



Volume 57 ♦ Number 05 ♦ May 2011 ♦ A monthly newsletter for and by the members of MAGS

# Grand Prize Winner

*Winner's son accepts big prize*



The winner of this year's Grand Prize at the annual Memphis Mineral, Fossil, and Jewelry Show was Lisa Duffley of Germantown. The picture shows 2011 Show Chair W. C. McDaniel making the presentation to Lisa's son, James Duffley. The prize was a

valuable Peruvian quartz crystal with galena and pyrite. MAGSters can go to the April issue of MAGS Rockhound News to see a large picture of the prize. The presentation was the last official event in this year's Show. Congratulations, Lisa and James!

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## MAGS CELEBRATES 60TH BIRTHDAY AT SHOW

60 years old and hardly any wrinkles! MAGS has been around since 1951, and the recent Memphis Mineral, Fossil, and Jewelry Show was the perfect opportunity to celebrate a big birthday. There was a cake (of course) at the Friday night dinner, but that wasn't all. The Show Committee gave each of the volunteers who made



the Show possible a beautiful agate slice. Before they were distributed they were put on display for attendees to see, on three tables opposite the information desk. The picture shows what the display looked like. The agates attracted a lot of attention, and the workers ended up with nice tokens of appreciation.

# MEMPHIS ARCHAEOLOGICAL AND GEOLOGICAL SOCIETY

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

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3805 Melanie June Drive, Bartlett, TN 38135 ♦ (901) 937-8522

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1415 Shagbark Trail, Murfreesboro, TN 37120 ♦ (615) 491-5110 ♦ skydancer2992@yahoo.com

### 2nd VP (Programs)—Paul Sides

1062 CR 739, Wynne, AR 72396 ♦ (870) 208-9586

### Secretary—Marc Mueller

1415 Shagbark Trail, Murfreesboro, TN 37120 ♦ (615) 491-5110 ♦ skydancer2992@yahoo.com

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409 Bradford Trail Cove, Collierville, TN 38017 ♦ (901) 832-0437 ♦ darjohnston@aol.com

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6854 Corsica Drive, Memphis, TN 38120 ♦ (901) 753-8496 ♦ laserme@aol.com

### Director (Youth)—Carol Lybanon

2019 Littlemore Drive, Memphis, TN 38016 ♦ (901) 757-2144 ♦ lybanon@earthlink.net

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3246 Teaberry Lane, Bartlett, TN 38134 ♦ (901) 380-1886 ♦ amazeyouu@yahoo.com

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3982 Glendale Drive, Memphis, TN 38128 ♦ (901) 386-3006 ♦ emayfiel@localnet.com

### Director (Historian)—Nannett McDougal-Dykes

♦ 106 Maple Street, Stanton, TN 38069 ♦ 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—W. C. McDaniel

2038 Central Avenue, Memphis, TN 38104 ♦ (901) 274-7706 ♦ w.c.mcd@att.net

## GREETINGS FROM THE PREZ

Well, hats off to W. C. Another Show well done. Speaking for myself, best Show I ever had. But as much as I enjoyed the Show, I'm glad that it is only once a year.

Thinking ahead, on the positive side, maybe all this rain will wash out shark's teeth, petrified wood, and all kinds of goodies for us to find.

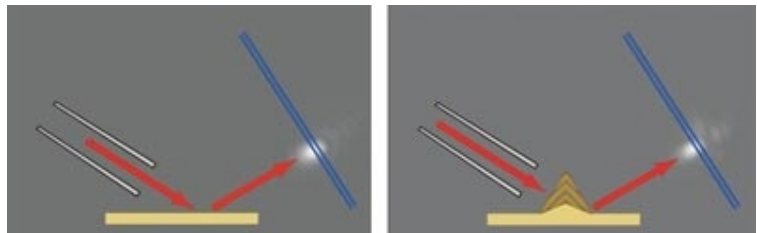
Looking forward to seeing everyone at the next meeting.

That is all I have to say.

*The Prez*



## Cloaking Device: Followup



The April issue of MAGS Rockhound News had an article on invisibility cloaks that made use of the optical properties of calcite. Some new work uses another material very familiar to MAGSters.

No, not the paint the city of Memphis uses for lines on roadways, that disappears in the rain. The new cloak, developed by scientists at Technical University of Denmark, Imperial College London, and the University of Birmingham, is called a carpet cloak. This technique uses a conducting sheet to appear to flatten the bulge of an object hidden beneath. The cloak is a series of uniform slits (a grating) crafted into **silicon** using normal semiconductor manufacturing techniques. The researchers say their device offers the smallest cloak size relative to cloaked area to date.

