

ARKANSAS ROCKHOUND NEWS



AUGUST 2019

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.

Regular meetings are at the Terry Library 6:30 PM on the fourth Tuesday of the month (except December)

Terry Library is located at:

2015 Napa Valley Dr.
Little Rock, Arkansas
72212

AFMS news...

Geology of Leonardo's Virgin of the Rocks (AFMS News, June 2019)

by Steven Wade Veatch (from the Colorado Springs Mineralogical Society "Pick & Pan," Vol. 58, #4, May 2018)

Leonardo da Vinci (1452-1519), considered to be one of the greatest painters of all time, used his knowledge of geology to inform his art. Leonardo was also noted for his work in sculpture, anatomy, mathematics, architecture, and engineering during the Italian Renaissance (about 1330 to 1450).

From a geological perspective, Leonardo da Vinci's paintings present a realistic portrayal of nature. In his Virgin of the Rocks (1483-1486), on display in the Louvre in Paris, the geological accuracy is striking (Pizzorusso, 1996). The painting's subject is both the Virgin and the rocks. The Virgin sits in front of a grotto or cave. Various aspects of the grotto, according to geologist Ann Pizzorusso (1996), "are rendered with astounding geological accuracy. Leonardo has painted a rich earthscape of rock eroded and sculpted by the active geological forces of wind and water. Most of the rock formations . . . are weathered sandstone, a sedimentary rock." What looks like basalt, an extrusive igneous rock formed by the cooling of lava, appears above Mary's head and at the top right of the picture. Leonardo even painted the columnar joints formed

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501-258-2576, cagmagsprez@gmail.com

Vice President, Sharron Walter
weewiddlewalterwake@gmail.com

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501-223-8372, dodsonsr@yahoo.com

Newsletter Editor/Webmaster,
Nikki Heck
501-626-5440, nikkiheck@windstream.net

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501-679-4531, schoeneman@hughes.net

Membership, Mike Howard
501-246-0964, jmichaelhoward@sbc-
global.net

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501-837-6713, dc42hodge@yahoo.com

Sunshine, Anita Gray Major
501-227-7853, anitagraymajor@gmail.
com

Publicity, Virginia Wilhelm
501-821-2440, nevadasmith7777@yahoo.com

Programs, Amy Thor
501-909-3022, mysticrose10069@gmail.
com

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by the cooling of the rocks. Also, just above her head is a precisely painted seam between the sandstone and igneous formations, and a rock joint runs horizontally to the right of her head. Art historians believe that the landscape in this painting is not an actual place, but one conjured up by Leonardo's experience, understanding of geology, and observation (Issacson, 2017).

A second version of the painting, also called the Virgin of the Rocks (1495-1508), is exhibited in the National Gallery in London. This painting fails to depict such a faithful rendering of geology as the one in Paris. Despite decades of analysis by scholars, there are doubts that it is an authentic [Leonardo]1 painting, but rather a copy of the original painting by another artist.

Leonardo da Vinci was ahead of his time in his understanding of geology, and he recorded his observations in note-books and journals (Bressan, 2014). After his death, his notebooks ended up on the bookshelves in libraries and private collections throughout Europe, while other notebooks disappeared into history (Waggoner, 1996).

[Leonardo] wrote in one of his notebooks, the Codex Leicester, about the fossils he found as he walked the countryside. [Leonardo] recognized that fossils were the remains of once-living organisms and relics of former times and other worlds--traces of a past hidden to other thinkers of the time. [Leonardo] also observed that distinct layers of rocks and fossils covered large areas, and the layers were formed at separate times--not in the single biblical flood (Issacson, 2017). And centuries before Darwin, Leonardo conjectured through his understanding of rocks, fossils, and the slow processes of erosion and deposition that the world is much older than what church fathers proclaimed (Jones, 2011).

Leonardo da Vinci's observations of fossils found on the tops of mountains wore a path through his thoughts. Since fossils are found in the mountains, the surface of the Earth, Leonardo posited, has changed over time. For example, an ancient sea is now dry land (Jones, 2011).



Leonardo da Vinci's *Virgin of the Rocks* (1483-1486)
From his studies of geology, Leonardo learned how the Earth works and improved the realism of his paintings.
Location: Louvre, Paris
Oil on panel transferred to canvas
Height: 199 cm (78.3 in). Width: 122 cm (48 in)
Image is in the public domain.

Leonardo concluded that as mountains formed, they lifted marine sediments--carrying fossil-bearing rocks skyward to become mountain peaks. Today, geologists know that tectonic plates and other geological processes form mountains.

