Fossil Tusks Chronicle
Mastodon Battles

MIKE BALDWIN: A recent study of damaged segments on fossils of male mastodon tusks suggest that these huge creatures engaged in fierce battles with each other during a specific time almost every year of their adult lives. Interestingly, this behavior is very similar to the aggression and jousting that occurs every year between modern bull elephants as they search for mates. Mastodons roamed North America from 4 million to 10,000 years ago.

Daniel Fisher, paleontologist at the University of Michigan in Ann Arbor, identified American mastodons as very aggressive creatures, and not just gentle herbivore giants that whiled away their time in the forests and meadows [1].

Male mastodons had curved tusks that could have been damaged during battle. Inset of mastodon tusk shows rows of pits reflecting periodic damage. Photo R. Thom, University of Michigan; Inset D. Fisher, University of Michigan.

[See “Mastodon Battles” continued on page 4]
President’s Corner

Sandy Ward:

No big news to share this month, but a big thank you goes out to Dan and Barb Reed for sharing some of their fabulous petrified wood collection at our January meeting. Also, a few gentle reminders...

Dues -- if you have not paid your dues for 2007 they are now past due. Please pay your dues to our new Treasurer, Mike Cannito.

Show countdown -- As this newsletter goes out we are less than 90 days from the Show weekend. If you haven’t started working on those grab bags, it’s time to get started! Remember, our goal is 500! Also, I know we have some very creative people in our club so everyone submit a design for the Show postcards and you may win $25 in show bucks!

Be sure to bundle up and come to the membership meeting to hear this month’s very informative program by W.C. McDaniel on cleaning your specimens.

- Sandy Ward

2007 Dates to Remember

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<th>Board Meeting</th>
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Announcements

RIKER TYPE DISPLAY BOXES NEEDED
The Roger Van Cleef program has a need for several Riker type display boxes. Sizes needed include 3x4, 6x8 and/or 8x12. Several specimens need a safe home when they are exhibited to school kids. Contact WC McDaniel if you would like to donate a display box.

SHOW UPDATE FROM JIM BUTCHKO
Spring will be here before you know it and so will the 28th annual MAGS Gem and Jewelry Show. The date is April 28 and 29, 2007 at the Pipkin Building at the Fairgrounds. We still need things to display in the showcases so call or email if you have anything that we haven’t seen in awhile. There is still space available for anyone wanting to demonstrate their talents, hold classes, etc. Thanks again to anybody sewing the grab bags. Please give me a call and let me know how many you’ll have done by April. Club tables are available if you have stuff to sell. Details and contracts will be available next meeting. (Contact Jim Butchko via email at j.butchko@yahoo.com)

February Roadcut

W.C. McDaniel: For the next few months Roadcut will fantasize that it just won the Powerball lottery and will celebrate by taking a series of road trips to see the great fossil and mineral sites of the world. Many of these sites are located within state, national or provincial parks. In February our road trip will focus on fossil sites in North America, followed by a March trip to the fossils sites in the rest of the world. In April we will return to North America and visit the great mineral sites and complete our road trips in May with a visit to some of the great mineral sites of the world.

North American Fossil Sites- listed from oldest

- Mistaken Point, Canada (575 mya) - located along the Atlantic coastline in Newfoundland are the fossils remains of the oldest animal, Ediacara biota, found anywhere on Earth.
- Burgess Shale, British Columbia (530 mya) located in the Yoyo National Park in British Columbia. 140 species have been identified with about 40% them arthropods. One of the most notable features of this site is the excellent preservation of the fossils.
- Bear Gulch, Montana (318 mya) - 130 species of fish, including 65 sharks, have been discovered in this eight mile long limestone outcrop.
- Mazon Creek, Illinois (300 mya) over 400 plants and 320 animal species have been discovered in an area spreading over three Illinois counties. The name was originally given to fossils found along Mazon Creek. One of the most well known fossil, the Tully Monster (Tullimonstrum gregarium) is the state fossil of Illinois
- Green River Formation, Wyoming and Colorado (50 mya) - Three ancient lakes have deposited a large amount of species including more 25 kinds of fish, 14 varieties of insects and many varieties of plants, reptiles, birds, and mammals. The area has several commercial fossil sites and the Fossil Butte National Monument.
- Rancho La Brea, California (0.04 mya). Located in Los Angeles, the La Brea Tar Pits is home to over three million fossils from the last Ice Age. Mammoths, saber-toothed cats, and giant ground sloths are among the fossils.
- Other great sites include Beechers Trilobite Bed in New York, Fossil Park and Sylvania Quarry in Ohio, Crawfordsville, Ind., Wellington Formation in Oklahoma and Kansas, Fox Hills in South Dakota, Florissant, Colorado, Ashfall, Nebraska, Coon Creek and Gray Fossil Site in Tennessee, and the shores, rivers and phosphate mines of South and North Carolina, Florida and Maryland

