Arkansas Rockhound News

Official Newsletter of the
Central Arkansas Gem, Mineral and Geology Society

October 2009

Next Meeting: October 27, 2009, 6:30 PM - Terry Library
Call James to find out about the November field trip.

2009 Meeting Schedule

October 27 **November 24**

CAGMAGS

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Time and Location of Meetings:
4th Tuesday of the month (January-November) 6:30 PM Terry Library, 2015 Napa Valley Drive, Little Rock, AR 72212, (Non-smoking) **Visitors are always Welcome Membership** Dues $15 Individual $25 Family (Yearly)

Mission Statement:
The Central Arkansas Gem, Mineral and Geology Society is dedicated to promoting interest in mineralogy and the related sciences, interest in lapidary and the related arts; to encourage field trips and the enjoyment of collecting and preserving minerals as they occur in nature, and the study of geological formations, especially those of our Natural State of Arkansas. We are a small group of people that enjoy getting together to share our common interests.

2009 Officers:
President: Jim Schenebeck 501-223-3668 jsjimstone@yahoo.com
Vice President: Mike Austen steelpony@aol.com
Past President: David Murray 870-255-3679 davidmur99@hotmail.com
Secretary/Treasurer: Pat Kissire, 4900 Sparks Rd., Little Rock, AR 72210, 501-821-2346, pkissire@sbcglobal.net
Committees / Chairs Programs: TBA Library: Ann Austen Membership: TBA
Field Trips: James Burns 501-568-0315 Show Chair: TBA
Editor/Webmaster: Barbara & Phillip Nierstheimer phillspa@hotmail.com

President's Message

Fellow members:
Well, I am not sure, officially, that winter is here but it sure seems to be cold lately.
We had a great meeting last time and our October meeting also looks to be very informative. Hopefully we will have some good specimens from Razor Rock to show at the next meeting. We have our nomination committee working on placing new names for nominations for all club officers and your input would be greatly appreciated. Be sure to come to the November meeting because that is when the votes will be taken for new officers. I would also like to say that our Club annual show was a great success and my highest praise for Weldon, our show chairman, and all of the people who helped put it on.
I also would like to thank Angeline for her help in the kitchen, could not have done all of that without her, Thanks Angeline. For all of the rest of the helpers I would just like to say Thanks to you for a very successful show and we all realize and appreciate your hard work.
We have a lot more events and fun filled meetings coming up this next year and I hope to see all of you there and having fun is the name of the game for 2010 so please come and have a great time. It has been my privilege to be your president this last year and I so much appreciate your help and direction for the club and I wish this success to continue.
This is your club and it needs you to be informed and involved so please let your wishes be known and if I forget to tell everyone, please have a great Thanksgiving and a great rest of the year.
Jim Schenebeck

October Birthstone: Opal

Opal is a mineraloid gel which is deposited at a relatively low temperature and may occur in the fissures of almost any kind of rock, being most commonly found with limonite, sandstone, rhyolite, marl and basalt. The word *opal* comes from the Latin *opalus*, by Greek *opallios*, and is from the same root as Sanskrit *upálá[s]* for "stone", originally a millstone with *upárá[s]* for slab.[4]

The water content is usually between three and ten percent, but can be as high as twenty percent. Opal ranges from clear through white, gray, red, orange, yellow, green, blue, magenta, rose, pink, slate, olive, brown, and black. Of these hues, the reds against black are the most rare, whereas white and greens are the most common. These color variations are a function of growth size into the red and infrared wavelengths. Opal is Australia's national gemstone.

Precious opal shows a variable interplay of internal colors and even though it is a mineraloid, it does have an internal structure. At micro scales precious opal is composed of silica spheres some 150 to 300 nm in diameter in a hexagonal or cubic close-packed lattice. These ordered silica spheres produce the internal colors by causing the interference and diffraction of light passing through the microstructure of the opal.[5] It is the regularity of the sizes and the packing of these spheres that determines the quality of precious opal. Where the distance between the regularly packed planes of spheres is approximately half the wavelength of a component of visible light, the light of that wavelength may be subject to diffraction from the grating created by the stacked planes. The spacing between the planes and the orientation of planes with respect to the incident light determines the colors observed. The process can be described by Bragg's Law of diffraction.

