



**Meeting**  
Second Tuesday of each month  
Van Matre Senior Citizens Center  
1101 Spring Street  
Mountain Home, AR

<http://www.ozarkearthscience.org/news.htm>  
<http://www.ozarkearthscience.org>

**October, 2011**

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We are a member of the Midwest Federation of Mineralogy.

**Sharon Waddell: Liaisons Officer - 417-256-8948**

**MWF Assistant Micromounter: Brenda Johnson**

**OBJECTS:** To study and promote an interest in the earth sciences; Geology, paleontology, mineralogy, archaeology and the lapidary arts.

**Meeting:** On the second Tuesday of each month at 7:00 p.m. in the Van Matre Senior Citizens Center, 1101 Spring Street (Cooper Park), Mountain Home, Arkansas.

**Dues:** Active adults \$12.00 per year or family membership of \$20.00 per year. Junior membership is \$4.00 per year. Nonresident membership is \$8.00.

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### **The President's Message**

Hasn't this weather been lovely? We have several field trips scheduled for this month and next, so make sure you come to the meeting to get all the information on them to where you do not miss out on taking advantage of collecting in this lovely weather.

This month, as always, our program will be our silent auction. This is a time for you to go through your collections and take those things you have duplicates of, or that you no longer feel is worthy of your collection, and bring them in to help the club with one of our major fund raisers. If you have friends who usually can't make the meetings because of work, who can come





From the desk of A J Johnson, Safety Chair

## Holes and banks

### **SLIP - SLIDE**

by **Mel Albright - RMFMS Safety Chairman**

[http://www.amfed.org/a\\_safetyRMFMS.htm#Holes](http://www.amfed.org/a_safetyRMFMS.htm#Holes)

Did you ever hear about the "angle of repose"? No, it's not how you stretch out when you want to rest or sleep. It is an important factor in the design of earth or rock structures - and what keeps you safe or puts you in danger when you are on a field trip. Simply, the term means that, for each material - rock or sand or earth or grain or any other mixture of particles - there is a slope, or angle, at which material starts sliding down a bank. If the pile is at a lower angle, the bank is stable. If the pile is at a higher angle, the bank is unstable - and may start sliding at any time. You've seen this effect in digging a hole. Stuff slides back in even as you are trying to dig it out. It is important to note that the slope may not slide until some outside force triggers it - witness avalanches and landslides.

So, whenever you are digging in a hole, or exploring a bank, or exploring a quarry or mine, or a rock pile or a tailings dump, you are counting on the angle of repose to keep you safe and not allow you to be suddenly buried under a bunch of dirt or rocks. And the angle of repose is not constant. Wet material may slide much easier than dry. So what was safe before the rain is unsafe after the rain. Remember, too, that ALL tailings and other mine dumps are at their angle of repose because of the way they were made.

The unfortunate part is that you cannot know whether the material around you is at its angle of repose or above it. So, you cannot know if you are safe or whether a blow from your shovel will trigger a slide or someone walking above you or what. And, almost every day we read or hear about someone dying because of the failure of a bank - in mines, in quarries, children digging caves, rockhounds hunting rocks, workmen digging ditches.

So how do you work safely? Well, if you are digging, always dig a hole - NOT a cave (even a little one). And, although it's far more work, dig the hole with gradually sloping sides. And, if on a rock pile or tailings dump, be sure there's no one above you who might start a slide. And, if around a bank, test it a little with a hard blow or two or a "stomp", and, again, be sure there's no one working above you. And, in every case, wear a safety helmet - the proverbial 'hard hat'.

WalMart carries them - and they are not expensive.

## **“Our Ever-Changing Earth”**

**Take part in Earth Science Week 2011!** Held October 9-15, ESW 2011 encourages people everywhere to explore the natural world and learn about the geosciences. “Our Ever-Changing Earth,” the theme of ESW 2011, engages young people and the public in learning about the natural processes that shape our planet over time.

<http://www.earthsciweek.org/>    **Via Edward Hakesley**

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## **Micromounting**

“Micromounting” is the process of preserving a small, microscopic mineral or crystal specimen by mounting it on a post (usually a toothpick) and securing it in a small, protective box. These microscopic specimens are then carefully viewed through a binocular stereo microscope. Do some searching for “binocular stereo microscopes” on the internet. You can find them for reasonable prices (less than \$200). Of course, you can also spend many hundreds of dollars purchasing one. But once you have purchased a good binocular microscope, you will have it for the rest of your life if you take good care of it.

Here are some websites that can help you get started as a micromounter.

