



# MISSISSIPPI GEOLOGICAL SOCIETY

Volume XXXIX

No. 11

September, 1990



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Steve Champlin, Oil & Gas Board Liaison .....Champlin Energy, Inc.  
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Steve Cash, Projection (961-5030).....Dept. of Environmental Quality

**ABOUT THE COVER:**

Keweenaw Age Puckwunge Conglomerate overlain conformably by flow basalt of same age - 1.1 by. West Flank of Mid-Continent Rift System exposed on north shore of L. Superior on Hwy 61, 3 miles south of Grand Marais. This is potential reservoir and seal if in proper location.

## PRESIDENT'S MESSAGE

I never knew why our Society photos were not published that were taken several years back, until now. Half of our membership, including myself, had their eyes closed. Hopefully, with recent improvements in oil prices, our eyes will open wide.

Speaking of oil, on September 11th, a representative from Exxon will talk to us about the Exxon Valdez oil spill. Although this won't help us find any additional oil (unless we're prepared to skim for it), it will keep us well informed about an incident that has, and apparently will have, a profound effect on offshore and onshore oil and gas exploration. As we've all read, this spill has had an enormous negative impact on the general public and intern, those who make the rules governing how we explore, develop, and transport oil and gas products. A counterpoint to Exxon's view on the spill by the state of Alaska will be made available at the meeting. There will not be copies for everyone, so quickly review it and share with your neighbor. Also, we welcome the members of the Desk and Derrick Club who are planning to join us in listening to the Exxon talk.

The 1990 GCAGS Convention will be held October 17 through October 19 in Lafayette, Louisiana. The Society there has put forth great effort to insure that we all learn something and have a great time. I don't think you could have a bad time in Lafayette, unless you don't have a room. So book it now, and we'll see you there!

Our famous fall barbeque will take place at Fowler's Lodge on September 28th. Volunteers for food preparations are always welcome early the morning thereof, and if so inclined please contact a MGS officer.

Mike Noone has accepted an appointment as chairman of the newly formed Museum Committee. He and his committee members will be working with the Mississippi Agricultural and Forestry Museum on an appropriate display to represent the past, present, and future efforts of the oil and gas industry in Mississippi. I hope you will join Mike, as David Chastain has already done, in volunteering to serve on this worthwhile committee.

Remember, if you have any positive comments or otherwise about your American Association of Petroleum Geologists, don't just tell anyone, tell your delegates so they may pass the word along. Your delegates are Kipp Ferns-Chairman, Phillip Reeves, and Steve Walkinshaw.

Enclosed in this bulletin is a request from the Dallas Geological Society calling for papers on dipmeter examples. We look forward to seeing this casebook.

When you fill out your name tags at our coming meeting, take a minute and fill out the short questionnaire provided. This will supply needed feedback to the Executive Committee.

Thank you, Jim Files

## BUSINESS MEETING LUNCHEON SCHEDULE

Fall Barbecue - Friday, September 28

1990

September 11 • October 9 • November 13 • December 11

1991

January 8 • February 12 • March 12 • April 9 • May 14



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**Mr. Stan Galicki**  
Mississippi Geological Society  
P.O. Box 422  
Jackson, MS 39205-0422

**RE: Call for Papers by Dallas Geological Society,  
Dipmeter Casebook**

**Dear Mr. Galicki:**

The Dallas Geological Society requests your assistance in soliciting dipmeter interpretation papers to be published by the Dallas Geological Society in a book tentatively entitled Dipmeter Casebook. Please advise your members of our publication plans and encourage all to contribute papers.

An outline for submitted papers is enclosed. Questions and papers can be submitted directly to the Dipmeter Casebook Committee at the enclosed address of the Dallas Society. We wish to make this publication a significant contribution to petroleum geologic literature with worldwide examples and application.