(Opal Continued)

Precious opal consists of spheres of silica of fairly regular size, packed into close-packed planes which are stacked together with characteristic dimensions of several hundred nm.

Visible light of diffracted wavelengths cannot pass through large thicknesses of the opal. This is the basis of the optical band gap in a photonic crystal, of which opal is the best known natural example. In addition, microfractures may be filled with secondary silica and form thin lamellae inside the opal during solidification. The term *opalescence* is commonly and erroneously used to describe this unique and beautiful phenomenon, which is correctly termed *play of color*. Contrarily, *opalescence* is correctly applied to the milky, turbid appearance of common or *potch* opal. Potch does not show a play of color.

The veins of opal displaying the play of color are often quite thin, and this has given rise to unusual methods of preparing the stone as a gem. An opal *doublet* is a thin layer of opal, backed by a swart mineral such as ironstone, basalt, or obsidian. The darker backing emphasizes the play of color, and results in a more attractive display than a lighter potch.

Combined with modern techniques of polishing, doublet opal produces similar effect of black or boulder opals at a mere fraction of the price. Doublet opal also has the added benefit of having genuine opal as the top visible and touchable layer, unlike triplet opals.

The triplet-cut opal backs the colored material with a dark backing, and then has a domed cap of clear quartz or plastic on top, which takes a high polish and acts as a protective layer for the relatively fragile opal. The top layer also acts as a magnifier, to emphasise the play of color of the opal beneath, which is often of lower quality. Triplet opals therefore have a more artificial appearance, and are not classed as precious opal.

Australia produces around 97% of the world's opal. 90% is called 'light opal' or white and crystal opal. White makes up 60% of the opal productions but cannot be found in all of the opal fields. Crystal opal or pure hydrated silica makes up 30% of the opal produced, 8% is black and only 2% is boulder opal.[*citation needed*]

The town of Coober Pedy in South Australia is a major source of opal. Andamooka in South Australia is also a major producer of matrix opal, crystal opal, and black opal. Another Australian town, Lightning Ridge in New South Wales, is the main source of black opal, opal containing a predominantly dark background (dark-gray to blue-black displaying the play of color). Boulder opal consists of concretions and fracture fillings in a dark siliceous ironstone matrix. It is found sporadically in western Queensland, from Kynuna in the north, to Yowah and Koroit in the south.[7]

Multi-colored rough opal specimen from Virgin Valley, Nevada, USA

The Virgin Valley opal fields of Humboldt County in northern Nevada produce a wide variety of precious black, crystal, white, fire, and lemon opal. The black fire opal is the official gemstone of Nevada. Most of the precious opal is partial wood replacement. Miocene age opalised teeth, bones, fish, and a snake head have been found. Some of the opal has high water content and may desiccate and crack when dried. The largest black opal in the Smithsonian Museum comes from the Royal Peacock opal mine in the Virgin Valley.[*citation needed*]

Another source of *white base opal* in the United States is Spencer, Idaho. A high percentage of the opal found there occurs in thin layers. As a result, most of the production goes into the making of doublets and triplets.

Other significant deposits of precious opal around the world can be found in the Czech Republic, Slovakia, Hungary, Turkey, Indonesia, Brazil (Pedro II a city in the state of Piauí), Honduras, Guatemala, Nicaragua and Ethiopia.

In late 2008, NASA announced that it had discovered opal deposits on Mars.[8]

(Birthstone and mineral of the month courtesy of www.wikipedia.com.)

Central Arkansas Gem, Mineral and Geology Society

Minutes for September 22, 2009

President Jim Schenebeck called the meeting to order. There were 20 members present.

The Minutes and Treasury's report were approved as posted.