In another of his notebooks, the *Codex Arundel*, now housed in the British Library, Leonardo describes graded bedding in layers of sedimentary rocks (Pedretti, 1998). He also had a basic understanding of the superposition of rock strata, where the oldest rocks in a sequence of sedimentary rocks are at the bottom. This concept would not be recognized until the second

half of the 17th century when Danish geologist Nicolas Steno, carrying the light of learning, took up the subject in 1669, laying the foundation for modern stratigraphy and geological mapping (Capra, 2013).

[Leonardo] never published his theories. He only wrote his observations in his notebooks, which ended up scattered or lost. For more than three hundred years, his notes were not part of the progression of science. It was left for future scientists to re-discover Leonardo's observations on the vastness of geological time, sedimentary layering, and the significance of fossils, and to make these discoveries part of science.

Leonardo da Vinci's endless curiosity and boundless creativity made him the quintessential Renaissance man. He was a keen observer of nature whose interest led him to paint nature not only beautifully, but accurately.

Works Cited

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- Capra, F. (2013). *Learning from Leonardo: Decoding the Note-books of a Genius*. New York: Berrett-Koehler.
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1Ed: I have replaced the use of da Vinci as a surname with Leonardo, in brackets. It is not widely understood today, but referring to da Vinci as his surname is incorrect. If you use only a single name, refer to him as Leonardo, not as da Vinci. He was illegitimate and never officially recognized by his father, so according to the practice of the time, Leonardo had no surname. Da Vinci means "from Vinci." In the Renaissance it was common practice to refer to persons who had no surname by the name of their place of residence or origin.

Of interest...

Minerals Unique to Arkansas - A talk given to CAGSMAGS

By J. M. Howard

There are 13 minerals first discovered and scientifically described for science from Arkansas, making them unique to the State: schorlomite (1846), rectorite (1891), laubmannite (1949, discredited 1990, P. Dunn), miserite (1950), kimzeyite (1961), benstonite (1962), kidwellite (1979), eggletonite (1984), strazcekite (1985), delindeite (1987), lourenswalsite (1987), mahlmoodite (1993), haggertyite (1998), and artsmithite (2003). In upcoming newsletters we will look at each of these minerals beginning with the earliest discovery.

Haggertyite

Mrs. Velde collected samples of lamproite during the summer of 1995 while on a visit and tour around the central United States. She came to the Park because she has a strong and long lasting interest in lamproites, not simply to hunt diamonds as a tourist. In 1995 her husband, a US citizen living in France and also a geologist, had decided to sample soils during a summer trip based out of Chicago. Their trip took them from Chicago down to New Orleans and back north through Texas, Colorado, Montana, and then back to Chicago. Because Danielle is not particularly interested in soils, when she realized that they would be near the Prairie Creek outcrop, she negotiated to stop in Arkansas and sample both it and at Magnet Cove. So this is what they did, despite some difficulties caused by a minor foot problem and the heat of Arkansas in August. While at the Park, she sampled the hard rock (magmatic lamproite) and, after arriving back home in France, had thin sections made. The sections were quite lovely, and she was fascinated by the small xenoliths with K-richterite. Since there are two electron microprobes in her department, it was easy enough to make a few analyses. This is when she discovered the unusual composition of an oxide mineral. She then sent an email to Steve Haggerty in the fall of 1995. She did not know him personally, but naturally knew his work and his discovery of the family of Ti-K oxides. Dr.

Haggerty, like Danielle and her husband, was a former postdoctoral fellow of the Geophysical Laboratory in Washington. This point might be one of the reasons he kindly answered right away -- telling her that it probably was new and that he did not know whether it was worth naming, but it could be. He finally mentioned that if she wanted to pursue the topic, Dr. Grey in Australia was the man to contact. So she sent a section containing the mineral to him; the section was later returned to England for the necessary optical properties measurements.



Arsmithite, Funderburk mercury mine,
Pike County, AR

Her first idea was to name the mineral 'Hilaryclintonite', hoping this would result in an invitation for tea at the White House with the First Lady. But Dr. Grey did not like the idea and Steve Haggerty was appalled. Danielle had several other possible alternatives already in mind. They both liked her second proposition better!

The description of this new species was published in *American Mineralogist* in December, 1998. Haggertyite is present as microscopic hexagonal plates in the alteration zones of xenoliths at the Crater of Diamonds State Park (in the lithic tuff phase of the Prairie Creek lamproite). It is a magnetoplumbite-type titanate that is the metasomatic product of the reaction between the xenoliths and the lamproite, having formed in the mantle. The simplified formula is $Ba[Ti_5(Fe^{2+})_4(Fe^{3+})_2Mg]O_{19}$. There are two Cr-rich members in this series -- yimengite and hawthornite.

