MEMPHIS ARCHAEOLOGICAL AND GEOLOGICAL SOCIETY

MAGS Rockhound News

Volume 63 ◊ Number 06 ◊ June 2017 ◊ A monthly newsletter for and by the members of MAGS

Collecting and Viewing Tiny Crystals

J. Michael (Mike) Howard *June Program*

Microscopic crystals are the flowers of the mineral world. Anyone who has ever looked at tiny crystals with a microscope will be captivated by the perfection of form, bright colors, unusual habits, and amazing variety of what is seen. I will detail the why and how of collecting, preparation and examination methods, and tell about the type of microscope needed to best view these crystals.

That will be followed by viewing images of tiny crystals from sites in Arkansas taken with an optical camera, and then images taken with an inexpensive digital USB *Continued, P. 3*

In this issue

FIRST ROCK SWAP OF 2017

CAROL LYBANON

W. C. McDaniel will host our first rock swap on Saturday, June 17, 10:30-2:30 (rain date Sunday, June 18, 2:00-6:00). The address is 2038 Central Avenue, two blocks west of S. Cooper Street (see map on P 3). Members are asked to bring picnic type food to share; chairs would also be good. MAGS will provide drinks and other supplies. Bring stuff to swap or sell. There will be adult and kids activities, along with door prizes.

Plan to attend.

2017-2018 MAGS BOARD

MAGS AND FEDERATION NOTES

Memphis Archaeological and Geological Society, Memphis, Tennessee

The objectives of this society shall be as set out in the Charter of Incorporation issued by the State of Tennessee on September 29, 1958, as follows: for the purpose of promoting an active interest in the geological finds and data by scientific methods; to offer possible assistance to any archaeologist or geologist in the general area covered by the work and purposes of this society; to discourage commercialization of archaeology and work to its elimination and to assist in the younger members of the society; to publicize and create further public interest in the archaeological and geological field in the general area of the Mid-South and conduct means of displaying, publishing and conducting public forums for scientific and educational purposes.

MAGS General Membership Meetings and MAGS Youth Meetings are held at 7:00 P. M. on the second Friday of every month, year round. The meetings are held in the Fellowship Hall of Shady Grove Presbyterian Church, 5530 Shady Grove Road, Memphis, Tennessee.

MAGS Website: memphisgeology.org

MAGS Show Website: www.theearthwideopen.com

We aren't kidding when we say this is a newsletter for and by the members of MAGS. An article with a byline was written by a MAGS Member, unless explicitly stated otherwise. If there is no byline, the article was written or compiled by the Editor. Please contribute articles or pictures on any subject of interest to rockhounds. If it interests you it probably interests others. The 15th of the month is the deadline for next month's issue. Send material to lybanon@earthlink.net.

June DMC Field Trip

(See P. 3 for a second June DMC field trip.)

WHERE: Earthen Paradise, Prospect, VA

WHEN: Saturday, June 17, 9:00 A. M.

COLLECTING: Blue kyanite, garnet, black tourmaline

INFORMATION: Stephanie Myers (witchmyers@yahoo.com) or Jessica Callan (Earthenparadiseinc@gmail.com)

Links to Federation News

- AFMS: www.amfed.org/afms_news.htm
- SFMS: www.amfed.org/sfms/
- DMC: www.amfed.org/sfms/_dmc/dmc.htm

Collecting and Viewing Tiny Crystals *Continued from P. 1*

LED microscope that allows anyone with some computer knowledge to take their own digital images. When the talk is over, I will give a demonstration of the use of this type of microscope to take some pictures with my computer. The device I use was purchased for less than $30 on eBay and shipped from China. Operational software was included with the microscope. With a little experience you too can produce some attractive images of tiny crystals!

President's Message

Hello again, MAGSters. The Show is behind us—so we need to need to start planning for next year's Show. Last month we celebrated Memorial Day. I want to say thank you to all veterans. We had a three-day field trip to Mt. Ida over the Memorial Day weekend. There is no field trip scheduled as yet for June. The program for this month's Membership Meeting will be on microcrystals, presented by Arkansas geologist Mike Howard. To learn more about Mike and his work, you may visit his website at www.rockhoundingar.com/index.php. There you can download Mike's excellent pdf file on Magnet Cove, Arkansas. I hope to see everyone at the June Membership Meeting. Good luck with all your lapidary endeavors.

