



The **BACKBENDER'S GAZETTE**

**The Newsletter of the
Houston Gem & Mineral Society**

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June 2015



President's Message

by Raymond Kizer

The subject of this president's letter is Mentoring. Years ago when I was just fifteen, I met a true enthusiast of our hobby. His name was Mr. Wilson, and he was an avid mineral and fossil collector. I met him one day through his son John, who brought me to his home. John took me down to the family basement. When we had reached the bottom of the stairs, he proceeded to flick on at least a dozen light switches. I was totally amazed as I watched a series of fluorescent lights come to life and illuminate the entire room. Case after case came into view. It was floor to ceiling with minerals. I had never before seen such a personal collection.



Up to this point, I had found a few fossils and metamorphic rocks while traveling on various family vacations. The first minerals in my collection came from someone else's cast offs, and my grandfather's yard.

I remember asking a zillion questions when Mr. Wilson came down the stairs. What's this? Where did that come from? How did you collect all these? He said that the family was going collecting that weekend, and would I like to come along? A field trip to collect my own minerals? You bet! I was excited!

In that moment, Mr. Wilson became my Mentor. I was in his car every time

Continued on page 4

Upcoming General Meeting Programs

by Paul Brandes

June 23, 2015: To be announced

July 28, 2015: To be announced

**2015 HGMS Gem & Jewelry Show—This Year ONLY
September 25–27, 2015
Y'all come!**

(In 2016 our show will be held in November—As Usual.)

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Every article published in the BBG is edited for grammar and content. No flaming is allowed.

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Purpose of HGMS

The objectives of this Society are to promote the advancement of the knowledge and practice of the arts and sciences associated with the collecting of rocks, minerals, fossils, artifacts, and their identification and classification; the general lapidary art; the collecting and identification of gemstones; the designing and execution of jewelry or metalcraft; and to provide the opportunity to obtain, exchange, and exhibit specimens and rough or finished materials.

Membership dues are \$40 for an adult membership, \$60 for a couple, \$75 for a family (including all children aged 5-18), \$25 for a youth membership (ages 5-18), and \$500 for an adult life membership. Advertising rates: \$70 for 2 months, ¼ page; \$150 for 6 months, ¼ page.

MEMBER: American Federation of Mineralogical Societies & South Central Federation of Mineral Societies.

All meetings are held at the Clubhouse which is located at 10805 Brooklet near the intersection of Highway 59 (Southwest Freeway) and Sam Houston Parkway (Beltway 8). See the calendar inside the back page for when the different Sections meet. The General Meeting is the fourth Tuesday of each month at 7:30. The HGMS Web site address is <http://www.hgms.org>.

President's Message continued from page 1

they went somewhere to collect. He showed me how to look through the limestone rubble of a recently blasted quarry wall, how to avoid unexploded blasting caps, how to break the minerals out of the host rock, and how to pack them for the trip home. We collected in seven states and three Canadian provinces. He gained an enthusiastic kid whom he was always teaching something. He loved the hobby so much that he became the President of the Michigan Mineralogical Society and of a less formal club called the Garden City Rock Club. He took me to all the meetings every month until I earned my driver's license, and he even placed me with dealers during gem shows. It was one heck of an education.

So now that I have told you how important a mentor can be, to those of you out there who have some knowledge or experience that you can share, please consider being a mentor. Education is part of our club charter.

Message to All Who Attended Tom Wright Estate Sale

by Beverly J. Fininis

Iwould like to extend my thanks to the HGMS members who donated their time and effort in making the May 2 sale a success, namely:

- Debbie Kirkpatrick and Margo B. who spent many, many hours sorting, weighing, researching, and pricing all of the inventory. This sale could not have taken place without them.
- Clyde McMeans for the use of his truck to deliver the tables from HGMS to my house
- Brian Honsinger for meeting me at Public Storage to retrieve more rocks for the sale. He used his truck and a lot of muscle to load up buckets and boxes of various stones to add to the sale. Also my gratitude to Brian for hauling the tables in his truck back to HGMS after we closed out the sale.
- I also want to thank Karen Burns, David Hawkins, and Jim Kendall for pitching in and being such a big help during the sale.
- Also, thanks to Neal Immega for allowing us to utilize the HGMS tables.

Finally, I want to express my appreciation to all of those who attended.

Sincerely,

Beverly J. Fininis

Show Committee Happenings

by Scott Singleton

HGMS 2015 Show Chair

For those of us who survived April and May, rest assured it was a really busy spring. It started off with a Show Committee-sponsored field trip to Tony Lucci's in Crosby on April 11 to continue digging through Carol Thompson's immense collection of petrified wood. Everyone survived that without catching any poison ivy (obviously, we are getting smarter). Then we had the Intergem show at NRG Center (April 17–19) and the Scout Fair at another part of NRG Center (April 18). Staffing both simultaneously was a challenge, but it was one that we managed to overcome. Excellent reports came from both events with lots of outreach to the general public. Then on the following weekend was the Fine Mineral Show at the Embassy Suites in the Galleria (April 24–26). That was an excellent show, and it didn't hurt that we had a table in the entry to the show. That had people thinking that we had something to do with running that show. I'd say that was a compliment.

In May, we had a Show Committee party on the 2nd, followed by a field trip on the 9th, and then held our first full Show Committee meeting on the 12th. Yes, the Show Committee is a fun and happening group, as if you couldn't tell by now. But don't take my word for it—keep an eye out for all the events we have planned for this summer leading up to the finale (our annual show) in late September.

By the way, have you checked out the HGMS Facebook page? If not, why not? We are in the process of continually populating this page with all the happenings of the club, so be sure you check back often, like it and friend it so you can receive updates the moment things get posted. Join the hundreds of others doing the same thing.

This month's highlight on outstanding volunteerism goes to **Clyde McMeans**. It takes a lot of time and effort to get all the materials together to populate a table at each show we attend. It takes more time to haul all that material to the show and set it up. This job has been done unfailingly by Clyde for several months, ever since the Clear Lake Show. His unwavering devotion to the well-being and promotion of our club and show sets an exceptional example for all of us. **I feel quite fortunate that we have someone like Clyde McMeans in our club, and I would like to publicly thank him for all he has done.**

Oh, by the way, when it comes time to pack everything up and take it back to the club, who do you think has been doing that? Yes, that's right; it's pretty obvious--Clyde!

Stay tuned for more exciting news of happenings in my next update!

