MEMPHIS ARCHAEOLOGICAL AND GEOLOGICAL SOCIETY

MAGS Rockhound News

Volume 61 ◊ Number 02 ◊ February 2015 ◊ A monthly newsletter for and by the members of MAGS

You Only Love What You Know

February MAGS Program

Editor's Note: Some of the information (including photos) in this article was provided by MAGS Member Dr. Robert Connolly, Director of the C. H. Nash Museum at Chucalissa and Elizabeth Cruzado Carranza's advisor at the University of Memphis.

Elizabeth Cruzado Carranza is a native of Lima, Peru, currently enrolled in the Graduate Program in the Department of Earth Sciences at the University of Memphis. She has completed extensive field and laboratory analysis at numerous prehistoric sites in Peru including the World Heritage site of Chavin de Huantar. For the past five years she has been the co-director for excavations at the Hualcayán site in the north central highland Andes of Peru.

In her presentation, Elizabeth will talk about her research at the Hualcayán site and compare that to research at the Chucalissa site.

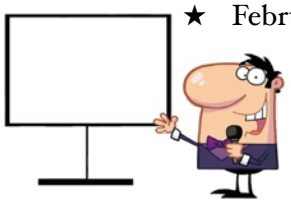
The Hualcayán. site is in the Andean highlands of Peru. The Proyecto de Investigación Arqueológico Regional Ancash (PIARA) is a long-term, regionally focused, and collaborative archaeological research project at this and another *Continued, P. 8*

In this issue

UPCOMING PROGRAMS

Adult

- ★ February: Elizabeth Cruzado Carranza, Archaeology in Peru (see above)
- ★ March: David Hanes, Dinosaurs in Mississippi
- ★ April: MAGS Show History



Juniors

- ★ February: Paleontology (dig for fossils)
- ★ March: Magnetism
- ★ April: Make displays for MAGS Show

2015-2016 MAGS BOARD

President–W. C. McDaniel
2038 Central Avenue, Memphis, TN 38104 ◊ (901) 274-7706 ◊ w.c.mcd@att.net

1st VP (Field Trips)–Charles Hill
1070 Park Swain Road, Grand Junction, TN 38039 ◊ (901) 626-4232 ◊ hunter3006@aol.com

2nd VP (Adult Programs)–Carol Lybanon
2019 Littlemore Drive. Memphis, TN 38016 ◊ (901) 757-2144 ◊ sgcarol@earthlink.net

Secretary–Mike Baldwin
367 North Main Street, Collierville, TN 38017 ◊ (901) 853-3603 ◊ mbaldwin05@gmail.com

Treasurer–Bonnie Cooper
8695 Baylor Road, Arlington, TN 38002 ◊ (901) 444-0967 ◊ rocks4us@hotmail.com

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Director (Asst. Adult Programs)–Kim Hill
4755 Royal Elm Cove, Memphis, TN 38128 ◊ (901) 388-7572 ◊ earthsis@aol.com

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3059 Old Brownsville Road, Bartlett, TN 38134 ◊ (901) 388-1765 ◊ bristerr@bellsouth.net

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8695 Baylor Road, Arlington, TN 38002 ◊ (901) 444-0967 ◊ rocks4us@hotmail.com

Director (Historian)–Nannett McDougal-Dykes ◊ 106 Maple Street, Stanton, TN 38069 ◊ (901) 634-9388 ◊ redchesty@yahoo.com

Newsletter Editor–Matthew Lybanon
2019 Littlemore Drive. Memphis, TN 38016 ◊ (901) 757-2144 ◊ lybanon@earthlink.net

Webmaster–Mike Baldwin
367 North Main Street, Collierville, TN 38017 ◊ (901) 853-3603 ◊ mbaldwin05@gmail.com

Show Chairman–James Butchko
4220 Dunn, Memphis, TN 38111 ◊ (901) 743-0058 ◊ butch513j@yahoo.com

MAGS AND FEDERATION NOTES

President's Message

MAGS started 2015 with a very good January. Our communication systems—newsletter, web, emails and membership meetings—provided members timely and good information about upcoming programs, events and field trips. The January 9 Membership Meeting was well attended and we had eleven exhibits. Kathy Baker's exhibit of Mexican pottery, collected by her father, was the display winner.