The research is published in Zhing et al, *Optics Express* **19** no. 9, 8625, 25 April 2011

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## Show Prep: Getting It All Ready

The annual Mineral, Fossil, and Jewelry Show is a very big undertaking. It takes lots of work to pull it off. The Show Committee works on each show starting almost right after the previous year's Show, and MAGS volunteers help in a variety of ways during the Show itself.

MAGSters are well aware of all this, but many of you have never seen what goes on during the last few days before the Show opens on Saturday morning: packing grab bags, unloading, setting up dealer tables and the RockZone, ... The pictures on this page show a little of those preparations.



## Archaeologists Excavate 1,100-Year-Old Canoe

In early March, a 40-foot canoe that helped natives based in the area of Weedon Island in Florida trade, travel and fish was excavated from the muck and sand that covered and helped preserve it for centuries. The canoe was discovered in 2001 when beachcomber Harold Koran saw it on the shoreline of Tampa Bay and thought it was a piece of wood board in the sand.

It's the first prehistoric (defined as anything prior to Columbus's arrival) canoe found in saltwater in Florida, said Phyllis E. Kolianos, program coordinator at Weedon Island Preserve Cultural and Natural History Center. Archaeologists had a window of opportunity during low tide and worked from 7 A. M. to noon to remove the canoe, that dates to A. D. 890 and belonged to the Manasota culture during the Weedon Island late period (A. D. 200-A. D. 900).

Weedon Island Preserve is located on the southeast region of the peninsula that is Pinellas County, Florida, on Tampa Bay. The canoe is attributed to the late Weedon Island Culture (alternative spelling) of Florida Gulf Coast dwellers. Measuring 39 feet, 11 inches in length, but believed to have been upwards of 45 feet in total, the pine canoe holds the distinction of the longest prehistoric canoe ever found in Florida. The canoe features a raised bow that indicates the canoe was used on open water. Under the canoe, a pine pole, used perhaps for paddling, poling, and/or docking the canoe, was also unearthed and dated to the same prehistoric period.

Lasting some 800 years, the Weedon Island Culture evolved out of a segment of the Manasota Culture, an ancient population that settled along Florida's rich estuaries and central Gulf Coast

2,500 years ago. The society increased in population and eventually changed in social structure to become the Safety Harbor Culture that met the first Europeans to the area. By the mid-1700s, the Creek Indians entered Florida from Alabama and Georgia and became known as the Seminoles. After the Civil War, Weedon Island became the homestead of early settlers and entered a colorful modern history until recognized and established in 1972 as an important ecological and historical Pinellas preserve for Pinellas County.

Kolianos worked with local Pinellas County resident, Harold Koran, the first to discover the canoe while fishing among the Weedon Island Preserve's mangroves. Other investigators included professional archaeologists across the State of Florida and numerous volunteers. Since the discovery, Pinellas County has arduously taken every step to document, conserve, and protect the canoe and pole as well as the non-peat environment that is the archaeological site. Only a pre-excavation dig was performed, along with thorough radiocarbon dating and wood sampling, which confirmed the wood as pine, a prevalent local timber after which the county of Pinellas is named.

A comprehensive excavation and museum preservation of the canoe have not yet been determined as numerous resources, both financial and equipment, are needed. The canoe is on *Continued next page*



***A 40-foot canoe that helped natives based in the area of Weedon Island trade, travel, and fish was excavated from the muck and sand that covered and helped preserve it for centuries.***

State-of-Florida land, protected from vandalism. The project was conducted under the terms of an archaeological research permit issued by the Florida Department of State, Division of Historical Resources, Bureau of Archaeological Research. According to Dr. Bruce Rinker, Environmental Lands director for Pinellas County, "This discovery expands our understanding and the significance of the not-well-known people of the Weeden Island Culture."

*The editor thanks Phyllis Kolianos, Program Coordinator, Pinellas County Department of Parks & Conservation, Resources, 1800 Weedon Dr. NE, St. Petersburg, FL 33702 | (727) 453-6503, [pkoliano@pinellascounty.org](mailto:pkoliano@pinellascounty.org), who provided the information for this article. More information on the Weeden Culture is available at [www.weedonislandpreserve.org](http://www.weedonislandpreserve.org).*

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## May Adult Program

J. Michael Howard, Geology Supervisor with the Arkansas Geological Survey, will present the program at the May 13 membership meeting. Mike has been with the Arkansas Geological Survey for 35 years, and is a well-known expert on quartz and the geology of Arkansas in general. His presentation will be "Quartz Crystals Of The Ouachita Mountains."