Charles

***Editor's Note**: The direct link to Mike Howard's Magnet Cove book (yes, it **is** excellent) is* http://rockhoundingar.com/download/Magnet%20Cove_Smith&Howard.pdf. *But all of Mike's website is worth a look.*

Beat the Deadline

The price for Member Show tickets will increase from $2 to $3 per ticket after the June 9 Membership Meeting. Member Show tickets offer an inexpensive way to get your friends into the biggest mineral, fossil, and jewelry show in the Mid-South, and to help increase attendance at the Show.

But now it's time to pay. Members are responsible for the tickets that get used (if they aren't used you don't pay). Everyone whose tickets were used at the Show has received two emails with the details. You can pay at the June 9 meeting or mail a check, made out to MAGS, to Show Treasurer, 2019 Littlemore Drive, Memphis, TN 38016.

DMC Field Trip #2

The following field trip was rescheduled from March.

WHERE: Hammett Gravel Pit, Redwood, Mississippi

WHEN: Saturday, June 10

COLLECTING: Agates, coral and other fossils, geodes, chunks of petrified wood, Sioux quartzite

INFORMATION: Registration Contact Rosina Echols, (601) 825-5752 (landline) or

Map to June 17 Rock Swap

fieldtrips@missgems.org; Trip Leader David Kraft, (601) 613-7360 or david@truckservicesms.com

Clement Show

Tina Walker, Museum Director

The 12th Annual Clement Gem, Mineral, Fossil, and Jewelry Show is June 3 and 4 at historic Fohs Hall in Marion, Kentucky. New this year will be sluice mining. We will also have FREE children's activities, an Indian Artifact Display, a demonstration on how to make fluorite octohedrons, silent auctions, hourly door prizes, and vendors selling rocks, minerals, beads, jewelry, household décor, and much more. And, the Ben E. Clement Mineral Museum will be open next door so you can take a tour of it while you are here in Marion. Hope to see you at the show.

***Editor's Note**: The February issue of MAGS Rockhound News has the full list of Clement Museum fluorite dig dates for 2017.*

Fabulous Tennessee Fossils

Dr. Michael A. Gibson,
University of Tennessee at Martin

FTF 29

***Allogona profunda*—Pleistocene Snail**

Kingdom Animalia
Phylum Mollusca
Class Gastropoda
Order Pulmonata
Suborder Stylommatophora
Family Polygyridae
Genus *Allogona* Pilsbry, 1939
Species *A. profunda* (Say), 1821

Would you like to own a living fossil? Yes, I mean the fossil taxon is still alive. Able to be touched, fed, kissed, cuddled. It is possible —well in a sort of manner. Your family can boast of a fossil snail, *Allogona profunda*, as the "other family pet" along with the dogs, cats, fish, etc. First, where do we find fossilized *Allogona profunda*? West Tennessee is covered by a blanket of glacially-derived wind-blown silt that is thickest in the Chickasaw Bluffs and thins eastward until it is eventually is nonexistent. The Chickasaw Bluffs separates the Mississippi River alluvial flood plain from the West Tennessee Lowlands. This bluff line is visible as a steep escarpment running northeast to southwest and the reason Memphis earned its nickname "the Bluff City" (not to be confused with the town of Bluff City, which is in Sullivan County, Tennessee). Wind-blown glacial silt is termed löess, derived from the German word *löss* (and technically pronounced "*lerss*", or "*lus*", but not "*loh es*"), which means "loose". Löess represents mostly terrestrial environments (sometime aquatic) and is partly responsible for West Tennessee's "bread basket" fertile crop lands. The löess deposits in Tennessee are all youngest Pleistocene in age and include the Loveland, Roxana, and overlying Peoria, ranging in dates from 120 thousand years ago for the Loveland to 70 thousand years ago for the Peoria. During this time, the climate in West Tennessee vacillated between cool, arid glacial conditions, to warming and somewhat wetter interglacial conditions.