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MAGS General Membership Meetings and MAGS Youth Meetings are held at 7:30 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, TN.

MAGS Website: memphisgeology.org

We aren't kidding when we say this is a newsletter for and by the members of MAGS. If an article has a byline the author is a MAGS Member, unless explicitly stated otherwise (we welcome articles by nonmembers). If there is no byline, the article was written or compiled by the Editor (a MAGS Member). Please contribute articles or pictures (everybody likes 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.

February DMC Field Trip

WHERE: Amos Cunningham Farm, Due West, SC (fee)

WHEN: Saturday, February 28, 9:00 A. M. until dark

COLLECTING: Beryl crystals, amethyst, smokey quartz

INFORMATION: Bill Wetzel, (864) 404-0025 or wwetz14@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

Colorado Rambling

George Loud, Life Member

Editor's Note: George Loud joined MAGS in 1983, and now resides in Hilton Head, South Carolina. This article been published in two DC area newsletters and in the Hound's Howl (newsletter of the Aiken, South Carolina, club).

September 4th of last year Tom Tucker and I flew out to Denver. How two adults could be on opposite sides of the same empty luggage carousel and take so long to locate each other remains something of a mystery. Our destination was the "Ouray-Silverton San Juan Mountains Mineral Symposium," in Ouray, Colorado, sponsored by the Colorado Chapter of FM, the Colorado School of Mines Geology Museum, and the Friends of the Colorado School of Mines Geology Museum.

After picking up our rental car we drove to Wheat Ridge for a brief visit with our good friend Fred Schaefermeyer (former AFMS president) and then on to Ouray. Because we took the scenic route through Leadville, we were late checking in at Western Hotel in Ouray, described on its web site as "an authentic old west hotel and saloon." Built in 1891, it hasn't had many upgrades since that date. In passing through Climax we were surprised to find the Climax molybdenum mine apparently back in operation.

Friday, September 5th, taking many photographs, we visited the sites of the Camp Bird, Revenue, Idarado, and other mines. Also photographed several tramways. Tom assured me that he would recognize the site of the Camp Bird mine which yielded a fortune to Tom Walsh and financed purchase of the Hope diamond. See *Father Struck it Rich* by Evalyn Walsh McLean. However, driving up the old road built by Otto Mears, we missed the Camp Bird because the mill was gone. Since Tom's last visit, the Camp Bird Mill had been disassembled and shipped to Mongolia where it has been reassembled. We found the Camp Bird site on our trip back down the mountain and took photos of the several beautiful Victorian office buildings which remain standing. The old Otto Mears road also took us by the Revenue mine which is once again in operation.

Friday afternoon we drove to Silverton and took CO 110 toward Animas Forks. The drive on 110 took us through the "ghost towns" of Howardsville and Eureka and past the remains (foundations) of the Sunnyside Mill. The guide books told us that a high clearance, 4-wheel drive vehicle is required for travel to Animas Forks on 110, but Tom and I are both from Missouri and required convincing the hard way. At one point a fella in a four-wheeler travelling in the opposite direction yelled "you guys sure are brave." "Stupid" would have been more accurate than "brave." We never did make it to Animas Forks but, incredibly, we came close.

On the way back to Ouray we visited the Hillside Cemetery overlooking Silverton, there located the grave of the iconic mineral dealer Ed McDole, and collected drill cores from the parking lot of the now closed Idarado Mine office complex. In sum, we had a very full day yet made it back to Ouray in time for the Friday evening opening lecture of the symposium, "Mountains of Silver: A History of the Red Mountain Mining District," by P. David Smith.

George with Benji and Jim

Early Saturday, September 6th, my brother Jim drove over the divide from his home in Creede, Colorado, to join us for a full day of lectures and a banquet dinner. The three of us shared the "Honeymoon suite" at the Western Hotel the next two nights. The lectures were great but perhaps the high point on Saturday was a visit to view the incredible collection of Benji Kuehling. Many of Benji's specimens are pictured in Lithographie #15 *The San Juan Triangle of Colorado: Mountains of Minerals*, which also has a brief bio of Benji (p. 42).

