MAGS Rockhound news

JANUARY 2003 • VOL 49 NO 01

Memphis Archaeological and Geological Society • Memphis, Tennessee

INSIDE THIS ISSUE

MISSISSIPPI RIVER VALLEY

HOME OF THE NEW MADRID SEISMIC ZONE

The central Mississippi Valley has more earthquakes than any other part of the United States, east of the Rocky Mountains. Studies of surface geology offer few clues to the causes of quakes in the region. The clues are deeply buried beneath sedimentary deposits. Ongoing geophysical studies may reveal hazards which will enable residents of the region to better prepare for future earthquakes.

Reelfoot Lake
formed by the earthquakes of 1811 and 1812, covers an area of more than 10 square miles in northwestern Tennessee. Photo courtesy of ClipArt.com

The winter of 1811-12 was extremely difficult for the European settlers of the Mississippi Valley. While Tecumseh, the Shawnee chief and visionary, was attempting to unite the tribes of the valley in an effort to drive out the settlers, the region was struck by three of the most powerful earthquakes in United States history. These magnitude 8 quakes, centered near the town of New Madrid (Missouri), devastated the surrounding region and rang church bells 1,000 miles away in Boston.

The 400 terrified residents in the town of New Madrid were abruptly awakened by violent shaking and a tremendous roar. It was December 16, 1811, and a powerful earthquake had just struck. This was the first of three magnitude-8 earthquakes and thousands of aftershocks to rock the region that winter. Survivors reported that the earthquakes caused cracks to open in the earth's surface, the ground to roll in visible waves, and large areas of land to sink or rise. The crew of the *New Orleans* (the first steamboat on the Mississippi, which was on her maiden voyage) reported mooring to an island only to awake in the morning and find that the island had disappeared below the waters of the Mississippi River.

(see New Madrid Seismic Zone on page five)

JANUARY EVENTS

Jan 02	6:30p	Board Meeting: Blue Plate Café, 5469 Poplar Avenue
Jan 10	7:30p	General Meeting: Shady Grove Presbyterian Church, 5535 Shady Grove Rd., Memphis [bring displays & refreshments] Adult Program: "Mississippian Mound Builders" presented by Corinne Fletcher Youth Program: "Bring your favorite rock, mineral or fossil"
Jan 16	7:00p	M³ Micromounters Meeting @ Roger Van Cleef's home
Jan 18	8:00a	MAGS Field Trip: Eaglewatching @ Reelfoot Lake [see page 3]
Jan 25	9:30a	DMC Field Trip: Fossils/Minerals @ Fort Drum, FL [see page 6]

2003-2004 MAGS BOARD

MAGS Rockhound News is published monthly by and for the members of the Memphis Archaeological and Geological Society. Please send your comments and articles to Mike Baldwin, 367 N. Main St., Collierville, TN 38017 or by email at rockclub@earthlink.net .

From the President

Welcome 2003. A new year and new officers brings MAGS into its 52nd year as a club devoted to the promotion and development of geology, archaeological and the lapidary arts. The pursuit and enhancement of those objectives relies on the time and skills of all our members. To help, we ask each member to:

[1] Pay your dues: Income from dues is the primary source of funding for club expenses such as building rental and the printing and mailing of our newsletter.

[2] Give us some feedback: At the January membership meeting a round table will be setup for you to come by and record your opinions, ideas, recommendations, gripes and praises covering all aspects of the club. Be creative and don't hesitate to think out of the box. Have a field trip in mind? Tell us. Have a recommendation for membership meeting? Tell us. If you are unable to come to the meeting call me at 274-7706. This is the time to give us your input as we schedule programs, rock swaps, field trips, show and special events.

You will see some changes at the January meeting. Be sure to pick up a program as you sign in at the meeting. Door prizes will be given based on the program. Bring those displays. We will be announcing the display winner(s) before you leave and the winner(s) will receive special recognition.

W.C. McDaniel

MATERIAL FOR SALE

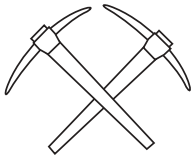
During the January meeting a portion of the material donated by Al Bowman and Harold Loeblein will be for sale via direct purchase and silent auction. Included will be one tumbler with some grit.

WM HOLLAND CLASSES FOR 2003

The 2003 William Holland class schedule has been announced and you can see all the classes online at http://www.alltel.net/~lapidary/intro.html . Two weeks in 2003 have been reserved exclusively for Southeast Federation members. As a MAGS member, you are in the Southeast Federation.