Weldon announced that October Show tables had been refilled with a backup plan if it fails. Everything is on go.

Ann Austen had our new book "Fossils of Iowa" and the latest Rock & Gem and Mineralogical Record available for check out. An updated list of library materials will be added to the web.

The September field trip was to Cove Creek. James Burns had cleared some of the gravel and the four members found pyrite and brookite. It rained but did not dampen the spirit of the trip. The October trip will be the third weekend (Oct. 17th) to Razor Rock. Call James Burns for instructions.

President Jim Schenebeck reported on the September 10th Business Meeting. Security has been approved for the October Show for Friday and Saturday nights. A raffle Committee consisting of Mike Austen, Carl Hill, and James Burns was appointed and given up to $300 for next years raffles. Field trips with MWF and SEF will be checked into and we will try to connect with other clubs in the area to give us more field trips. This will require all members attending these to have safety equipment and carry their club membership cards. A tentative calendar of having more club auctions was given. We have joined the American Land Access Association as a club to have a voice in the pending legislation regarding collection on public lands.

A motion to pursue the establishment of a junior program was approved and $50 was approved as start up money

Dave & Lenora Murray and Mike & Ann Austen shared their trip to a yard sale (rock style) in Tyler, TX. It must have been some yard with Dave reporting buying 700 lbs and Mike 200 lbs. They have promised to tell us about it in time to go next year. Mike and Ann also told us about their trip to South Bend, Ind. Where they swapped dolomite, quartz and pyrite for fluorite and copper. They had some really good specimens to show as well as making some good contacts.

Best of raffle winners were Mike Austen – Fluorite and Carol Strepka – Copper.

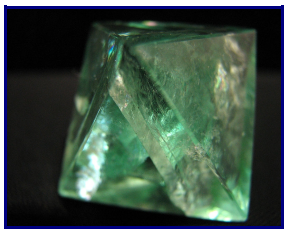
Meeting was adjourned

Respectfully submitted,

Pat Kissire, Sec/Tres

Editor's notes: Two old club members have passed away.
Gene Newsom and Rodney Crawford

Our condolences to their families.



MINERAL of the Month: **Fluorite**

Fluorite (also called **fluorspar**) is a halide mineral composed of calcium fluoride, CaF_2. It is an isometric mineral with a cubic habit, though octahedral and more complex isometric forms are not uncommon. Cubic crystals up to 20 cm across have been found at Dalnegorsk, Russia.[1] Crystal twinning is common and adds complexity to the observed crystal habits.

The word *fluorite* is derived from the Latin root *fluo*, meaning "to flow" because the mineral has a relatively low melting point and was used as an important flux in smelting. Fluorite gave its name to its constitutive element fluorine.

Fluorite may occur as a vein deposit, especially with metallic minerals, where it often forms a part of the gangue (the worthless "host-rock" in which valuable minerals occur) and may be associated with galena, sphalerite, barite, quartz, and calcite. It is a common mineral in deposits of hydrothermal origin and has been noted as a primary mineral in granites and other igneous rocks and as a common minor constituent of dolostone and limestone.

Fluorite is a widely occurring mineral which is found in large deposits in many areas. Notable deposits occur in Germany, Austria, Switzerland, England, Norway, Mexico, and Ontario in Canada. Large deposits also occur in Kenya in the Kerio Valley area within the Great Rift Valley. In the United States, deposits are found in Missouri, Oklahoma, Illinois, Kentucky, Colorado, New Mexico, Arizona, Ohio, New Hampshire, New York, Alaska and Texas. Flourite has been the state mineral of Illinois since 1965. At that time, Illinois was the largest producer of fluorite in the United States; however, the last Illinois mine closed in 1995.