A variety of

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Colorado Rambling
Continued from P. 3

Revenue Mine

Guston Mine Iron Cap

Flowers at Camp Bird Mine Site • Rhodochrosite from Benji's Collection

guided collecting trips were offered by the Symposium on Sunday, the 7th. Jim, Tom and I elected to go on the Red Mountain trip led by the team of Don Paulson (historian) and Robert Larson (mine geologist). The combination of a historian and a geologist was a brilliant idea from the symposium organizers and, in practice, made Sunday as enjoyable a day as I have ever had collecting. Collected enargite, pyrite and other micros at the Longfellow, National Belle, and Guston mines. Visited several other mines, including the Yankee Girl, but found nothing of interest. At the National Belle I found a heavy hunk of ore which Mr. Larsen identified as "argentite" (acanthite); however, while not yet tested, I suspect that it is a fine-grained, argentiferous galena. Jim and Tom found interesting small octahedral pyrites at the Guston mine. The only negative on Saturday is that my brother's 4-wheel drive pickup really has room for only two adults. "Room" for a third (yours truly) was behind the two front seats in the cab. I never did figure out the best way to enter and exit, feet first or head first. Wish I had photos of my less than graceful exits. We returned to Ouray sufficiently early to visit the Ouray County Historical Museum which has minerals on display donated by John H. Marshall, Jr. (1931-2008; of Dedham and, later, Westport, Massachusetts.).

Monday the 8th, after breakfast, Tom and I said farewell to my brother and drove to Denver with stops for malts at the DQs and a purchase at the Rock Hut in Leadville. I stayed Monday and Tuesday nights at the Ramada where Marty Zinn had his satellite show which had very light traffic during the brief time I was there. On Tuesday, Tom and I first visited the new Fine Minerals show, from which we departed with eyes glazed over by 5 figure prices, and then visited Dave Bunk's warehouse sale. I flew home Wednesday but Tom stayed on to Saturday and was able to see something of the main show where he met our good friend Barbara Sky and prevailed upon her to drive home some of his purchases.

Met old friends, made new friends, saw great minerals, improved our knowledge of mining history, and had a great time.

Upcoming Field Trips

February

Sunday (since Saturday is Valentine's Day), February 15, 9:00 A. M., Nonconnah Creek Brooks Road site

March

March 20-23 (Fri.-Mon.), Texas, Ammonites (contact Matthew or Carol Lybanon, lybanon@earthlink.net)
Saturday, March 28, 9:00 A. M., Crater of Diamonds State Park, Murfreesboro, Arkansas

2015 Displays

Hey Rockhounds,

Kim Hill here...just wanted to drop a line about changes in our monthly displays that I hope will make it more fun and encourage you to participate. Starting in January not only can you win a nice prize for displaying your finds at the monthly meetings, you can accumulate points and win a really nice prize at the end of the year. There will be a prize for adults and one for juniors. Just for bringing a display you will get 1 point. If there is a theme that month and you bring something in that theme you will get 2 points. For winning you would get 5 points. Then at the end of the year at our holiday party the winners will be announced and receive their prize. So come on, MAGsters, bring in your goodies and let us see what you have. Be good and share.

January Meeting Pictures

Carol presenting speaker trophy to Bill

Some of Bill's treasures

There were quite a few displays—was it Kim's point system?

January Displays

WOW, MAGSters!! Thanks for stepping up!! I was SO excited when I got to the meeting and saw all the displays!! We ended up with 10 people and 11 displays, ranging from finds from local areas, arrowheads,ammonites, samples from the Jonesboro trip, beautiful polished petrified wood, to 1000-year-old pottery pieces from Mexico.

Now, I would like to think it was my article and email blurb that encouraged people to bring their stuff in, or it could have been a coinkydink. Whatever the reason, you couldn't have made me happier for my first time being in charge of displays.

Kathy Baker, with her awesome pottery shards, was our winner for January, earning her six points. Everyone who brought something earned one point.