Telephone enquiries can be made to either:

Dale O. Reese (214) 991-9117 Office  
(214) 387-1482 Home

Robert W. Richter (214) 670-2883 Office  
(214) 760-8288 Fax

Thanks for your assistance.

Very truly yours,

Dale O. Reese, Chairman  
Dipmeter Publication Committee

DOR/dn

DIPMETER CASE STUDY

PROPOSED OUTLINE FOR SUBMITTED PAPERS

- I. BRIEF REGIONAL SUMMARY, PLAY DESCRIPTION(S), TRAPPING MECHANISM(S)
- II. PROSPECT PLAT OR REGIONAL MAP
  - A. Key wells
  - B. Wells with dipmeter surveys
- III. BEFORE DRILLING REVIEW OF DIPMETER DATA
  - A. Computation method used in producing dipmeter logs in hand before drilling, 4' - 2' step, etc.
  - B. Presentation of dipmeter data by individual key log, cross section, numerical dipmeter data listing, tadpole plot, azimuth frequency dip plot, Schmidt pot, formation imaging, etc.
- IV. AUTHOR'S BEFORE DRILLING INTERPRETATION OF DIPMETER DATA AND INTEGRATION INTO PROSPECT INTERPRETATION
- V. GEOLOGICAL RESULTS OF DRILLING WITH DIPMETER DATA
  - A. Geological relationships after drilling in reference to pre-drilling interpretation.
  - B. Dipmeter data derived from drilling, if any, and relationship to dipmeter data in hand before drilling.
  - C. Economic gain from prospect, if known.
- VI. CONCLUSIONS

# BUSINESS MEETING LUNCHEON

September 11, 1990 • 11:30 a.m.

Capitol City Petroleum Club, Smackover Room

## VALDEZ OIL SPILL

The subject of the presentation will be the clean-up efforts and the environmental recovery taking place in Prince William Sound, Alaska, after the Valdez oil spill. Since the spill, Exxon has conducted the most comprehensive operation ever organized to deal with an oil spill. The presentation will review Exxon's early response to the accident and results of clean-up activities. In addition, comments will be made on the results of recent environmental studies in Prince William Sound and some lessons learned as a result of this accident.

## BIOGRAPHY OF EDWARD G. GALANTE

A native of Inwood, Long Island, New York, Mr. Galante received his BS Degree in Civil Engineering from Northeastern University in 1972. He began his career with Exxon Company, U.S.A. in the Marketing Department in New York as a Construction and Maintenance engineer in 1972. He held various positions in Sales and Products Distribution organizations of Exxon Company, U.S.A.'s Marketing Department. In 1985, he assumed a coordination position in Headquarters' Supply Department and later the Downstream Planning and Analysis organization. In 1987, he transferred to the Baton Rouge Refinery as Mechanical Division Manager. Effective July 1, 1988, he was named Manager of the Baton Rouge Refinery.

He holds office or membership in a number of organizations including member of Board of Directors and Vice Chairman of the Louisiana Association of Business and Industry (LABI); Vice President and member of Board of Directors of Mid-Continent Oil and Gas Association, member of the Greater Baton Rouge Industrial Managers Association, member of Board of Directors of Capital Area United Way and 1990 Major Corporate and Employee Group Chairman, member of Board of Trustees of Public Affairs Research Council, member of Board of Directors of Crime Stoppers, member of Board of Directors of Metropolitan YMCA, member of Board of Directors of Baton Rouge Crisis Intervention Center, member of Salvation Army Advisory Board, member of the Advisory Committee of the Greater Baton Rouge International Management Council, Chairman of Baton Rouge's Urban Corps Advisory Group, member of the Board of Directors of Mary Bird Perkins Cancer Center, member of Istrouma Area Council, Boy Scouts of America, Executive Committee; member of Our Lady of Mercy School Development Fund Committee, and a member of the Rotary Club.

Ed and his wife, Cathie, have four sons -- Brian, 16; Brad, 13, Chris, 10; and Matt, 6.

