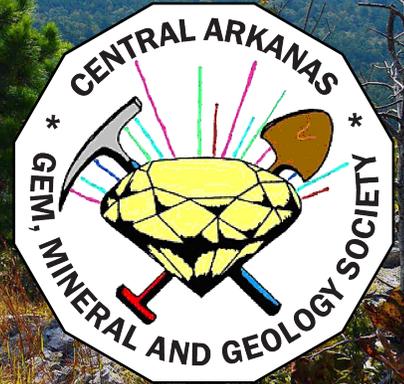


ARKANSAS ROCKHOUND NEWS



APRIL 2016

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

From the president...



Seek and you shall find. You may not always find what you were looking for, but that is the joy of rock hounding! There is always a special piece waiting to be found, whether you are out on the street, back in the woods, or at a show.

The Memphis show was well attended by our group, everyone who I talked to said they enjoyed the event. I too enjoyed meeting the fellow rock and mineral collectors and enjoy the stories that are exchanged and the valuable information that I am able to pick up. Thank you for everyone who spent some time at our table promoting both our club and our show.

Folks, We are still in need a **Program Coordinator**: someone to arrange programs for our meetings: Please consider helping out OR If you would like to present a program: a trip you went on, a technique that you can teach us with your lapidary skills, please let myself or Lenora Murray know and we can make sure that you are put on the schedule.

See you at the Dig!
Barbara



Memphis show - April, 2016

ARKANSAS ROCKHOUND NEWS is the official newsletter of the Central Arkansas Gem, Mineral and Geology Society. It is published monthly. To submit information, articles or photographs please email Nikki Heck, nikkiheck@windstream.net.

2016 Officers & Committee Chairs

President, Barbara Champagne
501-258-2576, cagmagsprez@gmail.com

Vice President, Connie Schoeneman
501-679-4531, schoeneman@hughes.net

Secretary, Lenora Murray
870-255-3679, lenoramur@aol.com

Treasurer, Sarah Dodson
501-920-0570, dodsonsr@yahoo.com

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

Webmaster, Michael DeAngelis
501-569-3542, mtdeangelis@ualr.edu

Show Chair, Tom Sharp
501-379-8653, thom61847@yahoo.com
Co-chair-John Schoeneman
501-679-4531, schoeneman@hughes.net

Swap, Mike Austen
501-868-4553, steelpony@aol.com

Membership, George Gray Major
501-227-7853, ggme625@aristotle.net

Field Trip Coordinators
David Hodge
501-837-6713, dc42hodge@yahoo.com
Stephanie Blandin
501-590-5760

Sunshine, Anita Gray Major
501-227-7853, ggme625@aristotle.net

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

Programs, Vacant

Meeting minutes...

April 26, 2016

Submitted by John Schoeneman

The April 26th meeting was held at the Terry Library. President Barbara Champagne called the meeting to order at 6:30. Mary Harrison, a former member attended. Mary Mulkey made a motion to accept the minutes as written, with one correction. It was seconded and passed. Sarah Dodson read the treasurer's report, \$3000 was given to UALR for scholarships. Mike Howard moved to accept the report and Mike DeAngelis seconded the motion, it passed.

Mike Austen reported on the rock swap at Burns Park. We had nice weather and all who attended had a good time. We had a good turn out but, it would be better if more club members would have attended. Barbara brought up that May 7th is the Quapaw Area Council Merit Badge University at UALR. Barbara Champagne and Danny Raines, from Arkansas Geological Survey will be at the campus, the program is from 9:00 am until 11:00 am. The program will be for the badge 'Mining in Society'. This program is for the scouts to do the general background work for the merit badge. There are approximately 85 programs offered on this day at UALR. More volunteers would be appreciated. Mike DeAngelis will ask student volunteers to teach.

Tom Sharp reported on the upcoming show in October, currently all tables have been paid for with the exception of one, who is a club member. The Arkansas Geology Survey will be added to our show at no charge. Barbara mentioned that the Memphis Club used a website for their show to organize their volunteers, Lenora Murray has the information and we would like to use it for our upcoming show. John Schoeneman announced that anyone interested in helping or giving input for our show may attend a meeting at Whole Hog in North Little Rock (near McCain Mall) on Friday, May 13th, at 6:30. Doug Stone talked to Derue Johnson, a former member. She has a stack of old lapidary journals to give away, if you are interested please contact Doug Stone at 501-590-9469 or ddws@aol.com Mike DeAngelis

announced that UALR will award 4 scholarships for \$750 each for the summer field work trip, he could not provide the recipients names since they do not know that they received the awards. A possible future field trip may be Razor Rock in Harrisburg. Anita Gray Major took care of the raffle tickets. There was a motion to adjourn, and it was seconded. Club member Mike Howard, retired Quondam Field Mineralogist for the Arkansas Geological Survey, gave a program on the economic impact of the use of metallic minerals.

Club news...

It is time to plan the Greater Little Rock Gem, Mineral, and Jewelry Show. Anyone interested in helping or sharing ideas is welcome to attend a meeting at Whole Hog in North Little Rock at 6:30 on Friday, May 13. The address is 5107 Warden Rd. near McCain Mall.

As there appeared to be several interested in old Lapidary Journals from a former member, I am going to get them from Derue, and bring them to the next club meeting. That way, all who are interested can pick and choose, more or less at the same time. - Doug Stone

Scenes from the Spring 2016 Rock Swap



Upcoming field trip...

May field trip

When: Saturday, May 14, 2016
Time: 6:30 am (if meeting) 9:00 am @ quarry
Where: Razor Rock Quarry
18364 Farm Hill Rd
Harrisburg, AR 72432

It is mainly surface collecting on big rock piles so be prepared for a little climbing. We will meet at the commuter parking lot at I630 & Shackelford at 6:30 am (if you want to caravan or carpool). Any questions please contact David Hodge at 501-837-6713. No safety gear is required. A few examples of what you might find are: petrified wood, banded agates and drusy. Hope to see ya there!

Stephanie Blandin

From the editor...

Another month down, and closer to summer! It was a busy month with the swap, the Memphis Show, Brandon's ball season got into full swing and he turned eight. (They grow too quickly...) We've also been busy since winter building a new shop- the importance of that is that one end of it is mine! Rather I say it is Brandon and I's. He is occupying the second floor and now since we purchased him a saw at the swap (still working on a motor though!) he will have space on the floor with me. We're pretty excited about it. It's been painted and we've moved in some furniture, got the electricity and heat/air hooked up and my husband is working on the water. We should begin moving rocks in just any day now!

In this issue I have included an article from a Houston, TX club. Texas isn't far from us and I have heard about Llanite so I found it to be an interesting article.

Please continue to send me your pictures, news and articles. We can never have too many contributors to the newsletter, the more the merrier!

Brad's bench tips...

Drilling a stone

One of the things my students often ask to do is drill a hole through a piece of gemstone. The usual thought is to get a diamond drill, but I've been disappointed with them. I think the reason is that the tip of the drill is just pivoting in the hole and does not cut well. When it looks like the drill isn't cutting, the tendency is to push with more force. The drill gets hot, and the diamond grit falls off.

A much better approach is to use a core drill. This is a small hollow tube with a coating of diamond grit at the business end. The diamonds easily carve out a circular arc without undue pressure or heat buildup.

