WHITTIER ROCKHOUNDER GEM & MINERAL SOCIETY

MARCH 2015

March General Meeting
March 26 at 7:30 PM back at
the Whittier Community Center

The editor is having tent trailer "issues" and sometimes it is helpful to recall other times when things went wrong, just to keep one's perspective. This is Joe and Marcia's tent trailer and their minor setup problem during the club field trip to Lavic Siding back in March of 2004 (hopefully we will avoid such things at this year's Lavic trip - see pages 8 & 9.)

ROCKHOUNDER

THE PREZ SEZ:

March is an interesting month. It is still considered winter, yet there is a tinge of warmth in the air. Then another rain storm is on the horizon and headed your way. While a rain storm may keep us inside, it does present us with the opportunity to work on old and new lapidary projects.

As the weather does warm a bit, we are drawn to the great outdoors; whether it's out in the backyard or going out to explore and find some new rocks. That is if the powers to be have decided in our favor and keep our collecting and the roads leading to them open.

It's only 7 months until our annual show and the theme this year is "**ROCKS ROCK**". This leaves it up to you to show how "Rocks Rock" in your display case. There are many things to do to get the show to reality and while the show is going on there is plenty of jobs that need you doing them so that it runs smoothly.

I would like to ask each member to think of the jobs you can do, even for a short time during the show. This action will help all of us at the show. After a couple of hours of say demonstrating, you take a break from what you're doing and help out somewhere else for twenty or so minutes to give some else a chance for a break from what they are doing. Then you could always go back to what you were doing and so on and so forth.

I am getting off of my soapbox now. Go enjoy a fieldtrip. This month we are going to Lavic and the surrounding area to collect and explore, who knows what we'll find. It will be on March 21st & 22nd, who knows with the weather we might just get snow.

Joe Goetz

WGMS General Meeting

Thursday, March 26, 2015 at 7:30 PM

"It's a Surprise"

The program information for the March General Meeting was not available at the time the newsletter went to print. We will have a fine program for you by meeting time.

Marcia

Cover Picture Explained

This month's field trip is to Lavic Siding and I was remembering another trip to Lavic that had an "interesting" start. Exerpted from the April 2014 WGMS Newsletter:

... We set up our trailer in twilight of Friday evening, finding out that the front of our trailer canvas had fallen down and we had major air conditioning. Thanks to Vern for his portable power screwdriver and Ed for self-tapping screws we managed to get the canvas back up.

When you are properly motivated, no problem is insurmountable.

The Editor

Last Chance for 2015 Dues!

Note: If you have not renewed your membership in the Whittier Gem & Mineral Society this is your last newsletter. Just saying…

Editor

WISCONSIN'S MOONSTONE

by Dr. William S. Cordua, Emeritus professor of Geology
University of Wisconsin – River Falls

Imagine an October full moon in Wisconsin glowing ghostly blue to yellow as it seems to float over the newly harvested farm fields. Or is this captured in the rock? In Wisconsin's own moonstone?

Wisconsin moonstone has been known for decades, but only recently have skilled lapidarists learned to work it to bring out its full beauty. This find surprises non-residents, who at generally associate Wisconsin gemstones with Lake Superior agates and nothing else. What is this material? How did it form? What causes its optical effect?

The moonstone localities are on private land in central Wisconsin, not far from Wausau in Marathon County. The mineral is a type of feldspar known as anorthoclase. This formed as a rock-forming mineral within the Wausau Igneous Complex, a series of plutons intruded between 1.52-1.48 billion years ago. There are at least 4 major intrusive pulses within the complex.

The anorthoclase is in the Stettin pluton, the earliest, least silicic and most alkalic of the plutons of the Wausau complex. This body is complexly zoned, largely circular in outcrop and has a diameter of about 4 miles. It is mostly made of syenite, an igneous rock resembling granite, but lower in silica and higher in alkali elements such as potassium and sodium. As such, it lacks quartz, but does contain a lot of alkali feldspar. Further complicating the geology is the intrusion of later pegmatite dikes. Some especially silica-poor varieties sport such odd minerals as nepheline, sodalite, fayalite, and sodium rich amphiboles and pyroxenes. Zircon, thorium, and various rare earth element minerals can be found in this pluton. Large prismatic crystals of arfvedsonite and nice green radiating groups of aegirine (acmite) crystals have been collected for years from these