The largest documented single crystal of fluorite was a cube 2.12 m in size and weighed ~16 tons.[2]

Many samples of fluorite fluoresce under ultra-violet light, a property that takes its name from fluorite[3]. Many minerals, as well as other substances, fluoresce. Fluorescence involves the elevation of electron energy levels by quanta of ultra-violet light, followed by the progressive falling back of the electrons into their previous energy state, releasing quanta of visible light in the process. In fluorite, the visible light emitted is most commonly blue, but red, purple, yellow, green and white also occur. The fluorescence of fluorite may be due to impurities such as yttrium or organic matter in the crystal lattice. It is not surprising, therefore, that the color of visible light emitted when a sample of fluorite is fluorescing appears dependent on where the original specimen was collected, different impurities having been included in the crystal lattice in different places. Neither does all fluorite fluoresce equally brightly, even from the same locality. Therefore ultra-violet light is not a reliable tool for the identification of specimens, nor for quantifying the mineral in mixtures. For example, among British fluorites, those from Northumberland, County Durham, and Eastern Cumbria are the most consistently fluorescent, whereas fluorite from Yorkshire, Derbyshire, and Cornwall, if they fluoresce at all, are generally only feebly fluorescent.

Fluorite also exhibits the property of thermoluminescence.

Fluorite comes in a wide range of colors and has subsequently been dubbed "the most colorful mineral in the world". The most common colors are purple, blue, green, yellow, or colorless. Less common are pink, red, white, brown, black, and nearly every shade in between. Color zoning or banding is commonly present. The color of the fluorite is determined by factors including impurities, exposure to radiation, and the size of the color centers.

(Fluorite continued)

There are three principal types of industrial use for fluorite, corresponding to different grades of purity. Metallurgical grade fluorite, the lowest of the three grades, has traditionally been used as a flux to lower the melting point of raw materials in steel production to aid the removal of impurities, and later in the production of aluminium. Ceramic (intermediate) grade fluorite is used in the manufacture of opalescent glass, enamels and cooking utensils. Fluorite may be drilled into beads and used in jewelry, although due to its relative softness it is not widely used as a semiprecious stone. The highest grade, acid grade fluorite, is used to make hydrofluoric acid by decomposing the fluorite with sulfuric acid. Hydrofluoric acid is the primary feedstock for the manufacture of virtually all organic and inorganic fluorine-containing compounds, including fluoropolymers and perfluorocarbons, and is also used to etch glass.

Fluorite is used instead of glass in some high performance telescopes and camera lens elements. Exposure tools for the semiconductor industry make use of fluorite optical elements for ultraviolet light at 157 nm wavelength. Fluorite has a uniquely high transparency at this wavelength. Fluorite has a very low dispersion so lenses made from it exhibit less chromatic aberration than those made of ordinary glass. In telescopes it allows crisp images of astronomical objects even at high power. Fluorite also has ornamental and lapidary uses. Canon Inc. produces synthetic fluorite crystals that are used in their more expensive telephoto lenses. Nikon has previously manufactured at least one all-fluorite element camera lens (105 mm f/4.5 UV) for the production of ultraviolet images.

Fluorite objective lenses are manufactured by the larger microscope firms (Nikon, Olympus, Carl Zeiss and Leica) due to their strong hexagonal crystal structure most notable for evenly refracting light. Their transparence to ultraviolet light enables them to be used for fluorescence microscopy. The fluorite also serves to correct optical aberrations in these lenses.

Club T-shirts

They are a Royal Blue with a large Club logo and the established club date.
Sizes are Medium, Large, X-Large, and XX-Large Price is $8 each.
Contact George-916-221-1568

Carl Hill has for sale the following items, tumbling grit, oxalic acid, vibrating lap 15 " Lorotone with new motor and 2 pans $350, and a 1/3 HP motor with 1/2" shaft 115/230V $50. Call 501-889-5260

2009 Show Dates

NOVEMBER 2009:

1--SCOTTSDALE (PHOENIX), ARIZONA: Wholesale show; Rings & Things; Chaparral Suites Resort Scottsdale (Conference Center), 5001 N. Scottsdale Rd.; Sun. 1-5; contact Dave Robertson, (800) 366-2156; Web site: www.rings-things.com/Show/