Brad's bench tips...

The hexagonal platy crystals are exceedingly small and embedded in the matrix, thus no picture is available. The mineral is opaque, metallic in luster, with a pale gray reflected-light color. It is approximately 5 on the Moh's hardness scale. Associated minerals, in decreasing abundance, include diopside, olivine, phlogopite, richterite, Cr-spinel, ilmenite, priderite, and jeppeite.

Ref:

Grey, I. E., Danielle Velde, and A. J. Criddle, 1998, Haggertyite, a new magnetoplumbite-type titanate mineral from the Prairie Creek (Arkansas) lamproite: *American Mineralogist*, v. 83, p. 1323-1329.

Artsmithite

Art Smith, Jr., of Houston, Texas was on a collecting trip to the mercury district of southwest Arkansas with the Coon Creek Association when a couple of examples of a white fibrous micromineral were recovered from the Funderburk mine dump. Art sent several samples of this mineral off for identification and it was determined to be a new mineral...the first of its type ever encountered...mercury phosphate.

Several years went by before it was finally published in 2003 in *Canadian Mineralogist*. It is white to colorless and forms radiating fiber bundles like many of the other phosphate minerals (kidwellite, wavellite are examples). It is still only known from the one locality in Arkansas.

It is named for Art Smith, Jr., now deceased.

Ref.: Roberts, A.C., Cooper, M.A., Hawthorne, F.C., Gault, R.A., Grice, J.D., Nikischer, A.J. (2003): Artsmithite, a new Hg¹⁺-Al phosphate-hydroxide from the Funderburk prospect, Pike County, Arkansas, U.S.A. *Canadian Mineralogist* (2003): 41: 721-725; in: Jambor, J.L., Roberts, A.C. (2004) New mineral names. *American Mineralogist*: 89: 249

FINISHING PIERCED PATTERNS



After sawing patterns there's always a little cleanup to do, and the smaller cutouts can be a challenge. Needle files (7-8 inches) can get

into the larger areas, and escapement files (4 inches) can get into some of the corners.

But I often find myself wanting even smaller files. I couldn't find them even at a watchmaker tools supply company, so I had to try something else. I ended up grinding down the tip of a 4" barrette file using a separating disk (or cutoff wheel) in the Dremel or Foredom.

Be sure to wear your safety glasses when using this tool. A flake of steel in your eye makes for a bad day.

MAKING FILIGREE WIRE

Making wire for filigree is quite simple. Take a double strand of 24-26 gauge silver wire, twist it tightly, and then flatten it a bit. While the basics are straightforward, here's a few tips that will quickly make you an expert with filigree.



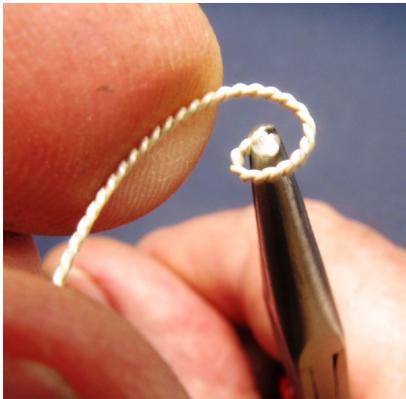
Filigree looks best when the wire has a very tight twist. The way I do this is to start with dead soft wire and twist it until it breaks. It always seems to break on one end or the other.

I like to use a screw gun, although a Foredom also works well. You'll need a small hook in the

spindle, either a cup hook from the hardware store or a nail that has been bent into the shape.

Be sure to keep a little tension on the wires as you twist. Then to get a real tight twist, I anneal the wire and twist it a second time until it breaks.

The final step in prepping the filigree wire is to flatten it slightly with a planishing hammer or rolling mill. The amount of flattening is a personal preference. I like to reduce the diameter about 25%. The wire will be quite stiff at this point, so it's best to anneal it again before starting to make the filigree shapes.



Work Smarter With Brad's "How To" Jewelry Books [Amazon.com/author/bradfordsmith](https://www.amazon.com/author/bradfordsmith)

Summer Fellowship...

What a treat it was to gather at the Wild Acres for fellowship and food recently. Club members were treated to tours of the rock barn and what a treat it was! Thank you so much for inviting us into your home Weldon and Pat!





Upcoming area shows...