Core drills are readily available from lapidary and jewelry supply companies. They come in sizes as small as 1mm and are very reasonable in price. For instance, a 2mm diameter drill is about \$6.

Chuck up the core drill in a drill press, Dremel or Foredom and be sure to keep the drilling zone wet to cool the tool and to flush out debris.

Also, if you're drilling a through hole, go very easy on the pressure as the drill is about to cut through. Otherwise you will usually chip off some of the stone surface around the hole.



"Bench Tips for Jewelry Making" and "Broom Casting for Creative Jewelry" by Brad Smith are available on Amazon.

Of interest...

Llanite and the blue quartz of Texas

by Paul V. Heinrich

Member of the Houston Gem & Mineral Society
(originally published in *The Backbender's Gazette*,
May 2014)

Introduction

Llanite, which is named after Llano County, Texas, is rhyolite porphyry that is well known among rockhounds, lapidarists, and geologists for its phenocrysts of blue quartz and reddish microcline feldspar. The blue quartz and reddish microcline feldspar phenocrysts set within a brownish to black aphanitic groundmass create a rock that has a striking and beautiful appearance (Figure 1). As a result, it is a popular rock among rock collectors and lapidarists.

Possibly, the earliest known published report about llanite occurs in Comstock (1889). It consists of an extremely brief note about an "interesting porphyritic orthoclase felsite" that is in Llano County, Texas and contains abundant "blue opal" in the form of grains that are "the size of morning glory seed." Inexplicably, the "blue opal" is reported as having been found on Long Mountain, which lies well east of the actual outcrops of llanite. Given that Dumble (1889) incorrectly states that Long Mountain consists of schists instead of carbonate, the location of its outcrop might be confused.

Later, Professor N. J. Badu, a well-known and respected Texas mineralogist, reported on llanite and created the name "opaline granite" ("opal granite") for it. Under this name, Prof. Badu

exhibited cut and polished specimens of llanite at various times in Dallas, Texas, the 1904 St. Louis World's Fair, and elsewhere. Prof. Badu and the Opaline Granite Company of Austin, Texas also marketed llanite as a decorative stone under the name "opaline granite" (Lent 1925, Phillips 1905, 1910).



Figure 1. Slab of llanite showing blue quartz and reddish-brown feldspar phenocrysts. Photo courtesy of and with permission of Neal Immega.

It was Dr. Joseph P. Iddings who proposed the name "llanite" (Phillips 1905). Dr. Iddings proposed this name in unpublished personal communications to Dr. W. B. Phillips, who later used this name in Phillips (1905, 1910). In either Iddings (1904) or any other formal publications, Dr. Iddings never used the term "llanite." In Iddings (1904), he referred to it as "quartz-feldspar-porphyry (graniphyre liparose alaskose)." Other names that have been used for llanite include "sodaclase-granite-porphyry" by Johannsen (1932).

Paige (1911) contains the first detailed geologic map, which describes it as "granite porphyry (containing opaline quartz phenocrysts)," illustrating the distribution of llanite outcrops within the Central Mineral Region of Texas.

Physical Character

Llanite is a rhyolite porphyry that consists of pink to brick-red feldspar and opalescent blue quartz phenocrysts encased within a brown to black groundmass (see Figure 1). Various studies of its composition have shown that llanite has a uniform chemical composition throughout its extent. (Burmester 1966, Barker and Burmester 1970).

The quartz phenocrysts occur as subhedral-to-euhedral hexagonal bipyramids that are 3 to 6 mm in diameter and typically lack prism faces (Figure 2). These phenocrysts typically occur as clusters of parallel crystals that are surrounded

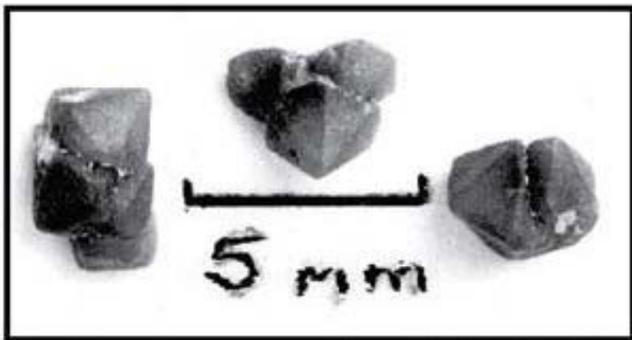


Figure 2. Quartz phenocrysts recovered from regolith derived from llanite. Reproduced with permission from Burmester (1966).

and embayed by groundmass. The color of most of the quartz phenocrysts is a milky blue in the center and a clear, dark blue near the edges. A few are colorless or brownish in color. In certain positions, broken quartz phenocrysts exhibit a silvery blue-white reflection (schiller) that is typically brightest near the exterior (Burmester 1966, Barker and Burmester 1970). In thin section, most of these phenocrysts exhibit a wavy extinction. Some of them have biaxial interference figures with a very small $2V$ (Burmester 1966).

The alkali feldspar phenocrysts occur as 5 to 20 mm subhedral crystals. Locally the feldspars are tabular and exhibit flow orientation. Unlike the quartz phenocrysts, the feldspar phenocrysts are typically grown together. The contacts between them contain inclusions of biotite and granophyric intergrowths of quartz and feldspar. The alkali feldspar phenocrysts have inverted and unmixed from zoned, single-phase high temperature feldspar to zoned microperthite with an intermediate microcline host. (Burmester 1966, Barker and Burmester 1970). Most of these phenocrysts have a 0.4 mm-thick red shell that possibly represents alteration of the original feldspar to kaolin and hydrous oxides of iron (Iddings 1904, Burmester 1966).

The groundmass of llanite is typically dark brown to black where fresh. It largely is composed mostly of quartz and feldspar and minor proportions of biotite, magnetite, sphene, and apatite. Its dark color is likely the result of its fine grain size, as the black groundmass is generally finer-grained than the brown groundmass and the biotite and magnetite that are scattered throughout it. On weathered

surfaces the phenocrysts typically protrude from the groundmass, as it weathers faster than they do. In its outcrops, llanite is well-jointed, and spheroidal weathering of the joint block is typical (Burmester 1966).

Occurrence

As first illustrated by Paige (1912), llanite crops out as a series of irregular and sometimes en-echelon, dike-like intrusions that form a hook-shaped pattern 4 to 12 miles northeast of the town of Llano (Figure 3). These dike-like bodies intrude pink quartz-feldspar gneiss of the Valley Spring Gneiss. The llanite outcrop can in places be traced easily because its greater resistance to erosion causes it to protrude as a ridge above the Valley Spring Gneiss into which it has intruded (Goldich 1941, Burmester 1966).

The llanite outcrops form a roughly question-mark-shaped pattern. The southernmost outcrop mapped by Burmester (1966) lies just north of Farm to Market Road 2241 about 4.2 km N 66.5° E of Llano, Texas. The northern end of the llanite outcrops lies about 13.8 km N 4.4° E of Llano, Texas. In general, the outcrop belt consists of four general segments: a (1) 9 km-long segment at N 1.8° W; (2) 3.6 km-long segment at N 46° E; (3) 2.9 km long segment at N 9° W; and (4) 5.2 km long segment at N 64.2° W, as shown in Paige (1912) and Barnes (1981).