<http://www.njminerals.org/mmhowto.html>

[http://www.gamineral.org/micromount\\_corner.html](http://www.gamineral.org/micromount_corner.html)

<http://www.gamineral.org/why-micros.htm>

From *Mini Miners Monthly*, **A Monthly Publication for** Vol. 5 No. August 2011

Via the Quarry, September, 2011

**Editor’s note:** We have micromount meetings at the Johnson’s home several times a year. We would love to see you there. If you do not have a microscope yet, come anyway; we share. See what the world of minerals really look like at their finest.

## **DID YOU KNOW?**

Chromium is the color determinant for both rubies and emeralds. As a chemical impurity, chromium causes rubies to be red and emeralds to be green. A small amount, co-mingled with the differently spaced atoms of the two gems, causes them to absorb different wave lengths of light. In ruby, green waves are absorbed; in emerald (beryl) red waves are absorbed. The color seen is leftover wavelengths - green in emerald, red in ruby.

*Port Townsend Rock Club News 10/2001 Via Arkansas Rockhound News 7/2011*

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## **HIDDEN DANGERS**

**Acetone:** An industrial type solvent containing harmful vapor.

**Hydrogen Sulfide:** By-product of sulfur and water. Deadly poison!

**Manganese:** In dust or vapors, it can damage the nervous system.

**Quartz, agate, sandstone, granite, chert, flint:** All are of the silica rock family. The dust from this family contributes to silicosis of the lungs.

**Abalone:** Grind and polish only when wet. Be aware that any odor detected is highly toxic.

**Malachite:** Work wet as the dust created when working dry is toxic.

**Lead:** Known to enter the body from dust, fumes, and water. It can damage the brain and neuromuscular system.

While it is not healthy to fear everything, one should be aware of hidden dangers in apparently innocent looking material that we all use extensively in our hobby.

*Source: Calgary Lapidary Journal, via Gems of the Rogue - October 2005 via Cutting Remarks, May 2007*

*Via Arkansas Rockhound News 7/2011*

**There were no minutes published this month as the secretary was unable to attend the meeting and the acting secretary did not get them to me in time for publication. They will be read at the meeting.**

### **Recapping a Fieldtrip**

Those of you who missed our field trip to the River Bluff Cave near Springfield, MO, this past month really missed a treat. They now have a new and larger field house and museum complex that houses several specimens from all over the world, and the cavern was so interesting to see.

At the last meeting, **Sharon Waddell** displayed, and spoke about, several photos she had taken, and I am sure that **Sid Johnson** will have photos in the scrapbook he maintains also. Here are a few that I took. This is the oldest cavern in North America to be found, as of yet. Go to <http://www.riverbluffcave.com/> to read more about the cavern.



**Matthew Forir, and Sid Johnson** inside the entrance.



**These are scenes in the cavern and one specimen, a rapture nest, from the museum.**

**Please make a copy of the following bid sheet and use the copies for the specimens that you are donating for our silent auction.**

**Specimen** \_\_\_\_\_

**Locality** \_\_\_\_\_

**Donor** \_\_\_\_\_

**Minium Bid** \_\_\_\_\_

## **Sand Barite Rosette**

From Oklahoma Geological Survey

The distinctive concretions known in central Oklahoma as “rose rocks” in allusion to their reddish brown color and general similarity to a rose in full bloom are petal-like clusters of sandy barite crystals. Their rose like appearance is due to the growth of barite (barium sulfate, BaSO<sub>4</sub>) as a cluster of divergence blades. The central Oklahoma rosettes are distinctive because they grew within ancient red sandstone, incorporating quartz sand grains and acquiring the red color of the host rock. These concretions consist of sand barite in nearly equal



proportions and thus are best known to geologists as “sand barite rosettes,” but they are called rose rocks, barite roses or petrified roses. Well-formed specimens are highly prized by collectors. Most sand barite rosettes are 2 to 4 inches in diameter and consist of 5 to 20 radiating plates, although the largest one known is 17 inches across, 10 inches high and weights 125 pounds. They generally occur as isolated individuals scattered through sandstone. Rosettes are harder and more durable than the host rock and are found in positive relief of outcrops. On further weathering they are detached from the rock and occur as individual specimens or scattered within the residual sandy soil. Slow weathering and erosion of the host rock continually expose additional rosettes at the surface. The sand barite rosettes of Oklahoma occur mostly in the Garber Sandstone, which was deposited during the Permian period of geologic time about 250 million years ago. They are most abundant along the north-south outcrop of the Garber in central Oklahoma, in a narrows belt extending 80 miles between Pauls Valley, and Guthrie. The area just east of Norman is particularly renowned for its abundant and well-formed specimens. Although also known from California, Kansas and Egypt, the rosettes probably have a greater concentration here in Oklahoma than at any other place in the world.