Archaeology Section

by Nancy Engelhardt-Moore

May 7, 2015: Garth Clark, Section Chair, called the meeting to order at 7:45 p.m. Attendance was taken, and the April 2 meeting minutes published in the BBG May issue were approved. As planned for June, the Section will have a field trip on June 6 to the Houston Museum of Natural Science (HMNS) instead of the first Thursday monthly meeting (see details below). Next, there was a discussion of future talks. Garth volunteered to do the next talk on Paleolithic Pre-Clovis evidence from a cave in Texas that moves human migration to the Americas back to at least 30,000 years ago! A final date for the talk was set for August 6 with no July meeting (due to the 4th of July holiday). Bob Moore, the Section Vice-Chair, volunteered to do a talk for the September 3 meeting and possible topics were considered. The attendees decided on learning about the Asclepion of Pergamon—Turkey's probably most famous ancient Greco-Roman medical center. Garth adjourned the meeting at 8:45 p.m.

Program: Bob Moore gave an interesting presentation on the **Neolithic Avebury Henge Monument** and surrounding sites in southwest England. He talked about Silbury Hill, the tallest Prehistoric Mound in Europe and one of the largest in the world. It stands 131 feet high and is similar in size to the smaller pyramid on the Giza Plateau, Egypt. Over the centuries, the Mound was explored for treasure and to learn its purpose. The remains of an ancient oak tree were found in the center that may have been a sacred druidic tree. In the late 1960s, the Mound was dated at 2750 BC. Folklore says that the Mound is the tomb of King Sil although no tomb has been found. Bob also talked about West Kennet Barrow, the Uffington Horse and fort hill castle, and Dragon Hill where legend says King George slew a dragon. Then he talked about the Avebury Henge Monument, which is comprised of a large outer stone circle with two smaller circles and the Village of Avebury inside it. The outer circle is the largest stone circle in Europe, and it originally had 98 standing stones that were 12–14 ft. tall. Some of the stones weigh greater than 40 tons. Over time, stones were excavated and used to construct buildings for the Village. In the 14th century, there was an effort to destroy the stones, but this failed when a stone fell on the Barber-Surgeon and he was killed. This accident stopped the destruction of the henge. The original purpose of the Avebury Henge is still debated, but it was most likely used for some form of ritual or ceremony.

June 6, 2015: **Dr. Dirk Van Tuerenhout, the HMNS Curator of Anthropology,** will be leading a special tour for the Section of two exhibits: ***"Samurai: the Way of the Warrior"*** and ***"China's Lost Civilization: The Mystery of the Sanxingdui"*** on Saturday, June 6 at 2 p.m. For the **first 20 members** who sign up, the Section will provide **free tickets** for this event. **Space is limited!** So, please contact **Bob Moore** at rmpmoore@yahoo.com or call him at **281-531-0793** if you would like to attend this special event.

Board of Director's Meeting

May 5, 2015

by Ray Kizer

X	President - Ray Kizer		Archeology Rep - Garth Clark
	1st Vice President - Paul Brandes	X	Beading Rep – Diane Sisson
X	2nd Vice President - Beverly Mace	X	Daylight Rep - Mary Ann Mitscherling
X	Treasurer - Rodney Linehan	X	Faceting Rep - Gary Tober
	Secretary - Nancy English	X	Lapidary Rep - Phyllis George
	Past President -	X	Mineral Rep - Mike Sommers
		X	Paleontology Rep - Mike Dawkins

Call to Order: President Ray Kizer called the meeting to order at 7:30 p.m. A quorum was present. One non-voting member attended the meeting: Tamara Ritchie, Publicity.

Approval of Previous Month Board Minutes: Beverly Mace moved and Mike Sommers seconded that the minutes of the April 2015 Board Meetings be accepted as published in the May 2015 BBG. The motion passed unanimously.

Treasurer's Report: Rodney Linehan e-mailed financials to all Board members in advance of the meeting. Rodney reported that the clubs deposit and damages check was cashed by the Humble Civic Center, so they have accepted and granted our contract for the 2015 Houston Gem & Mineral Show September 24-27. The remaining financials were reviewed and the Board was satisfied with the status of the club accounts.

Office, Committee, and Section Reports

Archeology Section: The next Archeology Section meeting is Thursday, May 7, 7:30pm. The program will be presented by **Bob Moore: Avebury Britain's Neolithic Monument. This monument is larger than Stonehenge.**

Beading Section: Diane Sisson reported that the Beading Section will meet on Saturday, May 16, 2015 at 1:30 p.m. The project will be a spiral bracelet. Notice for the project will be posted to the webpage and will include a list of all tools and materials required to complete the project. During the group's previous meeting, Kim Fusilier demonstrated techniques for constructing and finishing S-Hook Closures to be used as fasteners on bracelets and necklaces.

Day Light Section: The next meeting is scheduled for Wednesday May 6, 2015, 1:00 to 3:00 p.m. Very Important Meeting!! Members present will help inventory supplies, equipment, and tools in the cabinet Frances Arrighi left to the Day Light Section. The list of possible program topics suggested during the March meeting will be reviewed and either voted on for inclusion in the

current year's schedule of programs or ranked in the order of interest by those members present at the May 6 meeting. Based on the inventory, program topics should be easier to plan. Members interested in learning certain techniques or practicing particular skills should come to the May 6 Section meeting at 1:00 p.m. to ensure that their preferences are at the top of the possible programs list. Shop fees DO NOT apply for Day Light Section members during Day Light Section meeting hours.

Education Committee: Carrie Hart reported a **Calibrated Cabochon Forming Class** will be held Sunday May 17, 2015 from noon to 5 p.m. The class is open to eight students. So far five students have registered. The class will cover the techniques and raw materials required to master the skill of cutting and polishing a calibrated cabochon. (A *calibrated cabochon* is a stone cut to specific dimensions and shapes that are designed to fit into commercially manufactured jewelry findings available from various sources.) Use of premade findings can give a professional look to jewelry projects and speed their completion. The class will be held on Sunday May 17 from noon to 5 p.m. and costs \$75.00. Ray Kizer is the instructor. Please contact Carrie Hart at classes@hgms.org if you are interested in this or any other HGMS class. She will add you to the list and email students on the standby list to let them know if anyone cancels.

Carrie is looking for a dichroic glass instructor to teach a class.

Gemstones & Faceting Section: The next meetings are on Wednesday, May 13, 2015 and June 10, 2015. Meetings begin at 6:30 p.m. The topics for the sessions will be announced in a forthcoming email blast.

Lapidary and Silversmithing Section: The next regular meeting is Monday, May 18, 2015 at 7:30 p.m. The program will be on PMC (Precious Metal Clay): PMC is a unique material that is shapeable and can be textured like clay. After the piece is formed, it can be fired (heated in a kiln) and it turns into metal (silver or gold) in the shape that it was given. Open Shop will be held 5:00–7:15 p.m. prior to the meeting.

The June 20, 2015 program will be on Metal Texturing. Imagine a smooth surface of metal (silver or gold), then being able to press into the surface a set of parallel lines, or small dimples (depressions), or a set of fine scratches. All this and lots more fall into the category of Texturing.

