



Volume 63 ◊ Number 07 ◊ July 2017 ◊ A monthly newsletter for and by the members of MAGS

Belz Museum Asian Art

Belinda D. Fish, Director and Education Coordinator, Belz Museum of Asian and Judaic Art
July Program



Don't miss the July 15 field trip to the Belz Museum. See P. 3 for details.

You can see pictures from our last Belz Museum field trip in the September 2014 issue of MAGS Rockhound News, available for download from the MAGS website, memphisgeology.org.

We will be looking at the hard stones of Chinese Qing dynasty carvings, the symbols of said sculptures, and taking an in-depth look at the pieces of jade that make up the Belz Museum Asian collection and the Belz Private Collection. There will be samples

of each hard stone discussed and a PowerPoint presentation of some of the pieces of the museum.

The presentation will take about 45 minutes and there will be a question and answer session at the end.

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FABULOUS TENNESSEE FOSSILS

Whales in Tennessee—Really!

Fossil enthusiasts already know that Tennessee can boast a prodigious vertebrate fossil record, especially from the marine sediments of the Cretaceous belt and Pleistocene glacial deposits of West Tennessee. Middle and East Tennessee have vertebrates too, mostly associated



DR. MICHAEL A. GIBSON, UT MARTIN

with cave deposits that trapped animals and saved them from erosion, or as in the case of the famous Gray Fossil Site of Washington County, as a cenote watering hole. The Plateau region contains trackways that are known to have been made by amphibians and early reptiles. While most of the vertebrate

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MAGS Rockhound News ♦ A monthly newsletter for and by the members of MAGS

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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.

July DMC Field Trip

WHERE: McKinney Mine, near Spruce Pine, NC (fee site)

WHEN: Saturday, July 15, 9:00 A. M.

COLLECTING: Mica, Smoky Quartz, Feldspar, Garnets

INFORMATION: Ken Caesbeer, (828) 277-1779

Links to Federation News

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

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July Field Trip

W. C. McDaniel

The MAGS July 14 program on carving jade and other gemstones will be followed by a field trip to the Belz Museum on **Saturday, July 15**. This is a paid event, and MAGS will pay half of the admission charge.

To view the Belz Museum go to www.belzmuseum.org. The carvings are worth the trip.

Junior Programs Schedule Update

There are a few changes to the schedule of Junior programs. Here is the latest information:

July—Space/Planets (Mike Baldwin)

August—Indoor Picnic/Rock Swap

September—Magnetism (Matthew Lybanon)

October—Fluorescence (Alan Schaeffer)

Chucalissa Volunteer Day

Melissa Buchner



Volunteer Day at Chucalissa is the third Saturday each month. The next Volunteer Day is July 15, 9:00–1:00. Help is needed for artifact sorting—no experience required. This is a fun way to learn about artifacts excavated at

the Chucalissa site and to meet other people with a passion for archaeology. For more information contact chucalissa@memphis.edu.

Report From The Field

Matthew Lybanon (Editor)

Most MAGSters know that MAGS Member Dr. Robert Connolly recently retired as Director of the C. H. Nash Museum at Chucalissa. Here's an update on what he's doing now.

On June 1, Director Elizabeth Cruzado Carraza (Eli gave the February 2015 MAGS program) launched the first field season of the Nivin Archaeological Research Project (PIAN) in Peru. The multi-year project will serve as the basis for Elizabeth's dissertation research as she pursues her PhD degree at Louisiana State University in Baton Rouge. Assisting Eli in this first field season are archaeologists Mary Avila Peltroche, Bryan Nuñez Aparcana, and **Robert Connolly**.

PIAN is envisioned as a multi-year field project to clarify the prehistoric cultural affiliations and transitions in the middle Casma Valley from the Early to the Middle Horizon. The Casma Valley on Peru's north coast is famous for early ceremonial centers that attracted the attention of archaeologists and explorers. However, the cultural sequence for the Early Horizon and Early Intermediate periods is poorly understood, particularly for the Moche phase. Elizabeth's research explores the potential of the Casma Valley as a frontier for the Southern Moche state.