Source: http://geology.about.com/od/lagerstatten/WorldClass_Fossil_Sites.htm
Mastodon Battles
(CONTINUED FROM FRONT PAGE)

Male mastodons spent a significant part of each year of their adult lives fighting with other males, in order to win the affections of their potential mates. [02]

The tusks of mastodons sometimes exceeded five meters in length, and were nearly horizontal, in contrast with more strongly curved mammoth tusks. Young males had vestigial (rudimentary or function-less) lower tusks that were lost in adulthood. The tusks were probably used to break branches and twigs as well as their use in mating challenges. One tusk was often shorter than the other. [03]

A microscopic look at a cross section of one 11,480-year-old male mastodon tusks revealed damage to the dentin underlying regularly spaced rows of shallow pits on the undersides of these long, curved tusks. The damage seemed to have originated at the boundary between the dentin and the cementum, the hard outer layer of the tusk. The cells that form new ivory occur along that region at the base of the tusk.

The tusk damage always appears in ivory that formed between mid-spring and early summer of each year after the mastodon reached the age of 20. Study of the ratios of chemical isotopes helped scientists identify the annual growth patterns in the tusks of mammoths and mastodons.

Male mastodons may have fought each other in several ways. The most damaging blows may have resulted when one male dipped its head and then swung it upward, thrusting the tip of its curved tusk into the neck or skull of another mastodon.

The impact of such a thrust, which could have heavily damaged or killed an opponent, would also have jammed the tusk of the aggressor against the lower rim of its socket. [01] Even though the tusk continued to grow by adding layers to its base, inside and out, the location of the original damage was marked permanently because the cells responsible for producing new layers of tusk material were damaged when they were pinched between the tusk margin and the socket wall. A series of fights thus lead to a series of pitted scars along the outside curve of the tusk base, one for each year in which the fights occurred. [02]

Similar scars have not been reported in the tusks of modern-day elephants. Today's elephants have tusks that are only slightly curved. Any jousting among modern males jams a tusk backward into its socket, not downward, so the impact is absorbed by a ligament that holds the tusk in place. [01]

REFERENCES:
[01] Perkins, Sid. Mastodons in Musth: Tusks may chronicle battles between males; Science News; Vol. 170, No. 18, October 28, 2006; pp.276-277; Science Service, Washington, DC.
[02] Ross-Flanigan, Nancy; Mastodon tusk scars record combat history; The University Record Online; The University of Michigan; http://www.umich.edu; October 23, 2006.
[03] Bjorn Kurten and Elaine Anderson; Pleistocene Mammals of North America; Columbia UP; New York; 1980.

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February Birthdays

The birthstone for February is amethyst.

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“The Show 500” in 2007

W.C. McDaniel This is a year long program to collect rocks and fossils for the gem dig and grab bags for the 28th annual Mid-America Mineral, Fossil Jewelry Show which will take place April 28 and 29, 2007. In addition to rocks and minerals, cloth material will be collected to make the grab bags and volunteers will be needed to sew the 500 bags. Each month a targeted donation has been identified. Bring your donations and contributions to the membership meeting according to the schedule shown below:

- **October**: Tumbled stones/petrified wood
- **November**: Fossils and geodes
- **December**: Your choice
- **January**: Quartz from any locality
- **February**: Miscellaneous minerals
- **March**: Fossils and tumbled stones
- **April**: To be determined based on necessity

An Awards page has been added to the MAGS website. You can visit it at www.memphisgeology.org/awards.htm. The Tips and Techniques has also been updated with a few tips on "the challenge of the trail". That page is located at www.memphisgeology.org/challenge_of_the_trail.htm.

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Web Site Statistics for January 2007

Here’s a brief look at our website (www.memphisgeology.org) from 1/21/02-1/21/07

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<td>Hits in past 30 days</td>
<td>22,163</td>
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<td>Average daily (past 31 days)</td>
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Note: A visit is every time someone comes to our web site. A hit is every page viewed once a user enters our web site.