DIRECTORY UPDATE

Bill Scheffer is currently working on the MAGS Membership Directory for 2003. Please take a minute to check the information about you and your family in the 2002 directory. New members, check the information in your "New Member Packet". Let Bill know if there are changes that need to be made and if you want your email address listed in the directory. He call be reached at 901-358-1194; schefwb@midsouth.rr.com; or, 2959 Sky Way Dr, Memphis, TN 38127.



MAGS FIELD TRIP
REELFOOT LAKE, TN

SATURDAY, JANUARY 18, 2003, 8:30am
FIELD TRIP LEADER, ALAN PARKS (901) 454-5195

Reelfoot Lake, TN: This trip will focus on the eagles that spend the winter months at Reelfoot. Reelfoot Lake State Park, located in the northwest corner of Tennessee, is one of the greatest hunting and fishing preserves in the nation. The lake encompasses 25,000 acres (15,000 of which are water) and harbors almost every kind of shore and wading bird, as well as the golden and American bald eagles. Other animals are also diverse and abundant there. Its many species of flowering and nonflowering plants attract botany enthusiasts from all over the country. Cypress dominates the margins of the lake, but many other trees and shrubs are also present.

The Reelfoot Lake Visitor's Center has an excellent museum of the lake area. It has a wonderful collection of Native American artifacts, geological exhibits, and interpretive information about the local geography and history. The Visitor's Center also has a boardwalk that goes out to the lake where you can view the waterfowl, native bald cypress trees, and other wildlife.

Meeting Time/Place: 8:30am, Reelfoot Lake Visitor's Center.

Driving Directions: From Memphis take U.S. Highway 51 North to Dyersburg, TN [approximately 70 miles]. From Dyersburg take Highway 78 North to Tiptonville, TN [approximately 30 miles]. At the four-way stop in Tiptonville turn right on Highway 21/22 East. Go approximately 3 miles to the Reelfoot Lake Visitors Center on the left.

Difficulty Level: 1 on a scale of 1 (easy) to 10 (hard). Please be advised that there is always a possibility for injury near the lake, so any young members must be supervised at all times. Please follow AFMS safety rules, code of ethics and collect courtesy guidelines [found on the MAGS website at www.memphisgeology.org].

Notes: [1] Dress appropriately. January can be very cold, especially near water. [2] Don't forget to bring your binoculars, a camera, extra film, and comfortable walking shoes. [3] Watch our website for more information. [4] Sign up at the January meeting.

Field Trip Leader: Alan Parks • (901) 454-5195 • email: apx2@att.net • If you sign up for this field trip and cannot go, please contact Alan and remove your name.

Please Note: This trip is open only to MAGS members and their guests.

MEMBER ADDITIONS AND CHANGES

Please make the following changes to your MAGS directory.

[addition] **John, Jeri, Don and Megan Givens**, 1968 The Elms Ave., Memphis, TN 38127 • Phone 901-358-4925

[change] **Jimmy and Hisami McNeil**, 9869 Taylor Dr., Olive Branch, MS 38654 • Phone/Fax: 662-890-4126 • Email: hjmcneil@centurytel.net Website: mcneilsminerals.com

JANUARY BIRTHDAYS

January Birthstone is GARNET

1 Patrick Long
4 Veronica Swink
5 Floyd Lenz
6 Nancy Boucher
6 Lauren Holliday
7 Rosie Crawford
7 Michael Long
8 Kristina McLean
9 Daniel Huber
12 Sam Norris
12 Zack Spencer
17 Jared Rodgers
21 Richard Gunter
22 Sherry Smith
29 Doris Currington
29 Herbert Horowitz
30 Bill Smith
31 Johnny Holliday
31 Teresa Noyes

Happy belated birthday to Kim Prudhomme [December 5] and David Prudhomme [December 18].

SUNSHINE REPORT

FRANK & FRANCIS WALKER–

It was great to see **Breezy and Darryl Levitch** at the December Christmas Party. We hope that 2003 brings health and happiness to all the members of the Memphis Archaeological and Geological Society.

If you, or a MAGS member you know, becomes ill, please call Frances and Frank Walker at 372-6206 and let them know.

