



Arkansas Rockhound News



Independence day
July 2009

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

Next Meeting: July 28, 2009, 6:30 PM - Terry Library

Please call James to find out about the June field trip.
He should have something exciting planned.

2009 CAGMAGS Annual Show
October 3-4, 2009
More info to come!!

2009 Meeting Schedule
July 28 October 27
August 25 November 24
September 22

CAGMAGS

The Arkansas Rockhound News is Published monthly by the **Central Arkansas Gem, Mineral, and Geology Society**

Colors: Blue and White

Website: www.centralarrockhound.org

Member of: American Federation of Mineralogical Societies
Midwest Federation of Mineralogical Societies

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



July Birthstone: Ruby

Diamonds are graded using criteria that have become known as the four Cs, namely color, cut, clarity and carat weight. Similarly natural rubies can be evaluated using the four Cs together with their size and geographic origin.

Color: In the evaluation of colored gemstones, color is the single most important factor. Color divides into three components; *hue*, *saturation* and *tone*. Hue refers to "color" as we normally use the term. Transparent gemstones occur in the following hues: red, orange, yellow, green, blue, violet, purple and pink are the spectral hues. The first six are known as spectral hues; the last two are modified spectral hues. Purple is a hue that falls halfway between red and blue and pink is a paler shade of red.[3] In nature there are rarely pure hues so when speaking of the hue of a gemstone we speak of primary and secondary and sometimes tertiary hues. In ruby the primary hue must be red. All other hues of the gem species corundum are called sapphire. Ruby may exhibit a range of secondary hues. Orange, purple, violet and pink are possible.

The finest ruby is best described as being a vivid medium-dark toned red. Secondary hues add an additional complication. Pink, orange, and purple are the normal secondary hues in ruby. Of the three, purple is preferred because, firstly, the purple reinforces the red making it appear richer[4]. Secondly, purple occupies a position on the color wheel halfway between red and blue. In Burma where the term pigeon blood originated, rubies are set in pure gold. Pure gold is, itself a highly saturated yellow. Set a purplish-red ruby in yellow and the yellow neutralizes its compliment blue leaving the stone appearing to be pure red in the setting[5].

Improving the quality of gemstones by treating them is common practice. Some treatments are used in almost all cases and are therefore considered acceptable. During the late 1990s, a large supply of low-cost materials caused a sudden surge in supply of heat-treated rubies, leading to a downward pressure on ruby prices.

Improvements used include color alteration, improving transparency by dissolving rutile inclusions, healing of fractures (cracks) or even completely filling them.

The most common treatment is the application of heat. Most, if not all, rubies at the lower end of the market are heat treated on the rough stones to improve color, remove *purple tinge*, blue patches and silk. These heat treatments typically occur around temperatures of 1800 °C (3300 °F).[6] Some rubies undergo a process of low tube heat, when the stone is heated over charcoal of a temperature of about 1300 °C (2400 °F) for 20 to 30 minutes. The silk is only partially broken as the color is improved.

A less acceptable treatment, which has gained notoriety in recent years, is lead glass filling. Filling the fractures inside the ruby with [lead glass](#) dramatically improves the transparency of the stone, making previously unsuitable rubies fit for applications in jewelry. The process is done in four steps:

1. The rough stones are pre-polished to eradicate all surface impurities that may affect the process
2. The rough is cleaned with [hydrogen fluoride](#)
3. The first heating process during which no fillers are added. The heating process eradicates impurities inside the fractures. Although this can be done at temperatures up to 1400 °C (2500 °F) it most likely occurs at a temperature of around 900 °C (1600 °F) since the rutile silk is still intact
4. The second heating process in an electrical oven with different chemical additives. Different solutions and mixes have shown to be successful, however mostly lead-containing glass-powder is used at present. The ruby is dipped into oils, then covered with powder, embedded on a tile and placed in the oven where it is heated at around 900 °C (1600 °F) for one hour in an oxidizing atmosphere. The orange colored powder transforms upon heating into a transparent to yellow-colored paste, which fills all fractures. After cooling the color of the paste is fully transparent and dramatically improves the overall transparency of the ruby.

If a color needs to be added, the glass powder can be "enhanced" with copper or other metal oxides as well as elements such as sodium, calcium, potassium etc.

