

MISSISSIPPI GEOLOGICAL SOCIETY eBULLETIN

Volume 73

No. 1

September 2024



SEPTEMBER SPEAKER

James Starnes - MDEQ
THE ICE AGES IN MISSISSIPPI

MAMMOTH OF MADISON COUNTRY

Dr. David Dockery III, RPG

MGS QUIZ

Steve Walkinshaw



www.missgeo.com



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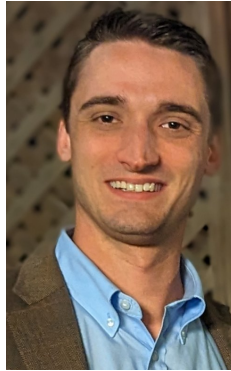
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PRESIDENT'S LETTER



Dear MGS Members,

I hope you all had a wonderful summer. As the temperatures begin to drop and tropical weather approaches, it seems that fall may be upon us.

For our upcoming meeting on September 11, 2024, at 11:30 AM at the River Hills Club in Jackson, Mississippi, we are pleased to have James Starnes presenting on the recent viral discovery of a mammoth tusk in Madison County, along with additional insights into the Ice Ages in Mississippi. The cost to attend is \$25; checks or exact change are appreciated.

Looking ahead, on October 9, we will welcome Toddy Guidry from Core Laboratories, and on November 13, Dwayne Purvis will discuss the economic surprises of late-life production.

If you are interested in giving a talk or have a topic you would like to see discussed at our meetings, please reach out to me. We are always looking for engaging speakers and topics for our spring schedule.

Thank you once again for your continued dedication to the Mississippi Geological Society.

Jonathan R. Leard, RPG

MDEQ-Office of Geology

Surface Geology Division

Phone: (601)-961-5352

Website: <https://www.mdeq.ms.gov/geology/work-areas/surface-geology/>



2024-2025 MGS MEETING SCHEDULE

When	What/Who	Where
September 11	The Ice Ages in Mississippi - James Starnes	River Hills - 11:30am
October		River Hills - 11:30am
November		River Hills - 11:30am
December		River Hills - 11:30am
January		River Hills - 11:30am
February		River Hills – 11:30am
March		River Hills – 11:30am
April		River Hills - 11:30am
May	Spring Fling	TBD

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SEPTEMBER SPEAKER

James Starnes - MDEQ



“THE ICE AGES IN MISSISSIPPI”

James Starnes
MDEQ-Office of Geology

Wednesday, September 11, 2024

11:30 am Lunch/ 12:00pm Discussion

**The River Hills Club
Jackson, Mississippi**



CURRENT PRICES

Market Watch

Crude Oil Oct 2024

[+ WATCHLIST](#)

☀ OPEN

Last Updated: Sep 11, 2024 at 10:45 a.m. EDT - Delayed quote

\$ **65.91**

▲ 0.16 0.24%

SETTLEMENT PRICE 09/10/2024

\$65.75



Natural Gas Continuous Contract

[+ WATCHLIST](#)

☀ OPEN

Last Updated: Sep 11, 2024 at 10:46 a.m. EDT - Delayed quote

\$ **2.308**

▲ 0.076 3.41%

SETTLEMENT PRICE 09/10/2024

\$2.232





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MONTHLY POST

Dr. David Dockery III RPG

MAMMOTH OF MADISON COUNTY, MISSISSIPPI

James E. Starnes, RPG and David T. Dockery III, RPG

Earlier this week our MDEQ's Mississippi State Geological Survey scientists received a message about a major fossil discovery made by Eddie Templeton, an avid artifact and fossil collector and friend of the Survey. He was exploring in rural Madison County looking for fossils when he stumbled upon what appeared to be a portion of an ice-age elephant tusk exposed in a steep embankment. **Figure 1** gives three views of the fossil tusk once uncovered in the excavation.



Mississippi was home to three proboscideans during the last ice age: mastodon, gomphothere, and the Columbian mammoth. All three possessed ivory tusks. Mastodons are by far the most common proboscidean finds in Mississippi as they were browsers, like modern deer, and inhabited a variety of different environments. Mammoths, which were related to modern elephants, are far less common finds in Mississippi. They were open grassland grazers and would have been at home in only a select few environments, particularly the prairie regions of Mississippi. Gomphothere are more closely related to mastodons than to mammoths, but very little is known about their ice-age presence here in Mississippi. They are only known from a few isolated teeth found along the Mississippi River.