GROWING SILVER CRYSTALS

Dendritic silver
Photo courtesy of www.a-m.de

JENNIFER BALDWIN–Polish a section of copper wire using steel wool. Place a one centimeter section of the polished wire on a microscope slide and add a few drops of 1*M* silver nitrate solution to one end of the wire. Silver crystals will begin to grow on the wire as the following single replacement reaction occurs:

$$Cu(s)+2AgNO_3(aq)\text{—>}Cu(NO_3)_2(aq)+2Ag(s)$$

Observe the crystals using a magnifying lens, a dissecting microscope, or a laboratory microscope set on low power with above-stage lighting. Dilute a small amount of silver nitrate solution to 0.1*M* and repeat. Is the rate of crystal growth related to the concentration of the silver nitrate solution?

MAGS MICROMOUNTERS [M^3]

COPROLITES DO NOT ILLUMINATE:
OR DO THEY?

ROGER VAN CLEEF–for most fossil collectors, coprolites [i.e., fossilized leavings, poop, very old, very hard dung, feces or scat] are collected as a second thought or a specimen to be placed on a table for conversation purposes. There have been papers written about coprolites but they have primarily dealt with the external description of specimens found in a given area. If a specimen had a pinched end and contained bone it was believed to be from a mammal; pinched end with plant material was an herbivore. That was about the extent of coprolite classification. That was until Karen Chin at the Santa Barbara campus of the University of California became interested in coprolites. To her they held a key to the paleoecology of a time long passed.

As with any research project you must first be able to identify the material you are working with. This was not as easy as you might think. Coprolites come in all sizes, shapes, and colors and can be deposited as single pellets, large lumps, piles, and strings or as "cow pies." The environment of deposition can alter the form and content. Other questions arise such as can two different animals produce the same shape scat with similar properties. Example: a moose produces a pellet shaped scat less than an inch long while rodents will use a common site for deposition of pellets which will fuse into piles of scat several feet high. It becomes difficult to determine size and number of animals involved in each area. This is the case with dinosaur coprolites. Chin proposed several criteria for establishing the material was dinosaur related:

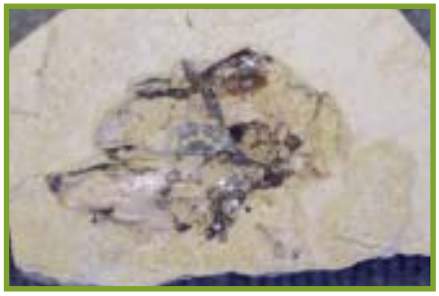
[1] Dinosaur coprolites occur as scattered aggregations rather than as on continuous layer.
[2] Coprolites occur in the same layer with dinosaur remains.
[3] Angular breaks in wood fibers suggest that the material was chewed rather than stepped on or weathered.
[4] Dung beetle burrows present in the specimens.

But all of this is still on the iffy side of the equation. However through the use of an electron microscope, thin sections, geochemical analyses, biochemical analyses and x-ray diffraction the content of coprolites can be identified as high fiber content [stems and bark; low-fiber as ferns, leaves and flowering plants; bone, fish scales, shells]. The chemical and mineral content of the coprolite can also be determined.

The surface has just been scratched but the coprolite is taking on new meaning in the field of paleontology for in the coprolite there seems to be the record of the environment, relationships between animals and food supplies and an overview of the food chain during prehistoric times.

Reference: Karen Wright; What the Dinosaurs Left Us; Discover; June 1996

Crocodile coprolite
Warfield Spring Quarry, Wyoming
From the collection of Roger Van Cleef
Photograph by Mike Baldwin



Fish coprolite
Warfield Spring Quarry, Wyoming
Note organic material around bone and scales
From the collection of Roger Van Cleef
Photograph by Mike Baldwin

Mammal coprolite
White River Badlands, Nebraska
From the collection of Roger Van Cleef
Photograph by Mike Baldwin

NEW MADRID SEISMIC ZONE (continued from page one)

The scars that those great earthquakes made on the landscape remain. The quakes changed the course of the Mississippi River in that area, and created Reelfoot Lake which covers an area of more than 10 square miles in northwestern Tennessee. In the past 25 years, earth scientists have collected evidence that strong earthquakes in the central Mississippi Valley have occurred repeatedly in the geologic past. Small earthquakes happen in the region often. The area in which most of these quakes occur is referred to by scientists as the New Madrid seismic zone (NMSZ).

In 1811, the central Mississippi Valley was sparsely populated and there were few man-made structures. Today, this region is home to millions of people, including large populations in St. Louis, Missouri, and Memphis, Tennessee. Memphis is built on a high bluff overlooking the Mississippi River. During the New Madrid earthquakes of 1811-12, many landslides occurred along the river. The most devastating effects of the shocks, however, were on the Mississippi itself, where river traffic and commerce were disrupted and boatmen were killed. A repeat today of the earthquakes of 1811-12 would cause widespread loss of life and billions of dollars in damage.