(Source "The Glacial Drifter", Vol 49 #4 and the OGS Circular 23, 1944) Via the Nuggets, 9/11; colored photo taken from <http://skywalker.cochise.edu/wellerr/mineral/barite/barite2.htm>

## Mass Extinctions: 'Giant' Fossils Are Revolutionizing Current Thinking

*ScienceDaily (Feb. 11, 2010)* — Large-sized gastropods (1) (up to 7 cm) dating from only 1 million years after the greatest mass extinction of all time, the Permian-Triassic extinction (2), have been discovered by an international team including a French researcher from the Laboratoire Biogéosciences (CNRS/Université de Bourgogne), working with German, American and Swiss colleagues. These specimens call into question the existence of a "Lilliput effect," the reduction in the size of organisms inhabiting postcrisis biota, normally spanning several million years.

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The team's results, published in the February 2010 issue of the journal *Geology*, have drastically changed paleontologists' current thinking regarding evolutionary dynamics and the way the biosphere functions in the aftermath of a mass extinction event.

The history of life on Earth has been punctuated by numerous mass extinctions, brief periods during which biodiversity is considerably reduced, followed by phases of re-conquest of the biosphere, corresponding to the diversification of those species that survived. Over the last 540 million years, around twenty mass extinctions, of greater or lesser intensity, have succeeded one another. The most devastating of these, the Permian-Triassic (P-T) mass extinction, which decimated more than 90% of the marine species existing at the time, occurred 252.6 million years ago with a violence that is still unequaled today.

### **Mass Extinctions continued**

In the aftermath of such events, environmental conditions are severely disrupted: the oceans become less oxygenated, water becomes poisonous, there is increased competition, collapse of food chains, etc. Until now, it has generally been accepted that certain marine organisms, such as gastropods or bivalves, were affected by a drastic reduction in size in response to major disruptions of this nature, both during and after the event. It took several million years for such organisms to return to sizes comparable to those that existed prior to the crisis. This is what scientists call the "Lilliput effect," in reference to the travels of Gulliver (3) who was shipwrecked on the island of the same name, inhabited by very small Lilliputians.

An international team of French, German, American and Swiss paleontologists has recently discovered large gastropod fossils dating from only 1 million years after the P-T mass extinction. The researchers have spent several years studying the re-conquest phase that followed the P-T crisis. By focusing their efforts on fossil-bearing outcrops in Utah dating from the Early Triassic, which have not yet been studied in detail, they have uncovered some outstanding specimens of gastropods, up to 7 cm, which can be termed as "giants" in comparison to those generally found, normally no bigger than 1 cm.

Complementary studies of these new gastropod fauna also indicate that they are not any smaller than older or present-day fauna. This discovery therefore refutes the existence of a Lilliput effect on gastropods during the major part of the Early Triassic or, at the very least, suggests that its importance has been overestimated. Quite surprisingly, the presence of these large gastropods also coincides with an explosive re-conquest of the ocean by organisms such as ammonites (4, 5). Taken together, these events therefore suggest that restructuring of marine ecosystems was already well underway only one million years after the P-T crisis, a very short time after a mass extinction of such magnitude.

The researchers plan to continue to study the fossils discovered in this locality in Utah while searching for other species and groups, such as bivalves, to confirm this new data. However, these findings already suggest that paleontologists are going to have to re-think the immediate and long term impact of mass extinctions on species.

**Notes:** (1) The gastropods concerned by this study are mollusks that lived on the sea bed and are related, for example, to present-day land snails. (2) The Permian-Triassic mass extinction, named after the two geological periods that encompass it, namely the Permian (299 -- 252.6 Ma) and the Triassic (252.6 -- 201.6 Ma), is the greatest mass extinction ever documented. It marks the end of the Primary (or Paleozoic) era and the beginning of the Secondary (or Mesozoic) era. (3) *Gulliver's Travels*, written by Jonathan Swift in the 18th century. (4) Ammonoids, related to present-day nautilus, cuttlefish and squid, are free-swimming cephalopod mollusks with external shells. They disappeared from the world's oceans at the same time as the dinosaurs, 65 million years ago, after having been a major part of the marine fauna for nearly 400 million years. (5) See also Brayard et al. 2009. *Science* 235: 1118-1121.

## **Sawing gemstones**

by MIKE BALDWIN



04.02.01--The process of cutting and polishing gems is called gemcutting or lapidary, while a person who cuts and polishes gems is called a gemcutter or a lapidary (sometimes lapidarist).

Gemstone material that has not been extensively cut and polished is referred to generally as rough. Rough material that has been lightly hammered to knock off brittle, fractured material is said to have been cobbled.