Mineral Section: The next regular meeting is Wednesday, May 5, 2015 at 7:30 p.m. The program will be a review of the Houston Fine Mineral Show (April 24–26) wrap-up. Let other Section members gaze at your shiny new specimens while telling us how you came about it and from which dealer. Also, please share your experience of the show, good or bad, with the rest of the Section. What did they do correctly or poorly in your mind? What did they do that could benefit our show in September, etc. Refreshments will be provided.

Paleo Section: The next meeting is scheduled for Tuesday, May 19, 2015 at 7:30 p.m. Neal will test the knowledge of the Section by using some of the questions he posed to his science Olympiad students—are the Paleo members smarter than a nine year old? Neal's student, Cole Moore, won 1st at the state competition, and he is now going on to the national competition.

Publicity Committee: The Publicity Committee had a table at the April 24–26 Fine Mineral Show and promoted the HGMS and our September show. Clyde McMeans set up the club information table in the Embassy Suites front lobby. It was successfully staffed by numerous volunteers during the show. Over 170 email addresses were collected during the show.

Tamara Ritchie reported that she has set up new Pinterest and Facebook pages to help promote the HGMS show and club activities.

New Pinterest page: www.pinterest.com/hgmsorg

New Facebook page (public): www.facebook.com/HGMS.org

Existing Facebook group (members only):
www.facebook.com/groups/261418120558910/

All members: Please send pictures you'd like to have posted to publicity@hgms.org and specify whether you want them on Pinterest, Facebook public, new Web site (coming this summer/fall) or all three. Please watermark your images. If you don't know how, ask a friend or fellow HGMS member who is computer/smartphone savvy.

Tentative upcoming events: Tamara received no response from the organizer of the Stafford Centre Bead Market (June 6–7). She is still looking for small venues for late May and June. She met with representatives from various guilds in Houston at the Houston Contemporary Craft Museum on April 25 during the Houston Museum Experience. The Quilt Guild of Greater Houston will hold their annual Quilt show in July. The Houston Bead Society is having their annual Beadworks show, but it's not until October. She will reach out to Houston Museum District and HCCC to see requirements for being part of the next experience in July.

Show Committee: The Show Committee held their first show party at Scott Singleton's place on Saturday May 2. The event was well attended, and the food was excellent. On May 9, 2015 the committee will host a one-day field trip to Lake Summerville, guided by Chase Jennings. This trip is open to all members who have volunteered for a slot to help work on the show. General members will be welcome at all future parties and field trips if they sign up now. Talk to Scott.

The Show Committee is reinstating its regular monthly meeting on the second Tuesday—May 12, 2015. All of the larger subcommittees have already

been meeting, and they have taken care of their business as needed. But it is time for the rest of us to start meeting. We need to plan those things that will be coming up during the summer, starting with June which is just around the corner.

Youth Section: The next meetings are on Saturday, May 16 and June 6, 2015 from 10:00 a.m. to noon.

BBG Editor and Webmaster: Phyllis George reported that the deadline to receive articles is Wednesday May 6, 2015. She is still waiting for some of the Sections to complete and submit their updated Web pages as part of the Web site update. They should place photographs in the text where they belong. Send the updates to her as a Word file. Send an additional separate copy of the picture. To date, there has been only one response.

Old Business

1. **Club House Repairs / upgrades:** Neal Immega completed installation of a commercial pneumatic system to close the side entrance. Ray Kizer is aware that the doorbell also needs to ring in the meeting room.
2. **Security System:** Garth Clark: Eight of the ten cameras of the new security system are installed. There are sixteen channels, so there are enough channels to add smoke detectors. Garth has secured a cooling fan for the recorder. Items such as a cage, cable lock, and additional wire for the last two cameras and smoke alarms are next.
3. **Member Badges:** Beverly Mace received the recent badge order, and they are available for pickup in the membership information area in the meeting room. The Board was reminded that many vendors at the shows will give a discount to club members. Wearing a badge calls attention to membership.
4. **Last Call for 2015 Dues is May 9:** Neal Immega will start checking the dues list for everyone using the shop. You **MUST** be a member on HGMS to use the shop. No exceptions, and no IOUs for dues.

New Business

1. **General Meeting Presentation:** Tuesday May 26, 2015 at 7:30 **Nathalie Brandes – The Famous Silver Mines of Kongsberg, Norway.** They are perhaps the most aesthetic and exquisite silvers in the world. Dr. Nathalie Brandes will take us on a tour that features such places as the King's Mine, The Norwegian Mining Museum, and the "Silver Vault," and walking around the town taking in the sights. Anyone who has seen Nathalie's presentations in the past knows this promises to be a very lively and entertaining program.
2. **1st Vice President Paul Brandes advises that we currently have no pre-**

sentations booked for June 2015 and beyond. He asks for help from the BOD and the general membership to secure outside speakers or for volunteers from the membership to fill the open slots for the summer months. Please contact Paul if you would like to volunteer or if you have solid suggestions.

- 3. 2015 HGMS Earth Science/Jewelry Arts Scholarship:** We have received three completed applications for Board member consideration. They are from
- a. **Ms. Presly Carr** who is currently working on her BS in Geology at the University of Houston.
 - b. **Ms. Uma Lad** who is currently working on BS in Environmental Science at Southern Methodist University Dallas.
 - c. **Mr. Daniel Morales** who has been accepted and is transferring to Texas A&M University to work on his BS in Geology. The BOD will take time to review the three candidates and will have a decision completed before the next General Meeting on May 26, 2015.

Adjourn: Diane Sisson moved to adjourn the meeting, and Gary Tober seconded. The motion passed unanimously, and the meeting was adjourned at 8:30 p.m.

Hock a Rock?

by Chip Burnette

(with apologies to Joyce Kilmer)

from The Rock Prattle 4/2015

I think that I shall never hock
Something as beautiful as a rock.

A rock patterned and lovely just rough,
Or cabbed for jewelry – not too tough.

A gem faceted to sparkle divine,
Deep red beauty, glowing like wine.

A mineral specimen fascinating to see,
What could be better? Beats me!

Verse may be written just to mock,
But only God can create a rock.

So pawn some trinkets, silver or gold,
But rocks are too precious, I'm told.

Bench Tips

by Bob Smith

Get all 101 of Brad's bench tips in "Bench Tips for Jewelry Making" on Amazon.com

www.BradSmithJewelry.com

Magnetic Tool Bar

An easy way to keep all your files organized at the bench is to use a magnetic tool strip. They're not expensive, and they help keep a lot of small tools from cluttering the bench top. I got a couple of them from Harbor Freight for about \$5 each. See <http://www.harborfreight.com> and search on "magnetic-holder."

My only regret was putting some of my small drills on the magnets. The drills got a little magnetized, and now they stick together when I carry them in a bottle in my toolbox.