An earthquake as powerful as the quakes of 1811-12 may not occur for many years, but scientists estimate that there is a 9-in-10 chance of a magnitude 6 to 7 temblor occurring in the NMSZ within the next 50 years. In response to this threat, the U.S. Geological Survey (USGS) is working to understand the causes of earthquakes in the Mississippi Valley. Begun in the 1980's, this cooperative effort among universities, state governments, and Federal agencies has two goals--to evaluate the level of the earthquake hazard and to help reduce the risk to lives and property from future quakes in the region.

Over hundreds of millions of years, faults and other geologic structures related to earthquakes in the NMSZ have been deeply buried by thick layers of sediment. Few clues to the causes of earthquakes in the NMSZ can be found at the Earth's surface. To unmask these hidden geologic structures related to earthquakes, scientists are using geophysical techniques, such as mapping variations in the strength of Earth's magnetic field. A magnetic map of the central Mississippi Valley region made by USGS geophysicists shows a major buried feature known as the Reelfoot Rift. *A rift structure is created when powerful geologic forces begin to pull the Earth's crust apart.* Most earthquakes in the central United States occur within this structure, which formed more than 500 million years ago.

Earthquakes occurring within the NMSZ appear to be strongly influenced by the presence of large bodies of igneous rock, which were formed by the cooling and solidification of molten rock beneath the Earth's surface. These igneous rock bodies show up as areas of high magnetic intensity on the magnetic map of the region. The southern part of the NMSZ is a narrow belt of quake activity that trends northeast, following a fault along the center of the Reelfoot Rift. This trend abruptly changes direction to north-northwest where it intersects and follows the major lobe of a large mass of igneous rock. The belt of quake activity here broadens to match the shape of the igneous body on the magnetic map. This pattern of earthquakes associated with igneous rock bodies may be an important clue to the causes of quakes in the NMSZ.

The knowledge earth scientists have gained is being applied by engineers to make new and existing structures in the Mississippi Valley more resistant to earthquakes. In these ways earth scientists and engineers are helping to protect residents of the central United States from loss of life and property in future quakes. *–MIKE BALDWIN, MAGS EDITOR*

Works Cited:

1. Thomas G. Hildenbrand,Victoria E. Langenheim, Eugene Schweig, Peter H. Stauffer, and James W. Hendley II; *Uncovering Hidden Hazards in the Mississippi Valley;* U.S. Geological Survey Fact Sheet 200-96 1996; http://quake.wr.usgs.gov/prepare/factsheets/HiddenHazs/

2. Eugene Schweig, Joan Gomberg, and James W. Hendley II; *The Mississippi Valley–"Whole Lotta Shakin' Goin' On"*; U.S. Geological Survey Fact Sheet-168-95 1995; http://quake.wr.usgs.gov/prepare/factsheets/NewMadrid/

For more information, visit the Center for Earthquake Research and Information at the University of Memphis in Memphis, Tennessee at http://www.ceri.memphis.edu .

EARTHQUAKE AWARENESS

Recognizing the hazards of the New Madrid Seismic Zone, the U.S. Geological Survey (USGS) and other organizations have joined in actions that will greatly reduce loss of life and property in future temblors:

- In 1983, Arkansas, Illinois, Indiana, Kentucky, Mississippi, Missouri, and Tennessee formed the Central United States Earthquake Consortium (CUSEC). CUSEC improves public earthquake awareness and education; coordinates multistate planning for earthquake preparedness, response, and recovery; and encourages research in earthquake hazard reduction.
- In 1990, the USGS issued a plan for intensified study of the New Madrid seismic zone, and the National Earthquake Hazards Reduction Program expanded efforts in the central United States.
- Earthquake education is now part of the curriculum in the schools of many CUSEC states. In Kentucky, the state legislature has mandated that earthquake education be taught in schools.
- Earthquake Awareness Weeks are held in Arkansas, Kentucky and Tennessee.
- Volunteer earthquake advisory councils or similar organizations have been formed in most CUSEC states.
- In 1993 CUSEC state geologists began a significant effort to map earthquake hazards. In 1995 they completed a regional soils map that can be used to locate areas likely to experience intense shaking in earthquakes.
- Most CUSEC states have adopted building codes containing modern earthquake design standards.
- Efforts to ensure the seismic safety of critical structures [such as dams, bridges, and highways], have accelerated.

