASO ROBLES, CA: 19th annual show, "Rockhound Roundup"; Santa Lucia Rockhounds, Pioneer Park, 2010 Riverside Dr.; Sat. 10-5, Sun. 10-5; free admission; exhibits, raffle prizes, silent auction, demonstrations, youth activities, rocks, gems, minerals, fossils, meteorites, crystals, beads, carvings, lapidary equipment; contact Kim Patrick Noyes, 7343 El Camino Real #301, Atascadero, CA 93422, (805) 610-0603; e-mail: kimnoyes@gmail.com

18-19-REDWOOD CITY, CA: 44th annual show, "Harvest of Gems"; Sequoia Gem & Mineral Society; Community Activity Bldg., 1400 Roosevelt Ave.; Sat/ 10-5, Sun. 10-5; free admission; kids' activities, dealers, member displays, silent auction, earth science room; contact Carol Corden, P.O. Box 1245, Redwood City, CA 94064, (650) 248-7155; e-mail: ccorden@earthlink.net; Web site: http://sgms.drifmine.com

18-19-RHINEBECK, NY: 41st annual show and sale, "The Hidden Beauty of Stone"; Mid-Hudson Valley Gem & Mineral Society; Dutchess County Fairgrounds; Sat. 10-5, Sun. 10-4; adults \$5, seniors \$4, students \$2, children 12 and under and Scouts in uniform free with adult; 30-plus dealers, minerals, gemstones, fossils, meteorites, jewelry, 6 free rocks for kids, exhibits, fluorescent booth, lapidary demonstrations, wholesaler; contact Carolyn Reynard, (845) 471-1224; Web site: www.mhvgs.org

18-19-SCARBOROUGH, TORONTO, CANADA: 42nd annual show, "Wonders of the Earth"; Gem & Mineral Club of Scarborough; Don Montgomery Community Centre, 2467 Eglinton Ave. E; Sat. 10-6, Sun. 11-5; adults \$5, children \$1; dealers, jewelry, minerals, fossils, displays, lapidary

demonstrations, live auction, silent auction, kids' auction, door prizes, kids' quarry; contact GMCS, (416) 282-5319; Web site: www.scarbagemclub.ca

24-26-SAN BERNARDINO, CA: Show, "OBMS Tail Gate Gem & Mineral Show"; Orange Belt Mineralogical Society; Western Regional Little League Ball Park, 6707 Little League Dr.; Fri. 9-dusk, Sat. 9-dusk, Sun. 9-dusk; free admission; rocks, jewelry, tools, lapidary display, education, kids' event, kids' club, silent auction, raffle, workshop; contact Shane Ripley, 205 W. Benedict #8, San Bernardino, CA 92408, (909) 557-3605; e-mail: OBMS_PR@yahoo.com; Web site: http://obmsrocks.yolasite.com

25-26-FRANKLIN, NJ: 54th annual show; Franklin Mineral Museum; Franklin School, WA Ave.; contact Lee Lowell, (973) 827-6671

25-26-MONTEREY, CA: 51st show; Carmel Valley Gem & Mineral Club; Monterey Fairgrounds, 2004 Fairgrounds Rd.; Sat. 10-6, Sun. 10-5; adults \$3.50, senior \$2.50, children free with adult; exhibits, kids' stuff, grab bags, door prizes, wheel of fortune, demonstrations (fossil impressions, sphere making, silver jewelry making, grinding and polishing gemstones); contact Janis Rovetti, 1047 Roosevelt St., Monterey, CA 93940, (831) 657-1933; e-mail: janis12@sbcglobal.net; Web site: www.cvgms.org

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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 #9
September 2010**

TO:

Some Topics In This Issue:

- Anaheim Arts Council 2010 Fundraiser
- Special Carpet Gem of an Idea
- NC Farm Produces Massive Emerald
- Ding, Dong, SB624 Is Dead
- Chunk of Original Earth Found
- Taking Care of Opals
- Heat, Rad., Improve Nature's Gems
- Diff. Obsidian, Pumice, And Scoria
- Minerals from Kidney Stones
- Professor - Award Opal Nano-structure
- Catch a Falling Star

Important Dates:

September 7 - Board Meeting

September 9 - General Meeting
David Kramer, one of our area's foremost jewelry designers, will be presenting an "Opal Potpourri", demonstrating his opal cutting techniques, hints on jewelry design, how to use small opals, etc.

— GENERAL MEETINGS —

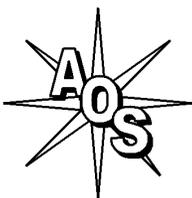
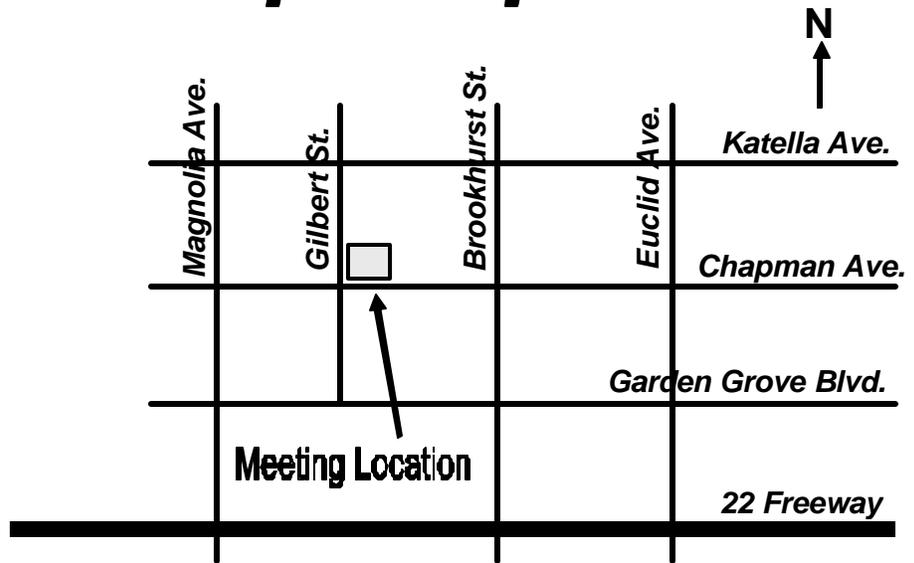
2nd Thursday of the Month
7:00 pm - 9:00 PM

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

September 9 David Kramer on "Opal Potpourri"



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