Silver Discoloration

Working with jewelry involves an ever-increasing number of skills. Knowledge of chemistry is one that comes into play when dealing with a discoloration on metal that's caused by a chemical reaction between it and the environment.

In the case of sterling silver, there are three discolorations we typically encounter: a tarnish, a firescale, and a firestain. Each is different in its cause, in its cure, and in its prevention. All three have to do with the metals in the sterling alloy (92.5% silver and 7.5% copper) and how they react with oxygen and the heat of soldering or with pollutants in the air over the long term.

Tarnish is a grayish coating that builds up slowly on the surface because of a reaction of the silver with sulfur-based compounds in the air. Typically, these are pollutants from the burning of petroleum fuels, but they can come from other sources as well. I once tarnished all the silver in my display case by putting a pretty specimen of iron pyrite in with the jewelry. Turns out pyrite has sulfur in it! Sulfur combines with the silver to form a grayish silver sulfide film on the surface.

Preventing tarnish involves keeping sulfur away from the metal. Plastic bags will help, and anti-tarnish strips are available from jewelry supply companies to pack near your items. Tarnish is easily removed by hand polishing with a

jeweler's cloth or with one of the products sold for cleaning the good silverware for holiday dinner.

Another way is to remove it chemically. Put a piece of aluminum in the bottom of a dish large enough to contain your piece. Heat enough water to cover the silver. Mix in 2 tablespoons of sodium carbonate per cup of water, and pour into the dish. Be sure the silver touches the aluminum. Sodium carbonate is the main ingredient in washing soda. Read the labels in grocery and hardware stores.

The second type of tarnish is called firescale. It is the dark gray to charcoal-colored film that forms on sterling or other copper alloys like brass or bronze when we heat it with a torch. The copper in the alloy reacts with oxygen in the air to form a dark cupric oxide coating on the surface. Luckily, the oxide is easily removed by dissolving it in a mild acid—generally called a pickle. It's important that we not let firescale form on a solder joint because it blocks the flow of solder over the joint.

There are two ways to prevent firescale. Most common is to use a flux, a borax-based solution applied to the metal before soldering. When melted, borax forms a thin glassy layer that keeps oxygen away from the metal.

A second way is to do your soldering on a charcoal block. Together with the flame, charcoal greatly reduces the amount of oxygen in the area being soldered. In either case, oxygen is prevented from reaching the metal, so no cupric oxide firescale is formed.

A second oxide can also be formed when soldering copper or a high-copper-content alloy like bronze or brass. It's called cuprous oxide and is reddish in color. That's why a black-looking piece you put in the pickle sometimes comes out red. Problem is that while the black cupric oxide is dissolved by a pickle, the red cuprous oxide is not. The discoloration can be sanded or polished off, but an easier way is to use a "super pickle." This is a mixture of fresh pickle with a healthy shot of hydrogen peroxide from the local store.

I've saved the worst form of discoloration, firestain, for last. Think of firescale (above) as like getting dirt on your shirt that you have to wash off. Firestain is like getting ink on it. The discoloration is not just on the surface; it seeps down and stains the material. Firestain happens when we heat a piece of silver too hot, too long, and/or too many times.

Firestain occurs when the oxides start to build up below the surface of the metal. You generally don't notice it until after polishing. It appears as a darker area of the surface and is easy to spot when viewed under light bounced off a piece of white paper. Because firestain is below the surface, there's no easy bench tip solution. Depletion gilding may work for some pieces. Otherwise, removing it calls for sandpaper and aggressive polishing.

A much better approach for a piece that will require a large number of solderings is to protect the metal from developing firestain by applying liberal amounts of a firecoat. Regular soldering flux will provide some protection but is not as effective as preparations made specifically for the task. Jewelry supply companies offer several commercial solutions, but my favorite is the Prips mixture in alcohol. I use it every time I intend to do more than two solderings on a piece.

AFMS—Having Fun: Junior Activities

by Jim Brace-Thompson, Jr. Activities Chair
from AFMS Newsletter 5/2015

More Books for Rockhounds, Young and Old

Last month, I reported on a couple of books I spotted at the annual winter convention of the American Library Association intended for young rockhounds. Well, books seem to be something of a theme so far this year. Just yesterday, my local Ventura club here in California received a catalog in our P.O. Box from the Gem Guides Book Company, which celebrates its 50th anniversary this year.

Their Junior Rockhound & Outdoor Explorer category includes over 135 books. If you're looking for books as gifts for your own child or grandchild or to add to a club library for all of your junior members, you'll find the entire range of our hobby represented. Sample titles include *True or False: Rocks & Minerals*; *Experiments with Rocks & Minerals*; *Emma's First Agate*; *Dave's Down-to-Earth Rock Shop*; *How to Be a Rock Collector*; *Julie the Rockhound*; *Color Your Life with Crystals*; *Gemstones*; *What's So Mysterious About Meteorites*; *Oh Say Can you Say Di-No-Saur*; *The Usboure Dinosaurs Sticker Book*; *Earthquakes*; *Life of a Miner*; *Caves*; *Volcanoes*; *Gold Rush: The Young Prospector's Guide to Striking it Rich*, and much more. You'll even find the full range of Diamond Dan Activity Books.



Gem Guides serves as both a publisher and distributor for books on all topics rock related—and for all ages, not just kids. Categories for adults include Rocks, Minerals, & Gemstones; Astronomy & Space Rocks; Crystal Healing; Jewelry Crafts; Prospecting & Treasure Hunting; and Regional Interest for outdoor, nature, and travel. They also offer the entire *Roadside Geology* series, the *Geology Underfoot Series*, the *Gem Trails Series*, the *Falcon Rockhounding Guide Series*, and just about every other rock-related series imaginable. Check them out online at www.gemguidesbooks.com, or email or write for their current catalog at sales@gemguidesbooks.com, 1275 West 9th Street, Upland, California 91786. For 50 years, Gem Guides Book Company has been leading us to sources that make learning both interesting and fun!

SCFMS Safety Report--Safety In The Shop

*by Owen Martin, SCFMS Safety Chair
from SCFMS Newsletter 5-6/2015*

**HURRICANE SEASON! IT'S THAT TIME OF YEAR AGAIN....
PLEASE VISIT www.ready.gov today!**

Mother Nature is getting a jump on us this year. As I'm writing this article, I'm also watching coverage of Tropical Storm Ana as it is making landfall on the south-central East Coast. Meanwhile, Tornado Alley has been raging all week with dozens of tornadoes from Texas and Oklahoma to points further north and east. And the "icing" on the cake... Colorado gets a mid-May blizzard.

Lots of fun if you are a weather bug, but not so much if you are someone who got caught in one of these storms. So let's talk preparation.