Although there has been some speculation, i.e. Stenzel (1934), Goldich (1941), Lidiak and others (1961), as to either the structural control or lack of structural control for the llanite dike trends, nothing definitive has been demonstrated. What processes created the question mark-shaped pattern of llanite intrusions still remain unknown. Similarly, the nature of the larger parent intrusion that was the source of the llanite dikes remains unstudied and unknown.

The llanite outcrops are not the only rhyolitic dikes that crop out within the Llano Uplift. Paige (1912) first described the second type of rhyolitic dikes, which he described as being composed of "mica felsite." Later, Thames (1957) identified the rock that composes them as being "melarhyolite." This is the name that has

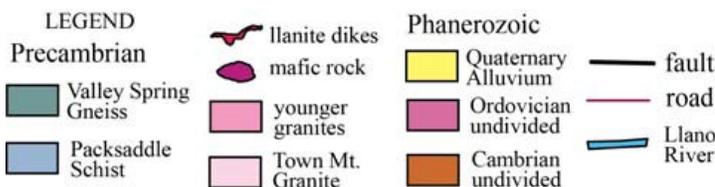
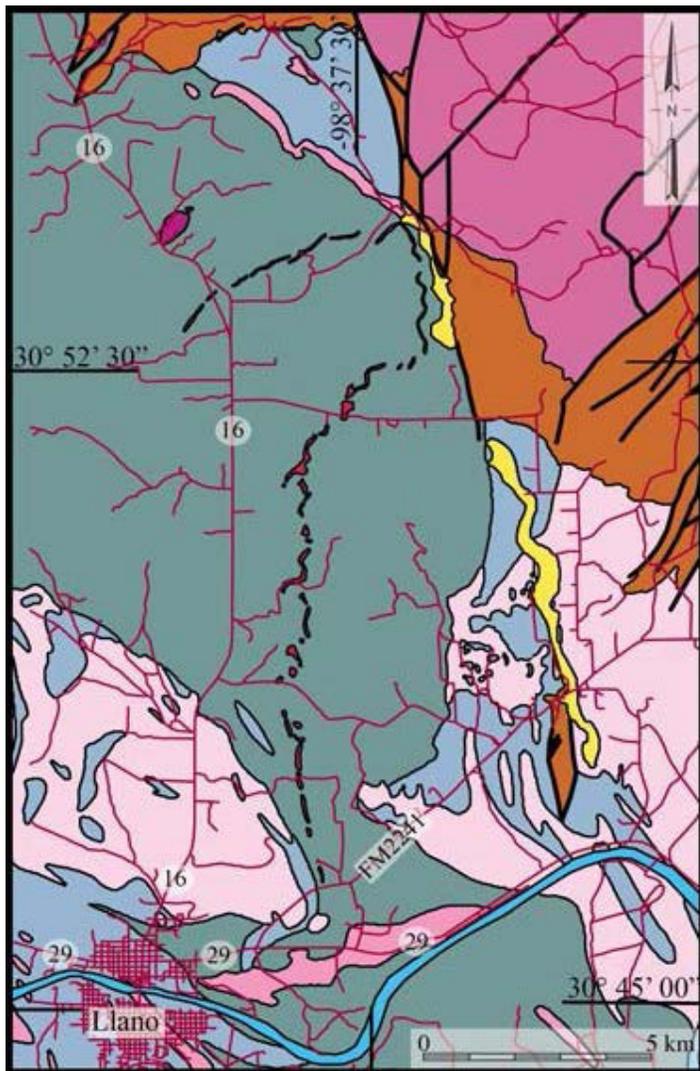


Figure 3. Geology of LLano, Texas area. Modified from Barnes (1981).

been used by subsequent workers for this rock type. As mapped by Burnitt (1961), McGehee (1963), and others, the melarhyolite dikes, one of which is nearly 12 km long, occur within a narrow belt about 15 km long and 3 km wide in the southeastern corner of Llano County. These dikes strike at relatively small angles across the foliation of the Packsaddle Schist, which is younger than the Valley Spring Gneiss. The melarhyolite dikes consist of a dark compact aphanitic groundmass that contains scattered feldspar phenocrysts as much as 5 mm long, smaller quartz phenocrysts, and very rare blue quartz grains (Thames 1957, DeLong and Long 1976).

Age

The llanite and melarhyolite dikes have long been regarded as the youngest Precambrian rocks in the Llano uplift. Because of their crosscutting relations with the metamorphic rocks that they intrude, the llanite and melarhyolite dikes have been presumed to significantly postdate the emplacement of all the massive granitic intrusions within the Llano Uplift (Paige, 1912, Stenzel, 1932). However, nowhere are these dikes in contact with the massive granites where their relative age can be determined with any certainty (Paige 1912, Burmester, 1966). Later, preliminary dating of the llanite dikes by Silver (1963) and Zartman (1964) suggested that the emplacement of the llanite dikes postdates the general age of granite emplacement in the Llano uplift by about 100 million years.

Dating of samples by DeLong and Long (1976) from five melarhyolite whole rocks; two rhyolite porphyry whole rocks; groundmass and feldspar phenocrysts from rhyolite porphyry; and a nearby diabase dike yielded an isochron age of $1,106 \pm 6$ Ma. This research concluded that the llanite and melarhyolite dikes were emplaced simultaneously about 1,100 million years ago (Ma). This research not only concluded that the two dike swarms are coeval, within the analytical uncertainty. DeLong and Long (1976) also concluded, contrary to the findings of Silver (1963) and Zartman (1964), that these dikes are at least as old as the massive granites of the Llano Uplift.

For the age of the llanite, Helper et al. (1996) report a U-Pb zircon age of 1092 ± 3 Ma and a Rb-Sr whole rock isochron age that is within about 10 million years of this U-Pb zircon age and a previously reported U-Pb zircon age of 1098 ± 3 Ma for the melarhyolite dike. They found that the virtual geomagnetic pole position (VGP) of the llanite dike coincides with other North American VGPs of ca. 1100 Ma. Helper et al. (1996) regarded the llanite and melarhyolite dikes as being post-tectonic with respect to country rock gneisses and schists and have not experienced any younger deformation or metamorphism.

Other Occurrences of Blue Quartz

The blue quartz that most defines Ilanite has often and incorrectly been characterized as “unique.” Although rare, blue quartz like that found in Ilanite has been found in a number of felsic intrusions, metamorphosed volcanic rocks, felsic gneisses, and high purity quartzites. For example, in terms of plutonic rocks, blue quartz has been reported from the Bushveld complex, South Africa (Reed 2007); Old Rag Granite (garnetiferous leucogranite), Virginia (Gunda 2008); Roseland anorthosite, Virginia (Gunda 2008); Cape Ann Granite, Massachusetts (Gunda 2008); Oracle Granite, Arizona (Gunda 2008); quartz-bearing granitoid intrusions, northwest China (Lei et al. 2012); an unnamed zoned intrusion in the Tarryall Valley, Park County, Colorado (Weinzapfel 2011); granites of the southern Elbe Zone, Germany (Seifert et al. 2011); granites of the Faja Eruptiva in Oriental northeastern Argentina (Seifert et al. 2011); porphyry dikes, northern Sudan (Seifert et al. 2011); and the Wyangala granite, New South Wales, Australia (Seifert et al. 2011). Blue quartz has also been found in metamorphosed volcanic rocks, including the Cushing Formation, Peaks Island, Maine (Bartovics et al. 2007); chlorite-rich volcanics and feldspathic crystal tuffs within the Northfield 7.5-Minute Quadrangle, Vermont (Westerman 1984); and rhyolitic volcanic rocks, Sturgeon Lake, northwest Ontario (Davis et al. 1985). In addition, blue quartz has been reported from gneisses in the Blue Ridge “Complex” of southwestern Virginia (Wise 1981) and as vein quartz in granodiorite gneisses in the central Wind River Range, Wyoming (Parker 1962). Blue quartz has been found in charnockites, which are thought to be metamorphosed felsic plutonic rocks, of South India (Jayaraman 1939). Finally, blue quartz has been found in high-purity quartzites, which are interpreted to be metamorphosed sandstones, of Norway (Müller et al. 2012).