Amethyst: Amethyst is a purple variety of quartz. The ancient Greeks believed amethyst would protect them from intoxication and they fashioned drinking vessels from it. Amethyst is widely found in the U.S. but rarely of a quality for use in jewelry making. It is also found in India, Uruguay, Brazil and Sri Lanka, but the finest quality amethyst comes from Russia. The purple amethyst color can be greatly altered by exposure to heat and may turn yellow or lose its color altogether when exposed to heat.
March DMC Field Trip

The Southeast Federation of Mineralogical Societies, Inc.
The Friendly Federation - Founded in 1976 to serve.
DMC Program of the SFMS Field Trip Committee

An Official Field Trip of the KYANA Geological Society, Louisville, KY (HOST) and An Official Field Trip of MAGS

Date/Time: Saturday/Sunday, March 17/18
Day & Night Digs
Location: Hickory Cane Mines, Marion, KY

COLLECTING: Fluorite, smithsonite, sphalerite, cerussite, galena, hemimorphite, hydrozincite, quartz, & pyromorphite. Calcite is by far the most common mineral found, and all other minerals require some digging in the dump to locate.

FEE: The day time digs will cost $20 and the night time digs will be $30 (this entitles you to one five gallon bucket of specimens). Admission to the Ben Clement Fluorite Museum is $5.

All reservations for the digs will be handled though the Ben E. Clement Mineral Museum at www.MarionKentucky.us. Or call 270-965-9257. You may also call this number for directions. Information on campgrounds, lodging, and bed and breakfasts can also be obtained from Clement Mineral Museum.

In order to fill any vacancies in the scheduled digs, left by the SFMS, after March 1, 2007 these vacancies will be open to KYANA members and any other rock hound who wishes to join the dig. While the primary purpose of this trip is to accommodate SFMS members, the secondary purpose is to help the Ben E. Clement Mineral Museum fund its efforts in maintaining a world class fluorite collection and making it available to the public.

WHAT TO BRING: Other than standard collecting equipment, bring plenty of water, snacks, camera, and you will need a portable ultraviolet light. Daytime collectors will need a way to check fluorescence too! Black light boxes or whatever suits you. Night time collectors will need a standard flashlight to travel to and from their cars. The time of the month was chosen because it is the dark of the moon! Short wave and broad spectrum ultraviolet lights are best. Most collectors will share their lights, but do not count on it, after all someone will need to bring a light. Although, the temperatures have been unseasonably warm thus far, March can occasionally be quite brisk in the Ohio Valley. So be prepared to dress warmly, multiple layers works best.

DMC Contact: Charles Oldham at 502-241-8755

February 24-25, 2007  Jackson, MS
Mississippi Gem & Mineral Society.
Location: Trade Mart Building, State Fairgrounds, I-55 and High Street.
Contact Betty James at 601.914.6747 or mineralid@jam.rr.com,
aa.gmfs@earthlink.net; or www.homestead.com/aikengems.
Hours: 24th 9am-6pm and 25th 10am – 5pm.

March 2-4, 2007, Largo, FL
Suncoast Gem & Mineral Society,
37th Annual Gem & Mineral Show and Sale
Minreg Building-6340, 126th Avenue N.
Hours: 2nd/3rd 10am-6pm and 4th 10am-5pm
Show Chair: Bill Schmidt (727)657-0998.
Dealer Chair: Sue Black (727) 560-5124

March 9-11, 2007, Augusta, GA
Aiken Gem, Mineral & Fossil Society and
Augusta Gem and Mineral Society
19th Annual Aiken-Augusta Gem Mineral &
Fossil Show.
Julian Smith Casino, 2200 Broad Street.
Contact: Shellie Newell at 305 Fairway Drive, Graniteville, SC 29829 or email: aa.gmfs@earthlink.net

March 23-25, 2007, Raleigh NC
Tarheel Gem & Mineral Club
31st Annual Gem and Mineral Show
Kerr Scott Building, NC State Fairgrounds
Contact: Cyndy Hummell (919) 779-6220 or mchummel@mindspring.com

DMC Program/SFMS Field Trip committee’s purpose: To collect field trip information from its member societies, schedule and coordinate field trip dates, disseminate field trip information to all member clubs so that each member society may publish this information as one of the “official” scheduled field trips.
PAM GURLEY: Condolences go out to member, Joi Bennett, whose mother recently passed away. Also, our best wishes go out to MAGS Field Trip Director, Barry Burns, as he continues to undergo cancer treatment. Barry is in good spirits and is looking forward to future field trips when he can join us again. If you have news about MAGS members, please give me a call at 324-7235.