Next month our theme will be crystals, whether you went on the field trip or have some lying around, ocean type fossils, and we will always accept random. Remember—if your display follows the theme you earn two points.

Come on, Rockhounds, start planning your February displays. WE REALLY WANT to see what you have!! Parents, help out your Juniors, and let them be part of the fun! Those of you that didn't bring anything, didn't you have fun looking at them? Think how much fun you will have sharing with the rest of us.

Thanks,
Kim Hill

Early Life on Earth

Some recent papers shed new light on an old puzzle concerning evolution, and another adds important information about the early evolution of reptiles. Interestingly, the latter work is based on a discovery by an amateur, which was not brought to the attention of professionals for years.

The first set of papers concerns "Darwin's Dilemma" and the "Cambrian Explosion." Darwin thought evolution was a very slow process, proceeding in tiny changes over many *Continued, P. 6*

Early Life on Earth generations.
Continued from P. 5 But some estimates indicate that the first simple organisms appeared when the earth was only a few tens of millions of years old. There was a little evolution over the first billion years when single-celled organisms developed into bacteria, slimy algae, and other simple forms, but not much happened. Then around 600 million years ago came the most dramatic period in the biological history of the planet: the "Cambrian Explosion." Those simple organisms from early earth evolved into forms of nearly every plant and animal on the planet today in what seemed like an incredibly short period of time.

We know today that Darwin was right about evolution, but wrong about the bleak fossilized record, which was incredibly thin when he was around in the 1800s. What happened during the Cambrian Explosion seemed so fast, in fact, that he worried that it might undermine his theory of evolution; this was "Darwin's dilemma." How could life have evolved so quickly during the Cambrian era, advancing from simple forms to complex plants and animals in the geological equivalent of the blinking of an eye?

Excavations around the world have since uncovered fossils that show the change was rapid, but not too rapid to be inconsistent with evolutionary theory. It actually took millions of years. But still, why it happened as quickly as it did is still highly debatable. Something must have changed dramatically, and scientists continue to chip away at that annoying conundrum. Two recent studies published days apart may help clear the air.

Noah Planavsky of Yale University and Christopher Reinhard of Georgia Tech published a study in *Science*, based on ancient sediments from China, Australia, Canada, and the United States, that suggests that scientists have long overestimated the amount of oxygen in the earth's atmosphere in the pre-Cambrian era just before the "explosion." Many had thought the air was about 40% oxygen (around twice what it is today) but oxidized chromium—which is directly linked to oxygen in the atmosphere—in those sediments indicates the percentage was only about 0.1%. No complex organism known today could survive in a world with that little oxygen, so if this team is correct, the stage was not yet set for rapid evolutionary processes.

What changed 600 million years ago? Other evidence published by a University of Texas professor in the journal *Geology* suggests that very dramatic changes driven by the tectonic breakup of the so-called "supercontinents" of the pre-Cambrian era could have caused an extraordinary leap in oxygen levels of both the ancient oceans and the earth's atmosphere. Based on geological evidence, Ian Dalziel believes what is now North America remained attached to the supercontinent Gondwanaland until the early Cambrian period, in contrast with current belief, which has the separation occurring earlier. That shift would have put more oxygen into the atmosphere, and brought nutrient-rich water from the deep ocean to shallow waters, helping to foster new life forms.

The other paper the first paragraph mentions was published in the January edition of the *Proceedings of Royal Society B: Biological Sciences*, discussing a find from almost 20 years ago. In 1995, father and son Ed and Mike Arsenault were exploring the beach at Cape Egmont, Prince Edward Island, Canada, when they spotted a fossil embedded in the red sandstone. They pried the rock from the earth to discover a nearly complete fossil of a small animal. After unsuccessful attempts to sell the find, Mike stashed the fossil under his bed where it stayed until years later when an endowment allowed the Royal Ontario Museum to acquire it in 2004.

The Arsenault find, Erpetonyx arsenaultorum, is an entirely new genus and species of reptile that lived millions of years ago, and the first new species from the Canadian Maritimes in over four decades. Early reptiles evolved during the Carboniferous era when much of this part of the world was covered in swampy forests. Previous data showed that parareptiles (from which turtles originate) had one ancestor that survived the Carboniferous era, however a dearth of specimens *Continued, P. 7*

Early Life on Earth leaves large gaps *Continued from P. 6* in our understanding of this period.