Mike Howard's Rockhounding Arkansas website, [www.rockhoundingar.com/index.php](http://www.rockhoundingar.com/index.php),

contains a wealth of information on the subject conveyed by the site's title. Mike also participated in the lecture series at this year's Gem, Mineral, & Fossil Show.

## Antarctic Ice Sheet Preserves Invisible Mountain Range

We expect that the action of glaciers on mountain ranges is to erode young peaks into smaller hills, over time. But there is evidence that, in some cases, the opposite can happen: sometimes glaciers can protect high jagged terrain.

Buried deep beneath East Antarctica's ice sheet, the Gamburtsev Mountains are the world's most invisible range. New research suggests that overlying ice like that hiding them from view today could have preserved their rugged topography for the past 300 million years.



"It's feasible for topography to be preserved," says Stephen Cox, a graduate student at Caltech and coauthor of a paper scheduled to appear in *Geophysical Research Letters*. A supercold cap of ice could have allowed the ancient Gamburtsevs to look like the Alps instead of the highly eroded Appalachians.

Russian scientists first identified the Gamburtsevs in 1958 as part of a survey during the International Geophysical Year, and geologists have been puzzled ever since about how the range came to be. The mountains are in a stable part of the continent that hasn't

seen much tectonic activity—usually the way mountains are born—in more than 500 million years.

Cox's team tackled the question by looking at how quickly the mountains eroded over time. The range is buried, so researchers have to study it indirectly, by probing mineral grains at the bottom of Prydz Bay in East Antarctica, where pieces of rock washing off the Gamburtsevs ended up.

Grains of apatite (phosphate minerals with the group formula  $\text{Ca}_5(\text{PO}_4)_3(\text{F}, \text{Cl}, \text{OH})$ ); many impurities can also be present) preserve a record, known as a cooling age, of how fast the mountains were eroded. Cox's team looked at the amounts of uranium, thorium and helium the apatite contained, and the number of "fission tracks" left by decaying uranium, to build a cooling history of the Gamburtsevs.

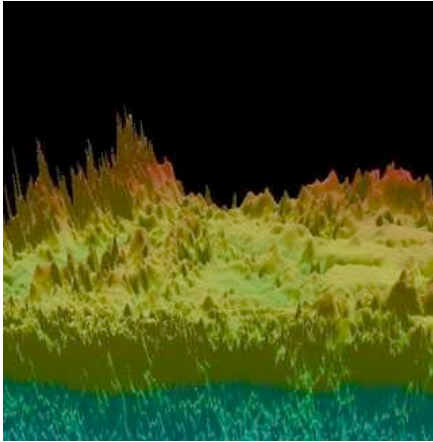
The team concluded that over the past 250 million years, mountains inland of Prydz Bay eroded just 2.5 to 5 kilometers, an order of magnitude slower than modern erosion in places like the Alps. Earlier studies had suggested slow Antarctic erosion over the past 118 million years, but the new study takes it farther back in time and supports the idea that the Gamburtsevs really are ancient.

Cold glaciers or ice sheets atop the mountains could have protected them from wearing away, Cox suggests. In a recent paper published in *Nature*, geologist Stuart Thomson of the

*Continued next page*

University of Arizona in Tucson (and a member of Cox's team) describes how glaciers could similarly be preserving topography in the southernmost Andes today.

"When you get to colder climates, glaciers are actually frozen to the rock ... They flow a little, but they don't erode much at all."



Radar surveys of the Gamburtsevs conducted in 2008 and 2009 confirm that the range is unusually rugged, with V-shaped valleys rather than the U-shaped ones that are characteristic of glacial erosion. Thomson thinks that studying erosion rates could help researchers better figure out the history of Antarctic ice. He is now working on more detailed studies of erosion over the past 34 million years, when the great East Antarctic ice sheet is thought to have started growing.

"We're trying to look at where sediments come from and what they tell us," he says. Then researchers who use computer models can include those data and see whether current ideas about how Antarctica got icy are correct.



## Shark Teeth Found Stuck in Ancient Ammonite Shell



A fossil discovered in an amateur's collection may harbor the first direct evidence of prehistoric sharks eating ammonites some 150 million years ago. The palm-sized ammonite was fossilized with three shark teeth stuck in its shell, plus holes from the bite. Shark bite marks have been found in other fossils, such as crocodile poop, but with tough-shelled ammonites, paleontologists couldn't pinpoint sharks and rule out other fishes or marine reptiles.