July Birthdays

1	Ashton Coulson Fred Solang
3	Patricia Twilla Wayne Williams
4	Raven Burks
5	Susan Goossens Clay Crumpton
8	Jorge Leal David Day
10	Barbara Harris Nannett McDougal-Dykes
11	Stephen McMann
12	Sierra Ledbetter Bill Behnke
13	J. D. Little
14	Sue Nicholson
19	Susan Pere
20	Connie Anderson
21	Susan Vaughn Erin Leal Angelina Wang
22	Dotty Coulson James Johnson
24	C. J. Rhudy
25	Regina Lindsey Jenny Vaughn
26	Nola Tully Devin George
29	Laurence Nuelle
30	Misty Morphis Leslie Davis
31	Daryl Wallace

Stone Mosaic Class

The Alabama Folk School at Camp McDowell will offer a class that will use select Alabama rocks to make a contemporary mosaic. The instructor will be geologist Enid Probst. The dates will be September 15-17, 2017. More details: (205) 387-1806 or www.alfolschool.com.

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June MAGS Get-together

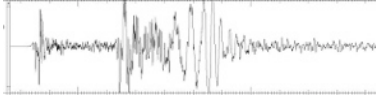


Thanks, Cornelia and W. C., for hosting the first rock swap of 2017.



Yellowstone— The Big One?

Matthew Lybanon



On June 15 a magnitude 4.5 earthquake took place in Yellowstone National Park. "The earthquake was [reportedly] felt in the towns of West Yellowstone and Gardiner, Montana, in Yellowstone National Park, and elsewhere in the surrounding region," according to scientists at the University of Utah (part of the Yellowstone Volcano Observatory, which monitors volcanic and earthquake activity in Yellowstone National Park). This earthquake was the largest to have hit Yellowstone since March 30, 2014, when a magnitude 4.8 earthquake was recorded 18 miles east, near the Norris Geyser Basin.

"[The 4.5] earthquake is part of an energetic sequence of earthquakes in the same area that began on June 12," the statement continued. "This sequence has included approximately thirty earthquakes of magnitude 2 and larger and four earthquakes of magnitude 3 and larger, including today's magnitude 4.5 event." As of June 19, 464 events had been recorded.

What's going on? Are these earthquakes forerunners of even bigger earthquakes to come?

Yellowstone was established as the world's first national park primarily because of its extraordinary geysers, hot springs, mud-pots, and steam vents, as well as other wonders such as the Grand Canyon of the Yellowstone River. In Yellowstone, earthquakes help to maintain hydrothermal activity

by keeping the "plumbing" system open. Without periodic disturbance of relatively small earthquakes, the small fractures and conduits that supply hot water to geysers and hot springs might be sealed by mineral deposition.

The University of Utah's seismograph stations detected more than 3,200 earthquakes in the park in 2010, the most since 1985. Beginning in 2004, GPS and InSAR measurements indicated that parts of the Yellowstone caldera were rising up to 7 cm per year, while an area near the northern caldera boundary started to subside. The largest vertical movement was recorded at the White Lake GPS station, inside the caldera's eastern rim, where the total uplift from 2004 to 2010 was about 27 cm. The caldera began to subside during the first half of 2010, about 5 cm at White Lake so far. Episodes of uplift and subsidence have been correlated with the frequency of earthquakes in the park.

Yellowstone is one of the most seismically active areas in the United States. Approximately 1,000 to 3,000 earthquakes occur each year in the Yellowstone area; most are not felt. They result from the enormous number of faults associated with the volcano. There are often 1 to 20 earthquakes recorded in Yellowstone National Park every day.

Yellowstone commonly experiences "earthquake swarms"—a series of earthquakes over a short period of time in a localized area. The largest swarm occurred in 1985, with more than 3,000 earthquakes recorded during three

months on the northwest side of the park. Hundreds of quakes were recorded during swarms in 2009 (near Lake Village) and 2010 (between Old Faithful area and West Yellowstone). Scientists interpret these swarms as due to shifting and changing pressures in the Earth's crust that are caused by migration of hydrothermal fluids, typical of volcanoes.