3--SAN DIEGO, CALIFORNIA: Wholesale show; Rings & Things; Mission Valley Resort Hotel (Ballroom), 875 Hotel Circle S; Tue. 1-5; contact Dave Robertson, (800) 366-2156; Web site: www.rings-things.com/Show/

4--BUENA PARK, CALIFORNIA: Wholesale show; Rings & Things; Knott's Berry Farm Resort Hotel, 7675 Crescent Ave.; Wed. 1-5; contact Dave Robertson, (800) 366-2156; Web site: www.rings-things.com/Show/

A Rock Trip To Tyler Texas,
Or
All Wet Rocks Are Pretty, We Need A Bigger Truck!
By Mike Austen

The second weekend of September, Ann and I traveled to Tyler to see her brother's family. That is the official story, it just so happened that a member of the Tyler rock club was also having a big rock sale that weekend. I mean a BIG SALE the whole house, garage and yard is full of stuff. He does this twice a year, but it seems like he is gaining new rocks faster than he can get rid of the old stuff. We all know that feeling, you never have enough room, because you cannot have too many rocks. Last spring he sold about 5000 lbs of rocks and did not make a dent in the pile. His plan is to make room in his yard for his motor home, I wish him luck with that. As you all know it has been raining every day since the 4th of July, or was it Easter, my brain is so soggy I don't remember. We drove down Friday and that night it started to rain and rain and rain harder. The next morning we had our doubts about going to the sale, or even if there was going to be a sale. The rain was not stopping, so we thought a call would be in order to confirm the cancellation of the big event. The phone rang, the answering machine worked, then the line was busy, but no one ever picked up the phone. After several tries we decided this could only mean one thing, the people were outside getting ready for the sale. Just when we were thinking about driving over to check out the sale, our phone rang. It was the Dave and Lenora Murray, they had driven down very late the night before and were wondering about the sale also. We agreed to meet at the sale location and see what was going on.

We should not have worried, because when we got there, the first thing we saw was a bunch of umbrellas bobbing up and down on the other side of the backyard fence. A guess all rock hounds must have rocks in their heads, because we don't have enough sense to come in out of the rain. On the other hand all that rain sure did make the rocks look pretty. It was not cold so once you got really wet, you just sort of forget about the weather and started having fun. And everyone did have a good time, a wet time but a good time. I took home about six buckets of rocks and fossils, mostly local Texas stuff and a crate of Mexican geodes. There were agates, petrified wood, malachite, azurite, tiger eye, turretella, palm wood, obsidian, llanite, and lots of slabbed rocks to name a few. Dave had even more rocks than me, but he cheats and drives a bigger truck. About two in the afternoon we were getting hungry and took a break for lunch at a Chinese buffet. Lenora said the sushi was better than wet rocks, well not quite.

Ann and I decided to go back to her brother's home and dry off, Dave said they were going back to the motel to dry out and rest. An hour later Ann answered her phone and said it was Dave. He was calling about directions to a local rock shop that we had told them about. I guess they were not ready to quit after all. Did I forget to mention that we had stopped at two rock shops on our way down Friday? About that time Ann's brother came home and said it was not raining, well not much. He said that at his business they had dumped rock around some drainage areas, at that the rock was full of fossils. Would we like to go and check it out? Of course we would, the truck still had a little room left.

The rocks turned out to be limestone that was full of shells, snails, gastropods, and lots of other fossils. So we had to load up a bunch, right? It is like a rock hound rule, right?Well it started to rain hard again, and the rock will still be there next time, and it was getting dark so we finally called it a day.

The next morning it was still raining and we had enough stuff to play with for a while so we headed home. About half way home Ann's phone rang again, it was Dave. He just wanted to lets us know that he had went back to the sale one more time that morning, before they started for home. Well, I guess that makes Dave the winner but he cheats remember, he has a bigger truck. When it comes to hauling rocks, size matters.