(Continued on page 12)

Blue amber

From Wikipedia, the free encyclopedia

Blue amber is amber exhibiting a rare coloration. It is most commonly found in the amber mines in the mountain ranges around Santiago, Dominican Republic, but also in the eastern parts of the Dominican Republic. Although little known due to its rarity, it has been around since the discovery of Dominican amber.[1][2][3]

Causes of coloration

When natural light strikes blue amber on a white surface, the light passes right through, and is refracted by the white surface. The result is the slight blue hue of blue amber. When the same natural light strikes the amber on a black surface, the light is not refracted by the black surface, but by the actual amber. Hydrocarbons in the blue amber shift the sun's ultraviolet light down in frequency, resulting in the glow of blue amber.[4]

Polished blue amber under direct sunlight.

This effect is only possible in some specimens of Dominican amber[5] category, in some Mexican ambers from Chiapas [6] and some ambers from Indonesia. Any other amber (such as Baltic amber) will not display this phenomenon, because its original resin is not from the *Hymenaea protera* tree.[7]

The polycyclic aromatic hydrocarbons, produced through a pyrolytic process that is initiated via irradiation, relax to their ground state, absorb high-energy ultraviolet photons and re-emit them as lower-energy visible photons, according to the absorbance curve of the particular fluorophore.

Recently, optical absorption, fluorescence and time-resolved fluorescence measurements in Dominican ambers have been reported. These studies show that the "blue" variety reveals an intense fluorescence emission in the visible wavelength region, between 430 and 530 nm, with spectral features typical of aromatic hydrocarbons. On the contrary, the Dominican "red" and "yellow" amber varieties have a much weaker and featureless emission, although still do have a certain fluorescence. The process in blue amber is surprisingly similar to phosphor.

Although there are several theories about the origin of Dominican blue amber, there is a great probability that it owes its existence to ingredients such as anthracene as a result of 'incomplete combustion' due to forest fires among the extinct species Hymenaea protera trees about 25 to 40 million years ago.[8][9]

Vittorio Bellani and Enrico Giulotto at the University of Pavia, Italy studied several amber specimens by means of optical absorption, fluorescence spectroscopy, and time-resolved fluorescence measurements. The resulting spectral analysis revealed that the spectra of the hydrocarbons are very similar in shape to those of diluted solutions of anthracene, perylene, and tetracene, and suggest that the fluorescent hydrocarbon responsible for the blueness is most likely perylene.[4]

Appearance

Under artificial light, the amber appears like ordinary amber, but under sunlight it has an intense fluorescent blue glow. When held against the sun it will appear like ordinary amber, and under ultraviolet light it will glow a bright milky-blue. This effect can be compared to the ocean, which, although transparent, can appear anything from light blue to dark blue to black, depending on depth, mass, salinity, etc.

Blue amber emits a very agreeable smell (aromatic molecules), which is different from regular amber when it is being cut and polished.

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Via The Stone Chipper, 1/15

LAVIC JASPER FIELDTRIP
MARCH 21 & 22, 2015

There are few places you can go and once there, you park and step out of your vehicle and start collecting immediately. Lavic is one such place. In the bowl where camp is, there are smaller pieces of jasper in various colors and patterns.

Whether a new person to rockhounding or a veteran it is always a pleasure to collect. When you're new to rockhounding you'll want to pick up every little piece you see. Which is fine, except you'll fill your container all too quick and you'll soon find out about leaverite rock.

Leaverite is rock which is defined as a rock that is not so good for grinding or tumbling, so *"leave 'er right there"*. What will happen in short order is you'll become more discriminating in the quality of the jasper than just collecting quantity of jasper and other cutting rock.

The area to explore is quite a large one; it actually starts a couple of miles to the west. However, it is more widely scattered to the west and more concentrated closer to camp. Then, there are the areas to the south of the railroad tracks and, of course to the north across the freeway, are the Southern Cady Mountains with all of the different materials that can be collected there as well.

Besides all the great rock to collect is the chance to see things rarely seen beyond what is seen from the freeway, and of course the development of new friendships with people who will guide you as you start this great hobby!