Most of the earthquakes in the current swarm ranged in the magnitude of 0 to 1, with five less than zero, indicating they occurred at depths ranging from about 0 miles to about 9 miles. "This is the highest number of earthquakes at Yellowstone within a single week in the past five years, but is fewer than weekly counts during similar earthquake swarms in 2002, 2004, 2008, and 2010," scientists said.

Yellowstone is seismically active. Earthquakes occur there all the time. If they were to trigger a large eruption of the volcano, the results could be catastrophic. But the volcano hasn't erupted in 70,000 years. Predicting exactly when a volcano will erupt is, at present, impossible, but the probability of a large eruption at Yellowstone in the next year is calculated as one in 730,000. And the present earthquake activity is "slowly winding down."

Editor's Note: *This article is compiled from news reports, the United States Geological Survey, and the National Park Service.*

New Members

Dr. Ronné and Danielle Adkins and son Jonathan

Amy and Jeremy Smith and children Barrett, Melody, Connor

Fabulous Tennessee Fossils fossils, probably over 90%, belong to land-dwellers, the Cretaceous belt, with its famous Coon Creek Formation and underlying Demopolis, have a robust marine fauna of Mesozoic swimming reptiles, turtles, fish, and sharks. Once the Cretaceous sea withdrew, Tennessee essentially became the land-locked state it is today...almost. There is a modest Paleocene (earliest Neogene) marine record dominated by invertebrates and part of one turtle.

Modern whales (cetaceans) are fully aquatic air-breathing marine mammals with flukes and blowholes. Whales first appeared during the Eocene Epoch, which in Tennessee is dominated by the sands and terrestrial plant-bearing clays of Weakley, Gibson, Henry counties, but there may be at least one other marine connection post-Cretaceous. Whales evolved from land-dwelling “artiodactyls”, meaning “even toed” ungulates that inhabited coastal regions in the Paleocene. They share ancestry with hippopotamuses (both belong to the suborder Whippomorpha). These earliest whales hardly resembled the modern odontoceti (toothed) and baleen whales of today as they were early in the speciation history. To us, these ancestral whales would have looked more like a big long snouted dog with webbed feet than a modern whale.

There is a single reported occurrence of a portion of a possible fossil whale that was collected in Lauderdale County near the small community of Fulton,

Kingdom Animalia
Phylum Chordata
Class Mammalia
Order Artiodactyla
Infraorder Cetacea
Family Basilosauridae
Genus *Basilosaurus* Harlan 1934
Species *Basilosaurus* cf. *cetoides*

Tennessee, along the Chickasaw Bluff line. The find was reported along with the description of the stratigraphy of a test well near Fort Pillow in which Eocene age plant fossil spores were identified in 1969 by R. H Tschudy, a palynologist for the U. S. Geological Survey. Tschudy tentatively determined the spores were probably from the Late Eocene Jackson Formation (?). It was also reported that about 3 miles from the test well a single bone of whale (“distal end of a rib”) was found in 1958 in glauconitic sand and clay that also yielded sharks teeth. That information was supplied in a letter to Tschudy from Frank C. Whitmore, Jr., also a vertebrate paleobiologist from the U.S. Geological Survey—National Museum, in 1959, in which Whitmore noted that whale bone is common in the Jackson and Ocala formations, both of which are Florida occurrences. William S. Parks of the U. S. Geological Survey reported in J. X. Corgan and Emanuel Breitburg’s *Tennessee’s Prehistoric Vertebrates* (TN Division of Geology Bulletin 84, 1996) that the whale was evidently identified as *Basilosaurus* cf. *cetacea* (sic) and that the fossil material is housed at the U. S. National Museum. *Basilosaurus* meaning “king lizard”.