Blue quartz seems to preferentially occur within igneous and metamorphic rocks that are between 1500 and 380 million years old. In addition, blue quartz seems to be typically of igneous origin and closely associated with A-type (anorogenic and/or anhydrous) granitoids that occur along

rift zones and within stable continental blocks. With the exception of Norwegian quartzites, its occurrence in metamorphic rocks implies an igneous precursor (protolith). What the presence of blue quartz means about the special conditions of crystallization remains undetermined (Gunda 2008, Seifert et al. 2011).

Origin of Blue Quartz

Transmission electron microscopy and other studies of the blue quartz by Coblieg and Zolensky (1986) and Zolensky et al. (1988) found the presence of two different types of submicrometer-sized inclusions of ilmenite in Ilanite. The first type consists of ubiquitous rounded inclusions of ilmenite that average about 0.06 micrometer in diameter. The second type consists of ilmenite ribbons that measure ~0.1 by 1 by 20 micrometer. The ilmenite ribbons are largely aligned parallel to the edges of the faces of the quartz crystals. The amount of ilmenite in the blue quartz was estimated by Zolensky et al. (1988) to be 0.02 percent by volume.

Coblieg and Zolensky (1986) and Zolensky et al. (1988) concluded that physical characteristics of blue quartz are caused by these ilmenite inclusions. Their specific size, which is less than 1/10 of the wavelength of incident light, results in wavelength-selective Rayleigh scattering. The blue color of the quartz in Ilanite is argued to be the result of Rayleigh scattering by the ubiquitous rounded inclusions. The ilmenite ribbons are argued to be too big to contribute to Rayleigh scattering and contribute to the color of blue quartz. However, it is argued that the ribbon ilmenite produces an intense white flash in certain orientations that gives the blue quartz in Ilanite its opalescence.

Other geologists, who have studied the blue quartz found in Ilanite and other rocks, have concluded that the origin of the blue color in blue quartz remains unresolved. Most researchers argue that the blue color is caused by Rayleigh scattering by high concentrations of submicrometer mineral inclusions. There is no consensus on the identity of the minerals that produce the color of blue quartz as various minerals, mica group minerals, ilmenite, rutile,

and other minerals are thought to produce blue quartz in other rocks that contain it. For example, Bartovic and Beane (2007) as the result of SEM-EDS analysis concluded that the submicrometer inclusions in the blue quartz of the Cushing Formation, Peaks Island, Maine, consisted largely of biotite and muscovite and minor albite, labradorite, and titanite. Why blue quartz is significantly richer in these mineral inclusions relative to common igneous quartz is unresolved. The greater abundance of these inclusions in blue quartz argues for special growth conditions (Gunda 2008, Seifert et al. 2011).

Conclusions

Llanite is an unusual rock that looks beautiful when cut and polished, and is a popular rock for lapidary work and jewelry. Although the uniqueness of both it and the blue quartz that characterizes it is greatly overstated, it is still a fascinating rock type. The geological significance and context of both llanite and blue quartz remains unknown and is in need of additional research.

Unfortunately, most of the llanite outcrops occur within private property where the landowner's permission is required to visit and collect. The only public access to an outcrop of llanite is a roadcut on Texas Highway 16 at the crest of a ridge about 9.0 miles (14.4 km) north of the intersection of Texas 16 and 29 in Llano, Texas. Any loose blocks have been completely removed from this outcrop, and collecting requires heavy duty hammering and protective goggles. Rare, loose bipyramidal quartz crystals can be collected from the loose surface soils overlying weathered llanite (Figure 2). However, identified specimens are only a small percentage of the quartz found in the surface soils.

Acknowledgments

I thank many people who have helped me in the course of researching this article. Dr. R. M. Reed (University of Texas at Austin) provided useful information about llanite. Dr. Russell M. Burmester (Western Washington University) was also very helpful in his comments and permission to use figures of his. Mr. Bob Skiles was very helpful in providing me with information about Professor N. J. Badu. Charles Hixson and other members of the TXARCH listserv provided useful information about the geography and history of Llano County, Texas. Neal Immega provided

me with both a slab and pictures of llanite. Richard P. McCulloh (Louisiana Geological Survey) reviewed a draft of this article and provided many helpful suggestions. Finally, the Interlibrary Loan Department at Middleton Library, Louisiana State University, obtained copies of publications for me that proved essential for writing this article.

References Cited:

- Barker, D. S., and R. F. Burmester, 1970, LM unpublished M.A. thesis, University of Texas, Austin, Texas. 73 pp.
- Burnitt, S. C., 1961, Geology of the Red Mountain area, Llano, Gillespie, and Blanco Counties, Texas [M.A. thesis]: Austin, Univ. Texas at Austin, 206 p.
- Coblieg, T., M. E. Zolensky, and P. J. Sylvester, 1986, Why is blue quartz blue? Abstracts with Programs Geological Society of America. vol. 18, no. 6, pp. 567
- Comstock, T. B., 1889, A preliminary report on the central mineral region of Texas. In Dumble, E. T., ed., pp. 239-378, First Annual Report of the Geological Survey of Texas. Texas. Department of Agriculture, Insurance, Statistics, and History. Austin, Texas.
- Davis, D., T. E. Krogh, J. Hinzer, and E. Nakamura, 1985, Zircon dating of polycyclic volcanism at Sturgeon Lake and implications for base metal mineralization; *Economic Geology*, v. 80, pp. 1942-1952.
- DeLong, S. E., and L. E. Long, 1976, Petrology and Rb-Sr age of Precambrian rhyolitic dikes, Llano County, Texas. *Geological Society of America Bulletin*. vol. 87, no. 2, p. 275-280.
- Dumble, E. T., ed., pp. 239-378, First Annual Report of the Geological Survey of Texas. Texas. Department of Agriculture, Insurance, Statistics, and History. Austin, Texas.
- Goldich, S. S., 1941, Evolution of the Central Texas Granites. *The Journal of Geology*. vol. 49, no. 7, pp. 697-720.
- Gunda, T., and M. Wise, 2008, Geological Significance of Blue Quartz in United States of America. National Museum of Natural History. http://www.vanderbilt.edu/viee/profiles/Geological_Significance_Blue_Quartz_Gunda_2008.pdf last accessed January 20, 2014.
- Helper, M. A. W. A. Gose, and R. C. Roback, 1996, Virtual geomagnetic pole positions from 1.1 Ga intrusive rocks of the Llano Uplift, central Texas. Abstracts with Programs Geological Society of America. vol. 28, no. 1, pp. 18.
- Iddings, J. P., 1904, Quartz-Feldspar-Porphyry (Graniphyro Liparose-Alaskose) from Llano, Texas. *The Journal of Geology*. vol. 12, no. 3, pp. 225-231.