You may ask "What should I bring?" Well, you should bring a hat, a container (3 gallon bucket or better yet, a canvas bag), lunch, plenty of water to drink, sunscreen, gloves, first aid kit and a rock hammer (if you don't have one you may be able to borrow one from a club member).

The camp area is accessible by a standard car, but a high clearance vehicle is needed and 4 wheel or all-wheel drive is best for exploring the areas mentioned above.

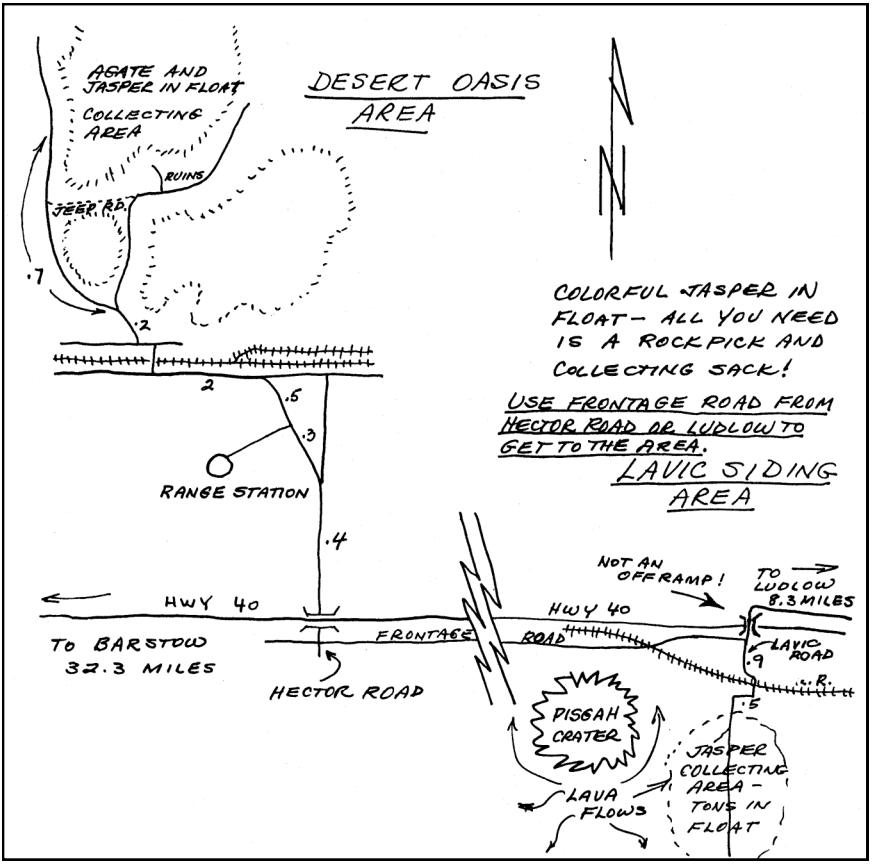
If you're camping you need to be self-contained, meaning you'll need to have everything you need including restroom facilities of some sort. Or if

you're not camping but would like to be there for both days you could stay in Barstow at one, of the many lodging possibilities and drive to the campsite.

Be at the camp site before 8:30 a.m. on Saturday, March 21 and Sunday, March 22 if coming for the day. We'll leave a note in camp as to where we went first if you are not there in time. And of course you could try to call us on the cell phone to either let us know if you are a tad late or to find out where we will be.

If you enjoyed the show and want to know where some of the materials came from and have an adventure as well, this is the trip for you.

Somewhere in California
Joe Goetz



Precious Opals and Why They Display Color

Sarah Lee Boyce and Carl Talbott

Opal, a mineraloid of non-crystalline silicon dioxide and water, may be found in the fissures of common porous rocks such as sandstone, rhyolite, marl, and basalt as well as in fossils. Opal forms when large quantities of terrestrial waters wash over sandstone (or similar porous rock or fossil) and chemically weather it such that large quantities of dissolved silica percolate through the rock strata until it reaches an impervious level. As the silica solution comes to rest, it spreads out along this level, fills voids or cracks within the strata, and begins to solidify over time through evaporation.