Basilosaurus cetacea is an

interesting name assignment for a couple of reasons. First, there is no species *B. cetacea*. The actual first species of *Basilosaurus* is *B. cetoides*, named by Richard Owen in 1839. Somehow, someone changed the species name in the move from letters to summarizing letters in various publications after it was found. Secondly, the specimen has apparently gone missing from the National Museum as I received a query in 2014 from my colleague at the Smithsonian looking for it and could I offer assistance in finding the original site. I have the Lat/Long coordinates to the site, but it is generally underwater, so I have not been able to get to the level where the fossil was reportedly collected (and neither did James X. Corgan, Austin Peay paleontologist who attempted to find the site years ago).

Equally perplexing is the assignment of the distal rib to this genus and species, highly difficult with so little material from non-distinctive morphology. There is no obvious track record as to exactly who identified the remains as belonging to *Basilosaurus*, but both Whitmore and the great whale paleobiologist Remington Kellogg were at the National Museum during this time frame. There was early discussion of renaming this species as *Zeuglodon cetoides*, which is now considered a junior synonym. Another fun fact is that this species is the Official State Fossil of both Alabama and Mississippi (Figure 1) based on a specimen found in Clarke County, Alabama, fully described in chapter 104 of Herman Melville’s *Continued*, P. 7

Fabulous Tennessee Fossils Moby Dick, published in 1851. *Continued from P. 6* The age of the deposit makes this identification possible as *B. cetoides* ranged from 41 to 35 million years ago (Late Eocene–Early Oligocene), but the taxonomic assignment based upon a portion of the rib should be taken with a grain of salt in that water!

I became personally acquainted with *B. cetoides* as a graduate student in the early 1980's at Auburn University where I spent several months using a 1950's period electric dental drill and hand chisels to remove the skull of a *B. cetoides* found in Alabama from the limestone matrix in which it was entombed and wrote my first graduate level report on that fossil. Last summer I was invited by the current land owners of the site in Clarke County, Alabama, where the original specimen that Melville immortalized was

collected. Wish I could report finding some more, but alas, that site is also lost. The next time the Mississippi River draws down, I plan on donning my Captain Ahab clothing and looking for my "paleowhale" in Tennessee's oceanic past.

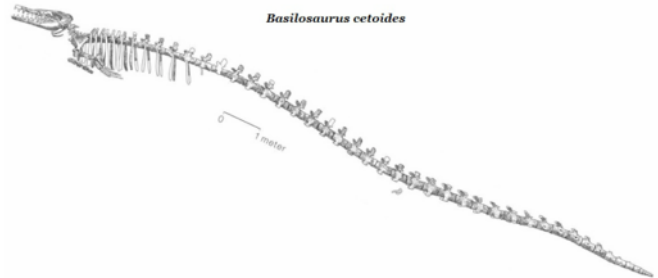


Figure 1. Skeletal diagram of *Basilosaurus cetoides* (<http://www.georgiasfossils.com/11a-basilosaurus-cetoides.html>).

Congrats, Volunteers

MAGSters who volunteered to help at this year's Show were entered in a drawing to win prizes. The drawing took place at the June Membership Meeting, and the photo shows some of the lucky winners.



Pictured (L-R): Reyna Lee, Jim Butchko, Aaron Van Alstine, Lou White, Debbie Schaeffer, Leah Gloyd. (Also pictured: Karen Schaeffer, who drew the winning names, and volunteer coordinator Carol Lybanon.)

Not Pictured: Bonnie Cooper, Lupe Suarez, Harrison Parks, Kathy Baker, Cheri Crews, Alishia Parks.

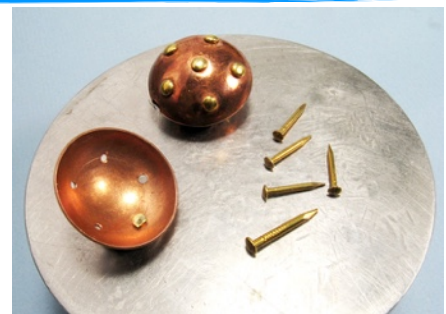
Jewelry Bench Tips by Brad Smith

FANCY RIVET HEADS

For a nice looking rivet head, use brass escutcheon pins. You'll have perfectly rounded heads that are all the same size and shape. The pins are a little hard to find, so try the best hardware stores first. Be sure to get solid brass pins, not brass plated steel. If unsure, test them with a magnet.