Jayaraman, N. (1939) The cause of colour of the blue quartzes of the charnockites of South India and the Champion Gneiss and other related rocks of Mysore. *Proceedings of the Indian Academy of Science*, 9, 265-285

Johannsen, A., 1932, *A Descriptive Petrography of the Igneous Rocks. Volume 4, Part 1, The Feldspathoid Rocks and Part II, The Peridotites and Perknites.* University of Chicago Press, Chicago, Illinois. 523 pp.

Lent, F. A., 1925, *Trade Names and Descriptions of Marbles, Limestones, Sandstones, Granites and other Building Stones Quarried in the United States, Canada and Other Countries.* New York. 41 pp.

Lei, R., C. Wu, G. Chi, G. Chen, L. Gu and Y. Jiang, 2012, Petrogenesis of the Palaeoproterozoic Xishankou pluton, northern Tarim block, northwest China: implications for assembly of the supercontinent Columbia. *International Geology Review*. vol. 54, no. 15, pp. 1829–1842.

Lidiak, E. G., Almy, C. C., Jr., and Rogers, J. J. W., 1961, Precambrian geology of part of the Little Llano River area, Llano and San Saba Counties, Texas: *Texas J. Sci.*, v. 13, p. 255-289.

McGehee, R. V., 1963, Precambrian geology of the southeastern Llano uplift, Texas [Ph.D. dissert.]: Austin, Univ. Texas at Austin, 290 p.

Müller, A., J. Egil Wanvik and P. M. Ihlen, 2012, Chapter 4 Petrological and Chemical Characterisation of High-Purity Quartz Deposits with Examples from Norway. in J. Götze and R. Möckel, eds., pp. 71-118, *Quartz: Deposits, Mineralogy and Analytics*, Springer-Verlag, Berlin, Germany. DOI: 10.1007/978-3-642-22161-3_4

Paige, S., 1911, Mineral resources of the Llano-Burnet region, Texas, with an account of the pre-Cambrian geology. *Bulletin no. 450.* United States Geological Survey, Reston, Virginia. 103 pp.

Paige, S., 1912, Llano-Burnet folio, Texas. *Geologic atlas of the United States folio 183.* United States Geological Survey, Reston, Virginia. 16 pp., 7 plates, scale 1:125,000.

Parker, R. B., 1962) Blue quartz from the Wind River Range, Wyoming. *American Mineralogist* vol. 47, pp. 1201–1202.

Phillips, W. B., 1905, Tests on Texas building stones. *The Mining World*. vol. XXII, pp. 654-655, June 24, 1905

Phillips, W. B., 1910, *The Mineral Resources of Texas.* University of Texas Bulletin no. 365. University of Texas, Austin, Texas. 362 pp.

Reed, R. M., 2007 Llanite in Africa? Reeds Granite Page. The University of Texas at Austin. <http://uts.cc.utexas.edu/~rmr/llanite2.html> last accessed January 20, 2014.

Seifert, W., D. Rhede, R. Thomas, H.-J. Förster, F. Lucassen, P. Dulski, and R. Wirth, 2011, Distinctive properties of rock-forming blue quartz: inferences from a multi-analytical study of submicron mineral inclusions. *Mineralogical Magazine*, vol. 75, no. 4, pp. 2519-2534.

Silver, L. T., 1963, U-Pb isotope ages in zircons from some igneous rocks from Llano uplift, central Texas: *Geol. Soc. America Abs. for 1962, Spec. Paper 73*, p. 243-244.

Stenzel, H. B., 1932, Pre-Cambrian of the Llano uplift, Texas [abs.]: *Geol. Soc. America Bull.*, v. 43, p. 143-144.

Stenzel, H. B., 1934, Pre-Cambrian structural conditions in the Llano region. In E.H. Sellards and C.L. Baker, eds., pp. 74-85, *The Geology of Texas. Volume II: Structural and Economic Geology.* University of Texas Bulletin no. 3401. University of Texas, Austin, Texas.

Thames, C. B., 1957, *Geology of the Yearlinghead Mountain area, Llano County, Texas* [M.A. thesis]: Austin, Univ. Texas at Austin, 55 p.

Weinzapfel, A., 2011, "Llanite" Outside the Lone Star State. *The Hounds Tale: Rockhound News of the Arlington Gem and Mineral Club (Texas)*. vol. 62, no. 10, pp. 7-11.

Westerman, D. S., 1984, The Nature of the Taconian Line in the Northfield 7.5-Minute Quadrangle, Vermont. *The Green Mountain Geologist*. vol. 11, no. 1, p. 11.

Wise, M. A., 1981, Blue quartz in Virginia. *Virginia Minerals*. vol. 27, no. 2, pp. 9-12.

Zartman, R. E., 1964, A geochronologic study of the Lone Grove pluton from the Llano uplift, Texas: *Jour. Petrology*, v. 5, p. 359-408.

Zolensky, M. E., P. J. Sylvester, and J. B. Paces, 1988, Origin and significance of blue coloration in quartz from Llano rhyolite (llanite), north-central Llano County, Texas *American Mineralogist*. vol. 73, pp. 313-323



HELP!
Send in your:
stories, articles, tips,
photos
suggestions or questions!
Submissions due by the
28th of each month.

Kids Corner...

Brandon Heck is the Assistant Editor of Arkansas Rockhound News. He is 8 years old and has enjoyed rockhounding since he could walk. In each issue he will share information about minerals that he loves and about his adventures in rockhounding.

Gold

Gold is very shiny and can be found as flakes.
- gold in pan illustration by Brandon.



Physical properties of gold:

Luster: Metallic

Transparency: Opaque

Color: Rich yellow (canary yellow according to Brandon)

Streak: Shining yellow

Hardness: 2 1/2 - 3

Crystal system: Isometric

**data collected from mindat.org*

Prospector Jokes

Q: Why did the prospector throw his ore samples away?

A: He took them for granite.

Q: Why did the prospector take a bath with his rock samples?