Most of you would be familiar with the large mammals from this time period, namely mastodons, mammoths, sabre-tooth cats, and peccaries, but there were also other organisms that were less distinctive, but more abundant and make good additions to a fossil collection. I am referring to the fossil snails that inhabited the vegetated areas during löess deposition, feeding off of the plants in the region at that time. Isolated, barely fossilized snails can be found throughout the Loveland-Roxana-Peoria stratigraphic section, but often are concentrated in discrete zones where they can be found by the hundreds. If you have visited the Discovery Park of America's Cenozoic display you would have seen a block of löess collected from the bluff at Lassiter's Corner, just a few miles south of Samburg, Tennessee, with many snails all clustered in a single layer.

The snails resemble modern woodland terrestrial snails in shape and size, but the fossilized ones are devoid of color and appear as entire white shells. They have not been recrystallized, so their shell mineralogy is unaltered. They can be quite fragile when removed from the löess matrix. There are several genera that occur in Tennessee, but one of the more common and distinctive is *Allogona profunda* (Figure 1). *A. profunda* was originally described under the genus *Helix* by the great choncologist (shell biologist) Thomas Say in 1821, but Henry Augustus Pilsbry, another biology great, moved this species into his newly erected genus *Allogona* in 1940. While the löess *Allogona* are fossils, this genus is extant, so modern representatives can still be found inhabiting West Tennessee...sort of a "living fossil pet" for collectors. There are two competing hypotheses for how this genus arrived in our region. One is that the genus branched off of *Polygyra* (a similar looking genus) that thrived in the eastern U.S. sometime in the Pliocene to early Pleistocene and then migrated west, or *Allogona* originated in the Pacific Northwest and then migrated eastward and invaded the territory dominated by *Polygyra* (which is also found as fossils in the löess).

Living *Allogona profunda*, the *Continued, P. 5*

Fabulous Tennessee Fossils *Continued from P. 4*

"broad-banded forest snail", are known to inhabit steep terrains with upland woods with limestone and limy soils (larger shells), but can also be found in prairie grove areas that are prone to summer drought conditions (smaller shells). As a pulmonate snail, *A. profunda* lives on land and breathes air directly using primitive lung sac (hence the pulmonate name). The shell shape is low-spring, lens-shaped to globose with a pronounced lip around the aperture. Also the aperture of the shell has a single, low, blunt, projecting tooth used during feeding as a leverage structure. While plentiful, the species was placed on the endangered list in 2014. So turn those rotted logs over and be on the lookout for the living relative to a common Pleistocene fossil from Tennessee.

Figure 1. Fossilized *Allogona profunda* collected at Lassiter's Corner near Samburg, Tennessee. Top image spiral view. Middle image shows internal columella through shell break. Bottom image shows aperture view (UT Martin Paleontology Collection; Photo by MAG, Scale marked in cm).

Figure 2. Living *Allogona profunda* (Image credit: http://www.carnegiemnh.org/science/mollusks/va_allogona_profunda.html)

Thanks, Show Volunteers

Thanks to all our volunteers. We couldn't put on our Show without you. To recognize your efforts we will have a prize drawing at the June meeting. If you worked at the Show your name will be put in a hat for each day you helped. Please attend the June meeting to be recognized for your support.

Silicon, Computers, Cell Phones, Oh My!

Matthew Lybanon

When I used to drive from the airport in San Francisco or San Jose to Monterey, where the Navy has several facilities, the first part of the trip went through the beautiful Santa Clara Valley, past stands where farmers sold some of the freshest and best-tasting fruit I've ever eaten. But the Santa Clara Valley was already becoming Silicon Valley.

Silicon Valley has something to do with electronics. But what does electronics have to do with silicon, or silicon compounds?

One of the most familiar substances involving silicon is sand (there are other types, but Florida beach sand is mostly silicon dioxide: quartz). But wait (sorry if this reminds you of certain TV commercials). Remember those cool-looking green glass insulators you used to see on high-voltage power lines? Glass is melted sand—and these are **insulators**. Hmmm.

Another hmmm—How can your child's Timex from Walmart keep better time than your $50,000 Patek Philippe, and do it with something that involves quartz–an insulator? How does that work?