The pins are readily available online. Lee Valley Tools has them in 14 - 18 gauge and lengths from 1/4 inch to 1 inch. Go to <http://www.LeeValley.com> and do an item search on "brass escutcheon pin."

For best results, select a drill that gives you a hole with a close fit to the rivet. Trim the rivet to a leave a little less than one diameter sticking out the back side. Place the head on a scrap of hard plastic on the anvil so as to not flatten the head. I prefer a ball peen hammer (with a small 3/8 inch ball) for setting the rivet.



EASIER PRONG SETTING

When setting stones in a prong mount, the tool is less likely to slip off the prong if you grind a groove into its face or rough up the face a bit with sandpaper. Some folks prefer a prong pusher for doing this, and others like a set of pliers.

The easiest way to create a slot on the pusher is with a file, and the easiest way to create a slot on one jaw of your pliers is with a cutoff wheel. Then rough polish the slot with a medium grit, knife-edge silicone wheel.

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

May Board Minutes

Mike Baldwin

Called to order 6:37. Present: Charles Hill, W. C. McDaniel, Mike Baldwin, Kim Hill, Bonnie Cooper, Bob Cooper, Leah Gloyd.

Secretary: April minutes were distributed via email. Minutes approved with one change.

Treasurer: Bonnie distributed summary of April checking and savings. Report approved subject to audit.

Membership: 21 new members at the Show. Several Members have not renewed for 2017. Bonnie suggested a photo directory.

Programs: May program will be gem trees. June program will be Mike Howard on Micro-crystals under a microscope. July (Linda Fish) will be about carving jade. August will be the annual indoor picnic/rock swap. In September Barry Gilmore will present a program on opals. The October program will be about road cuts. In November Konrad Armstrong, youth member of NMGMS, will present a program on radioactive minerals.

Rock Swaps: June 19 at W. C. MacDaniel's.

Field Trips: The Memorial Day weekend field trip will be to Twin Creeks Crystal Mine, near Mt. Ida on Saturday and the Wegner Crystal Mine, also near Mt. Ida, on Sunday.

Library: Leah is redoing the rules to reflect 1-month checkouts. She sent out a lost-book email to a Member, who is returning the book. Leah purchased a date stamp, library cards, and display easels. She is in the process of reclassifying all the books using the Dewey Decimal System. Mike will send an email to Leah and Bob with suggestions for fluorescent mineral books.

Youth Programs: Mike Baldwin will be out of town in June, so Charles Hill will do the June program and Mike will do the September program.

Web: Pages have been updated with current program and field trips information. May newsletter is online.

Show: Generally people were very satisfied with the Show. We had a record attendance. The security firm was not as good as in past years. Next year we won't have Thursday as a set-up day. Charles suggested that we use the area where the Boy Scouts met as a silent auction area. W. C. commented that silent auctions are a lot of work, and suggested that we do more auctions at the Membership Meetings. The fire marshal didn't make an appearance at the Show. Bonnie suggested that next year the club could sell mineral magnets up front and in the RockZone.

Adjourned 7:19.

May Meeting Minutes

Mike Baldwin

Called to order at 7:05. 45 members and 3 visitors attended.

We gained 34 new members at the Show. Leah gave a quick overview of the restructure of the library. The books are now organized by category and/or topic. Tomorrow's field trip will be to 20-Mile Creek. The Memorial Day Weekend trip will be to Twin Creeks Mine on Saturday and the Wegner Mine on Sunday. Saturday trip is to a mine that has been closed to the public for more than 30 years, but has recently been reopened. The June field trip will be to Arkansas to collect agates. The July field trip will be a tour of the Belz Museum in downtown Memphis.