"For the first time we have a direct link between the predator and prey. We can even give a name to the predator, which is a hybodont shark called *Planohybodus*," said paleontologist Romain Vullo of France's Université de Rennes and author of the study published March 31 in *Naturwissenschaften*.

Hybodont sharks, also named hump-toothed sharks, grew to

nearly 7 feet long and roamed ancient oceans for about 200 million years before vanishing with the dinosaurs 65 million years ago. Ammonites floated in the oceans at the same time, growing anywhere from a couple of inches to 10 feet wide. Soft tissue inside their shells was an attractive food source to many creatures.

Some species of hybodont sharks had flat teeth able to crush ammonites and other shelled creatures, but most species were thought to dine exclusively on fish. "Before this discovery, we thought *Planohybodus* ate only fish because of its sharp teeth. They seemed better-suited for that kind of predation," Vullo said. "This specimen shows it probably had a much larger range of prey, including ammonites."

After reading re-

*Continued next page*

ports of shark-like bite marks in ammonite fossils, Vullo remembered seeing the fossil in an acquaintance's collection and asked to study it. He was able to match the teeth—one still embedded, two removed by the collector—to *Planohybodus*. Vullo thinks such sharp teeth maimed ammonites by poking holes in their shells' air chambers, which the creatures used for stabilization and steering. Once an ammonite lost control, a shark could conveniently crush it.



“It’s impossible to tell what happened with this ammonite, but I think it was bit and somehow escaped before dying,” he said. “A scavenging shark wouldn’t need to bite. It could eat the soft part without biting the shell.”

To learn any more about the relationship between sharks and ammonites, however, Vullo said he needs to get his hands on similarly exceptional fossils. “A complete skeleton with gut contents, or more tooth-embedded fossils, would be wonderful for making better conclusions about the ecological relationship here,” he said. “Unfortunately, such specimens are exceedingly rare.”

However, paleontologist Adiel Klompmaker of Kent State University in Ohio thinks such fossils may be less unusual than Vullo thinks. As with the collectors’ specimen, they might simply have been overlooked. “I think a lot more could be done,” Klompmaker said. “We should all take another good look at existing ammonite shells for evidence that they were prey.”

*Citation:* “Direct evidence of hybodont shark predation on Late Jurassic ammonites.” Romain Vullo. *Naturwissenschaften*, published online March 31, 2011. DOI: 10.1007/s00114-011-0789-9



### Junior Programs

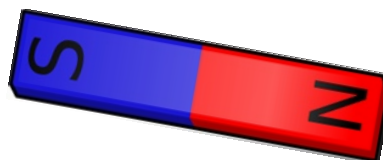
Hey, Juniors,

Thanks for all your help during our Show. If you did not volunteer this year you missed a lot of fun. It takes all our members to make our Show successful.

Join us on May 13th for “Tonight’s Attraction: Magnetism.” Matthew Lybanon will give this program, and we have several things planned to make it informative and fun. June’s program will center on fossil fuel. W. C. McDaniel will present July’s program, on megalodons. In August MAGS has its indoor picnic. Plan to join us for all our programs.

See you there,

Carol



### Easter Basket Giveaways

The 2011 Memphis Mineral, Fossil, and Jewelry Show featured several new wrinkles. One new feature was the Easter Basket Giveaway. The Show’s second day happened to coincide with Easter, so the Show Committee decided to give Easter baskets as special prizes—on both days.

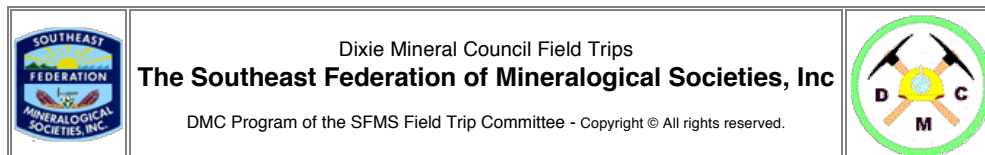
Each day, during the half hour before the basket was given away, each person present at the Show received a free prize ticket. On Saturday the ticket for the first basket was drawn, and volunteer announcer Neville Mayfield called out the number. Several minutes went by and nobody claimed the prize. Finally Neville announced that if nobody claimed the prize in the next minute a new number would be drawn. Then he checked his own number. Guess what. You guessed it. He was the winner!