I will start with **www.Ready.gov**

On the home page at the top of the screen, it has some great links:

1. Be informed, 2. Make a Plan, 3. Build a Kit

Each section has great information to help us stay prepared.

Notably with respect to "Being informed," you can enter an email address on the Web site that will send you information to help stay abreast of the weather situation.

The Ready.gov Web site also has a section called "Know your Risks."

The links in the section provide guidance on preparing for all sorts of situations ranging from earthquakes to flooding!

Personally, since I live in Houston, I need to prepare for hurricanes more than anything else. My top priority is to keep my vehicles gassed up and ready to go. Next, if I need to evacuate I will have a travel plan and destination already set.

Rule #1 for evacuations: **If you are going to leave, then leave as early as possible.**

This includes taking care of my Mom since she doesn't drive much anymore, and also a place for my pets.

So needless to say, that's just the tip of the iceberg. I strongly encourage each of you to visit the **Ready.gov** Web site and use it to help prepare yourself for whatever Mother Nature will dish out this summer.

**Get last-minute news about club events by sending a note
to Jim Kendall at kendal_ja@yahoo.com**



The Austin Gem and Mineral Society, Austin, TX
Will host the American and South Central Federations Annual Show
Make plans now to attend this Show
You don't want to miss this one.



AUSTIN GEM AND MINERALS SOCIETY 53rd Annual Gemstone, Jewelry, Mineral & Fossil Show.

GEM CAPERS



This year's theme:
PEGMATITES



October 23, 24 & 25, 2015
Fri. & Sat. 9am -6pm
Sun. 10am - 5pm

Palmer Events Center, 900 Barton Springs Road

FREE Mineral Specimen

While supplies last

www.GemCapers.com

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Men are Seldom Depressed—Men Are Just Happier People

from Internet, via Mountain Gem 4/2013, via The Roadrunner 8/2014

Nicknames

If Laura, Kate, and Sarah go out for lunch, they will call each other Laura, Kate, and Sarah.

If Mike, Dave, and John go out, they will affectionately refer to each other as Fat Boy, Bubba, and Wildman.

Eating Out

When the bill arrives, Mike, Dave, and John will each throw in \$20, even though it's only for \$32.50. None of them will have anything smaller, and none will actually admit they want change back.

When the girls get their bill, out come the pocket calculators.

Money

A man will pay \$2 for a \$1 item he needs.

A woman will pay \$1 for a \$2 item that she doesn't need, but it's on sale.

Bathrooms

A man has six items in his bathroom: toothbrush and toothpaste, shaving cream, razor, a bar of soap, and a towel.

The average number of items in the typical woman's bathroom is 337. A man would not be able to identify more than 20 of these items.

Arguments

A woman has the last word in any argument. Anything a man says after that is the beginning of a new argument.

Future

A woman worries about the future until she gets a husband.

A man never worries about the future until he gets a wife.

Marriage

A woman marries a man expecting he will change, but he doesn't.

A man marries a woman expecting that she won't change, but she does.

Dressing Up

A woman will dress up to go shopping, water the plants, empty the trash, answer the phone, read a book, and get the mail.

A man will dress up for weddings and funerals.

Thought for the Day

A married man should forget his mistakes. There's no use in two people remembering the same thing!

Native Element - Copper

by Al Pribula

from *The Conglomerate* 4/2/15

In the “coinage metal” family, copper is definitely the “poor relation.” (They don’t even give copper medals at the Olympics.) Historically, it was a very important element, and it continues to have many important uses, but it never has had the almost mesmerizing effect of its glitzier relatives gold and silver. It’s more the “blue-collar” member of the family, being used for more utilitarian purposes than its sister (or is it brother? I still haven’t figured out whether elements are male or female) elements. Even though it is much more common than either of the other two (at a concentration of about 50 parts per million in the earth’s crust, it is over 700 times as abundant as silver, and about 50,000 times as abundant as gold), it is found in native form at a smaller fraction of its occurrences than either of the other two. This means that, in order to be used in its metallic form, its ores must be smelted, and this means that its widespread use came much later than its two more valuable siblings. (I knew that I’d find a gender-neutral word!) However, once a method was found to win it from its ores, it (or more correctly, bronze—its alloy with tin) gave its name to one of the historical ages—The Bronze Age, extending roughly from 3000–1300 BCE. The superiority of bronze over stone for tools and weapons led to great cultural changes, including the development of writing, organized warfare, navigation, and extensive trade routes. However, once methods were developed to smelt iron ores, iron and steel tools and weapons proved superior to ones made of bronze, and the Iron Age began.

The name copper comes from the Old English name *coper*, which in turn is derived from the Latin name *cuprum* (which is in turn derived from *Kyprios*, the Greek name for the island of Cyprus—a significant producer of copper in ancient times). The Latin name gives rise to its chemical symbol of Cu. Its name in other languages is often some variation on this name (for example, *kupfer* (German), *kobber* (Norwegian, Danish), *koper* (Dutch), *civre* (French), *cobre* (Spanish, Portuguese), *kopar* (Icelandic), *koppar* (Swedish)), but is *chalcos* in Greek, *rame* in Italian, and *me* in Czech and Slovak. It has been known since ancient times. It was associated with and believed to be influ-

enced by the planet Venus, and its alchemical symbol (♀) was the same as used for that planet (and for the female gender as well). (Hmmm...maybe copper is a female element.) Its distinctive color sometimes leads to misleading place names. For example, Cap d’Or (“gold cape”) in Nova Scotia was named because it was thought that the flashes of light reflecting from the



Copper
Tsumeb, Namibia
photo: Volker Betz
w/permission

rocks were from gold, but are in fact from veins of copper. And Cañon de Cobre (“Copper Canyon”) in Mexico was named for the copper-colored rocks which form some of its layers, but which turn out not to be, or even contain, copper.

Copper crystallizes in the same face-centered cubic (cubic closest-packed) structure as gold and silver, and is in the same hexoctahedral class of the isometric crystal system. Crystals of copper are more common than those of gold or silver, but still relatively uncommon, typically showing cube or octahedron faces, but also the dodecahedron, tetrahexahedron, and hexoctahedron. The crystals are often elongated and form branching, arborescent, or dendritic groups. It can form elongated twins according to the spinel law, and can be found pseudomorphing copper minerals such as azurite or cuprite. It can also be found replacing non-copper-containing minerals such as quartz, calcite, and aragonite. When it encloses pebbles or cobbles, it can be found as “skulls” when the central object weathers away. Most commonly, it is found as irregular masses, grains, plates, or wires. Masses as large as 420 tons have been found in the Upper Peninsula of Michigan. It often contains silver (so-called “half-breeds”), arsenic (variety whitneyite, minerals algodonite and domeykite), bismuth, iron, antimony, or mercury. It is found associated with primary copper minerals such as chalcocite (Cu_2S) or chalcopyrite (CuFeS_2), or secondary copper minerals such as malachite, azurite, cuprite, tenorite, and chrysocolla. It also is found in association with a large number of non-copper minerals such as datolite, calcite, smithsonite, hematite, selenite, quartz, cerussite, prehnite, and basalt. Often, it has a greenish surface coloration due to alteration to malachite or other secondary copper minerals. It is also found “native” as the intermetallic compounds auricupride (Cu_3Au), danbaite (CuZn_2), kolymite (Cu_7Hg_6), tetraauricupride (AuCu), and a number of others.