First, recall that it's Silicon Valley, not Sand (or Quartz) Valley. My chemistry book says that silicon "is a brittle steel-gray metalloid." What's a metalloid? Back to the chemistry book (thanks, Linus). "The transition from metals to non-metals is marked by the elements with intermediate properties ..."—intermediate between metals and non-metals.

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Silicon, Computers, ... Silicon is a **semiconductor** (*metalloid*–not quite a metal*; semiconductor*, not quite a conductor*)*. [*See "Ferdinand Braun, Galena, Radio, and the Modern World," in the January 2017 issue.*] The conductivity of a semiconductor is somewhere between that of an insulator (almost no conductivity) and a conductor (almost full conductivity). Most semiconductors are crystals of certain materials, one of them silicon.

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Back to chemistry. We can think of the electrons in an atom as being in layers, or shells. The outermost shell is the **valence shell**. Silicon has four valence electrons, so it forms covalent bonds with four neighboring silicon atoms to become crystals.

At any temperature above absolute zero, there is a (small) finite probability that an electron in the lattice will be knocked loose from its position, leaving behind an electron deficiency called a "hole". If a voltage is applied, then both the electron and the hole can contribute to a small current flow.

Pure silicon crystals are not all that useful electronically. But if you introduce small amounts of other elements ("doping"), the crystal starts to conduct in an interesting way. By carefully controlling the doping process and the dopants, silicon crystals can transform into one of two distinct types of semiconductors: N-type and P-type.

An N-type semiconductor is created when the dopant (phosphorus, for example) has five electrons in its valence shell. The phosphorus atoms can bond with four adjacent silicon atoms in the lattice, but the extra electron hanging out behaves like the single valence electrons in a conductor such as copper.

A P-type semiconductor is created by using an element (such as boron) that has three electrons in the valence shell. It can only bond with three of the nearby silicon atoms; the "hole" behaves like a positive charge.

Putting the two types of doped semiconductors together is what leads to transistors and other solid state electronic components. Good for you if this reminds you that it's the impurities in quartz that make it amethyst, citrine, etc. Impurities in quartz affect its optical properties and "impurities" (doping) in a semiconductor affect its electrical properties.

The first semiconductor was the "cat's whisker" in the crystal radio detector in the article referred to above. But it was the ability to change the electrical conductivity of semiconductors deliberately (with P-type and N-type doping) that makes all the gadgets (computers, cell phones, ...) we love to waste time with possible. Want more details? Sorry, too much for this article.

Now, at last, quartz watches—how do they work and why do they work? Quartz is an insulator, right? But quartz exhibits the *piezoelectric effect* (*see another MAGS Rockhound News article: "Quartz—Electrifying News," March 2015 issue*). Applying pressure (squeezing the crystal) produces a small voltage. There is a reverse piezoelectric effect: applying a voltage causes a change in length.

Voilà! Quartz oscillators. During World War II there was a high demand for Arkansas quartz for radio oscillators for the military. The Blocker Lead No. 4 Quartz Mine, now the Ron Coleman mine, even came under federal control. Quartz watches use the same kind of oscillator.

Briefly, applying a voltage produces an electric field that compresses the crystal, and removing it allows the crystal to return to its former shape, generating a voltage. A series of electric pulses causes the crystal to vibrate. (Don't worry about the details. Think of pushing a child on a swing. The swing doesn't just move in the direction you push; it comes back. Repeated pushes; it swings back and forth.)

The crystal "likes" to vibrate at a frequency that depends on its size and shape. The one in your watch vibrates 32,768 times per second. It's really stable (much more stable than a simple electronic oscillator), with hardly any dependence on temperature. There's a circuit that hits the crystal with pulses (the crystal is part of that circuit) and a circuit that "reads" the voltage the oscillating crystal produces and generates regular electric pulses, one per second.

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Silicon, Computers, ... Eureka, we can keep track of time. It's simple (forget the details). It's cheap. It works.

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Metalloid, semiconductor, piezoelectric—all good science words. Now let's go collect some quartz.

Mt. Ida Experience

Mike Baldwin

Sherri and I would like to thank Jim Butchko and MAGS for making the Mt. Ida Memorial Day weekend trip possible. The last time we were in Mt. Ida was years ago to the Fisher Mountain Mine. On this trip we visited the Twin Creeks Mine and the Wegner Phantom Mine.