In most gem sawing, a thin circular blade usually composed of steel, copper, or a phosphor bronze alloy impregnated along the outer edge with diamond grit and rotating at several thousand surface feet per minute literally scratches its way through a gemstone. A liquid such as oil or water is used to wash away cutting debris and keep the stone and the saw blade from overheating, which could cause damage to both the stone and the saw blade.

Several sizes of circular rock saws are frequently used by most gemcutters: (1) A slab saw, typically 16 to 24 inches in diameter, is used to cut stones of several inches thickness into relatively thin slabs--often 1/8 to 3/8 inch thick; (2) A trim saw, typically 6 to 10 inches in diameter, is used to cut smaller stones into thin slabs or to cut small sections out of slabs; and (3) A faceters trim saw, typically 4 inches in diameter, is used with a very thin blade, to saw small pieces of expensive rough.

There are also jigsaws that employ either a reciprocating wire or a continuous thin metal band. These are useful for cutting curved lines that are impossible with circular saws. They are also useful in minimizing waste on extremely valuable rough material. All gems are cut and polished by progressive abrasion using finer and finer grits of harder substances.

Diamond, the hardest naturally occurring substance, has a Mohs hardness of 10 and is used as an abrasive to cut and polish a wide variety of materials, including diamond itself. Silicon carbide, a manmade compound of silicon and carbon with a Mohs hardness of 9.5, is also widely used for cutting softer gemstones. Other compounds, such as cerium oxide, tin oxide, chromium oxide, and aluminum oxide, are frequently used in polishing gemstones.

Via MAGS 9/11

**Free Geology Courses**  
Via SCRIBE April-June, 2011

From the Internet <http://geology.about.com/od/nutshells/u/pathbasics.htm>

MIT has some great stuff in their open courseware  
<http://ocw.mit.edu/courses/earth-atmosphericandplanetary-sciences/>

Free Gemology course based more around Geology <http://www.bwsmigel.info/>

Some more geology course stuff from University of Texas  
<http://www.geo.utexas.edu/courses/default.htm>

One more gemology course, but more technical around geology  
<http://www.gemsociety.org/>

Most information is from Jamey Swisher, R.G. in a posting to the Rockhounds list.

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**More Bench Tips from Brad Smith at** [www.groups.yahoo.com/group/BenchTips/](http://www.groups.yahoo.com/group/BenchTips/)  
or [facebook.com/BenchTips](https://www.facebook.com/BenchTips)

**REMOVING A STONE FROM BEZEL SETTING**

If you've forgotten to use dental floss and got your stone caught in a bezel, there's one thing you can try before starting to pry. Find some sticky wax or beeswax. Roll it into a pencil-sized cylinder and stick the end onto the top of the stone. Mold it on well and yank.

If all else fails, you either have to very carefully pry open the bezel with a sharp knife blade or drill a small hole in back of the stone and push it out with the point of a scribe.

In addition, you may find this news video of some interest. It's about the origins of some of the Earth's gold.

<http://news.nationalgeographic.com/news/2011/09/110907-gold-metals-earth-meteors-oldest-rocks-nature-science/>  
><http://news.nationalgeographic.com/news/2011/09/110907-gold-metals-earth-meteors-oldest-rocks-nature-science/>

- Brad Smith

**Dates to Remember**

**October**

**11    OESGM&FC Meeting; 7:00 P.M., Van Matre Senior Center, 1101 Spring Street, Mtn. Home, AR**

**1-2: JACKSONVILLE, AR.** Central Arkansas Gem, Mineral & Geology Society's 39th Annual Show; Jacksonville Community Center, 5 Municipal Dr.; Sat. & Sun. 9-5; Contact: David Murray, 218 Old Hwy 11 S., Hazen, AR 72064, (870) 255 -3679 , [davidmur99@hotmail.com](mailto:davidmur99@hotmail.com).

**1-2: SPRINGFIELD, IL.** Lincoln Orbit Earth Science Society's Annual Show; Illinois Bldg., Illinois State Fair Grounds; Sat. 10-6, Sun. 10-5; Contact: John Washburn, 107 Deer Creek Rd., Rochester, IL 62563, (217) 498-7713, [jrwashburn3@att.net](mailto:jrwashburn3@att.net).

**8-9: TOPEKA, KS.** 55TH Annual Topeka Gem & Mineral Show; Agricultural Hall, Kansas Expocentre, 17th & Topeka; Sat. 10-6, Sun. 10-5; Contact: [rock2plate@aol.com](mailto:rock2plate@aol.com).

**Dorothy Hess  
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