The Arsenault fossil is the only specimen from this part of the Carboniferous era, and the only reptile specimen from that time. Named in honor of its discoverers, Erpetonyx arsenaultorum adds new branches to the early reptilian family tree, increasing the number of reptiles known to be living at the time.

"Our analysis of the interrelationships of early reptiles reveals that our new species is the closest relative of a enigmatic group called bolosaurid parareptiles," says study co-author Robert Reisz, who adds that the find sheds new light on the diversity of reptiles at the end of the Carboniferous period. "It suggests reptiles were 80 per cent more diverse than previously thought." Erpetonyx arsenaultorum has no living relatives, Reisz says, adding that that the 25-cm-long lizard would have looked very similar to a modern-day desert iguana. It had clawed feet and small peg-like teeth. "We presume that it was a carnivore and insectivore, eating arthropods and small vertebrates," he says.

References:

- ***Low Mid-Proterozoic atmospheric oxygen levels and the delayed rise of animals. Noah J. Planavsky et al. Science 31 October 2014: 635-638. [DOI: 10.1126/science.1258410]***
- ***Ian W. D. Dalziel. Cambrian transgression and radiation linked to an Iapetus-Pacific oceanic connection? Geology, November 2014, v. 42, p. 979-982, first published on September 26, 2014, doi: 10.1130/G35886.1.***
- ***The oldest parareptile and the early diversification of reptiles. Sean P. Modesto et al. Proc. R. Soc. B:2015282 20141912;DOI: 10.1098/rspb.2014.1912. Published 14 January 2015***

The Best Laid Plans ...

Kim Hill

The Pickwick trip was looking to be a very cold trip but I wasn't worried. I have a Norwegian wool sweater my Mom brought back for me, and with several other layers plus those little handwarmer packets I was toasty. I had been on colder trips and never got too cold. It's all a matter of planning and layering. I was determined to go. After I got home from the meeting I started getting all my things staged: clothes, shoes, snacks, drinks, digging tools, etc.

I never go to bed early so I didn't this night either. When I did, I set my clock, excited about the trip. I haven't been on a trip like this one yet.

As always morning came way too early but I got up still raring to go. My husband's job has him getting up very early to go in. This has become habit for him, so even on his days off he is up by 5:00, he has a cup of coffee, watches a little TV, and goes back to bed in a couple of hours. So he was up when I got up to get ready. He had been watching the weather and couldn't believe I was actually going to go. Now, we have been married 37 years. HOW could he not think i was going to go?

He started stating why I shouldn't: the cold ... big deal ... and the fact I was driving on my spare. I completely forgot there WAS a reason I needed to take that tire to the shop Friday. In the end I didn't want him to be worrying the whole I time I was gone, so I called Charles and told him I would have to bail on him. He said OK, then he wasn't going to go. When he said that I was like OK, then I won't really be missing out on anything.

Later that evening when I was on Facebook I messaged him to again apologize for bailing. He replied "Well, I went anyway and found two new sites and lots of neat stuff." ARRGGHHHHHH!! Needless to say I am very upset I didn't just go ahead and go. Next time hubby is just gonna have to deal with it and I WILL get the tire fixed on time. All I can really say is, WHEN ARE YOU GOING BACK, CHARLES??! Cause I AM there!!!

2015 dues are (over)due. Your membership allows you to go on field trips and receive the newsletter, and it supports MAGS programs. Send checks to

Bob Cooper

8695 Baylor Road

Arlington, TN 38002.

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You Only Love What You Know
Continued from P. 1

site. These sites were selected for more detailed investigation due to the material evidence that each served as a ceremonial center for thousands of years. Recent data indicate that Hualcayán was a place for habitation, religious ceremonies, and mortuary rituals for more than two thousand years, from the late Formative or "Early Horizon" Period to the Late Intermediate Period (900 BC - AD 1450). Elizabeth's talk will tell us more about PIARA.