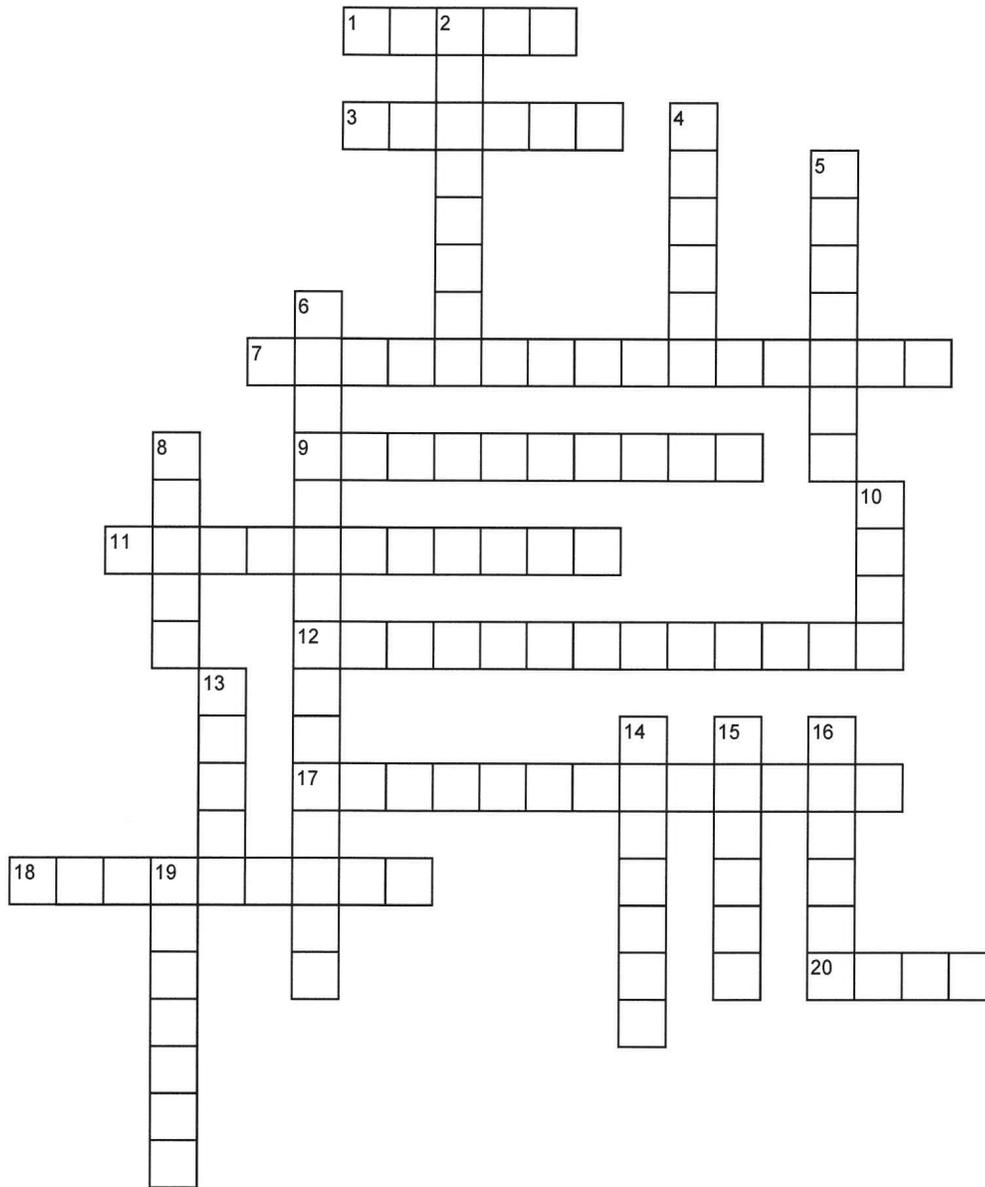
A: Because they were soapstone.

Q: Why did the prospector make his mother carry his ore samples?

A: He thought it was the mother lode.

<http://hubpages.com/art/Lapidary-Jokes-For-The-Discerning-Rockhound>

Rocks and Minerals



Across

- 1 The September birthstone
- 3 Its chemical formula is silicon dioxide
- 7 A type of rock formed in a place where there used to be water
- 9 A dark green, blue, and light are the colors it comes in
- 11 A type of rock formed when magma crystallizes and cool into a solid form
- 12 Minerals replaced all of its wood
- 17 A mineral mistaken for a diamond worth nothing
- 18 A type of sedimentary and its main mineral is calcite
- 20 A rare red precious gem that is used on some rings

Down

- 2 A rare chrome colored metal
- 4 A metal used in the penny
- 5 A rare precious mineral used in most rings
- 6 A type of rock formed when another rock is put under heavy pressure and high temperatures
- 8 Very hot molten rock
- 10 A rare yellow metal
- 13 Its an alloy of Cu and Zn
- 14 A type of rock formed when magma cools and makes Prottons. When the Prottons cool it makes granite
- 15 Minerals replaced everything in it
- 16 A gray/silver metal that was used to make coins
- 19 A green to blue colored precious gem

Upcoming area shows...

May 2016

6-8—FRANKLIN, NORTH CAROLINA: Annual show; Gem & Mineral Society of Franklin, NC, Carpenter Building; 1288 Georgia Rd.(US441); Fri. 10-5, Sat. 10-5, Sun. 10-4; Free Admission; Finished gold and silver jewelry, silver and gold findings, minerals, fossils, cab & facet rough, demonstrations, and much more. Contact Norman Holbert, 180 Camelot Estates Road, Franklin, NC 28734, 828 634-0350; e-mail: normholbert@comcast.net; Web site: www.fgmm.org

6-8—MCPHERSON, KANSAS: Show and sale; McPherson Gem & Mineral Club, 4-H Building and Grounds; 710 W Woodside; Fri. 9-6, Sat. 9-6, Sun. 10:30-3; Free Admission; McPherson Gem & Mineral Club's 24th Annual Show and Sale. Vendors from across the US featuring precious and semi-precious gems, minerals, fossils, petrified wood, handcrafted jewelry, lapidary work, slabs, cabs and much, much more. Hourly door prizes and a kids spin all three days. Auction Saturday at 7:15 PM. ; contact Kim Vasper, 1489 Janasu Road, McPherson, KS 67460, 620755415; e-mail: kimvasper@yahoo.com; Web site: www.wedigrocks.org

6-8—HALLSVILLE, MISSOURI: Show and sale; Central Missouri Rock and Lapidary Club, Bob LeMone Building; 500 Route OO; Fri. 12-7, Sat. 9-5, Sun. 10-4; Adults \$6, 60+ and youth 12-18 \$3.00, Seniors/Children 12-18 \$3, Children 11 and under free; Demonstrations and mineral exhibits and rock ID. Special children's' activities and kidz mine. Many dealers from the Midwest. Fossils, gemstones rare and precious, stones for cabbing and rough along with findings and jewelry ready to wear. Geode cutting is available at time of purchase. Silent auctions will be held every day along with door prizes and a snack bar with hot food is available. GPS will bring you right to the front door. Only 15 minutes north of Columbia. Contact Esta Helms, Columbia, MO, (573)-567-0237; Web site: <http://cmrlc.org>

6-8—MARIETTA, GEORGIA: Annual show; Georgia Mineral Society, Cobb County Civic Center ; 548 South Marietta Pkwy SE; Fri. 10-6, Sat. 10-6, Sun. 12-5; Free Admission; The Georgia Mineral Society's 48th Annual Mother's Day Weekend Gem, Mineral, Jewelry, and Fossil Show. Door Prizes! Special door prize for students! Win a great prize for yourself and for your school! ; Contact Shelley Stubbs, (678)-612-7293; e-mail: mayshow@gamineral.org; Web site: www.gamineral.org

13-15—JOPLIN, MISSOURI: Annual show; Tri-State Gem & Mineral Society, Joplin Museum; 504 Schifferdecker Ave; Fri. 9-5, Sat. 9-5, Sun. 9-3; Free Admission; 10th Annual Spring Rock Swap. Show will be held inside Joplin Museum this year. Located in historic Schifferdecker Park at the intersection of 7th street and Schifferdecker Ave. Joplin MO 64801. For information please email, I am deaf; contact Chris Wiseman; e-mail: jmc-cwiseman@sbcglobal.net