The Twin Creeks Mine was fun. We had never been to this mine and just the experience of hard-rock mining was rich. A lot of hard work for a few crystals.

The trip to the Wegner Mine on Sunday was incredible...better than a trip to Disney. We enjoyed the 1-hour ride [each way] in the back of a Jurassic-style pick-up truck as much as our time in the mine itself. Mike, our guide, was very knowledgeable, helpful, and punctual. We started on-time and ended on time. You could set your watch by the precision of his scheduling.

The Wegner Mine has been closed for 35 years, and we were only the third group [so only 20 people before us] to venture into this mine for collecting [other than the owner of course]. There were tailings, rock faces, and mounds to be explored. We spent four hours in the mine and could have spent four more without complaint. Everyone found incredible crystals. When we get ours cleaned up we will bring some of them to a MAGS meeting for show-and-tell.

Thanks again. We had a ball. If you didn't get a chance to go on the Wegner Mine trip, you should definitely go next time. You won't regret it.

Some of the winners (those present) of awards in the 2016 Federation newsletter contest. The certificates and plaques finally arrived.

Web Tips

Thanks to W. C. McDaniel for providing these links to web pages with dino news from Mississippi, and other dinosaur research.

http://www.msn.com/en-us/video/wonder/rare-dinosaur-tooth-discovery-sheds-light-on-history-of-north-america/vi-BBBsJL7?ocid=iehp

https://peerj.com/articles/3342/

Rare As Winning the Lottery

Matthew Lybanon (Editor)

On March 21, 2011, Shawn Funk was digging in Alberta's Millennium Mine, 17 miles north of Fort McMurray, with a mechanical backhoe, when he hit "something much harder than the surrounding rock." A closer look revealed something that looked like no rock Funk had ever seen, just "row after row of sandy brown disks, each ringed in gunmetal gray stone."

What he had found was a 2,500-pound dinosaur fossil, which was soon shipped to the museum in Alberta, where technicians scraped extraneous rock from the fossilized bone and experts examined the specimen. Museum paleontologists expected to see a pleiosaur. But they recognized the specimen as the snout-to-hips portion of a nodosaur, a "member of the heavily-armored ankylosaur subgroup," that

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Rare As Winning the Lottery *Continued from P. 7*

roamed during the Cretaceous Period. The specimen was remarkably well preserved, a level of preservation "as rare as winning the lottery" according to Michael Greshko, the author of the *National Geographic* article referenced below.

Greshko described what he saw when he visited the fossil prep lab at the Royal Tyrrell Museum in Alberta. At first glance the reassembled gray blocks look like a nine-foot-long sculpture of a dinosaur. A bony mosaic of armor coats its neck and back, and gray circles outline individual scales. Its neck gracefully curves to the left, as if reaching toward some tasty plant. But this is no lifelike sculpture. It's an actual dinosaur, petrified from the snout to the hips."

The remarkable fossil is a newfound species (and genus) of

nodosaur, which lived between 110 million and 112 million years ago, almost midway through the Cretaceous period. Unlike its cousins in the ankylosaur subgroup, the nodosaur lacked a bony club at the end of its tail, instead using armor plates, thick knobs and two 20-inch spikes along its armored side for protection. In the nodosaur's time, the area where the specimen was found resembled today's South Florida, with warm, humid breezes wafting through conifer forests and fern-filled meadows.

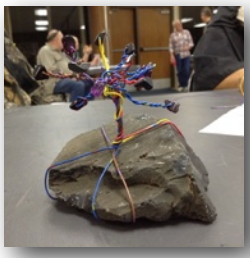
The reason this particular dinosaur was so well preserved is likely due to a stroke of good luck. Researchers believe it was on a river's edge, perhaps having a drink of water, when a flood swept it downriver. Eventually, the land creature floated out to the sea and sank to the bottom. There, minerals quickly infiltrated the skin and armor and cradled its back, ensuring that the dead nodosaur would keep its true-to-life form as eons' worth of rock piled atop it.

It's the best-preserved fossil of its kind ever found. It was unveiled May 12, 2017, in Canada's Royal Tyrrell Museum of Paleontology.