Cooperating organizations include: [1] Central US Earthquake Consortium, [2] Federal Emergency Management Agency; [3] St Louis Univ.; [4] SE Missouri State Univ.; [5] The Univ. of Memphis; and [6] Univ. of Kentucky.

SFMS CLUBS SHOWS/EVENTS

JAN 11-12 • 10am-6pm
JAN 13 • 10am-5pm
Gem, Mineral and Jewelry Show • Tomoka Gem and Mineral Society • Field House–Embry-Riddle Aeronautical University, 600 South Clyde Morris Blvd., Daytona Beach, FL

FEB 7, 2003 • 1pm-6pm
FEB 8-9, 2003 • 10am-5pm
Annual "Symphony of Gemstones" • Central Brevard Rock and Gem Club • Kiwanis Island Park, 950 Kiwanis Park Rd., Merritt Island, FL • Contact Sue Nickolopoulos–321-453-8024

FEB 7-8, 2003 • 10am-6pm
FEB 9, 2003 • Noon-5pm
27th Annual Gem, Mineral and Jewelry Show and Sale • Pinellas Geological Society • Largo Cultural Center, 105 Center Park Drive, Largo, FL • Contact Hugh Sheffield–727-894-2440

FEB 14, 2003 • 10am-7pm
FEB 15, 2003 • 10am-6pm
FEB 16, 2003 • 10am-5pm
Greensboro Gem, Mineral and Jewelry Show • Greensboro Gem and Mineral Club, Inc. • Greensboro Coliseum, 1421 Lee Street, Greensboro, NC

APR 26, 2003 • 9am-6pm
APR 27, 2003 • 10am-5pm
24th Annual Mid-America Mineral, Fossil, Jewelry Show • Memphis Archaeological and Geological Society • Pipkin Building, Mid-South Fairgrounds, Memphis, TN • Contact WC McDaniel–901-274-7706 or email cfmcdaniel@worldnet.att.net

FEDERATION NEWS

Dixie Mineral Field Trip: Hosted by the Jacksonville Gem and Mineral Society 9:30am [EST], Saturday, January 18, 2003 Rucks Pit, Fort Drum, Florida

WHAT: Fossil, Mineral, and combination Fossil/Mineral Collecting Trip

MEET: Hwy 441, Ft. Drum General Store, Ft. Drum, FL, 9:30am (not Ft. Drum Diner)

COLLECTING HOURS: We will need to check-in at 10:00am and receive a safety briefing. The dig will be from 10am to late afternoon.

ITEMS COLLECTED: There is an abundance of well-fossilized and calcified marine shells. The coquina matrix is in the Anastasia Formation (Pleistocene) and is composed of cemented marine fossils with calcite. Any cavities within these fossils may contain calcite crystals. Honey colored calcite crystals up to 1" in length can be found within large fossilized clamshells. Small calcite crystals within shells are very common. Fossilized bone and teeth can also be found at this location.

FEE: A $10.00 fee (children 13 and under are free) will be collected. An adult must accompany children at all times. Pets will not be allowed. Please, no drop-ins or return visits.

SPECIAL CONDITIONS: It is recommended that you wear sturdy shoes or boots and gloves. Daytime temperatures can vary as much as 40ºF, so layered clothing is appropriate.

WHAT TO BRING: Bring buckets or backpacks along with paper to wrap nice specimens, scratching tools, hammers, chisels, safety glasses, sunscreen, maps, lunch, and plenty of fluids. Collecting conditions are considered easy; however, safety should be a primary concern.

SPECIAL NOTE: To ensure a good day of collecting, I would like to ask all field trip chairs to supply the total number of participants that will be attending. This will allow the mine owner and operators an opportunity to plan for our visit. This quarry has just recently been opened to group collectors, and the specimens being collected can be quite exquisite. Please notify me no later than January 6th with the number of attendees from each club.

CONTACT: Mickey Cecil • helpcecilhelp@juno.com • 904-725-6198

WHERE TO STAY: There are no motels that are close to this quarry. If you are coming down I-95, the closest motels will be near Vero Beach and I-95. If coming down I-75, towns south of the Orlando area (Kissimmee or St. Cloud) would be closest.

DIRECTIONS: Ft. Drum is on Hwy 441 approximately 15 miles south of the intersection of Hwy 60 and 441 (Yeehaw Junction).