GoFundMe has brought in \$2525.29 for Idajeon Jordan. Collection through the club is at \$4367.29. Matthew Lybanon presented an abundance of newsletter article awards earned by MAGS Members in the recent AFMS and SFMS competitions. The June 17 rock swap will be at the home of W. C. and Cornelia McDaniel. Bring food to share, a table, swap material and

chairs. The annual indoor picnic and rock swap will be the August program. Bring food, a table and rock swap material. The October rock swap will be at Bartlett Park.

Displays were presented by Kim Hill, Leo Koulogianos and Jan Harris, Jalyna and Jenn Flores, and Randy Baker. Carol Lybanon introduced an experimental program—make your own gem tree. You provide the rock base and MAGS provides the wire and beads. Adjourned 9:00.

Looking for Photos

Carol Lybanon, Historian

If you have any pictures of rock swaps from 2006-2012, I would appreciate a copy. I am preparing a scrapbook, to put in the library, of places we go and things we do. I have some pictures, but no rock swap pictures from those years. If you hosted a rock swap and took a few pictures, that would help complete the scrapbook's rock swap section.

You can mail the photos to me at 2019 Littlemore Drive, Memphis, TN 38016, or email scanned or digital photos to lybanon@earthlink.net.

Thanks for your assistance

Recipes of the Month

Cherokee Casserole from
Stephany Rainwater

1- 1/2 lb ground beef
3/4 cup chopped onion
dash of pepper
1/4 tsp ground thyme
1/4 tsp oregano
1 can mushroom soup
1 cup Minute rice
1 Tbsp olive oil *Continued, P. 9*

Recipes of the Month 1/2 tsp salt
Continued from P. 8 1/4 tsp garlic powder

1 bay leaf
1 14oz can stewed tomatoes
3 slices American cheese, cut into strips
10 stuffed green olives, sliced
Brown beef in olive oil, add onion and cook over medium heat until onion is tender. Drain. Stir in seasonings, tomatoes, soup, rice and olives. Simmer 5 minutes, stirring occasionally. Spoon into baking dish, top with cheese. Broil to melt cheese. Remove bay leaf before serving. Serves 6

.....
Busy Day Cookies from
Jerry Seamans

1 cup Wesson oil
1 egg
1 3/4 cup coconut
1 3/4 cup crushed graham crackers
1/2 cup milk
1 cup sugar
1 cup chopped pecans
13 whole graham crackers (or more) to line pan
1/2 cup oleo
1/2 box powdered sugar
1/2 tsp vanilla
1 to 2 Tbsp milk

Grease 9x13" pan and line with whole graham crackers. In deep pan, combine egg and sugar; add oil and milk. Bring to a rolling boil over medium heat: remove and cool. Add coconut, nuts, cracker crumbs, mixing well. Pour over graham crackers in pan and top with more whole crackers. Mix oleo, powdered sugar, vanilla, milk, creaming well to spreading

consistency. Spread icing on top. Cut and serve.

**How A Rockhound
Spent Her 40th
Wedding Anniversary**
Kim Hill

Our 40th wedding anniversary was June 15th, but this story starts several months earlier. I decided one beautiful winter day, with the blue blue skies and a few puffball clouds, to drive to Richardson's Landing, a place on the Mississippi River that when the river is down has large gravel beds where you can find agates, fossils, bison teeth; anything is possible. Even when the river is up there are some beds you can still reach.

Not this day. The river was up to the bottom of the path. I was craving agates and didn't really want to head home so was driving around some of the dirt roads—which I noticed had a good bit of gravel on them. I got out and started looking. Within a few steps I found a nice little agate. While the day looked beautiful there was a sharp cold wind blowing, and soon my eyes were watering too much to see. Long story short: I spent the next hour driving on the wrong side of the road literally hanging out the door rock hunting.

Now for me getting home with my finds, going through them, cleaning them up; almost as much fun as finding them. While

going through them I found a very interesting piece. It was about the size of a large jaw breaker with green fractured looking crystals. I found out at the next club meeting what it was, wavellite. Wavellite is found in two places, both in Arkansas. How did it end up here?