If you can't wait for the talk, you can read an article by Elizabeth at https://piaraperublog.wordpress.com/2014/02/19/hualcayan-site-exhibit-opening-at-municipal-archaeological-museum-in-caraz-peru/#english (the title of this *MAGS Rockhound News* article came from Elizabeth's web article). Also see this article by Robert Connolly: www.slideshare.net/rcnnolly/my-2014-field-season-in-huaylas-peru?next_slideshow=1.

(Elizabeth will have some woven crafts for sale from the women in the Peruvian village where she worked. All proceeds will go directly to those women.)

President's Message
Continued from P. 2

So to keep that good start going remember that February, just like all the other months, has 28 days in it. Make good use of them by paying your dues, attending meetings, going on field trips, marking off the Show working dates of April 23-27 on your calendar, and save your money to spend at the Show.

W. C. McDaniel

MAGS Dues
Continued from P. 7

Categories are:
Family: $25
Individual: $20
Junior (under 18): $10

You can also purchase one (or more) of the new MAGS pins from Bob. They cost $2 each.

December 2014 Board Minutes

Carol Lybanon

The MAGS Board of Directors met December 4 at St. Francis Hospital, 5959 Park Avenue. The meeting was called to order at 6:40 P. M. Present were: Mike Baldwin, Ron Brister, James Butchko, Bob Cooper, Bonnie Cooper, Bill Gilbert, Charles Hill, Carol Lybanon, Matthew Lybanon, W. C. McDaniel, Nannett McDougal-Dykes, Paul Sides, Marc Mueller, Julie Gilbert, and Kim Hill.

Secretary: The minutes were approved as submitted.

Treasurer: The Treasurer's Report was approved as submitted, subject to audit. Bill asked if the purchase of a new USB drive had been approved last month. The answer was yes, and he had been notified by email. Bill reported that he had received a copy of the SFMS membership renewal form. Matthew volunteered to complete the 2015 form. He will get the membership totals from the Membership Chair, and get a check from the Treasurer, before Jan. 31.

Membership: Bob reported that 2015 dues are coming in.

Field Trips: W. C. reported that the next field trip will be on December 13, 9:00 A. M., at Hedger Aggregate near Jonesboro, Arkansas. He will drive and check out the site. W. C. asked Matthew to check on the DMC field trip sign-up. W. C. sent information to Jim Flora, but has received no acknowledgement.

Adult Programs: Carol gave a summary of upcoming programs. Bill Gilbert will give the January program, Beth Day will present the February program, and the March presenter is David Hanes.

Junior Programs: The Juniors will do

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December 2014 Board Minutes *Continued from P. 8*

sand painting in January. Carol moved that W. C. will buy 2015 holiday gifts for Juniors when he is in Tucson. The motion was carried.

Show: Matthew reported that the fraudulent charges on the Regions Bank account have been cleared up.

Library: Ron asked the Board to make recommendations for new books to be purchased for the library. He is also working on purchasing CDs and books appropriate for our Juniors. Ron told the Board that he will be teaching a class in the spring, so he will not be able to attend Board Meetings. Marc will take his place during that time. There were two suggestions for enhancing library awareness: (1) Get Members to volunteer to write short book reviews for the newsletter, and (2) Feature some books at each meeting related to the program or field trips.

Newsletter: Matthew said he was willing to continue as Editor in 2015.

Webmaster: Mike said he will put the newsletter on the website this weekend.

Historian/Rock Swap: W. C. will check with the church to see how early Nannett can get into the building to set up for our holiday party. Nannett has a lot of door prizes. She asked the Board to bring 2-liter drinks for the holiday party. She will pick up poinsettias to decorate the tables.

Old Business:

- Bob reported that the club pins sold well at our last meeting.
- Ron said that the Archaeology Group at Chucalissa is finishing up on the MAGS traveling collection. The group will soon begin to set up a reference collection of projectile points.

New Business:

- Ron reported that the Pink Palace Coon Creek day will be April 11.
- The January Board Meeting will be moved to Monday, January 5, at the Agricenter, because the regular date would have been New Year's Day.
- W. C. would like everyone involved to meet on January 10, at 9:00, at the Regions Bank branch on Trinity at Germantown, to get all the signature cards corrected. We hope that we can get all the information set up for 2015-2016 at this time.