Ref: Here is a link to the online version of the article in the June issue of *National Geographic* magazine. http://www.nationalgeographic.com/magazine/2017/06/dinosaur-nodosaur-fossil-discovery/.

Gem Tree Forest

MAGSters making gem trees at the May Membership Meeting



Two gem tree designs

Members hard at work

April Board Minutes

Mike Baldwin

Called to order at 6:38 by W. C. McDaniel. Present: Mike Baldwin, Bob Cooper, Bonnie Cooper, James Butchko, W. C. McDaniel, Kim Hill. Matthew Lybanon, Carol Lybanon, and Leah Gloyd.

Secretary: March minutes were distributed via email. Hardcopies were distributed at this meeting. Minutes approved as corrected (two wrong dates, misspelled name). Hardcopies of the April newsletter have been printed and mailed.

Treasurer: Taxes have been filed. Bonnie distributed checking summary for March. Report approved subject to audit.

Membership: Renewals and new memberships are

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April Board Minutes Continued from P. 8

trickling in. We have three new Members since the last Board Meeting. Expect more at the Show.

Field Trips: April 29 field trip will be to Turkey Creek, near Starkville, MS; May 27-29 field trip will be to Twin Creek Mine in Mt. Ida and Ron Coleman Mine near Hot Springs. June field trip will be to one of the quarries in Arkansas, or Crow Creek. May 13 field trip will be to 20 Mile Creek, Frankstown, MS. Carol suggested coordinating with Ashley Allen on a coal mine trip to hunt for fossils in Alabama.

Adult Programs: Next week's program will be about the Show, including a YouTube video and a 7-slide Powerpoint presentation. W. C. will send gem tree instructions to Mike, who will print them out for the meeting. Discussion followed concerning methods and techniques of gem-tree construction. Carol will bring a display of already-made trees. June program will be micro-crystals under a microscope with Mike Howard. July will be a virtual tour of Belz Museum.

Junior Programs: April and May programs will be with the adults. Joseph distributed a list of programs for the year in January.

Historian/Rock Swaps: We have zero volunteers thus far for rock swaps. Mike and Leah will check with Shelby Farms about using a pavilion. Carol suggested that we have picnic-style swaps, where each family brings food for just their family or group. August will be our annual indoor swap.

Library: Leah is doing a paper-copy inventory. She brought her library card system to explain how the check-out works. Leah suggested that we go back to a 1-month check-out. Mike will check the Standing Rules concerning library rules. Leah will structure new rules and we will discuss them at the next Board Meeting. Bonnie will print new book cards for the library—white for regular library books, yellow for children's books. Consensus was that we should begin selling VHS tapes at the April Membership Meeting.

Web: Mike reported that the website is up to date with April information about the show and upcoming field trips. He is considering putting a two-month calendar on the homepage beginning next month.

Newsletter: 2016 newsletter contest certificates and awards have been produced. The SFMS President will be at our Show and will bring the awards then.

Show: Mike reported that Bob Cooper constructed a 4 x 4 frame for the fluorescent minerals display. Mike will purchase 5 black-out panels to use as curtains. James briefed everyone on the last Show Committee meeting. The Friday night dinner will be at 6:00 instead of 6:30. 901 Rocks FB Group has set an event for the Show, so we may get a number of 901 Rockers.

New Business:

- May 21 event at the Germantown library. Are we interested in participating?
- Idajean Jordan is currently in a rehab center. She is a founding member of MAGS. Discussion followed about how we can best help her during this time. We could do a donation table at the Show. We could have a May auction. Club could make a donation. We could have a GoFundMe account for $3000. We could have a donation table at the Show. Decision to launch the GoFund. Matthew was appointed as Executor through the Show account. Show will begin the donation. Motion carried unanimously.

Adjourned at 8:16.

April Meeting Minutes

Mike Baldwin

Called to order at 7:05 by W. C. McDaniel. We have three visitors this evening. April 29 field trip will be to Turkey Creek. May 13 trip will be to 20 Mile Creek. Memorial Day week-end trip will be to Mt. Ida. Kim Hill has examples of Marcasite. It's heavy. Three displays tonight. Librarian Leah Gloyd says can check out any books you like for one month. There is a great children's book section. Check out a book and write a book report for the newsletter. We have lots of VHS tapes and they will be for sale at the Show.