MONTHLY POST

Dr. David Dockery III RPG

Eddie knew that acting quickly on the significant find was important. From both his and our Survey geologist's experience, the heat of afternoon summer sun alone could dry out a specimen like this, destroying it. The Mississippi Museum of Natural Science was also ready to respond by providing the material resources our team needed to properly excavate and stabilize the find for removal.

When Eddie and our State Survey paleontological team arrived at the fossil site, they found the fossil tusk in amazing condition. It was only partially exposed just above the waterline under a bluff in the alluvium of a small drainage. It was suspected based on the strong curvature of the massive tusk that Eddie and the team were dealing with a Columbian mammoth and not that of the more common mastodon. This would be the first of its kind for the area.

Eddie and the team spent the entire day carefully removing the clayey sand alluvial Pleistocene matrix by hand from around the tusk to expose the 7-foot-long fossil in its entirety. To our surprise, it had been deposited entirely intact. This makes it an extremely rare find for Mississippi. Most fossil tusk ivory found around the state are just fragments, and most are likely to be attributable to the more common mastodon.

Once photographed in-situ, it was prepared for plaster jacketing by covering it with aluminum foil while the team began mixing plaster and cutting strips of burlap. The burlap strips were soaked in the wet plaster and placed over the foil covered fossil tusk. This was done to construct a protective jacket to encase the giant fossil for stabilization and careful removal from the outcrop.

While the plaster jacket cured and dried, the team studied the details of the depositional environment recorded within the sediments exposed at the outcrop. The base of the massive tusk was lying almost upright and at an angle in the stream alluvium with a portion of it lying directly on top of the underlying marine Eocene sediments of the Yazoo Formation, just as it came to rest before burial. Our field scientists interpreted the mammoth tusk specimen to be leaning up against the edge of an ancient stream sandbar, while a portion of it rested on the floor of stream channel. This would have been just before it was completely covered with alluvium entombing the fossil, possibly the result of a major flooding event. The animal likely had died nearby, and its remains were then carried along the stream's channel.



MONTHLY POST

Dr. David Dockery III RPG

Studying the nature of the sediments exposed at the outcrop also gave our team of scientists some interesting information. The channel gravels preserved in the basal part of the alluvium are dominated by the mineral quartz with a minor amount of chert clasts. The fossil is located within the watershed of the Big Black River. However, quartz gravels like that are more reminiscent of the alluvium of the Pearl River as it crosses the Jackson Prairie region. The thick alluvial plain sediments deposited above the fossil are of loess-derived silt. Loess is a wind-blown glacial silt that forms thick deposits across much of the upland terrain in western Madison County.

Once the plaster jacket containing the fossil tusk dried, it was carefully lifted onto a makeshift gurney fashioned from an ATV ramp. The fossil specimen in the jacket weighed about 600 pounds. It was then slowly maneuvered up a 50 foot, nearly vertical, bluff and onto a truck where it was delivered to the Mississippi Museum of Natural Science for further curation and careful study. **Figure 2** shows Jonathan Learn constructing the plaster jacket and the delivery of the fossil tusk to George Phillips at the Mississippi Museum of Natural Science.





MONTHLY POST

Dr. David Dockery III RPG

Once at the laboratory, the fossil tusk was confirmed by the Mississippi Museum of Natural Science paleontologist as indeed belonging to a mammoth. Eddie's discovery offers a rare window into the Columbian mammoths that once roamed Madison County along the Jackson Prairie of central Mississippi. Columbian mammoths were much larger than the woolly mammoth that roamed the colder, more northern regions of North America. They grew up to 15 feet at the shoulder and could weigh over 10 tons. These colossal mammals played an important role in maintaining the rich fertile prairie ecosystem, much as their modern elephant relatives do in other parts of the world today. This ice-age prairie ecosystem of what is now Madison County was also home to herds of now extinct horses and giant bison along with giant ground sloths, giant tortoises, and tapirs. It was also home to a number of ice age predators such as dire wolves, saber-toothed cats, American lion, and even to the earliest human inhabitants of our region.