The second heating process can be repeated three to four times, even applying different mixtures.[7] When jewelry containing rubies is heated (for repairs) it should not be coated with boracic acid or any other substance, as this can etch the surface; it does not have to be "protected" like a diamond. (Birthstone and mineral of the month courtesy of www.wikipedia.com.)

July Program

The July program will be Lenora and Dave Murray with specimens and pictures of their trip to Colorado.

Central Arkansas Gem, Mineral and Geology Society
Minutes for June 23, 2009

President Jim Schenebeck called the meeting to order. There were 18 members and three new members (Michael & Elizabeth Sartain and Roger Freeze) present.

The minutes and treasurer's report were approved as posted.

Ann Austen has completed the library inventory and it has been posted on our website by Phillip and Barbara Nierstheimer. It is now possible to look at the site and see if you have books or magazines that are overdue. The list will be added to as new items are received.

The field trip for July is undecided (Malvern /Magnet Cove Area). Call James Burns for information 501-568-6315. Plan on the second Saturday in June.

Weldon presented the new membership list with the names of the people to be deleted for 2009. We currently have 64 members not including the new members who joined tonight.

President Jim Schenebeck read a letter from Earth Wonders Geological Museum in Bunnell, Florida requesting samples of Arkansas material. They have material to swap. If you are interested, call Pat for information.

For Show and Tell, Mike Austen had dolomite from the Memphis Club trip to Black Rock. One piece was so big he left it in his truck. He reports he has extra if someone wants to trade, etc. Jim Schenebeck had a rock from Georgia. George Gray Major had a rock that looked like a sweet potato and Phillip Nierstheimer had several rocks including one that rattled. Thanks everyone, they were interesting.

Best of raffle went to Roberta – Stilbite, Elizabeth Sartain – Apophyllite & Stibnite. The Pink Dolomite donated by Mike Austen went to Nancy Thaden and George Gray Major.

The program was a video, [The Gem Hunter in Afghanistan – Gary Bowersox](#). It makes you understand the value of Lapis. The journey to get it was more than I would want to under take.

The meeting was adjourned.

Respectfully submitted.

Pat Kissire, Sec/Tres.



MINERAL of the Month: Pyrite

The [mineral pyrite](#), or [iron pyrite](#), is an iron [sulfide](#) with the [formula FeS₂](#). This mineral's metallic [luster](#) and pale-to-normal, brass-yellow hue have earned it the nickname **fool's gold** due to its resemblance to [gold](#). Pyrite is the most common of the [sulfide minerals](#). The name pyrite is derived from the [Greek πυρίτης](#) (puritēs), “of fire” or “in fire”, from [πύρ](#) (pur), “fire”. This name is likely due to the sparks that result when pyrite is struck against [steel](#) or [flint](#). This property made pyrite popular for use in early [firearms](#).

Pyrite is usually found associated with other sulfides or [oxides](#) in [quartz veins](#), [sedimentary rock](#), and [metamorphic rock](#), as well as in [coal](#) beds, and as a replacement mineral in [fossils](#). Despite being nicknamed fool's gold, small quantities of [gold](#) are sometimes found associated with pyrite. Gold and arsenic occur as a coupled substitution in the pyrite structure. In the [Carlin, Nevada](#) gold deposit, arsenian pyrite contains up to 0.37 wt% gold.[4] [Auriferous](#) pyrite is a valuable [ore](#) of gold.

Pyrite exposed to the atmosphere during [mining](#) and excavation reacts with [oxygen](#) and [water](#) to form [sulfate](#), resulting in [acid mine drainage](#). This acidity results from the action of [Acidithiobacillus](#) bacteria, which generate their energy by oxidizing ferrous iron (Fe²⁺) to ferric iron (Fe³⁺) using [oxygen](#). The ferric iron in turn attacks the pyrite to produce ferrous iron and sulfate. The ferrous iron is then available for oxidation by the bacterium; this cycle continues until the pyrite is depleted.

Pyrite is used commercially for the production of [sulfur dioxide](#), for use in the paper industry, and in the manufacture of sulfuric acid.