Juniors joined the adults for the Show program, which included a video, display of he grand prize, Show trivia, and other information about the Show and how it benefits MAGS. W. C. informed Members about lifelong MAGS Member, past Show Chair, past Board Member, founding member, expert fossil and mineral identifier Idajean Jordan and her need for our help.

Adjourned at 8:06.

Book Review

Eric Marbury

Book Title: Krakatoa

Author: Simon Winchester

Number of Pages: 416

Main Subject of the book:

The volcanic island of Krakatoa

Brief Summary:

This book details the geopolitical history of Indonesia and Krakatoa's place within it. It also discusses the volcano's influence on the world today and its significance to science as the birth of volcanology and the influence that field has throughout science even

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Book Review Continued from P. 9

outside of geological significance.

What was your favorite part?

The build-up to the volcano's destructive and infamous eruption.

Did you enjoy this book? Why or why not?

Yes! The book was very detailed and informative about Krakatoa's past, present and future and the geologic understanding of what goes on inside a volcano such as Krakatoa.

***Editor's Note**: See how simple it is? Librarian Leah Gloyd has book review forms you can use to let other MAGS-ters know about books you enjoy.*

June Birthdays

1	Pat Judd Michael Austen
5	Bill Burch
6	Amy Coulson
12	Katie McIntyre Chris Thomas
14	Jan Harris
16	Ann Williams
17	Dean Pere Evelyn Blodgett
18	Debbie Schaeffer
19	Dan Reed William Kratz
20	Roger Lambert
25	Danielle Schaeffer Lauren Schaeffer Doris Johnston
29	Zachary Loyd Cornelia McDaniel

New Members

Gary Sherman

Wayne Pinner

Angie & Tony Menne and mother Ann Montgomery

Recipes of the Month

Many MAGSters remember the *MAGS Cookbook*, the last copies of which were sold at the Show a few years ago. But maybe there's still a copy around. Leah Gloyd and Aaron Van Alstine thought it would be a good idea to bring back (Does anybody remember this column in older MAGS newsletters?) the "Recipe of the Month." Some people might mine such a column for recipes to bring to meetings. Or just enjoy it.

It seems like a good idea, so MAGS Rockhound News is reprinting two recipes these Members recommended. Hope you enjoy them.

Grandma's Red Macaroni

- 2 lg. or 3 sm. yellow onions
- 1 lg fresh clove of garlic
- 3 lbs lean stew meat
- 2 cans tomatoes
- 2 cans tomato sauce
- 1 lb box of macaroni noodles
- 1 bag of sharp cheddar cheese (2 cups)

Cook meat with 1 chopped onion in crock pot until done (approximately 8 hours.) Chop second onion with garlic, sauté in oil, then add meat, tomatoes and sauce. Add 16 ounces of water, salt, and pepper to taste all into the crockpot and simmer 3 hours or until the sauce has thickened. Cook macaroni separately, drain, then add noodles and bag of cheese to the crockpot, and cook about 15-30 mins more on low. (Author recommends letting it cool and keeping it in the fridge then warming to serve the next day.)

Spiced Peaches

- 1 lb of sliced peaches
- 1/2 cup sugar
- 10 whole cloves
- 1/4 cup vinegar
- 2 cinnamon sticks

Combine all ingredients except peaches and heat until sugar is dissolved. Add peaches and simmer 8 minutes. Refrigerate overnight.

Jewelry Bench Tips by *Brad Smith*

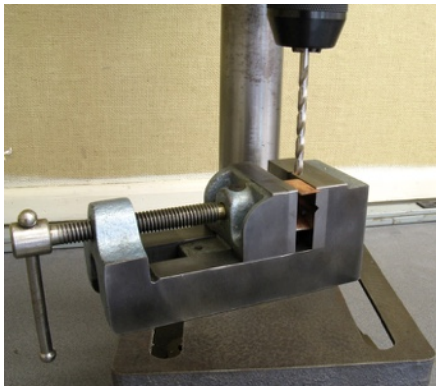
DRILL PRESS VISE

A drill press vise is a versatile tool to hold a workpiece securely and in precise alignment. It reduces the of risks of working with high power motors, use of larger drill bits, and higher heat generated in the operation. The vise can be clamped to the drill press table if needed and is quite handy for use at the bench to hold things for sawing or riveting.