NOTE: *DMC field trips are exclusively for DMC member clubs! This trip is closed to non-DMC clubs, their members, or members of the general public.*

MAGS REVIEW

BOARD MEETING
DECEMBER 5, 2002; 6:30pm

RAYNEE RANDOLPH: The December board meeting of MAGS was held 12/05/02 at Blue Plate Café, 5469 Poplar Avenue. The following were present: Mike Baldwin, Nancy Folden, Idajean Jordan, W.C. and Cornelia McDaniel, Dick McKitrick, Alan Parks, Raynee Randolph, Bill Scheffer, and Paul Sides The secretary's minutes from the November board and general meetings were accepted and approved.

1ST VP: The last field trip of the year was to Birmingham Ridge, MS. The weather was perfect, attendance was great and the shells were prolific!

2ND VP: Adult–programs are tentative for January, February, and March 2003.

Treasurer: Financial report presented, motion made, seconded, and carried to approve report, subject to audit. No dues will be collected during the December meeting. Please mail them or bring them to the January meting.

Library: The new cabinet has not yet arrived, but will be on its way soon. Mike Baldwin has purchased a new book for the library in memory of Dr. James Cole. It is entitled *Reading The Earth Land Forms In the Making.*

Web: Our website was visited 214 times a day in November. Associate memberships will be available over the web site. Benefits of this type of membership will be explained on the website.

Juniors: Several projects are in the works for the juniors in the coming year. In January the juniors need to bring displays of the material they found at Birmingham Ridge for show and tell. "The Junior of the Year" program will be coming to a close the end of December for 2002. Please start to gather statistics for report that needs to be submitted by December 31st.

Membership: Two new membership applications have been accepted: Barry Burns, and the John Givens family. There have been 14 new families that have joined us in 2002.

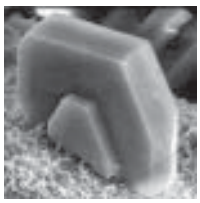
Show: We have 13 contracts, and the next meeting will be Mid January.

Announcements: A new slate of officers will be presented at the Christmas party. We will except nominations from the floor and the elections will then take place.

Ideas:

[1] Pictures and e-mail addresses could be incorporated into the directory.
[2] E-mail directories to save on postage.
[3] Put a mineral exchange on the Internet.
[4] Field trips to Reel Foot Lake, French Camp, MS., Agatized palm wood in MS.
Meeting adjourned at 8:15pm

ZEOLITE CRYSTAL GROWTH IN SPACE



The International Space Station is preparing for their first Zeolite Crystal Growth experiments. The microgravity environment allows for the growth of more perfect crystals. Since zeolites act as a sieve to filter out certain chemicals, this could expand the use of zeolites in commercial applications (currently petroleum refining) to use in detergents, environmental monitoring, and reduction of hazardous by-products in chemical production.

– SUBMITTED BY MICHAEL KINGSLEY

Reprinted with permission from www.eurekalert.org 12.13.02 Image courtesy of www.geotrack.com.au

GENERAL MEETING
DEC 13, 2002; 7:30pm

RAYNEE RANDOLPH: MAGS December General Membership meeting, held at Shady Grove Presbyterian Church, was called to order by President Lou White at 7:35pm on Friday, Dec. 13, 2002. 70 members and 2 visitors present. Visitors were Barry Burns, and Cecily Riley. No reports given tonight, as this was the annual Holiday Party.

The Nominating Committee presented the slate of officers for the 2003-2004 term. They were as follows: President–W.C. McDaniel; 1st VP [Field Trips]–Park Noyes, which was declined; 2nd VP [Programs]–Paul Sides; Secretary–Raynee Randolph; Treasurer–Bill Scheffer; Directors–Lou White, David McIlwain, Idajean Jordan, Kim Prudhomme, and Teresa Noyes. Nominations from the floor were as follows: 1st VP–David McIlwain, which was accepted; and Director–Dennis Sanders, which was accepted. All nominations were then accepted by acclamation, seconded, and the vote carried the motion. Thank you to the nominating committee for their diligence in seeking out these individuals to lead our club for the next two years.

Thank you to Melba Cole for leading Christmas carols, and to others with very special talents. Parker Ehrlich and Frank Walker played the violin. Piano pieces were played by Kelly and Jennifer Baldwin. Congratulations to all the display winners for 2002. The secretary overlooked the Jr. display winner for January 2002, which was Tess Cannito. Sorry Tess!!!