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## PUBLICATION LIST

1. Mississippi Geological Society Photo Directory, 1981 ..... \$ 2.00
  2. Wilcox Fields of Southwest Mississippi, Maps and production data on 171 fields, in ring binder, 350 pp., 1969 ..... 28.00
  3. Mesozoic-Paleozoic Producing Areas of Mississippi and Alabama. Volume I. Maps and producing data on 57 fields, with 2 composite logs, clothbound, 139 pp., 1957 ..... 10.00
  4. Volume II. Maps and producing data on 77 fields, includes Supplement 1, in ring binder, 143 pp., 1963 ..... 15.00
  5. Supplements 2 through 7 for Volume II, Maps and producing data on 35 fields, 110 pp. .... 15.00
  6. Supplement 8 for Volume II, Maps and producing data on 34 fields, 108 pp., 1980 ..... 25.00
  7. Volume II, complete with Supplements 2-8, 361 pp., 146 fields ..... 50.00
  8. Volume III, 85 pp., 46 fields, 1987 ..... 50.00
- FIELD TRIP GUIDEBOOKS**
9. Upper Cretaceous Outcrops, Northeast Mississippi and West Central Alabama, Fourteenth Field Trip, 29 pp., May 1959 ..... 4.00
  10. Cenozoic of Southeast Mississippi and Southwest Alabama, Fifteenth Field Trip, 52 pp., May 1960 ..... 6.00
  11. Cenozoic of Horn Island and the Pascagoula Valley 10th Annual GCAGS Meeting, 24 pp., October, 1960 ..... 2.50
  12. The Paleozoics of Northwest Arkansas Sixteenth Field Trip, 48 pp., May, 1962 ..... 5.00
  13. Tertiary Type Localities of East-Central Mississippi, 25th GCAGS Meeting, 133 pp., October 1975 ..... 5.00
  14. Mississippi Rocks of the Black Warrior Basin, Seventeenth Field Trip, 79 pp., April, 1978 ..... 8.00
  15. Tertiary and Upper Cretaceous Depositional Environments, Central Mississippi and West Central Alabama 33rd Annual GCAGS Meeting, 40 pp., October 1983 ..... 7.50
- COMPOSITE LOGS AND CROSS-SECTIONS**
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If you do, please send to:

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A short descriptive caption should also be enclosed a separate 3x5 index card.

Photograph credits will be given to those photos chosen.

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Yes -- Please sign below

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This renewal is for year 19____ - 19____
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**Mississippi Geological Society, Inc.**  
P.O. Box 422, Jackson, Mississippi 39205-0422

**APPLICATION FOR MEMBERSHIP**

Please complete and return this card with your annual dues (\$20.00) to the above address. I hereby make application for:

New  Renewal  membership in the Mississippi Geological Society.  
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(PLEASE PRINT)

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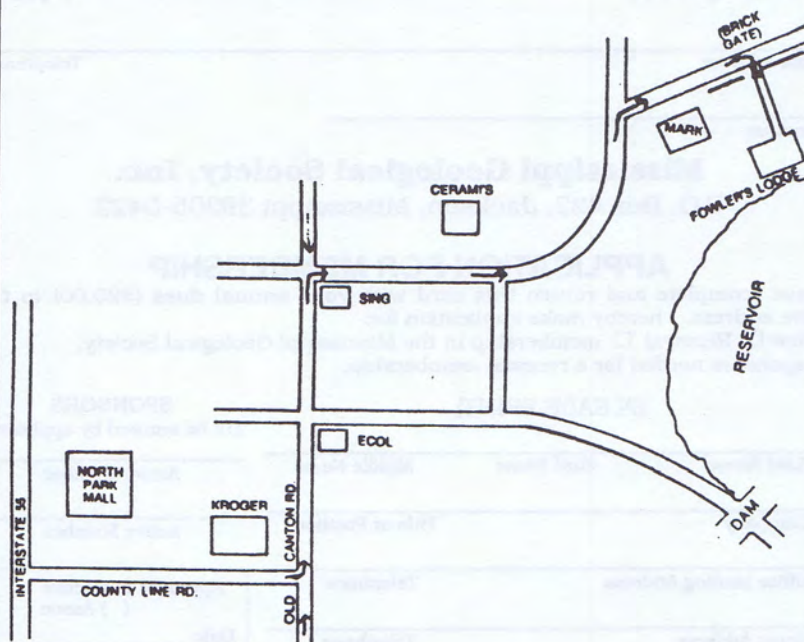
Mississippi Geological Society