You can find them at stores that carry machine tool supplies. My feeling is that the best ones are *Continued, P. 11*

Jewelry Bench Tips
Continued from P. 10

made from steel. In particular, I like the ones with V grooves cut into the jaw plates. That lets me hold a punch straight upright or hold a rod horizontal. To find a supplier, search on "drill press vise" at sites like micromark.com, mscdirect.com/enco, smallparts.com, grizzly.com, sears.com.



DENTAL GOLD

You might think that a couple pieces of dental gold would be valuable, but if you only have a small amount, it can be a problem. Sending it to a refiner is expensive for small amounts of metal.

I made the mistake of thinking I could melt it and roll out my own sheet. However, the trace metals that dental gold contains to make it a good material in your mouth cause it to crack if you try to forge it or roll it out as a sheet. It ruined my whole ingot.

So what to do with a couple gold crowns? A reasonable alternative is to try incorporating the metal into your jewelry. If you have enough material to do a casting, that's probably the best use for dental gold. If you're not into casting, try melting it on a solder pad and while molten, divide it into small pieces with your solder pick. Then re-flow each piece to make little gold balls for use as accents on your designs. The balls can also be planished a bit to make small discs or struck with a design stamp to add texture.

See all Brad's jewelry books at Amazon.com/author/bradfordsmith.

What Does the Fox Say?

Matthew Lybanon (Editor)

A combination of archaeological and ice core data may provide evidence about an event that had a significant effect on the development of human civilization.

About 14,500 years ago, Earth's climate began to shift from a cold glacial world to a warmer interglacial state. Partway through this transition, temperatures in the Northern Hemisphere suddenly returned to near-glacial conditions and stayed cold for about 1,000 years. This near-glacial period is called the **Younger Dryas**, named after a flower (*Dryas octopetala*) that grows in cold conditions and that became common in Europe during this time. Other evidence also suggests that the cooling period caused groups of people to band together to cultivate crops, leading to the development of agriculture.

Prior evidence based on ice cores taken from Greenland has suggested that a strike by a comet may have led to the onset of the Younger Dryas. The Greenland ice core data dates the event to approximately 10,890 BC.

A team of researchers with the University of Edinburgh has found what they describe as evidence of a comet striking the Earth at approximately the same time as the onset of the Younger Dryas in carvings on an ancient stone pillar in southern Turkey. The group has published their findings in *Mediterranean Archaeology and Archaeometry*. The pillar, known as the Vulture Stone of Göbekli Tepe (an archaeological site atop a mountain ridge in the Southeastern Anatolia Region of modern-day Turkey), appears to have served as a means of commemorating a devastating event.

Computer analysis revealed associations between characters on the pillar and astronomical symbols in the sky for the year 10,950 BC ± 250 years. The fact that the people took the time and considerable effort to create the characters on the pillar suggests something very important must have happened during the same time period that the Greenland ice core suggests a comet struck.

Of course some other researchers disagree with this conclusion. But it's an interesting idea.

Ref: *DECODING GÖBEKLI TEPE WITH ARCHAEOASTRONOMY: WHAT DOES THE FOX SAY? (pp.233-250). B. Sweatman, D. Tsikritsis, DOI: 10.5281/zenodo.400780 , http://www.maajournal.com/Issues2017a.php*

MAGS At A Glance

June 2017

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
28	29	30	31	1 Board Meeting, 6:30 pm, St. Francis Hospital	2	3 Ben E. Clement Museum Show, Marion, KY
4 Ben E. Clement Museum Show, Marion, KY	5	6	7	8	9 Membership Meeting, 7:00 pm, "Collecting & Viewing Tiny Crystals"	10 DMC Field Trip, Redwood, MS (rescheduled from March)
11	12	13	14	15	16	17 MAGS Rock Swap/ DMC Field Trip, Prospect, VA
18	19	20	21	22	23	24
25	26	27	28	29	30	1

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