Figure 3 is a composite of the excavation as shown in a #FossilFriday post for Friday August 9. Jan Shaefer, Director of MDEQ's Public Relations Department, also distributed the post as a MDEQ news release. By Wednesday August 14, the post had a reach of 358,984, and the story was covered by every major news outlet in the country and was published in the UK.





MONTHLY POST

Dr. David Dockery III RPG

Figure 4 shows Starnes and Leard discussing the mammoth tusk find on Supertalk.





GEOLOGY POST

ARTICLES, PAPERS or NEWS?

ATTENTION!!!!!! Industry, Professors and Students:

I am looking for more content from the industry and our schools.

Submissions can include anything from professional papers, thesis abstracts, job opportunities to pictures. Anything!!!!

If you have any information or news you would like to share with the Society **PLEASE** email them to the MGS Editor at:

mcaton13@yahoo.com

Thanks & Regards,

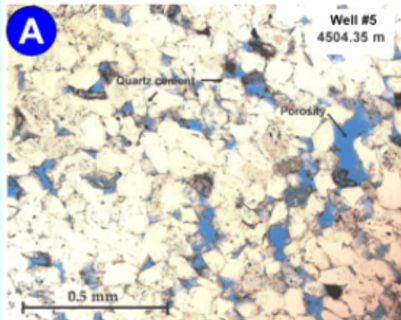
Matt Caton
Editor



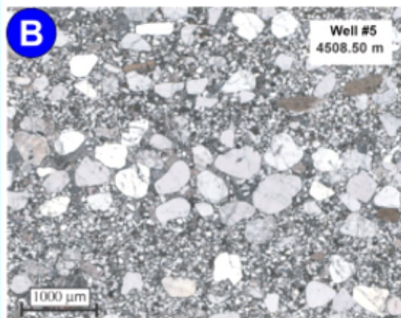
MGS QUIZ

Steve Walkinshaw

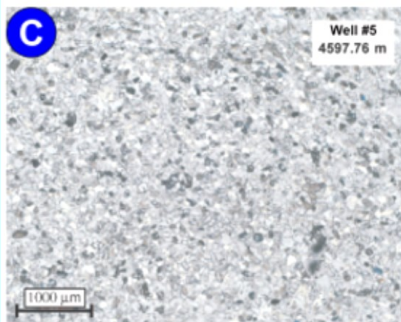
THIN SECTIONS - VARIOUS RESERVOIR FACIES



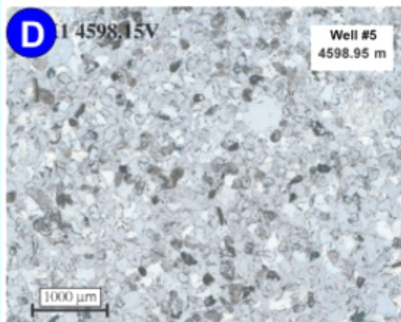
- Laminated sandstone, (shoreface facies)
- Subarkose, well sorted
 - Quartz cement 16.3%
 - Dolomite 1.3%
 - Primary porosity 6.3%
 - Secondary porosity 12.0%



- Laminated sandstone, (shoreface facies)
- Subarkose, poorly sorted
 - Quartz cement 0%
 - Dolomite 24.3%
 - Visible porosity 0%