## FALL BARBEQUE

FRIDAY SEPTEMBER 28  
FOWLER'S LODGE

FESTIVITIES START - 4:30 p.m.

SUPPER SERVED - 6:30 p.m.



Please phone T. C. Rader at 352-3340 with your reservations.  
\$10.00 per Person / \$5.00 per Student



MISSISSIPPI GEOLOGICAL SOCIETY

PROPOSED RED BOOK ADDITION FOR 1990

Mesozoic Oil and Gas Fields

- |              |                             |                    |
|--------------|-----------------------------|--------------------|
| Alabama:     | 1. Foshee -----             | Phillip Reeves     |
|              | 2. West Foshee -----        | "                  |
|              | 3. Frisco City -----        | Robert Schneeflock |
|              | 4. West Falco -----         | "                  |
|              | 5. West Range -----         | "                  |
|              | 6. Osaka -----              | Les Aultman        |
| Mississippi: | 7. Flat Branch -----        | Steve Ingram       |
|              | 8. Trimble -----            | Robert Schneeflock |
|              | 9. Poplarville -----        | David Hancock      |
|              | 10. East Yellow Creek ----- | Al Jones           |
| Florida:     | 11. Blackjack Creek -----   | Les Aultman        |
|              | 12. McDavid -----           | Phillip Reeves     |

Paleozoic Oil and Gas Fields

- |              |                          |                  |
|--------------|--------------------------|------------------|
| Mississippi: | 14. Shannon -----        | Ed Hollingsworth |
|              | 15. South Palmetto ----- | "                |
|              | 16. Maple Branch -----   | Kevin Henderson  |

Updates

- |             |                              |  |
|-------------|------------------------------|--|
| Mississippi | 17. Thompson's Creek -----   |  |
|             | 18. South Thompson's Creek - |  |
|             | 19. Wausau -----             |  |

Other

\* If you have any additional fields to add or update for this current addendum, please contact Steve Ingram or Kevin Henderson at the Bureau of Geology, 601-354-6228.



# MISSISSIPPI GEOLOGICAL SOCIETY

Volume XXXIX

No. 12

October, 1990

***The Society would like to thank the following sponsors who helped make the Fall Barbecue a success.***

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1990-91**

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## PRESIDENT'S MESSAGE

For those of us in the oil business, isn't it interesting being confronted by friends and neighbors outside the business with comments like "Well I guess you're real happy!" as a reaction to increased oil prices. I always counter with, "(1) No, we haven't been holding back millions of barrels of oil. (if we had them, we would have sold them when oil went from \$9 to \$18 per barrel). (2) No, we haven't been stock piling prospects, we've been drilling them all along. (3) Yes, I have to pull up to the same gas pumps you use, and pay the same price as you. (4) We all know it won't last forever, and (5) Our enthusiasm is tempered, knowing our friends, relatives, and fellow Americans in the military are placed in a precarious spot in the Middle East. So there!"

About three-quarters of our membership have responded in a timely fashion to the invoicing of MGS dues. The executive committee thanks you and hopes the remaining regular members and potential new members will be mailing theirs in soon.