SPECIAL FIELD TRIP FOR MAGS MEMBERS!

W.C. McDaniel: MAGS will have a special field trip on Saturday Feb 10 to Walnut Ridge, Arkansas. Pat Miron of Austin Gems (show booth is caddy corner from the concession stand) will open his warehouse for MAGS members. Pat is a direct importer and has a large warehouse full of beads, cabochons (+10,000) and miscellaneous. Complete details will be available either by email or at the membership meeting on 2/9. All sales are cash and/or check only. Walnut Ridge is about 95 miles from Memphis, northwest of Jonesboro.

Address/Directions available via email and/or membership meeting

February Adult Program

Be sure to attend the February membership meeting! W.C. McDaniel will be our program speaker and his topic will be “Cleaning specimens collected on MAGS’ field trips.” He will provide an overview of types of materials, precautions and safety procedures, hardware and software of cleaning, cleaning process and tips, and problem preventions and solutions. So if more of your specimens look like the one on the right and you would LIKE for them to look like the one on the left, this program is for you!
December 2006
Board Meeting Notes

Susan Thom  The MAGS board of directors met on November 30, 2006 at The Blue Plate Café, 5469 Poplar Avenue. The following were present: Sherry & Mike Baldwin, Ron Brister, James Butchko, Mike Cannito, Melba Cole, Shelby Hartman, Cathie & Alan Jacobs, Melissa Johnston, Carol & Matthew Lybanon, Cornelia & W. C. McDaniel, Randa Spears, Susan Thom, Sandy Ward, and Lou White. Outgoing W. C. McDaniel welcomed the incoming board to our meeting.

The following reports were given: (1) Treasurer report presented by Cornelia McDaniel: The financial report was given. Lou White made the motion to accept as given, Melba Cole seconded the motion, and the vote carried the motion to approve report subject to audit. (2) Field trip report presented by Lou White: The Christmas party is our field trip. Feedback from the November trip to Ron Coleman’s quartz mine field trip was a good one; everyone enjoyed it. (3) Library report No report. Library will be closed for Christmas party. (4) Adult & Junior program will be combined with gift swap & potluck Christmas party. (5) Newsletter/Web report presented by Mike Baldwin & Shelby Hartman: Mike said website is being frequently visited. 96 added entries to website, increased website by 36 pages, 856 people visited in one day! Southeast Federation Junior of the Year (JOY) criteria is now available. On November 18th, Mike attended a conference sponsored by the Tennessee Earth Science Teachers in Nashville. He accepted the very prestigious 2006 Ptero Award for MAGS and showed us the beautiful plaque. (6) Sunshine report presented by Melba Cole: Frank Walker is recuperating from his surgery. (7) Historian/Rock swap report presented by Sherri Baldwin:

No rock swap in December. Notebook of newsletters and rock swaps information is complete for incoming Historian/Rock Swap Director Cathie Jacobs. (8) Show report presented by James Butchko: Two more vendor contracts have been received for a total of 12 contracts. January 15th is contract deadline. We need to decide on door prize and purchase it. (9) Old Business: Club needs to upgrade our technology (laptop, projector, application programs, etc.) for programs so that we can include field trips and programs of our own. Funds could come from different club accounts. New laptop would also be an asset for the Show postcard mailings. James Butchko will check on prices. (10) New Business: 1) Christmas party MAGS furnishes the turkey, ham, paper products, dinnerware, etc. Club members need to bring side dishes and/or desserts. Optional gift swap--$10 limit on hobby related gift. Anyone who can come help set up, be there @ 6:30 p.m. 2) Transition plans: Board members will be given copies of ByLaws and Standing Rules including the Club constitution, board duties, etc. Show chairman is the only position that overlaps from outgoing to incoming board. Treasurer Cornelia McDaniel has transition plan ready for Mike Cannito. 3) Sandy Ward proposed to incoming board members that Mike Baldwin be reappointed Webmaster and Shelby Hartman be appointed Editor of Rockhound News Newsletter. Randa Spears made a motion to accept the appointments, Cathie Jacobs seconded the motion, and the vote carried the motion. 4) Melissa Johnston asked about a timetable for submitting receipts. They can be submitted monthly or several months can be turned in together. 6) Rock swaps normally start in May after the Gem Show in April. (10) Program report presented by Randa Spears: Randa, incoming 2nd Vice President (Programs) has some really good ideas to enhance monthly programs. In January, the program will be on petrified wood (2 part program). A slide show on agates & wood from Texas & Mexico will be presented.
Youth group reminder!