August 2019

31-31—MARION, KENTUCKY: Fluorescent Mineral Swap/Sale; Fluorescent Mineral Society, Midwest Chapter; Crittenden County Senior Center, 210 N. Walker St.; Sat. 10-5; free admission; Swap, sale and annual meeting of the Midwest Chapter of the Fluorescent Mineral Society, guided tours of Ben E. Clement Mineral Museum and field trips, membership is not required to attend; contact Chris Clemens, (817) 454-0338; Email: chris@uvminerals.org; Website: <https://www.uvminerals.org/>

September 2019

20-22—LINCOLN, MISSOURI: Annual show; Mozarkite Society of Lincoln, Inc.; Under the water tower, 2 blocks east of Bullseye; Fri. 9-5, Sat. 9-5, Sun. 9-3; free admission; public digs for Mozarkite during the show, proceeds benefitting scholarship fund; contact Karl Parsons, (301) 641-6188

27-29—JOPLIN, MISSOURI: Annual show; TriState Gem & Mineral Society; Joplin Historical & Mineral Museum, 504 S. Schifferdecker Ave.; Fri. 9-5, Sat. 9-5, Sun. 9-3; free admission; contact Chris Wiseman, 504 S. Schifferdecker Ave., Joplin, MO 64801, (417) 623-1180; Email: joplinmuseum@sbcglobal.net

October 2019

11-12—MOUNT IDA, ARKANSAS: 32 Annual World Championship Quartz Crystal Digging Contest; Mount Ida Area Chamber of Commerce; Montgomery County Fairgrounds, Fairgrounds Rd; Fri. 7-4, Sat. 7-4; \$100 (entry fee and banquet meal); 2018 World Championship Quartz Crystal Dig, part of the 39th Annual Quartz, Quiltz, & Craftz Festival, for more information call Gail at the Chamber office number listed, between 10 a.m. and 2 p.m. Monday thru Friday. (R&G, please call GAIL for confirmation, at 870-867-2723, b/w 10am and 2pm M - F, only. These are normal Chamber business hours) ; contact Mount Ida Area Chamber of Commerce, 124 US 270 W, PO Box 6, Mount Ida, AR 71957, (870) 867-2723; Email: director@mtidachamber.com; Website: www.mtidachamber.com

11-13—HUNTSVILLE, ALABAMA: Annual show; Huntsville Gem & Mineral Society; Jaycee Community Center, 1280 Airport Road, Jaycee Community Center, 1280 Airport Road, Jaycee Community Center; Fri. 10-6, Sat. 10-6, Sun. 12-5; Adults \$3 (weekend pass \$5), free admission for children under 5; Dealers offering a variety of specimens, displays, demonstrations, a fluorescent exhibit, activities for children, and the annual meeting of the Southeast Federation of Mineralogical Societies; contact Lowell Zoller, 3027 Flint Mill Run, Hampton Cove, AL 35763, (256) 534-8803; Email: Lzoll@comcast.net; Website: www.huntsvillegms.org

12-13—TEMPLE, TEXAS: Annual show; Tri-City Gem and Mineral Society; Frank W. Mayborn Civic and Convention Center, 3303 N. Third Street; Sat. 9-6, Sat. 10-5; Adults \$5, teens \$2; Dealers offering rocks, gems, minerals, jewelry, demonstrations of wire wrapping and cabochon carving, and fluorescence; contact Ruth Rolston, 106 Ottoway Drive, Temple, TX 76501; Email: lrolston@hotmail.com; Website: <http://drarhie.wixsite.com/tcgm>

12-13—TOPEKA, KANSAS: Annual show; Topeka Gem & Mineral Society, Inc.; KS Expocentre Agricultural Hall, 17th & Topeka Blvd; Sat. 10-6, Sun. 10-5; Adults \$5, students (13-17) \$1, free admission for children under 13 with paid adult admission; Show theme is -Many Shades of Turquoise- with a lecture each day lead by Greg Purdy, dealers offering rocks, lapidary supplies/equipment, jewelry and beads, 4-H geology club students displaying geology boxes for judging and demonstration; contact M. Mowry, 1934 SW 30th St, Topeka, KS 66611, (785) 267-2849; Email: rock2plate@aol.com; Website: www.TopekaGMS.org