This new innovation was billed as “The Greatest Easter *Continued, P. 9*”

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Dixie Mineral Council Field Trips  
**The Southeast Federation of Mineralogical Societies, Inc**  
DMC Program of the SFMS Field Trip Committee - Copyright © All rights reserved.

An Official Field Trip of Charlotte Gem and Mineral Club (Charlotte, NC) (HOST)  
An Official Field Trip of the Memphis Archaeological and Geological Society

**10:00 AM EDT**  
**Saturday – May 28, 2011**  
**Cotton Patch Gold Mine & Campground**  
**Stanly County, New London, NC**  
**Fee Site**

WHERE: Cotton Patch Gold Mine, 41697 Gurley Road, New London, NC  
WHEN: Saturday – May 28, 2011

WEBSITE FOR MORE INFO: <http://www.cottonpatchgoldmine.com>

DIRECTIONS: Take Hwy 740 East from New London, go one mile, turn right on Hearne Road, go one and a half miles then turn left on Gurley Road and go 300 yards, 1st driveway on the left at Cotton Patch Gold Mine Sign. **GPS Coordinates:** Longitude 80.1874, Latitude 35.4358

HISTORY: Historic Cotton Patch Gold Mine & Campground is located in Stanly County, in the town of New London. This small town in North Carolina has a rich history of Gold Mining. Cotton Patch Gold Mine began its run in the 1860's. A large vein of gold was discovered near a cotton patch off Gurley Road. They began to mine the gold, removing tons of material. The mine eventually closed, but was reopened in 1958 after a new vein was discovered. In 1961, the mine opened for panners and rock hounds. Today the mine continues to produce gold. The gold is mixed with placer material and also found buried in white quartz.

ASSEMBLY TIME: 10:00 AM on Saturday – May 28, 2011

ACCOMMODATIONS: You may want to set-up camp, park your RV or rent your cabin on Friday as our group rates apply all weekend. You have to mention that you are with the DMC group that is being hosted by the Charlotte Gem and Mineral Club to get our special group rates.

COLLECTING: **PLACER GOLD**

EQUIPMENT: All equipment supplied. They have a General Store that has snacks, gifts and bags of ice. Open 7 days a week...9-5..

**FEES:** The following group rates are for the DMC club members only:

- Rate discount will be 10% on cabins or camping for our members and their guests.
- Panning for gold- pan for gold at our troughs. \$ 10.00 for 3/ 2 gallon buckets OR \$ 14.00 for 5/ 2 gallon buckets
- Gold wheel rental with panning material (automatic panner) \$ 8.00 for 4 hour rental
- Gold sluicing- more productive than panning, loads of material are brought to you to run at a live flume.
- 1/4 load (+/- 5 five gallon buckets) \$40.00 2-3 hours
- 1/2 load (+/- 10 five gallon buckets) \$ 75.00 3-5 hours
- full load (+/- 22 five gallon buckets) \$ 140.00 6-8 hours
- Rock picking for crystals- digging in the pit for rock and crystal specimens \$15.00 per head, as long as you want that day.
- Old time gold mining adventure- digging gold bearing ore out of the ground and processing it to liberate the gold. \$ 50.00 per head, all day adventure.

**Host club comments:** LOOK AT THEIR WEBSITE FOR ADDITIONAL INFORMATION SUCH AS CAMPING AND CABIN FACILITIES SHOULD ANYONE WANT TO MAKE A WEEKEND OF IT. NOTE THAT THERE IS NO FEE TO ENTER THE PROPERTY SO IF ONE WANTED TO COME AND OBSERVE THE ACTIVITIES IT WOULD BE FINE. THERE IS ALSO A GEM SLUICE THAT MANY KIDS WOULD ENJOY. THE LAST TIME THAT I WAS THERE, I RENTED A GOLD WHEEL AND FOUND FLAKES AS WELL AS A CLINKER. IF YOU ARE NOT FAMILIAR WITH THIS PROPERTY THERE ARE BIG OAK TREES WITH PICNIC TABLES IN THE SHADE. SOME MEMBERS OF THE CHARLOTTE CLUB PLAN ON SETTING UP TABLES FOR A **MINI SWAP MEET OF ROCKS AND MINERALS**. THE OWNER WILL LIKELY GIVE A PERSONALLY GUIDED TOUR OF THE MINE. WE TOOK OUR JUNIOR ROCKHOUNDS THERE AND THEY HAD A BALL. FOR SERIOUS GOLD HUNTERS, I SUGGEST SHARING A LOAD OF DIRT.