The results of the MGS questionnaire are in, with only 20 members responding out of about 60 members present at the meeting. Possibly, not everyone saw the questionnaire, but these are the results: (1) a large majority would like a field trip with 7 volunteers to run it. George Vockroth has volunteered to be its leader. (2) Only a slight majority were in favor of a golf tournament with only 2 volunteers to run it. (3) Only a slight majority would attend evening meetings. (4) All 20 who voted made plans to attend the Fall BBQ.

This past week I attended a Smackover workshop in Tuscaloosa, Alabama, sponsored by the Department of Energy and the Alabama Geological Survey. It may be of general interest to the membership that detailed reservoir information on the Smackover and other productive zones in Alabama will be available through the DOE and kept on computer in Bartlesville, Oklahoma. This will also apply to reservoirs in other states, but limited by (1) amount of core data in a given field and (2) if it has been studied by the survey in the state you request. This sounds like a useful idea. (I just hope its as easy as it sounds.) For further information, please contact either Bob Mink or Nick Tew at the Alabama Survey.

Again, I remind you to attend the GCAGS Convention in Lafayette, Louisiana October 17-19. See you there!

JIM FILES

**1990-91 MGS DUES OF \$20.00 ARE NOW DUE.**

### **BUSINESS MEETING LUNCHEON SCHEDULE**

**1990**

October 9 • November 13 • December 11

**1991**

January 8 • February 12 • March 12 • April 9 • May 14

# BUSINESS MEETING LUNCHEON

OCTOBER 9, 1990 • 11:30 a.m.

Capitol City Petroleum Club, Smackover Room

## PARADIGM SHIFTS IN LOGGING HORIZONTAL HOLES

by

Calvin Kessler, H.L.S., Houston, Texas

Horizontal Drilling requires us to change our thinking by 90°. In vertical wells there are fundamental assumptions – geological layering, the borehole is roughly normal to the layering. In horizontal wells logging measurements respond to both lateral changes in the formation, and vertical distance between the wellbore and underlying or overlying beds. A basic change in conceptual approach to log analysis is required for horizontal wells, for example a concept as simple as depth changes:

### VERTICAL

top  
bottom  
up  
down

### HORIZONTAL

beginning (kick of point)  
end (total reach)  
top side  
bottom side

## BIOGRAPHICAL SKETCH

Calvin holds a BS in Petroleum engineering and an MS in Mining Engineering, both from New Mexico Tech. He was employed as a field engineer and reservoir engineer with a major U.S. oil company before joining HLS in 1973. He has held positions at HLS in formation evaluation, interpretation development, and technical sales. His primary areas of responsibility are production logging, formation testing, high angle boreholes, bond logging, and well completions. Calvin has authored and co-authored several technical papers and has patents on logging tool designs. He is a member of SPWLA, SPE, API, and CCGS.

## **A BLAST FROM THE PAST**

*News from the MGS files.*

37 years ago:

Vol. I No. 1 September 14, 1953

- MGS business meeting will be held on September 17, 1953, 7:30 p.m., Clubroom of the Edwards Hotel. \$2.00 dues now due and payable.
- The tenth field trip of the MGS will be September 24-26, 1953 in the type area of the Wilcox and Midway Groups (Lower Eocene and Paleocene) west central Alabama.
- The Society had total cash assets of \$5,551.31. Postage for the Bulletin was 2¢.
- From the Personals column. New faces in town included: Mr. Robert R. Jacobs and Mr. Dudley J. Hughes with Union Producing Co. and Richard Bowman with Stanolind.
- Western Natural Gas opened an office here.
- The following new producing areas were named by the Nomenclature Committee since June 1, 1953.  
Saukum - Wilcox, Wilkinson Co.  
Siloam - Chester, Clay Co.  
South Possum Corner - Wilcox, Wilkinson Co.  
Levees Creek - Wilcox, Adams Co.