14-14—ARLINGTON , TEXAS: annual swap meet; Arlington Gem and Mineral club, Arlington club house; 1408 Gibbons Rd; Sat. 7-2; Free Admission; Outdoor swap meet with all things lapidary/jewelry/metal-smithing/glass. Equipment, saws grinders and no telling what else, rocks to cabochons, crystals, metal working equipment and no telling what all. Pot luck in the clubhouse at noon. Contact Jack Spinks, 661 E Main ste #200, Apt 236, Midlothian, TX 76065, (469)-515-6358; e-mail: jlspink@sbcglobal.net; Web site: www.agemclub.com

14-15—NORTH OLMSTED, OHIO: Annual show; Parma Lapidary, Soccer Sportsplex; 31515 Lorain Rd.; Sat. 10-5, Sun. 10-5; Admission \$6; Join us as the Parma Lapidary Club hosts it 48th Annual Cleveland Gems and Jewelry Show! Tickets are good for both Saturday and Sunday. The show will include jewelry arts, gems, minerals, fossils, geodes, custom & handmade jewelry, and beads available for purchase. There will also be exhibits, live demo's, kid's corner, silent auctions and much more. On Sunday (1p to 3p) an expert in vintage jewelry will identify and give you a verbal est. of value for your jewelry pieces for free!; contact Karl Creed, 273 Finchfield Circle, Macedonia, OH 44056, (330)-840-9422; e-mail: cjm101@hotmail.com; Web site: www.parmalapidary.com

28-29—FORT WORTH, TEXAS: Annual show; Fort Worth Gem and Mineral Club, AmonG. Carter Exhibit Building, Will Rogers Memorial Center; 3401 W. Lancaster; Sat. 9-6, Sun. 10-5; Adults \$5, Seniors \$4, Students \$4, Children under 16 free; 65th annual Gem, Jewelry, Bead, Fossil and Mineral Show and Sale. Exhibits, kid's games. Hourly door prizes, silent auction and grand prize raffle. Contact Steve Hiliard, PO Box 418, Decatur, TX 76234, (817)-925-5760; e-mail: fwgmc@embarqmail.com; Web site: www.fortworthgemmandmineralclub.org

28-29—BILOXI, MISSISSIPPI: Annual show; Harrison County Gem and Mineral Society, Joppa Shrine Temple; 13280 Shriners Blvd, N Ex 41 off I-10; Sat. 9-5, Sun. 9-4; Adults \$5, Children under 12 free; There will be demonstrations, displays, door prizes & kids' activities. Contact William Smith, (251)-937-3529; e-mail: gulfportgems@gmail.com; Web site: www.gulfportgems.org

June 2016

3-5—TULSA, OKLAHOMA: Wholesale and retail show; Gem Faire Inc, Expo Square; 4145 E 21st St; Fri. 12-6, Sat. 10-6, Sun. 10-5; \$7 Admission, Children under 11 free; Fine jewelry, precious & semi-precious gemstones, millions of beads, crystals, gold & silver, minerals & much more at manufacturer's prices. Exhibitors from around the world will be on site. Jewelry repair & cleaning while you shop. Free hourly door prizes; contact Yooy Nelson, 503-252-8300; e-mail: info@gemfaire.com; Web site: <http://www.gemfaire.com>

3-5—WAUSEON, OHIO: Annual show; State Line Gem & Mineral Society, Fulton County Fair Jr Fair Bldg.; 1814 SR 108, Exit 34 off Oh Turnpike; Fri. 12-6, Sat. 10-6, Sun. 11-4; Adults \$4, Seniors \$3, Students \$3, Children 12 & under free; Come join us at the Fulton

County Fairgrounds Junior Fair Building in Wauseon, OH for our 55th Annual Show. We are proud of our show boasting with demonstrations, silent auction, door prizes, mine safety class by Joel Vicary, soap stone carving class by Sandy Cline, and homemade food available at reasonable prices. We will be giving demonstrations on cutting and shaping cabochons, wire wrapping, kid's activities, and geode cracking with geodes from Indiana and Mexico. There will be rough material for those who start from scratch, cabs and beads who just put their personal touch on their art, and finished pieces for those who just appreciate the finished pieces of jewelry. Contact Glenda Gafner, 3720 Britton Hwy, Britton, MI 49229, (517)-403-6310; e-mail: ggafner@frontier.com; Web site: www.statelinegms.com

4-5—MCCALLA, ALABAMA: Annual show; Alabama Mineral & Lapidary Society, Tannehill Ironworks State Park; 12632 Confederate Parkway; Sat. 9-5, Sun. 9-5; Free Admission; This is a fun, family, outdoor show at the lovely Tannehill State Park. There will be several vendors with all types of gems, minerals, fossils, jewelry and more. We will have door prizes, children's games, and demonstration classes for all to enjoy. ; Contact Cathy Kellogg, 526 Fairway Dr SW, Jacksonville, AL 36265, (256)-283-4407; e-mail: tannehillgemshow@gmail.com; Web site: <http://www.lapidaryclub.com/>

4-5—SPRINGFIELD, MISSOURI: Annual show; Ozark Mountain Gem & Mineral Society, Missouri Institute of Natural Science Grounds; 2327 W Farm Road 190; Sat. 9-5:30, Sun. 10-4:30; Free Admission; The Ozark Mountain Gem & Mineral Society is proud to present our annual Rock & Gem Fair for 2016. We'll have 2 days of vendors, exhibits, information & activities for all ages. Rocks, gems, fossils, geodes, minerals, jewelry, used equipment, etc. will be available. ; contact Mike Hackeson, 2131 West Republic Road, Box #35, Springfield, MO 65807; e-mail: omgms.57@gmail.com; Web site: <https://www.facebook.com/SGFGemFair>

4-5—MARION, KENTUCKY: Annual show; Ben E. Clement Mineral Museum, Fohs Hall; 201 N. Walker Street; Sat. 9-5, Sun. 9-4; Admission with donations; The 11th Annual Ben E. Clement Gem, Mineral, Fossil, And Jewelry Show with Digs. We will have vendor tables, hourly door prizes, an Indian artifact display, silent auctions, children's activities, and a Ky. Geological Survey Booth. There will be museum tours featuring minerals from the famous KY/IL Fluorspar District. There will be digs to local mines where you can collect fluorite and related minerals. contact Tina Walker, P.O Box 391, Marion, KY 42064, (270)-965-4263; e-mail: beclement@att.net; Web site: www.clementmineralmuseum.org

4-5—MANSFIELD, OHIO: Annual show; Richland Lithic and Lapidary Society, Richland County Fairgrounds; 750 N Home Rd, Arts and Crafts Building; Sat. 10-6, Sun. 11-5; Adults \$5, Seniors \$4, Children ages 6-16 \$3; The show will feature quality dealers selling minerals, fossils, beads and jewelry. The show will be held at the Arts and Crafts Building located in the Richland County Fairgrounds. The theme for the show is "Ohio's Gemstone Flint-Past and Present". The show will focus on the connection between the flint tools made by Native Americans and the jewelry and related objects made today. There will be special displays of artifacts and flint objects. Contact Tom Kottyan; e-mail: themineralhouse@netzero.net