Copper is element number 29 in the periodic table, and is in the same family with gold and silver. It shares many characteristics with its siblings in the family, but differs in color (it is the only metal besides gold with a color (reddish-orange) other than gray or silver) and chemical reactivity (it is much more reactive than silver or gold, but still of low reactivity relative to other metals such as iron or zinc). Its higher chemical reactivity is the reason why it is found much less frequently than silver or gold as the native element. It has about the same hardness as the other members of the



Copper
Phoenix Mine
Keweenaw Co., MI
photo: Rob Lavinsky,
w/ permission

group (2½-3), and has a comparable melting point (1083°C; 1981°F), but a lower specific gravity (8.9 when pure). Pure copper has a much less red color than is normally thought; most samples are a redder color due to a thin surface coating of cuprite (Cu₂O), or darkened by a coating of tenorite (CuO) or copper sulfides.

Despite the relatively high abundance of copper (relative to gold or silver) in the earth's crust, it is relatively rare in native form. By far the largest deposits of native copper are found in the Upper Peninsula of Michigan, associated with prehnite, epidote, datolite, zeolites, and calcite. It can be found there in crystals to over 1" in size. Among the most prized and beautiful specimens found there are crystals which have been overgrown and enclosed by calcite. Many millions of tons of "red metal" have been mined there over the years. Native Americans used these deposits beginning about 4000 years ago to produce utilitarian objects such as knives, projectile points, and awls, as well as decorative objects such as bells, pendants, and beads. Both the unworked nuggets and finished objects were traded widely with other, more distant tribes, ending up as far as Tennessee and Arkansas. The ultimate source of these objects was not located by European settlers until about 1840, at which time large-scale mining began which lasted for over 150 years. The last mine in the UP (the White Pine) closed in 1995 (but there is some talk of reopening it), but the dumps of mines such as the Calumet, Phoenix, Wolverine, Adventure, and Quincy are still searched for native copper specimens that might have been missed by the original miners. The presence of large supplies of copper and iron (found in the UP and in Minnesota) led to the rise of Detroit as the center of the US automobile industry.

In addition to the deposits in the UP, much smaller deposits of native copper have been found in NJ and CT in the US, as well as in the oxidized zones of copper mines in UT, AZ, NM, and northern Mexico, associated with cuprite, malachite, and azurite. A large deposit similar to those in NJ and CT was found and mined in Corocoro, Bolivia (which also yields the well-known pseudomorphs of copper after aragonite). Copper mines in Canada, Chile, Sweden (Falun), Russia, Namibia (Tsumeb), and England (Cornwall) have also produced some native copper specimens. The vast majority of copper is refined from ores such as chalcopyrite, malachite, and azurite, with lesser amounts coming from ores rich in cuprite and tenorite.

Copper has such a variety of uses that it is second only to iron as an essential metal in modern civilization. Current production is about 13 million tons annually (most of it smelted from ores, not found native). Its major use (about 60%) is in electrical wiring (silver is a better electrical conductor, but is obviously much more expensive), but it also finds use in alloys such as bronze and brass (alloyed with zinc) (used for coins, containers, knives, jewelry, statuary, and musical instruments such as bells and trumpets), and German silver (alloyed with zinc and nickel). Since it is such a good heat conductor, it has

been used to make or coat cooking pots and pans, as well as heat exchangers for industrial equipment. It is used in construction for roofing and for plumbing. Engravings are made using copper plates, and the hulls of wooden sailing ships were sheathed in copper to keep them free of barnacles. It is used in coinage, but due to price increases, that use is decreasing. (In 1982, the composition of the US one-cent piece was changed from 95% copper to zinc with a thin copper coating. Also, despite being called a “nickel,” the US five-cent piece is in fact 75% copper and only 25% nickel. The gold-colored US dollar coins are mostly copper, with smaller amounts of zinc, manganese, and nickel.) It is an essential element to all species, but can be toxic in excess. It is contained in various copper-containing enzymes. It is a constituent of hemocyanin, a blue pigment which is the oxygen-carrying material in the blood of some species (notably horseshoe crabs, oysters, and octopi).

SCFMS—From Ann’s View

by Ann James

*SCFMS Executive Vice-President
from SCFMS Newsletter 5-6/2015*

Greetings, SCFMS Rockhounds: Well, here we are already into May—where is the year going? How is the year unfolding for many of our clubs? Are you able to pull it together to provide your members with good programs for your meetings? What about field trips? How about classes that you are hosting for your clubs? These are areas that can be somewhat difficult for clubs that have been around for quite some time. Ideas for new programs, trips, and classes just get harder to come by. I know that my club has been having a hard time coming up with new things to do.

Wouldn’t it be nice if clubs shared their ideas in these areas? I have spent quite some time thinking as to how we could pull this thing together whereby clubs in the federation could share what they are doing. Will let you know what is determined to be the best way. If anyone has suggestions, please contact me at earthscache3@yahoo.com.

On a different note—it seems like our SCFMS Annual Meeting is far off, but it is really just around the corner. I hope that many of you are making plans to attend the meeting and show; it certainly will be an active one. As a reminder, the SCFMS is also hosting the AFMS meeting. I want to encourage everyone attending, if you can, please submit an exhibit for competition. We have not had many in recent years, and it would be nice to have a good showing for the Federation Meeting.

Until later, Ann James

Volcanoes: Are They Good or Bad?

by H. Hoogeterp

from *Rock Dust* 4/2015, via *Chippers' Chatter* 5/2015

Volcanoes—what do you know about them besides being one of the most popular science fair projects and that they are very dangerous when active? For example, the eruption of Mt Tambora (on the island of Sumbawa, Indonesia) in 1815 killed about 100,000 people. The explosion was heard on Sumatra island more than 2,000 km (1,200 mi) away. The eruption caused global climate anomalies that included the phenomenon known as “volcanic winter.” 1816 became known as the “Year Without a Summer” because of the effect on North American and European weather. Crops failed and livestock died in much of the Northern Hemisphere, resulting in the worst famine of the 19th century.

Not all volcanoes are that dramatic. For example, Lake Nyos is a crater lake in the Northwest Region of Cameroon. On 8/21/1986, it had an event that released a huge CO₂ (carbon dioxide) cloud which silently killed some 1700 people in the area and their livestock.