20 years ago - September 1970:

- The First Fall Golf Tourney is to be held at Live Oak Country Club October 2, 1970, with the annual Fall Barbecue at Fowler Buick Lodge on September 15.
- Officers were  
John Lancaster, Chevron Oil, President  
Ned Phillips, Dresser Atlas, First Vice President  
Charlie Barton, Am Southwest Corp. Second Vice President  
James (Buddy) Twiner, Skelly Oil, Secretary  
Larry Walter, Consultant, Treasurer  
Kevin Cahill, Southeastern Exploration, Past President
- There were 9 new discoveries from January to May 1970.  
2 Eocene, 1 Upper Cretaceous, 2 Lower Cretaceous,  
3 Smackover, 1 Norphlet
- New faces in town included Bob Dickinson and Leonard Eversull with Skelly, Jim Shaw with Schlumberger, Owen Schoaler with Chevron, and Jim McElroy with Murphy Oil.
- There were 44 sponsors in the Bulletin.

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**ARTICLE REVIEW :**

STEVE INGRAM

For you Salt Basin and Warrior Basin geologists, I am recommending that you consider reviewing several of the following articles. Admittedly, there is a 'rhyme to reason' for review of most of these articles. The rhyme deals with the selection of a specific article(s); the reason is a design to build a better understanding of the structural controls and associated depositional responses expressed in the subsurface of Mississippi. These articles discuss either general or regional geologic concepts that can be readily applied to your subsurface investigations here in the state. Some of these articles may appear to be well understood or even pure conjecture; never the less, a reading will serve to sharpen your thoughts for reviews to come. The following two articles with brief reviews are the current highlights for this months bulletin.

**SALT BASIN :**

Evolution of Miocene FootWall-Derived Coarse-Grained Deltas, Gulf of Suez, Egypt: Implications for Exploration, July 1990, Gawthorpe, Hurst, and Sladen : AAPG Bulletin, V.74, No.7, P.1077-1086.

This article covers a topic of poignant interest in that the concept shown in Figure 8, page 1083 may exemplify the mode of deposition for the Bay Springs Sand, Bay Springs Field, Jasper County, Mississippi. The location of the field is downdip from a similar disruption in the detachment fault system (from your maps, see the southeastern corner of Scott County, the Pickens-Pollard Fault Zone). This structural development may answer some of the where, how, and why governing the deposition of the Bay Springs Sand. Additionally, Denver geologist, Dick Ahern, points out that these delta types are being targeted and successfully explored as petroleum reservoirs in Africa today.

**BLACK WARRIOR BASIN :**

Subsurface Structure of the Eastern Arkoma Basin, July 1990, Vanarsdale and Schweig III : AAPG Bulletin, V.74, No.7, P.1030-1037.

For those of you who are keeping up with the Knox Play, you may wish to study this article along with several others referenced on the second review page. The importance here is the continuing definition of the structural architecture which is involved in the evolution of the Black Warrior and Mississippi Salt Basin's. Please remember to recall Oxley's presentation at our May 1990 MGS Luncheon. Concepts from that presentation will be an important component to the overall focus on these tectonic controls. Again, this article will be tied into the evolution of the Black Warrior and Mississippi Salt Basin's at a later point in time.

ARTICLE REVIEW CONTINUED :

Experimental Models of Extensional Forced Folds, July 1990, Withjack, Olson, and Peterson : AAPG Bulletin, V.74, No.7, P. 1038-1054.

You will find a lot of similarity between the faulting modeled in this article and those seen in the Black Warrior Basin.

Structural Profiles of Ouachita Mountains, Western Arkansas, July 1988, Blythe, Sugar, and Phipps : AAPG Bulletin, V.72, No.7, P.810-819.

Tie this article to the one highlighted on page one, the Eastern Arkoma Basin. The Ross Creek Fault is common to both papers and the characteristic thrust stacking should be compared to that of the Southern Appalachians, USGS Investigative Report 1475.

Drilling the Deep Arkoma Parts 1 and 2, 1989, Petroleum Frontiers, V.6, No.1 and No.3.