Meeting adjourned at 7:45 P. M.

No minutes were taken at the December 12 meeting because the meeting was the holiday party. Approximately 100 people attended.

Jewelry Bench Tips by *Brad Smith*

TAPERED REAMERS

A tool you don't see often these days is a tapered reamer. It's not a tool you'll use every day, but they're particularly useful for making an irregular hole round or for enlarging a hole to an exact diameter. For example, the small set in the yellow pouch is for holes in the range of 0.3 mm to 2.5 mm. They are great for sizing a tube to fit a hinge pin. Other times when I'm drilling a hole for riveting and can't find the exact size drill, I simply drill the holes with a slightly smaller bit and enlarge them with a reamer until the wire just fits.

For larger hole sizes in sheet metal up to 14 ga, I really like the reamer with the black handle. It makes quick work of sizing holes from about 3 mm to 12 mm. You can find them in well-equipped hardware stores.

You may never use the large diameter reamers, but when sawing out some rings from 4 mm thick sheet, I found they worked well for rounding and sizing the hole.

TESTING FOR SILVER

With the price of silver as high as it is, jewelry people need to keep their scrap metals sorted. Part of that process is identifying some of those unknown "silvery" pieces in the bottom of the toolbox.

Silver testing solutions can be used to distinguish high silver content alloys like Fine (.999), Sterling (.925), and Coin (.900) from alloys that have the same appearance but no silver content, like German Silver or Nickel.

I purchased a half-ounce bottle of JSP Silver Testing Solution #GT41 for $3. With a fresh solution you have an instant reaction after applying it to the metal being tested. Procedure is simple—as you apply a small drop, look for a color change. Note that the acid will leave a slight mark, so choose a spot that is out of the way or will be easy to polish.

If you suspect the object is silver plated, you should file a little notch somewhere inconspicuous to expose what metal is below the surface. Otherwise, all you test will be the surface plating.

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Fabulous Tennessee Fossils

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

Coming Soon—*Fabulous Tennessee Fossils*, a new *MAGS Rockhound News* column devoted to the fossil riches of Tennessee, and you can help decide which fossils to highlight.

Earth has a long geologic history spanning 4.6 billion years! Tennessee has rocks that serve as a partial archive of the most recent 1.0 billion years of that history. Tennessee abounds with fossils! Historically these fossils have played a pivotal role in research that has expanded scientific understanding of ancient life. Over the past 200 years, vast collections of Tennessee fossils have been amassed and our state has been visited by scores of paleontologists investigating the fossil record, many of these some of the most notable paleontologists in the field of study. The fossiliferous rocks exposed at the surface in Tennessee record geologic events that span what geologists call the Phanerozoic Eon (meaning "time of visible life"), which spans over 500 million years and includes the familiar "Paleozoic", "Mesozoic", and "Cenozoic" eras of geologic time, all terms based upon fossil content in the rocks. During the Phanerozoic Eon abundant multicellular life arose and diversified on Earth to the splendid biodiversity that we see today. But keep in mind that well over 99% of all life that has EVER existed...is now extinct; available to us only by their fossil record. During the evolution of Earth, life developed ever more complex genetic makeup, increased size from bacteria to dinosaurs and whales, increased complexity to the genetic powerhouse exemplified by humans, developed the ability to make a variety of hard parts (bone, tooth, shell, exoskeleton), develop a variety of reproductive strategies (sexual and asexual, internal and external fertilization, parental care to no care; few to many offspring), adapted to every conceivable environment as it developed (marine, terrestrial, extreme), has been an agent of global change (just where do you think the O_2–N environment came from, anyway?), and is now capable of even thinking about its own existence...at least one animal group can!