SNOW CRYSTALS

How Do Snowflakes Form?

Snowflakes are a form of water ice. They form in clouds, which are made up of water vapor. When the temperature is 32ºF [0ºC] or colder, water changes from a liquid into a solid [ice]. Several factors affect snowflake formation. Temperature, air currents, and humidity all influence the shape and size of snowflakes. Dirt and dust particles can get mixed up in the water and affect crystal weight and durability. Dirt particles make the snowflake heavier, and can cause cracks and breaks in the crystal and make it melt easier. Snowflake formation is a dynamic process. A snowflake may encounter many different environmental conditions, sometimes melting it, sometimes causing growth, but always changing its structure.

If water and ice are clear, then why does snow look white?

Snowflakes have so many light-reflecting surfaces that they scatter the light into all of its colors, so snow appears white. It has to do with the way the human eye perceives color. Even though the light source might not be truly 'white' light [e.g., sunlight, fluorescent, and incandescent all have a particular color], the human brain compensates for a light source. So, even though sunlight is yellow and scattered light from snow is yellow, the brain sees snow as white because the whole picture received by the brain has a yellow tint that is automatically subtracted.–*JENNIFER BALDWIN*

SHOW 2003

W.C. McDANIEL: We can now say "this year's show" which means things are just around the corner and we WILL be coming to all of our members for help and participation in making Show 2003 a success.

DEALERS: We anticipate having a full complement of 30 dealers. Watch the *Rockhound News* and *Rockhound News Online* for a complete dealer list in coming months.

CLUB TABLES: The club tables will relocate to the west end of the building and the old area will become a curtained hospitality room for dealers and club members. The outside of the walls will be for exhibits and displays. The sliding door by the concession stand will be opened.

EXHIBITS: A display on the "Treasures of the Mid-South" will emphasize earth treasures found within 300 miles of Memphis. Idajean Jordan will be contacting members soon for your contributions and participation. Other exhibits will include: (1) Delta State University returning with an exhibit of "Ice Age Fossils"; (2) University of Tennessee–Martin will return with exhibits including a small display of meteorites that have impacted Tennessee; and (3) If it is back from the publisher, the show will be one of the first opportunities for you to see and purchase a book on Coon Creek, a collaborative effort of Dr. Michael Gibson, the Pink Palace Museum and the Black Hills Institute of South Dakota.

ROCKZONE: The kid's area continues to need material for the gem dig. One unresolved issue is whether to continue with the dry sand sluice box or convert to a traditional sluice box with running water. That would require a lot of work and we will continue to evaluate. Come to the January meeting and view a videotape of a wet sluice box in action.

CLASSES [a new show feature]: Kim Prudhomme is putting together a series of classes to be held during the show. Plans include wire wrapping, beading and building your own necklace by making everything from scratch. Specific details will come later. Anyone wishing to teach and/or help with the classes please contact Kim.

MARK YOUR CALENDARS: As you plan your weeks and months ahead keep the show in mind and leave the weekend of **April 25-27 free to work and enjoy the show**. Look for a possible working weekend sometime in April to help prepare for the show. We need lots of member participation.

WEB STATISTICS

Here's a brief look at our website (www.memphisgeology.org) from 01.21.02 through 12.22.02:

Visits* 33,298
Hits** 179,378
Average visits per day in Dec 176

** visit=every time someone comes to the site*
*** hit=every page viewed on the site*

MAGS YOUTH

THE DOG AND PREHISTORIC TIMES

Some archaeologists think that men and arctic wolves discovered the benefits of living close to each other about 8,500 years ago. No one knows when dogs first appeared in North America, but the oldest dog bones date back to 5100 B.C. in modern-day Illinois.

COLLECTOR'S CARDS: Cut out the Dinosaur Card, and the Specimen-of-the-Month card, fold on the dotted lines, tape them closed and add them to your collection.

Did You Know . . .

Leaellynasaura is one of the few dinosaurs discovered in Australia. At the time this little dinosaur lived, what is now Australia was almost at the South Pole! The winters were fairly warm compared to what they are today that far south, but there would have been long, dark nights. This dinosaur had some very large eyes that may have developed to help it see better during the long winter nights when there may have only been a couple hours of daylight. There have been suggestions that a dinosaur living so close to a pole would not only have had to adapt to darkness, but may have needed to be warm-blooded to survive the colder climate too.