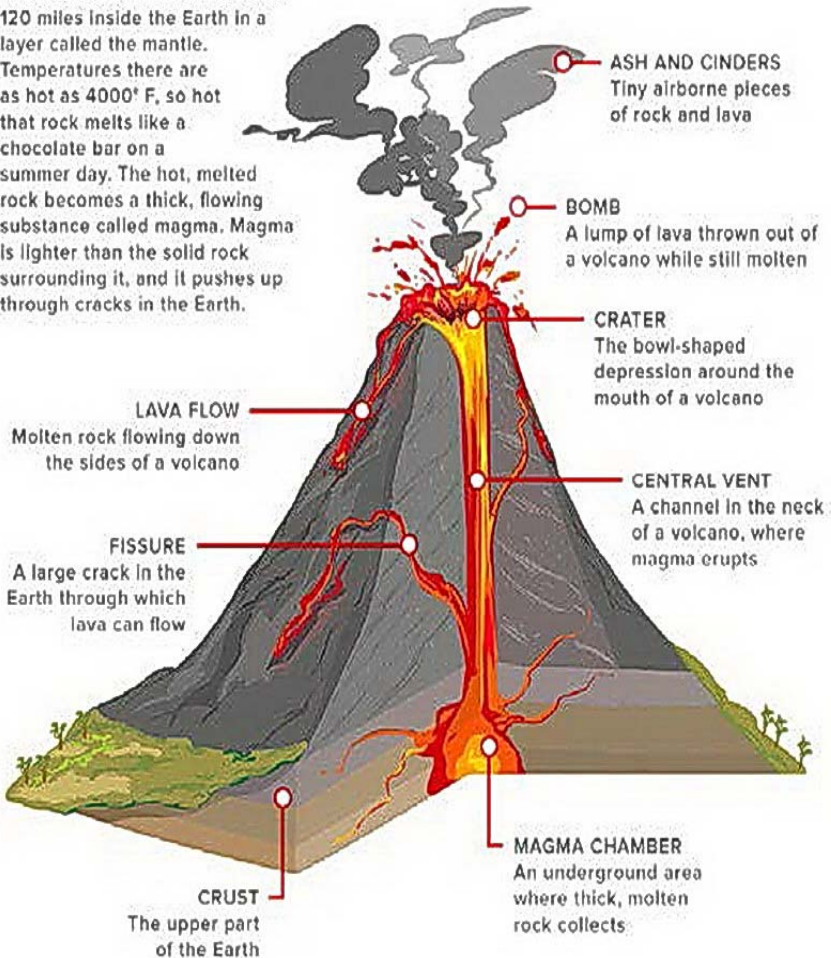
Now let's take a look at the volcano's anatomy. Some 1500 or more volcanoes are listed as being active, and at least 20 of them are erupting in one form or another. 75% of them are located near the edges of tectonic plates, and all are formed by some sort of vent to the earth's core magma.

There are four major types of volcanoes, classified according to their shape, composition of their magma, and the way they erupt. They are:

- Composite Volcanoes (also known as Stratovolcanoes)—the most common type of volcanoes, generally steep-sided cone-shaped mountains, most of which have a crater at the summit and erupt with different kinds of lava, ash, and rock.
- Shield Volcanoes—wide, gently sloping volcanoes that have low viscosity lava flows.
- Cinder cone volcanoes—smaller, single-vent volcanoes that have short-lived eruptions and often have bowl-shaped craters at the summit.
- Lava domes—rounded volcanoes which erupt with very viscous lava that doesn't flow great distances.

It is estimated that around 80% of the Earth's surface, above and below sea-level, originated because of volcanic activity. The magma, molten rock, and debris from volcanic eruptions have formed some major landforms like islands, mountains, plateaus, and plains. The volcanoes didn't just contribute to land masses; gaseous emissions from volcanoes over hundreds of millions of years are believed to have resulted in much of the early atmosphere. Vol-

The roots of volcanoes lie 40 to 120 miles inside the Earth in a layer called the mantle. Temperatures there are as hot as 4000° F, so hot that rock melts like a chocolate bar on a summer day. The hot, melted rock becomes a thick, flowing substance called magma. Magma is lighter than the solid rock surrounding it, and it pushes up through cracks in the Earth.



canoes are not only destructive, but they create new islands, and some of the most productive soils around the world are in the shadows of a volcano. Also, volcanoes are known for making many of the desirable gems and mineral deposits we seek. For example obsidian is also known as volcanic glass. Diamonds require volcanoes to help them form. Thunder eggs and many other crystals are formed in igneous rocks.

So it looks like volcanoes are not only a fact of life here on earth; they are a good thing for without them, many of the items we go out collecting for wouldn't exist. Granted, they can be very destructive to start with, but once they go dormant or extinct, the benefits usually outweigh the destruction. Did you know volcanoes are not just an earth phenomenon? The largest

known volcano is on Mars. Olympus Mons is a shield volcano 624 km (374 mi) in diameter (approximately the same size as the state of Arizona), 25 km (16 mi) high, and is rimmed by a 6 km (4 mi) high scarp. A caldera 80 km (50 mi) wide is located at the summit of Olympus Mons. Also, did you know that the object with the most volcanic activity in our solar system is Io, one of Jupiter's moons? Io is covered in volcanoes; its surface is constantly changing due to the large amount of volcanic activity.

Tool Descriptions

from SFMS Lodestar 4/2009, via The Rockhounder 1/2015

D RILL PRESS: A tall upright machine useful for suddenly snatching flat metal bar stock out of your hands so that it smacks you in the chest and flings your beer across the room, denting the freshly-painted part which you had carefully set in the corner where nothing could get to it.

WIRE WHEEL: Cleans paint off bolts and then throws them somewhere under the workbench with the speed of light. Also removes fingerprints and hard-earned calluses from fingers in about the time it takes you to say, "What the...??"

ELECTRIC HAND DRILL: Normally used for spinning pop rivets in their holes until you die of old age.

SKILL SAW: A portable cutting tool used to make studs too short.

PLIERS: Used to round off bolt heads. Sometimes used in the creation of blood-blisters.

BELT SANDER: An electric sanding tool commonly used to convert minor touch-up jobs into major refinishing jobs.

HACKSAW: One of a family of cutting tools built on the Ouija board principle. It transforms human energy into a crooked, unpredictable motion, and the more you attempt to influence its course, the more dismal your future becomes.

VICE-GRIPS: Generally used after pliers to completely round off bolt heads. If nothing else is available, they can also be used to transfer intense welding heat to the palm of your hand.

WELDING GLOVES: Heavy-duty leather gloves used to prolong the conduction of intense welding heat to the palm of your hand.