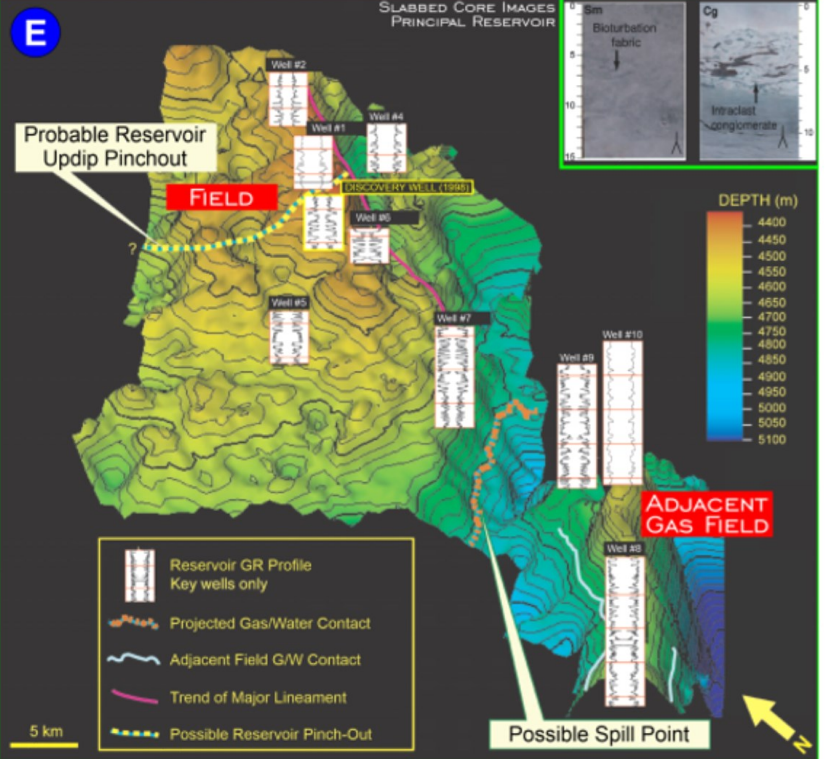


- Laminated sandstone, (shoreface facies)
- Subarkose, very well sorted
 - Quartz cement 28.3%
 - Dolomite 1.3%
 - Primary porosity 0.7%
 - Secondary porosity 1.0%

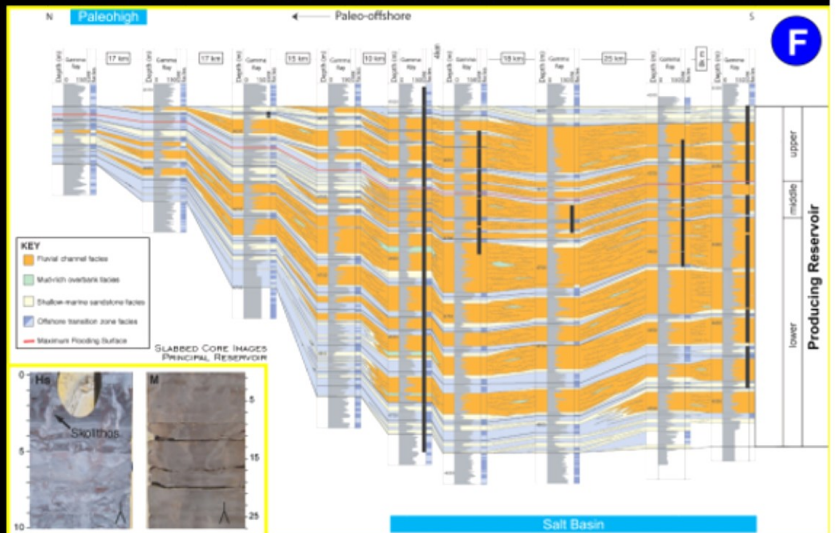


- Massive sandstone, (proximal offshore transition facies)
- Subarkose, well sorted
 - Quartz cement 16.0%
 - Dolomite 0.7%
 - Primary porosity 0%
 - Secondary porosity 1.3%

3D TIME STRUCTURE - FIELD AND ADJACENT (SMALLER) FIELD



STRATIGRAPHIC CROSS SECTION - FIELD TO ADJACENT FIELD





MGS QUIZ

Steve Walkinshaw

Oil patch quiz time. Early explorers in this country were warned that travel in some areas was unsafe. One survey party could not locate a promising seep because their arrival had been greeted with "a hail of stones".

Numerous disappointments delayed the discovery of the first commercial oilfield here until the early 1960's. One early dry hole, nicknamed the "unluckiest wildcat well" in the region, was later determined to have missed the principal reservoir in a significant field by less than 300' (it was faulted out).

A large (~10.5 TCF / 350 MMBC) gas field was discovered here ~22 years ago (see the map). It went onstream in 2017.

Questions...

Part 1: What country am I referring to?

Part 2: What large gas field am I referring to?

Part 3: What company discovered this field?

Part 4: What company currently operates the field?