MAGS DINOSAUR CARD

Leaellynasaura

Leaellynasaura amicagraphica
Pronounced: Lay-ell-ln-uh-Sore-uh
Diet: Herbivore (plant eater)
Name Means: "Leaellyn Lizard"
Length: 8 feet (2.5 m)
Height: 4 feet (1.3 m)
Weight: 300 pounds (135 kilos)
Time: Early Cretaceous–120 mya

Did You Know . . .

Almandine is the most common of the garnets and is usually the garnet found in garnet schists (a type of metamorphic rock composed mostly of mica). Precious transparent crystals are frequently used as gemstones along with its close cousin, Pyrope. Almandine forms rounded crystals with 12 rhombic or 24 trapezoidal faces or combinations of these and some other forms. This crystal habit is classic for the garnet minerals. Almandine is the iron aluminum garnet. Pure almandine and pure pyrope are rare in nature and most specimens are a percentage of the two. The change in density from almandine (4.3) to pyrope (3.6) is the only good test to determine a specimens likely identity.

MAGS SPECIMEN CARD

Garnet

Classification: silicates
Composition: $Fe_3Al_2(SiO4)_3$
Hardness: 6.5
Specific Gravity: 4.32
Crystal system: Isometric-Hexoctahedral
Fracture: splintery
Streak/color: white/red

WHAT'S UP WITH THE KIDS

MEETING NIGHT: There were 26 young people at the MAGS Party in December. Thanks to those of you who entertained us with violin and piano.

Bring your favorite rock, mineral, and/or fossil to show the group at the January meeting. If you went on the Birmingham Ridge field trip in November, bring some of your treasures from that trip to show us.

It's time to choose a name for our group. Name suggestions are being collected and you will be able to vote on a name in the near future. Some of the names on the list of possibilities are "MAGS Juniors", "Mini MAGS", "Mighty MAGS", and "The Diamond Hunters". If you have a name idea, or an idea for kids' activities, programs, or field trips, bring them with you to the January meeting or call Idajean Jordan at 901-452-4286 or email MAGS at rockclub@earthlink.net.

YOUTH NEWSLETTER: You will receive your copy of the *January MAGS Explorer* newsletter at the January meeting. If you miss the meeting, you can read it online or download it from http://www.memphisgeology.org/images/explorer0103.pdf . If you have artwork, articles, games, puzzles, poems, experiments, or anything you would like to see printed in the newsletter, send it to rockclub@earthlink.net or give it to co-editors Jennifer Baldwin, Emily Randolph, Kelly Baldwin, or Abbey Randolph. *MAGS Rocks!*

2003 DUES ARE PAST DUE

BILL SCHEFFER–***Your 2003 dues are past due if you have an '02 on your January newsletter label!*** Don't miss out on any of the great things happening in MAGS. You can pay me at the January meeting or write a check and drop it in the mail. Make your checks out to MAGS and send them to Bill Scheffer, 2959 Sky Way Drive, Memphis, TN 38127. Dues are: [1] Family–$20.00; [2] Single–$16.00; [3] Junior–$8.00; and [4] Associate–$13.00. *Thank you for keeping your dues current.*

CHECK IT OUT

NANCY FOLDEN–We have a new book in the Lucile Cox Library just waiting for you to check it out. The book is called *Reading the Earth–Landforms in the Making* by Jerome Wyckoff. *Reading the Earth* was purchased by the MAGS Board and placed in the library in memory of Dr. James R. Cole, who passed away in September, 2002. Several books from Dr. Cole's personal collection have also been placed in the MAGS library by Melba Cole, in memory of her husband.

SFMS:
New Editor 1st Place–86
New Editor 2nd Place–88, 97
Certificate of Excellence–89, 90, 91, 92, 93
Large Bulletin–87 • Art–77, 80, 81, 82, 86
Original Articles–(4) 85, (6) 87, (2) 89, (2) 90, (5) 91, (3) 92

AFMS:
New Editor 7th Place–95
Jr. Article 3rd Place–98

DUES:
Family-$20.00
Single-$16.00
Junior-$8.00
Associate: $13.00

The Memphis Archaeological and Geological Society's main purpose is to promote and advance the knowledge of the Lapidary Sciences in the mining, identification, cutting, polishing and mounting of gems, minerals and fossils to the utmost of our geological and lapidary capabilities.

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MAGS Rockhound News
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Collierville, TN 38017-2301

MARK YOUR CALENDAR TODAY

Board Meeting
January 2

General Meeting
January 10

M³ Meeting
January 16

Reelfoot Field Trip
January 18

DMC Field Trip
January 25