During the early years of the 20th century, pyrite was used as a [mineral detector](#) in [radio](#) receivers, and is still used by 'crystal radio' hobbyists. Until the [vacuum tube](#) matured, the crystal detector was the most sensitive and dependable detector available- with considerable variation between mineral types and even individual samples within a particular type of mineral. The most sensitive mineral was [galena](#), which was very sensitive also to mechanical vibration, and easily knocked off the sensitive point; the most stable were [perikon](#) mineral pairs; and midway between was the pyrites detector, which is approximately as sensitive as a modern 1N34A [diode](#) detector. Pyrite has been proposed as an abundant inexpensive material in low cost photovoltaic solar panels.[5] [6]

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

Dave and Lenora Murray are now OFFICIAL Arkansas dealers for the GEM SCOOP . (Now known as the TREASURE SCOOP)

We have the old standby 36" and a new 42" scoop. Both will be available at the rock show in October, along with great rock hammers. Or, call us , and we can bring yours to the club meeting.

That's **D.L.M. Gem 'N' STEM** at 870-255-3679.

In November 2006 John, Obe, and Aaron Willix acquired the Rock & Mineral collection created by Hughey Howard Killough. Over 5000 rocks (moss agates, fossils, copper ore, petrified wood, chalcedony, plume agates, thunder eggs, rose quartz, wulfenite, halite, amethyst, quartz, jade, tiger eye, etc.), four agate windows, a large Brazilian agate, a large Arkansas quartz crystal, 7 large antique oak display cabinets, one ring cabinet, over 156 pieces of jewelry, lamps, stands and various other misc. items.

Presently the collection is on display in Magnet Cove, Arkansas and can be seen by appointment. Anyone with an interest in rocks and minerals is welcome. Just call or email **John** 501-351-0049 or jwillix@newcopiers.net, **Obe** 501-804-2331, or **Aaron** 501- 337-0511. The best times for us are Wednesdays all day or Saturday after 1 PM. Please feel free to visit us. We would like to share the collection with everyone. Prices anywhere from give away to trade to \$1 to \$2500. We are open minded and just having fun.

2009 Show Dates

8-9--BATON ROUGE LOUISIANA: Annual show; Baton Rouge Gem & Mineral Society; Fraternal Order of Police Baton Rouge Lodge Number One, 10777 Greenwell Springs Rd.; adults \$3, children \$2; Sat. 10-6, Sun. 10-5; contact Paul Broussard, (225) 687-3864 or (225) 939-3293; e-mail: paul_broussard@msn.com

14-16--BRIDGETON, MISSOURI: 16th annual show, "Treasures of the Earth"; Greater Saint Louis Association of Earth Science Clubs; Machinist Hall Auditorium, 12365 St. Charles Rock Rd.; Fri. 4-9, Sat. 10-6, Sun. 11-5; adults \$5, seniors \$4, students \$2, children free with adult; dealers, Youth Booth, exhibits, demonstrations, artifacts, special exhibits; contact Robert Morse, 135 Knox St., Troy, MO 63379, (636)462-4423; e-mail: rmorse@centurytel.net

14-16--CARTERSVILLE, GEORGIA: Show, "Southeast Gem, Mineral & Fossil Show"; Martin Zinn Expositions; Holiday Inn, I-75 and 411 NE; Fri. 10-6, Sat. 10-6, Sun. 10-5; free admission; 80 wholesale and retail dealers, open to the public; contact Martin Zinn Expositions, P.O. Box 665, Bernalillo, NM 87004-0665, fax (505) 867-0073; e-mail: mz0955@aol.com; Web site: www.mzexpos.com

14-16--LAKE GEORGE, COLORADO: Show; Lake George Gem & Mineral Club; 37380 U.S. Hwy. 24, next to post office; Fri. 9-5, Sat. 9-5, Sun. 9-4; free admission; contact John Rakowski, P.O. Box 171, Lake George, CO 80827, (719) 748-3861; e-mail: president@LGGMClub.org; Web site: www.LGGMClub.org

15-16--BOSSIER CITY, LOUISIANA: Show; ARK-LA-TEX Gem & Mineral Society; Bossier Civic Center, 620 Benton Rd.; Sat. 10-6, Sun. 10-5; adults \$3, two-day admission \$5, children 12 and under free; live demonstrations, youth activities, more than 20 dealers; contact Charles Johns, 9314 Overlook Dr., Shreveport, LA 71118, (318) 687-4929; e-mail: cwsejohns@bellsouth.net; Web site: www.larockclub.com