I showed a rockhound friend, who started researching where to find it. During our spring Show, while filling grab bags I found a couple pieces and another Member found some more for me which I bought and gave several to my wavellite-addicted friend. When I found out the June field trip was set for Mt. Ida in Arkansas to hunt for crystals, we quickly made our plans and booked our rooms two months early, since it was scheduled for Memorial Day weekend. But almost the last minute I found out I couldn't go.

My friends found GPS coordinates for a quarry that mines wavellite and found out part of it is on county property. They visited the site and found a number of pieces. With life the way it is now, being able to be in constant contact, I was kept informed of their adventures. My husband felt bad about us missing the trip—the chance to go to a sparsely hunted crystal mine and the wavellite.

Our 40th wedding anniversary was the upcoming Wednesday so he made plans for us to go to Hot Springs. Unfortunately it was too hot that week for *Continued, P. 10*

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*Rockhound 40th Wedding Anniversary
Continued from P. 9*

us to go crystal hunting, and to go to the mine I wanted to I needed eight other people or pay \$250 (I would have paid it).

He got me a GPS for Mothers Day so we got the coordinates from my friend and entered them. It was a 45 minute drive which eventually took you off the highway onto the good gravel road. In Arkansas roads are classified as highway, blacktop road, good gravel road, gravel road, dirt road.

When we turned onto the good gravel road he was little apprehensive; for some reason he had washed the car (HIS car!) earlier that day. The GPS gave us turn by turn, mile by mile directions which stopped us in the middle of the road with nothing but trees and land all around us. We tried again; it still took us to the same spot in the middle of nothing. I called my friend. She said they turned left off the good gravel road. We went back, found a left hand turn, and took it. The first thing we noticed was the tall grass in the middle of the dirt road we now traveled on. If it was a well used road there wouldn't be any grass.

Hubby was really stressing now over his baby, dirt flying up all around us. The next turn brought us to what is common on Arkansas back country roads, a roller coaster turn heading downhill. I

looked over at hubby's pale face and we both said, "Oh, No !" The other thing about many Arkansas dirt roads: there's only enough room for one car, so it was back a little, forward a little, back a little, forward a little till he could turn around.

Of course I was disappointed and couldn't help saying, "Now do you wish we had brought my truck?" As we were heading back to the highway my friend called back and remembered part of the name of the road—which we saw was on the other side of the highway. A right turn where the GPS told us left turn. We crossed over and almost immediately saw a man with a backpack heading towards the highway.

A little further down was a SUV stopped in the middle of the road; it moved forward a bit then pulled over some ,so we started to go around. Next thing we know she is pulling a Uie and just misses us by 2 feet.! Anyway we finally find the place and I got out to look around. I can only figure my two friends cleaned the place out—they did say they grabbed as many as they could—because I didn't find too many pieces. What I did find weren't really great samples but they are now mine.

When I go to hunt I hunt for hours. Hubby isn't quite as dedicated so I only looked around 20 or so minutes. He was very happy to get his pride and joy off

the dirt roads and the good gravel roads and back onto the highway. The rest of our trip was very pleasant and we were able to decompress a little.

Of course when visiting Hot Springs one must visit a rock shop or two, so on the way out of town we stopped at Ron Coleman's Rock Shop. I was mainly in the market for some colored slag glass for my garden but was open to finding any good deals. We asked if they had any wavellite, which she did and showed us. She picked up one piece and said, "what does this look like ?" I look and immediately said "dragon." He looks at both of us, shakes his head, mutters "both alike." I say, "in fact it looks like the dragon from 'How To Train Your Dragon'." Can you believe I didn't get it!!!!!! It was **only** \$10.!!