Although Opal is said to have no crystalline structure, at the micro-level, one type of opal (known as Opal-AG) contains silica spheres with diameters on the order of 140 to 300 nanometers organized in a number of cubic or hexagonal close-packed-lattices (see Figure 1) that are several hundred times larger than the fundamental silica spheres. Water fills the space between the silica spheres, and when the spacing between packed planes of spheres is approximately one-half the wavelength of a visible light component, that wave-length light can be diffracted by the grating created by the stacked planes.

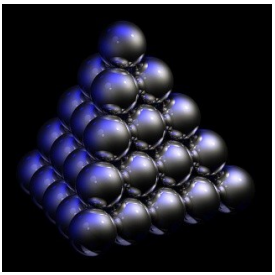


Figure 1: Close-Packed-Lattice Example

These internal colors, then, depend on the spacing between the planes (i.e. the size of the spheres) and their orientation with respect to light.1 The observed color is related to the size of constituent spheres in each close-packed-lattice (i.e., blue wavelengths will be diffracted by the smaller sized spheres of approximately 140 nanometers diameter whereas red wavelengths will be diffracted by larger sized spheres of approximately 240 nanometers). First discovered and described by Australian researchers in 1965, this phenomenon is called a “play-of-color” or “fire” and is the hallmark of precious opal.2

Another type of opal (Opal-AN) is amorphous water-containing silica-glass, known as Hyalite,3 which has a glassy and clear appearance with an internal play-of-color. Under long-wave blacklight, Hyalite glows bright green. If there is no presence of an internal play-of-color in either Opal-AG or Opal-AN, then these are called common opals even though the silica sphere structure may be present. The play-of-color in precious opal has color patches that often vary in size and shape and that change color as the direction of light sources, orientation of the opal, or direction of viewing is changed. This constitutes the

opal's "fire pattern" commonly classified into categories such as pinfire, flashfire, and harlequin.4

Since both Opal-AG and Opal-AN are both non-crystalline substances, in the presence of low levels of pressure or heat, they can gradually transform into Opal-CT and then into Opal-C both of which are micro-crystalline in nature where the spheres of silica grow into blades of cristobalite and tridymite. These forms of opal have no play-of-color (and therefore are not precious opal) because the close-packed lattice structure is disrupted by the microcrystalline growth. Such microcrystalline chalcedony, for example, can be found in the Monterey formation on the coastal regions of south and central California where massive bands of opal have undergone this transformation.5 Moreover, Oregon Thundereggs may have any one of a variety of Opal-CT or Opal-C fillings that can be opaque blue, opaque red, translucent pastel blue, translucent yellow, translucent red, white, or colorless, and a small percentage may show a play-of-color being Opal-AG or Opal-AN.

In more recent news, NASA's Mars Reconnaissance Orbiter (MRO) spacecraft has found evidence of hy-drated silica (opal) on the planet Mars. According to Dr. Ralph Milliken of NASA's Jet Propulsion Laboratory, the MRO has detected "numerous outcrops of opal-like minerals, commonly in thin layers extending for very long distances around the rim of Valles Marineris." This suggests that water remained on the Martian surface for an extended period of time. "What's important is that the longer liquid water existed on Mars, the longer the window during which Mars may have supported life," said Dr. Milliken. Rockhounds, on the other hand, may have something else in mind rather than life on Mars.

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Via Lodestar, 12/10

WISCONSIN'S MOONSTONE

(Continued from page 5)

rocks. It is also the pegmatite dikes that contain the anorthoclase showing the moonstone effect.

The moonstone has been found in small pits and quarries and also in farm fields where masses weather out and get frost-heaved to the surface. The weathered masses of coarse cleavable feldspar may at first not look too interesting, but at the right angle the moonstone effect can be seen. The feldspar has two cleavages. The most prominent cleavage surfaces ({001} for you crystallography buffs) do not show the moonstone effect – it is on the slightly less developed cleavage surface, {010}, that the effect appears. Cursory glances at samples can cause good material to be carelessly discarded.