10-12—PARK HILLS , MISSOURI: Annual show; Mineral Area Gem & Mineral Society, Missouri Mines Historic Site at St. Joe State Park; 4000 State Highway 32, Park Hills, MO 63601; Fri. 9-6, Sat. 9-6, Sun. 9-4; Free Admission; 19th Annual Rock Swap. Fun for entire family, visit Historic site Mining, Mineral Museum, auctions of minerals and rock jewelry to benefit museum. Co-Sponsored Missouri State Parks, Mineral Area Gem Mineral Society & Greater St. Louis Association of Earth Science Clubs. Contact Boneta Hensley, P.O. Box 758, Park Hills, MO 63601, (573)-760-0488; e-mail: mojellybean63@yahoo.com; Web site: <https://www.facebook.com/events/1639945622947249/>

11-12—CARTERSVILLE, GEORGIA: Annual show; Tellus Science Museum, Tellus Science Museum; 100 Tellus Dr; Sat. 10-5, Sun. 10-5; Adults \$14, Seniors \$12, Students/Children \$10; Get ready for summer's biggest indoor/outdoor event at Tellus Science Museum. Gem, mineral, fossil and jewelry from all around the country will be set up in the Banquet Rooms and on the back lawn of the museum. You will see rare and exotic jewelry, plus ancient fossils and mineral specimens from around the world that you can purchase for your own collection. There will be various geology-themed children's activities in the Great Hall. Purchase a geode at one of the demonstration tents and have it cracked open right in front of you to see what treasure may lie inside. Contact Shelly Redd; e-mail: michellep@tellusmuseum.org; Web site: www.tellusmuseum.org

17-19—ELDON, MISSOURI: Annual show; Osage Rock and Mineral Club, The Eldon Community Center; 309 E 2nd Street; Fri. 2-6, Sat. 9-6, Sun. 9-3; Free Admission; Plan to attend our 15th Annual Gem, Jewelry, Rock, Mineral and Fossil Show. Show features: gem stones, jewelry, fossils, minerals, quartz crystals, geodes, cabochons, custom jewelry, gift items, displays, demonstrations, kids games and prizes; as well as Special Fluorescent Mineral Displays and our popular 'pick your own' Geode booth. ; Contact Cheryl Hudson, 411 Eastland Drive, Jefferson City, MO 65101, (573)-644-2722; e-mail: cherylhudson@mediacombb.net; Web site: ormc-2016show@centurylink.net

18-19—NASHVILLE, TENNESSEE: Annual show; Intergalactic Bead Show, TN State Fairgrounds; 500 Wedgewood Ave; Sat. 10-5, Sun. 10-5; Admission \$4-\$5; Do you love great quality and prices? Then shop The Intergalactic Bead Show! Our shows provide attendees with the world's finest and rarest beads, precious stones, gems, freshwater pearls and an exquisite collection of finished jewelry. Shop quality. Shop Intergalactic Bead Shows. ; Contact Shawna Whitson; e-mail: Info@beadshows.com; Web site: www.beadshows.com

24-26—KANSAS CITY, MISSOURI: Annual show; Shows of Integrity, KCI Expo Center; 11730 NW Ambassador DR; Fri. 10-5, Sat. 10-5, Sun. 10-4; Free Admission; Fine jewelry, precious & semi-precious gemstones, beads, crystals, gold & silver, minerals & much more. Exhibitors from around the world will be selling everything from costume jewelry to fine jewelry. Don't Miss this show for all your jewelry business needs. Contact Terry James, 18362 S Hwy 78, Leonard, TX 75452, (903)-815-5957; e-mail: t_james78@hotmail.com; Web site: www.showsofintegrity.com

Rock Tumbling Contest (from www.featherriverrocks.org via MWF News)

The rock for 2016 is petrified wood from Arizona. Learn more about [how the rock formed \(pdf\)](#). Entry fee is \$30.00 for 3 pounds of rough rock for continental US residents. This includes shipping the material to you. Outside the USA will be \$30.00 plus any additional shipping. [Contest rules and application \(pdf\)](#). Form is fillable via free pdf software.

- 3 lbs of rough will be shipped to you when application and check are approved beginning in early January 2016.
- Deadline for application is June 1st, 2016.
- Mail 5 (yes, only 5) of your best finished rocks and a copy of the entry form postmarked no later than August 15th, 2016.
- Apply early and take your time to tumble!
- Cash prizes = \$250, \$100, and \$50 for first, second, and third place winners!

To enter the contest:

- Digitally: Fill out the application and email the form to Tumbling@FeatherRiverRocks.org (save to your desktop or print to pdf) and pay via PayPal (see link at bottom of this page)
- Hard Copy: Print and fill out the application. Mail the application and a check or money order payable to FRLMS to: **Tumbling Contest, c/o Lori Millard, 2660 Cherokee Road, Oroville, CA 95965**

For more information, call (530) 533-2968 or email Tumbling@FeatherRiverRocks.org.



2016 Worldwide Rock Tumbling Contest!

Cash Prizes:
1st place = \$250
2nd place = \$100
3rd place = \$50



2016 Rock is fossilized wood from Arizona!

Entry fee is \$30 which includes shipping of 3 lbs. of rough rock. Contest starts January 1. Submit your application early to return 5 of your best tumbled rocks postmarked by August 15. Learn more on our website www.FeatherRiverRocks.org

YOUTH POSTER CONTEST
MIDWEST FEDERATION YOUTH POSTER CONTEST 2016
“AMAZING AGATES”

Sponsored by the Summit Lapidary Club of Ohio

THEME: “Amazing Agates” A poster illustrating any type of agate, what it looks like, and where it can be found.

ELIGIBILITY:

1st through 8th grade. Each grade will have a winner .

PRIZES:

Ribbons awarded 1st through 4th place, the 1st, 2nd and 3rd place winners will also receive a prize.

CONTEST RULES:

1. All entries must be presented on paper 12”x 18”
2. Include name and address, age, and school grade of participant on back of entry.
3. No three-dimensional posters accepted.
4. The title may be on front or back.
5. List the name of the agate, a brief description of what it looks like, and WHY you chose it.
6. Artwork on posters can be pen, ink, crayons, magic marker, paint, or any other artist’s medium.
7. All entries become the property of MWF and the Summit Lapidary Club.

SCALE OF POINTS:

Originality and Art Work - 30 points

Design - 25 points

Title - 25 points

Listing of Agate type, what it looks like, and where it is from - 20 points

DEADLINE:

Entries must be postmarked by ~~April 15, 2016~~.

SEND TO:

Poster Contest

617 Wooster Rd. W.

Barberton, Ohio 44203

Deadline extended
until June 15,
2016!

Winners will be announced at the MWF Convention in South Bend, Indiana, August 20, 2016.

If you have questions, e-mail SLC.youth.poster.contest@gmail.com.

For more information, visit the MWF website <http://www.amfed.org/mwf>

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

2016 Meeting Dates

May 24th
June 28th
July 26th
August 23rd
September 27th
October 25th
November 22nd

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

Join CAGMAGS!

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

Visit www.centralarrockhound.org
to learn more!