I went outside to look at the slag glass while Richard goes back to car; too hot for him. I found several colors of the glass I didn't have and started a little pile. In the last few tables I found more wavellite priced at \$6 a pound. I was standing at the table trying to pick out the best pieces when I heard the door open and a man came out chasing his two year old son. I heard him ask the boy why was he running. He just giggled and kept running through the maze of tables until he was standing next to me. He just looks at me and

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*Rockhound 40th Wedding Anniversary
Continued from P. 10*

says, "Nana." "No, No, baby, I am Nana" I replied (remember Mork and Mindy?). His dad tries to get him to move on but he stops and dad says, "Why are you just standing there?" "Nana", he says again. What is it? Do I smell like cookies? This stuff happens all the time to me.



Short story long: I got some wonderful pieces and only spent \$36 on those, some fluorite and honey and green calcite. Now y'all know I love doing displays so I will have my wavellite at our next membership meeting. I hope you enjoy seeing it as much as I do. And that is how I spent my 40th wedding anniversary.

Mystery Solved

Matthew Lybanon (Editor)

The Cleveland-Lloyd Dinosaur Quarry (CLDQ), discovered in the 1920s, is the densest deposit of Jurassic theropod dinosaurs discovered to date. Excavations also showed the fossil bed had an unusually large proportion of Allosaurus fossils.

The question of how so many dinosaurs ended up in such a small area has baffled scientists ever since. Some theories suggest there was a catastrophic event—potentially the dinosaurs were poisoned, died in a severe drought, or became trapped in the thick mud that would have been present at the site.

In a study published in the journal *PeerJ*, a team of U.S. researchers tried to reach a consensus about how the fossils ended up at the CLDQ by analyzing the processes that affected the remains as they were fossilized. As well as looking at the dinosaur fossils, the team examined the minerals in the sediments to better understand the environment of the period.

The article presents two new data sets that aid in the development of such a robust taphonomic framework for CLDQ. First, x-ray fluorescence of CLDQ sediments indicate elevated barite and sulfide minerals relative to other sediments from the Morrison Formation in the region, suggesting an ephemeral environment dominated by periods of hypereutrophic (extremely rich in nutrients and minerals) conditions during bone accumulation. Second, the degree of abrasion and hydraulic equivalency of small bone fragments dispersed throughout the matrix were analyzed from CLDQ.

Study author Jonathan Warnock, from the Indiana University of Pennsylvania, says that their findings showed the dinosaurs accumulated at the site over several different periods, with

carcasses being transported there during flooding events. When floods came, the dinosaurs would have washed in and rotted in what was then a pond.

These rotting bodies would have created an environment unsuitable for fish and crocodiles, which explains the lack of these fossils at the site. Nor would other dinosaurs have eaten the carcasses, which is why bite marks are not present on the fossils.

But another big mystery remains. Why were there so many fossils of the Allosaurus, a large theropod dinosaur? "That's still the \$1,000,000 question!" Warnock says. "We are looking at future research to determine whether or not the Allosaurus died together and were washed in or represent individuals brought in from across a landscape."


He says it could be because there were a lot of smaller predators like Allosaurus in relation to fewer, but far larger herbivores, like sauropods: "[This] might have been the Jurassic norm. We hope to be able to understand Jurassic population dynamics."

They also need to better understand the size of the floods. To work this out, researchers plan to look at the energy required to move the bone fragments and pebbles.

Ref: Peterson JE, Warnock JP, Eberhart SL, Clawson SR, Noto CR. (2017) New data towards the development of a comprehensive taphonomic framework for the Late Jurassic Cleveland-Lloyd Dinosaur Quarry, Central Utah. *PeerJ* 5:e3368 <https://doi.org/10.7717/peerj.3368>

MAGS At A Glance

July 2017

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	
25	26	27	28	29	30	1	
2	3		4	5	6 Board Meeting, 6:30 pm, St. Francis Hospital	7	8
9	10	11	12	13	14 Membership Meeting, 7:00 pm, "Belz Museum Asian Art"	15 MAGS Field Trip, Belz Museum/DMC Field Trip, Spruce Pine, NC	
16	17	18	19	20	21	22	
23	24	25	26	27	28	29	
30	31	1	2	3	4	5	

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