18-20—AUSTIN, TEXAS: Annual show; Austin Gem and Mineral Society; Palmer Events Center, 900 Barton Springs Rd.; Fri. 9-6, Sat. 9-6, Sun. 10-5; Adults \$8, military personnel (with ID) and seniors (60+) \$7, students age 13-18 \$2, free admission for children 12 and under; Show theme: Canadian minerals; more than 30 dealers, exhibits, displays, fluorescent minerals area, demonstrations in faceting, cabbing, and wire wrapping, and activities for children; contact Laird Fowler, Show Chair, 6719 Burnet Ln, Austin, TX 78757, (512) 458-9546; Email: showchariman@austingemandmineral.org; Website: www.agms-tx.org

18-20—KNOXVILLE, TENNESSEE: Show and sale; Knoxville Gem & Mineral Society; Rothchild Conference Center, 8807 Kingston Pike; Fri. 10-7, Sat. 10-6, Sun. 11-5; Adults \$6 (3-day pass for \$10), free admission for children under 12; contact Travis Paris; Email: taparis@msn.com; Website: <http://www.knoxrocks.org/>

19-20—SPRINGFIELD, MISSOURI: Annual show; Ozark Mountain Gem & Mineral Society; Springfield Expo Center, 635 East St Louis Street; Sat. 10-5, Sun. 10-4:30; adult \$6, student \$3, children under 12 \$1; 52nd Annual Springfield Rock, Gem & Mineral Show will feature rock and mineral specimens, gemstones, jewelry, fossils, displays, speakers, and activities for children ; contact Mike Hackeson, 2131 West Republic Road, Box #35, Springfield, MO 65807, (417) 501-9690; Email: omgms.57@gmail.com; Website: www.omgms.rocks

26-27—OKLAHOMA CITY, OKLAHOMA: Annual show; Oklahoma Mineral & Gem Society; State Fair Park, 608 Kiamichi Place, Modern Living Bldg.; Sat. 9-6, Sun. 10-5; adults \$6, free admission for children under 12; More than 30 vendors offering minerals, gems, crystals, rough rock, fossils, and lapidary tools, demonstrations, exhibits, auction, and activities for children; contact Doug Pollitt, Oklahoma City, OK 73151, (405) 719-8477; Email: show@omgs-minerals.org; Website: www.omgs-minerals.org

On-Line MEMBERSHIP FORM
Central Arkansas Gem, Mineral and Geology Society
Membership Dues: \$15 / year Individual; \$25 / year Family

Make checks payable to: "Central Arkansas Gem, Mineral and Geology Society".

Name: _____ Date _____
Business Name: _____ Birthday: Mo. _____ Day _____
Address: _____ Anniversary: Mo. _____ Day _____
City: _____ State: _____ Zip: _____ Phone No. _____
Cell Phone _____

Email address: _____ Occupation _____

How would you like your Club Newsletter delivered? U.S. Mail _____ Download From Club Web site _____

Editor notifies members by email, with a link, when the Club Newsletter is Posted on the Web site.

Family Members are considered as all of those living at the above address .

Please list their names, Birthday Mo./Day, if applying for a Family Membership.

Because of limited space, only one name will appear on the newsletter mailing label.

How did you hear about our Club?

How long have you been interested in this hobby? _____ Do you have any equipment? _____

I would be interested in Attending _____ Hosting _____ work shop in _____ (subject)
on _____ (day of week)

Please circle your club interests:

Mineralogy Lapidary Fossils Field Trips Geology Carving
Collecting Jewelry Making Casting Silversmithing Beading Wire Wrap

Other _____

Outside Interests: _____

These will be listed in the Membership Directory, so that members can find others with similar interests.

In what areas would you be able to assist the Club:

Social Publicity/Advertising Educational Junior Programs Membership
Annual Show Committee Work Newsletter Articles Mineral Display

Other: _____

What would you like to see the club focus on in the coming year? _____

_____ I do not want my name to appear in the Club Directory.

_____ My name and address can appear, but NOT my Phone Number.

_____ Please do NOT include specifically the following info about me: _____

Please Mail to:

CAGMAGS, c/o Sarah Dodson, P.O. Box 241188, Little Rock, AR 72223



Central Arkansas Gem,
Mineral & Geology Society
PO Box 241188
Little Rock, AR 72223

Fall Auction
August 27th after
the business
meeting!

2019 Meeting Dates

August 27th
September 24th
October 22nd
November 26th

**Note- any changes of
meeting location will be
announced via email and
phone**

Join CAGMAGS!
Membership Dues - \$15
Individual, \$25 Family
(Yearly)

Visit [www.centralar-
rockhound.org](http://www.centralar-rockhound.org) to learn
more!

Annual Greater Little
Rock Area Mineral,
Fossil, Gem and
Jewelry show will be
October 5-6.