OXYACETYLENE TORCH: Used almost entirely for lighting various flammable objects in your shop on fire. Also handy for igniting the grease inside the wheel hub you want the bearing race out of.

TABLE SAW: A large stationary power tool commonly used to launch wood projectiles for testing wall integrity.

HYDRAULIC FLOOR JACK: Used for lowering an automobile to the ground

after you have installed your new brake shoes, trapping the jack handle firmly under the bumper.

EIGHT-FOOT LONG YELLOW PINE 2X4: Used for levering an automobile upward off of a trapped hydraulic jack handle.

E-Z OUT BOLT AND STUD EXTRACTOR: A tool ten times harder than any known drill bit that snaps neatly off in boltholes, thereby ending any possible future use.

BAND SAW: A large stationary power saw primarily used by most shops to cut good aluminum sheet into smaller pieces that fit more easily into the trash can after you cut on the inside of the line instead of on the outside edge.

TWO-TON ENGINE HOIST: A tool for testing the maximum tensile strength of everything you forgot to disconnect.

CRAFTSMAN 1/2 x 24-INCH SCREWDRIVER: A very large pry bar that inexplicably has an accurately machined screwdriver tip on the end opposite the handle.

AVIATION METAL SNIPS: See hacksaw.

PHILLIPS SCREWDRIVER: Normally used to stab the vacuum seals under lids and for opening old-style paper and tin oil cans and splashing oil on your shirt; but can also be used, as the name implies, to strip out Phillips screw heads.

STRAIGHT SCREWDRIVER: A tool for opening paint cans. Sometimes used to convert common slotted screws into non-removable screws.

PRY BAR: A tool used to crumple the metal surrounding that clip or bracket you needed to remove in order to replace a 50-cent part.

HOSE CUTTER: A tool used to make hoses too short.

HAMMER: Originally employed as a weapon of war, the hammer nowadays is used as a kind of divining rod to locate the most expensive parts adjacent the object we are trying to hit.

MECHANIC'S KNIFE: Used to open and slice through the contents of cardboard cartons delivered to your front door; works particularly well on contents such as seats, vinyl records, liquids in plastic bottles, collector magazines, refund checks, and rubber or plastic parts. Especially useful for slicing work clothes, but only while wearing them.

DAMMIT TOOL: Any handy tool that you grab and throw across the garage while yelling "DAMMIT" at the top of your lungs. It is also, most often, the next tool that you will need.

BENCH SANDER: Electric tool used to turn major refinishing projects into sawdust. Secondary uses are removing ridges from knuckles and all traces of grooves on fingers.

Show Time 2015

May 23-24	Wheaton, IL	Midwest Federation (MWF) Show
June 12-15	Lodi, CA	California Federation (CFMS) Show
June 13-14	Grapevine, TX	Arlington Gem & Mineral Club Grapevine Convention Center, 1209 S. Main anastasi.chaparro@att.net; www.agemclub.org
July 10-12	Houston, TX	Luster Fair--Gems & Minerals from India George R. Brown Convention Center www.thelusterfair.com/promotional-plan.html
July 16-18	Cody, WY	Rocky Mountain Federation (RMFMS) Show
August 8-9	Baton Rouge, LA	Baton Rouge Gem & Mineral Society Fraternal Order of Police
August 15-16	Bossier City, LA	ArkLaTex Gem & Mineral Society Bossier City Civic Center, 620 Benton Rd. larockclub@gmail.com; larockclub.com
August 22-23	Jasper, TX	Pine Country Gem & Mineral Society Events Center
September 25-27	Humble, TX	Houston Gem & Mineral Society Humble Civic Center, 8233 Will Clayton Pkwy. 5 miles east of Bush Intercontinental Airport 1 mile east of Hwy. 59 www.hgms.org; showchair@hgms.org
October 9-11	Mount Ida, AR	Annual Quartz Crystal Digging Contest director@mtidachamber.com www.mtidachamber.com
October 23-25	Austin, TX	AFMS/South Central Fed. (SCFMS) Shows Palmer Events Center Exhibit Hall 900 Barton Springs Road susanp@austingemandmineral.org http://www.austingemandmineral.org/
November 21-22	Mesquite, TX	Dallas Gem & Mineral Society Mesquite Rodeo Center Exhibit Hall 1800 Rodeo Dr.; bravo1bravo@sbcglobal.net http://www.dallasgemandmineral.org/
December 4-6	El Paso, TX	El Paso Mineral & Gem Society El Maida Auditorium, 6331 Alabama e-mail: gemcenter@aol.com

2015		June					2015
Sun	Mon	Tue	Wed	Thu	Fri	Sat	
	1	2 7:30 Board Meeting	3 10-3 Shop Open 1:00-3:00 Day Light Section 7:30 Mineral Section	4 7:30 Archeology Section	5	6 10-5 Shop Open 10-12 Youth Section	
7 10-4 Shop Open	8	9 7:30 Show Committee	10 10-3 Shop Open 6:30 Gemstones & Faceting Section	11	12	13 10-5 Shop Open	
14 10-4 Shop Open Flag Day	15 7:30 Lapidary Section	16 7:30 Paleo Section	17 10-3 Shop Open 7:30 Mineral Section ???	18	19	20 10-5 Shop Open 10-12 Youth Section 1:30 Beading Section	
21 10-4 Shop Open Father's Day	22	23 7:30 General Meeting	24 10-3 Shop Open	25	26	27 10-5 Shop Open	
28 10-4 Shop Open	29	30					

2015		July					2015
Sun	Mon	Tue	Wed	Thu	Fri	Sat	
			1 10-3 Shop Open 1:00-3:00 Day Light Section NO Mineral Section	2 7:30 Archeology Section	3	4 10-5 Shop Open 10-12 Youth Section Independence Day	
5 10-4 Shop Open	6	7 7:30 Board Meeting	8 10-3 Shop Open 6:30 Gemstones & Faceting Section	9	10	11 10-5 Shop Open	
12 10-4 Shop Open	13 7:30 Lapidary Section	14 7:30 Show Committee	15 10-3 Shop Open NO Mineral Section	16	17	18 10-5 Shop Open 10-12 Youth Section 1:30 Beading Section	
19 10-4 Shop Open	20	21 7:30 Paleo Section	22 10-3 Shop Open	23	24	25 10-5 Shop Open	
26 10-4 Shop Open	27	28 7:30 General Meeting	29 10-3 Shop Open	30	31		

The **BACKBENDER'S** **GAZETTE**

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- 2006 – 2012 - 1st (Large)
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- 1998 - 2nd (Large)
- 2004 - 3rd (Large)
- 2007 - 1st (Large)
- 2010 - 2nd (Large)
- 2012 - 3rd (Large)
- 2013 - 3rd (Large)
- 2014 - 2nd (Large)



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