Don’t forget to bring your secret rock to the meeting in February.

Two people volunteered to bring blow dryers. Those two were Zach Landry and Harrison Parks.

Also everyone is to bring newspaper.

Hold onto the folders you received. Keep them in a special "rock club" space to keep up with them. We are going to review the handout inside of it sometime soon, I’ll see everyone at the February meeting!

- Melissa

Dan & Barb Reed will give a short program on collecting petrified wood in Washington state. (Karen Schaeffer submitted an article in the Rockhound News Newsletter, December issue.) The February program will be presented by W.C. McDaniel on cleaning minerals & fossils. She would like member displays at end of program pertain to program topic displays. She requested Ron Brister present books in the MAGS library related to program be promoted at meeting. That is one of the things Ron has already planned to do! Meeting adjourned at 7:30 p.m.

December 2006 Membership Meeting Notes

Susan Thom: The MAGS membership meeting was held at Shady Grove Presbyterian Church on December 8, 2006 presided by W. C. McDaniel. There were 50 members and 4 visitors McKayla Clusker, Mary Enders, Velma Gunter, and Ben Mandino. 1) Harrison Parks welcomed us to our Christmas party. 2) W. C. McDaniel, our outgoing President, reviewed some of the highlights of the year. MAGS reported 279 members to the Southeast Federation. At the end of November, the club funds including Don Green/RVC Fund, Junior Fund, and Library Fund totals $7,775. The show fund is $12,277. Certificate of Deposits total $10,743. All three combined total $30,598. About $6500 of the show funds will be moved to a new account in January 2007 under the new board. 3) MAGS and club members received outstanding awards in 2006. a) Mike Baldwin attended a conference sponsored by the Tennessee Earth Science Teachers in Nashville where on behalf of the club he accepted the very prestigious 2006 Ptero Award for MAGS. b) In the last 7-8 years a MAGS junior has won the Southeast Federation Junior of the Year (JOY) award.

Rhena South attended this year’s convention in Montgomery, Alabama to accept her award! c) The American Federation of Mineralogical Societies awarded honorable mentions Mike Baldwin for editor of small bulletins and Allen Helt for an article. In the Southeast Federation, W. C. McDaniel received 1st place and Allen Helt received 2nd place for articles. 4) W.C. McDaniel awarded each board member with a certificate and gift for their participation for the past two years. 1st Vice President (Field Trips), Lou White, 2nd Vice President (Programs) Idajean Jordan, Treasurer, Cornelia McDaniel, Director (Asst. Programs), Randa Spears, Director (Youth), Raynee Randolph, Asst. Youth, Sherida Helms, Director (Library), Nancy Folden, Director (Membership), Melba Cole, Director (Historian/Rock Swap), Sherri Baldwin, Webmaster/Newsletter, Mike Baldwin, Co-editor, Shelby Hartman, Show Chairman, James Butchko. Meeting adjourned at 7:50 pm. Everyone looked like they really enjoyed the Christmas potluck. For the optional gift swap, each participant signed a list, and Mike Baldwin did the name calling!!! Actually, he drew out the names and announced them. Many recipients received great gifts!
The main purpose of Memphis Archaeological and Geological Society 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.

Except for items that are specifically copyrighted by their authors, other societies may use material published in MAGS Rockhound News provided that proper credit is given and the sense or meaning of the material is not changed. Editor: Shelby Hartman, 5116 Whiteway Drive, Memphis, TN 38117

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AFMS NEWSLETTER AWARDS: New Editor 7th—95 • Small Bulletin Honorable Mention—04, 05, 06 • Adult Article 10th—04; Honorable Mention – 05 (x2), 06 (x2) • Junior Article 3rd—98; 8th—03 • Special Pub 4th—03

SFMS NEWSLETTER AWARDS: New Editor 1st—86; 2nd—88, 97 • New Editor (Explorer) 4th—03 • Certificate of Excellence—89, 90, 91, 92, 93 • Large Bulletin 1st—87 • Small Bulletin 1st—04, 2nd – 06, 4th—03 • Special Publication 2nd—03 • Art 77, 80, 81, 82, 86 • Junior Article 1st—03 • Adult Article 1st – 06; 2nd— 89, 90, 04, 06; 3rd—92; 4th—85, 04; 5th—91, 03; 6th—87; 8th—04; Honorable Mention—03, 04

DUES: $20 (Family); $16 (Single); $8 (Junior)

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<td>FEB 09</td>
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5116 Whiteway Drive
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