Part 5: What is the name of the principal reservoir?

Part 6: What is its age?

Part 7: What's the name of the adjacent field?

Part 8: What salt basin are these fields located in?

Part 9: What was the first oilfield discovered in this country?

Bonus:

Part 10: What was the name of the "unluckiest wildcat well" in the region?

ANSWERS AT END OF BULLETIN

GEO LINK POST

USGS TAPESTRY OF TIME AND TERRAIN <http://tapestry.usgs.gov> The CCGS is donating to all of the 5th and 6th grade schools in the Coastal Bend. Check it out—it is a spectacular map. You might want a framed one for your own office. The one in my office has glass and a metal frame, and it cost \$400 and it does not look as good as the ones we are giving to the schools. Call Owen 510-6224 if you want one for your office for \$150. Duncan, Mike, Chris, Dave, Bob Randy, Seb., Kevin, Ken, Craig, Patrick, Robert.

FREE TEXAS TOPO'S <http://www.tnris.state.tx.us/digital.htm> these are TIFF files from your state government that can be downloaded and printed. You can add them to SMT by converting them first in Globalmapper. Other digital data as well.

FREE NATIONAL TOPO'S [http://store.usgs.gov/b2c_usgs/b2c/start/\(xcm=r3standardpitrex_prd\)/.do](http://store.usgs.gov/b2c_usgs/b2c/start/(xcm=r3standardpitrex_prd)/.do) go to this webpage and look on the extreme right side to the box titled TOPO MAPS DOWNLOAD TOPO MAPS FREE.

<http://www.geographynetwork.com/> Go here and try their top 5 map services. My favorite is 'USGS Elevation Date.' Zoom in on your favorite places and see great shaded relief images. One of my favorites is the Great Sand Dunes National Park in south central Colorado. Nice Dunes.

<http://antwrp.gsfc.nasa.gov/apod/astropix.html> Astronomy picture of the day — awesome. I click this page everyday.

<http://www.spacimaging.com/gallery/ioweek/iow.htm> Amazing satellite images. Check out the gallery.

<http://www.ngdc.noaa.gov/seg/topo/globegal.shtml> More great maps to share with kids and students.

www.geo.org Don't forget we have our own web page.

<http://micro.magneet.fsu.edu/primer/java/scienceoptiscu/owersofl0/>

<http://asterweb.jpl.nasa.gov/galery/default.htm> Great satellite images of volcanoes

<http://terra.nasa.gov/gallery/> More here

www.ermapper.com They have a great free downloadable viewer for TIFF and other graphic files called ER Viewer.

www.drillinginfo.com This is an incredible (subscription) well and completion data service for independents. Can be demo'ed for free.

<http://terraserver.com/> Go here to download free aerial photo images that can be plotted under your digital land and well data. Images down to 1 meter resolution, searchable by Lat Long coordinate. Useful for resolving well location questions.

<http://www.fs.fed.us/gpnmf/volcanocams/msh/> This is a live cam of Mt. St. Helens refreshed every 5 minutes. At the bottom are old videos of past eruptions in this cycle. It is worth a watch especially now.



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(Note: Please contact Steve Walkinshaw at (601) 607-3227 or mail@visionexploration.com for details concerning placing your ad on the MGS web site.)

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		2023-Present	Jonathan Leard



MGS QUIZ

Steve Walkinshaw

Answers:

Part 1: What country am I referring to? the Sultanate of Oman

Part 2: What large gas field am I referring to? Khazzan Field

Part 3: What company discovered this field? Petroleum Development Oman (PDO)

Part 4: What company currently operates the field? BP

Part 5: What is the name of the principal reservoir? the Barik Sandstone

Part 6: What is its age? Upper Cambrian / Lower Ordovician

Part 7: What's the name of the adjacent field? Saih Rawal

Part 8: What salt basin are these fields located in? the Ghaba Salt Basin

Part 9: What was the first oilfield discovered in this country? Yibal Field

Part 10: What was the name of the "unluckiest wildcat well" in the region? the Fahud-1 well

Part 11: What is the principal difference in the oil produced in the northern vs. the southern areas of this country? the gravity of the oil (fairly light in the northern area, typically fairly heavy in the south / southwestern area)