IF YOU NEED ANY MORE INFORMATION, PLEASE LET ME KNOW.

Jack King  
Charlotte G&MC - Field Trip Chair  
704-892-7608  
[jackkretired09@gmail.com](mailto:jackkretired09@gmail.com)



# MEMPHIS ARCHAEOLOGICAL AND GEOLOGICAL SOCIETY

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Basket Giveaway in History.” Neville certainly thought so—until he had to pick up the basket and put it in his car. If he had asked, “What have you got in that thing, rocks?”, the answer would have been “Yes.” The basket was beautifully decorated by April Gibbs (see picture on P. 3). The eggs in it were also beautiful, but what would you expect in a prize from a rock club? (If you guessed polished rocks in addition to stone eggs of different sizes, you win.)



Sunday’s prize drawing was a little less surprising, but the winner seemed really happy about his prize. The picture above shows winner Wayne Simpson receiving his basket from Show Chair W. C. McDaniel.

The Easter basket giveaways were very popular. Each day people lined up at 3:00 P. M. to see if they had won. But next year’s Show will not coincide with Easter weekend (they coincide very rarely). You have a challenge, MAGSters. We need something else that will excite Show-goers in the same way. What can the Show’s planners program for 2012 to replace the Easter basket giveaway?



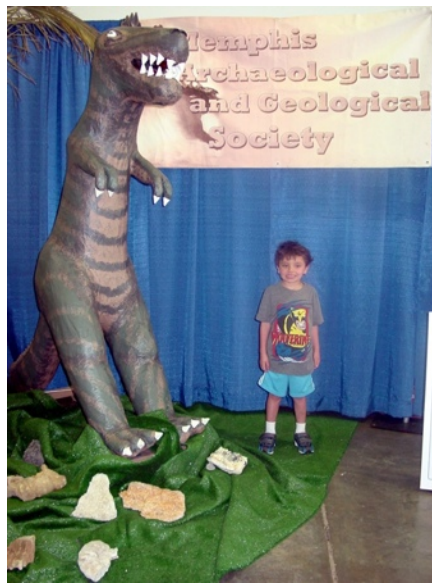
## Selected Show Scenes

Here are a few pictures from the 2011 Memphis Mineral, Fossil, and Jewelry Show.



*We wouldn't have a RockZone without Jim Butchko.*

“Take your picture with the dinosaur” was a popular new feature in this year’s Show. Of course, there were those big teeth ...



*He may be smiling, but he wasn't too sure about that dino.*

This and other pictures with the dinosaur will be posted on the MAGS website.

Aside from 30 dealers, the RockZone kids area, and a speaker

series, the Show featured 17 exhibits and demonstrations.



*Either Cornelia is getting some tips on cataract surgery or Alan is learning how to make earrings.*

The Show would not happen without lots of volunteer help, and the volunteers are not limited to adult members. Several Juniors also pitched in. We appreciate them all.



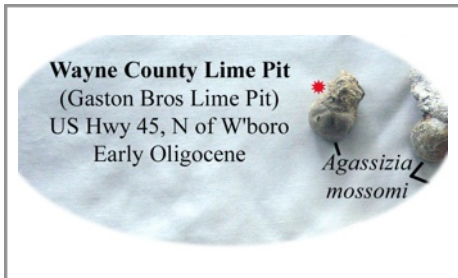
*Thanks, Juniors, for all your help.*



*Thanks, members, for all your volunteer hours.*

More pictures next month.

## MAGS Fossil Donations To Mississippi Museum



Two MAGS members were officially thanked by the Mississippi Museum of Natural Science (MMNS) for their donations of rare fossils found in Mississippi. Mike Baldwin donated a Cretaceous *Paralbula casei* partial basi-branchial tooth plate he found at Blue Springs. Carol Lybanon donated an Oligocene echinoid (pictured above) she found in a lime

pit near Waynesboro. In both cases the fossils were the first of their types to be found at the sites.

MMNS is located at 2148 Riverside Drive, Jackson, Mississippi. George E. Phillips, Paleontology Curator, compiled a list of donations cataloged during the years 2007-2010, and sent thanks to the donors. Approximately 40% of the museum's holdings are derived from private donations, and MAGS is represented in that group. Phillips noted that donations provide a permanent record for the scientific community of a species' existence at a certain location and at a certain time.

### Calendar

**May 5, 2011**

Board Meeting, St. Clare Room, St. Francis Hospital, 6:30 P.M.

**May 13, 2011**

Membership Meeting, Shady Grove Presbyterian Church, 7:30 P.M.

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