To understand what anorthoclase is and why it shows a moonstone effect, we need to describe a bit about the feldspar group of minerals. All feldspars are aluminum silicates that commonly contain varying amounts of calcium, sodium and potassium. At room temperature, the common feldspars break down into two basic groups. First we have the plagioclase group, which range from a pure sodium-rich feldspar called albite to a pure calcium-rich feldspar called anorthite. The minerals in this group, called a solid solution series, are related by progressive changes in the proportion of sodium and silicon to calcium and aluminum. Most plagioclase feldspars are somewhere between albite and anorthite, containing both calcium and sodium. A familiar example of an intermediate plagioclase feldspar is labradorite. Second we have the potassium feldspar (also called K spar for short), which, depending on the internal structure, could be any of the three polymorphs microcline, orthoclase, or sanidine. These feldspars may contain some sodium, also in solid solution, but at room temperature do not make a complete series with albite. Ah, but things are different at high temperatures.

At magmatic temperatures an alkali feldspar can form that contains

much sodium and potassium in solid solution with each other. That is anorthoclase, which formed in the pegmatites of the Stettin pluton. Sodium and potassium ions have about the same size, change and bounding capacity, so fit readily in the same niches in the feldspar. But sodium and potassium aren't enough alike. If the feldspar cools down slowly, to below 400 degrees C, the feldspar structure contracts in size, and sodium and potassium are no longer good interchangeable fits. The homogenous anorthoclase splits on a fine scale into intergrown potassium feldspar and albite. Sometimes the bands of alternating minerals are coarse enough to see. Other times they are microscopic. If they are just the right size and spacing, they scatter the light that penetrates the various layers in the mineral-producing the moonstone effect, or schiller. The only anorthoclase that is truly not a mixture is that which cools very rapidly, such as in lava flows, so the separation cannot occur, and the mineral is frozen into its high temperature form. The material at Wausau cooled slowly, so isn't, strictly speaking, anorthoclase anymore, but an exsolved mixture.

The crystalline structure controls the orientation of these exsolution bands, hence the effect is seen better on some surfaces (the {010} cleavage for example) than at others. This is one reason why shaping the rough stone takes such skill. Other challenges are the weathered nature of some of the stone, and exploiting the cleavage directions inherent in the feldspar. The master of processing these stones is Bill Schoenfuss of Wausau, Wisconsin. Bill often exhibits and sells his beautifully prepared moonstone at shows in the upper midwest. He can be contacted at wismoonstonewgs@gmail.com.

Moonstone has been prized as a gem since antiquity, often characterized as being like solidified moonbeams. The Greeks and Romans both related the gem to their moon gods and goddesses. The American Gem Society considers moonstone an alternate birthstone for June.

From MWF News 1/15 via Pick & Shovel 1/15

Upcoming CFMS Gem Shows

Mar 7-8 **ARCADIA, CA.** Monrovia Rockhounds
Los Angeles Arboretum, 301 Baldwin Avenue
Hours: 9:00 - 4:30 daily
Website: www.Moroks.com

Mar 7-8 **VENTURA, CA.** Ventura Gem & Mineral Society
Ventura County Fairgrounds, 10 West Harbor Blvd.
Hours: Sat 10 - 5; Sun 10 - 4
Website: www.vgms.org

Mar 13-15 **VICTORVILLE, CA.** Victorville Valley Gem & Mineral Society
Stoddard Wells Road & Hwy 15
Hours: 9 - 5 daily
Website: www.vvgmc.org/tailgate

Mar 14-15 **SAN MARINO, CA.** Pasadena Lapidary Society
San Marino Masonic Center, 3130 Huntington Drive
Hours: Sat 10 - 6, Sun 10 - 5
Website: www.pasadenalapidarysociety.org

Mar 14-15 **SPRECKELS, CA.** Salinas Valley Rock & Gem Club
Spreckel's Veterans Hall, 5th & Llano Streets
Hours: 10 - 5 daily
Website: www.salinasrockandgem.com

Mar 28-29 **TORRANCE, CA.** South Bay Lapidary & Mineral Society
Torrance/Ken Miller Recreation Center
3341 Torrance Blvd (off Madrona Ave.)
Hours: Sat. 10 - 5; Sun. 10 - 4

Apr 18-19 **THOUSAND OAKS, CA.** Conejo Gem & Mineral Club
Borchard Park Community Center
190 Reino Road at Borchard Road
Hours: 10 - 5 daily
Website: www.cgamc.org

WGMS MEETING LOCATION!
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(See page 4 for information)