Tennessee's fossil archive is by no means complete, but there is a good cross-section of environments (marine, aquatic terrestrial, non-aquatic terrestrial), taxonomic groups (monerans, protistans, invertebrates, vertebrates, plants, fungi), preservation states (body fossil, trace fossil, chemical fossil), status of biodiversity (extinct or extant, rare to abundant), and just about any other way to categorize life you can conceive of. Fossils are more than an archive of past life. The methods of study are those of both the geologist and the biologist. Fossils are the biology that leads to today's biology, and the history of these changes are still locked in genetics. For example, hox genes still present in fish and mammals are the same gene...the one that regulates legs versus fins! You have five fingers (= pentadactyly) due to ecological contingent events that occurred 400 million years ago! Everyone needs to know about fossils. The Tennessee Science Standards include fossils in the sections on Earth Science and especially Biology. And let's not forget about teaching organic evolution, fundamental to science and mandated by law for education...rightly so!

I envision *Fabulous Tennessee Fossils* will be a regular column in *MAGS Rockhound News*, where I will highlight individual fossil taxa from Tennessee, with photographs and drawings, tasked to give you the history behind the fossils and the fossil-finders themselves, history of great fossil sites, major breakthroughs in fossil science from Tennessee, and much more. No group will be ignored: invertebrates, plants, vertebrates, traces will all be included. Microfossils to macrofossils, too. Fossils articles will span all periods of geologic time represented in surface rocks of Tennessee. So, where to begin? I have several fossils chosen to get the ball rolling, but **I would really like to hear from you**! Suggest the fossil taxa from Tennessee that you want to know about and I will provide you the story! **Please write me** (mgibson@utm.edu) and give me the fossils you want to hear about.

Jewelry Bench Tips *Continued from P. 9* Here's the reaction I get when testing various materials:

- Fine silver: Red/Orange
- Sterling silver: Brick Red
- 80% silver 20% copper: Dark red changing to gray
- Brass: Yellow changing to blue
- Nickel: Gray-green
- Copper: Yellow changing to blue
- Steel: Black
- Stainless Steel: No color change

Caution—If you do any of this testing, know that you are handling a reasonably strong acid. The GT41 label says it includes nitric acid and potassium dichromate.

➡ Wear safety glasses.

➡ Do not get any testing solution on your skin.

➡ Always have a solution of baking soda and water handy to neutralize acid.

➡ Wash and clean up well when you're done.

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

Like the Show

If you like the Memphis Mineral, Fossil, and Jewelry Show, you can Like us on Facebook. The Earth Wide Open is a Facebook public group, where you can see pictures and get information about the Show. And if you join the group, all of your Facebook friends will find out that the group exists and be able to get information about the Show. This is an easy, free way you can help the Show reach more people.

Happy Valentine's Day

Photo courtesy of MAGS Members Beth and David Day

February Birthdays

1	Caleb Crawford	20	Kim Hill
2	Timothy Nichols	21	Leah Vanderlin
3	Gus Barnett		Ray Lovelady
	Lupe Suarez	23	Julia Bailey
9	Vincent Mayer		Nicole Roberts
12	Louis White	24	Amber Harrison
13	Kiri McMann	25	John Brown
	David Von Boeckman		Cecilia Hemme
14	Gayden Schwartz	26	Harrison Parks
16	David Loyd	27	Leigh Butchko
19	David Vaughn		Scarlett Brimingham

February Field Trip

The February 15 (Sunday, because Saturday is Valentine's Day) MAGS field trip will go to Nonconnah Creek. MAGS and DMC field trips are only open to Members (another benefit of your dues!). Because *MAGS Rockhound News* is posted on our website, our policy is not to publish field trip details. MAGS Members can sign up and get the details at the February 13 Membership Meeting. You can always get information from our field trip chair, Charles Hill (contact info on P. 2).

MAGS At A Glance

February 2015

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
1	2	3	4	5 Combined Board/ Show Meeting, 6:30 pm, St. Francis Hospital	6	7
8	9	10	11	12	13 Membership Meeting, 7:30 pm, "Archaeology in Peru"	14
15 MAGS Field Trip, Nonconnah Creek	16	17	18	19	20	21 MAGS Archaeology Interest Group, 10:00 am, Chucalissa
22	23	24	25	26	27	28 DMC Field Trip, Amos Cunningham Farm, Due West, SC

Memphis Archaeological and Geological Society
2019 Littlemore Drive
Memphis, TN 38016