Both issues deal with exploration concepts which may apply to Mississippi's Knox Play. The regional tectonics, basement and thrust architecture, deposition, and reservoir characteristics are discussed. Pay special attention to the mention of the Bengalia fault. I have been told that it may represent the Cambro-Ordovician shelf edge. Even better, recent studies by two geologists suggest that this feature may be traced into north Mississippi. If substantiated, that would discount the Ramp Model proposed for the Appalachian - Ouachita Junction; and would enhance exploration potential by proving that the C-O shelf edge is in place in north Mississippi. As we know, the continental shelf edge is a primary target for petroleum exploration around the world.

Basement Structure of the Gulf Coast: Interpretation of Gravity Anomalies Supported with Structural, Magnetic and Seismic Data, 1984, Kinsland : GCAGS TRANSACTIONS, V.34, P.85-93.

This article was not well received by many in 1984; however, it may now be coming into its own. Kinsland's work can be directly correlated with reports given by many other scientists over the last several years. Additionally, his magnetic interpretations match the interpretations made by Klitgord et al.

\*\*\*\*\*  
Look for next months review. There will be three or four more articles to consider which relates Mississippi's tectonic structure to both paleozoic and mesozoic deposition. Also, Marvin Oxley has agreed to allow the MGS to publish the tectonic map he used at the May Luncheon. You will be able to use this map in your studies.

## PUBLICATION LIST

1. Mississippi Geological Society Photo Directory, 1981 ..... \$ 2.00
  2. Wilcox Fields of Southwest Mississippi, Maps and production data on 171 fields, in ring binder, 350 pp., 1969 ..... 28.00
  3. Mesozoic-Paleozoic Producing Areas of Mississippi and Alabama. Volume I. Maps and producing data on 57 fields, with 2 composite logs, clothbound, 139 pp., 1957 ..... 10.00
  4. Volume II. Maps and producing data on 77 fields, includes Supplement 1, in ring binder, 143 pp., 1963 ..... 15.00
  5. Supplements 2 through 7 for Volume II, Maps and producing data on 35 fields, 110 pp. .... 15.00
  6. Supplement 8 for Volume II, Maps and producing data on 34 fields, 108 pp., 1980 ..... 25.00
  7. Volume II, complete with Supplements 2-8, 361 pp., 146 fields ..... 50.00
  8. Volume III, 85 pp., 46 fields, 1987 ..... 50.00
- FIELD TRIP GUIDEBOOKS**
9. Upper Cretaceous Outcrops, Northeast Mississippi and West Central Alabama, Fourteenth Field Trip, 29 pp., May 1959..... 4.00
  10. Cenozoic of Southeast Mississippi and Southwest Alabama, Fifteenth Field Trip, 52 pp., May 1960 ..... 6.00
  11. Cenozoic of Horn Island and the Pascagoula Valley 10th Annual GCAGS Meeting, 24 pp., October, 1960 ..... 2.50
  12. The Paleozoics of Northwest Arkansas Sixteenth Field Trip, 48 pp., May, 1962..... 5.00
  13. Tertiary Type Localities of East-Central Mississippi, 25th GCAGS Meeting, 133 pp., October 1975..... 5.00
  14. Mississippi Rocks of the Black Warrior Basin, Seventeenth Field Trip, 79 pp., April, 1978 ..... 8.00
  15. Tertiary and Upper Cretaceous Depositional Environments, Central Mississippi and West Central Alabama 33rd Annual GCAGS Meeting, 40 pp., October 1983 ..... 7.50
- COMPOSITE LOGS AND CROSS-SECTIONS**
16. Composite Mesozoic Log of South Mississippi and South Alabama ..... 2.00
  17. Composite Paleozoic Log of Black Warrior Basin, Mississippi and Alabama..... 2.00
  18. Well Log Correlation Sections, Paleozoic of the Black Warrior Basin, Set of 5 Sections..... 10.00
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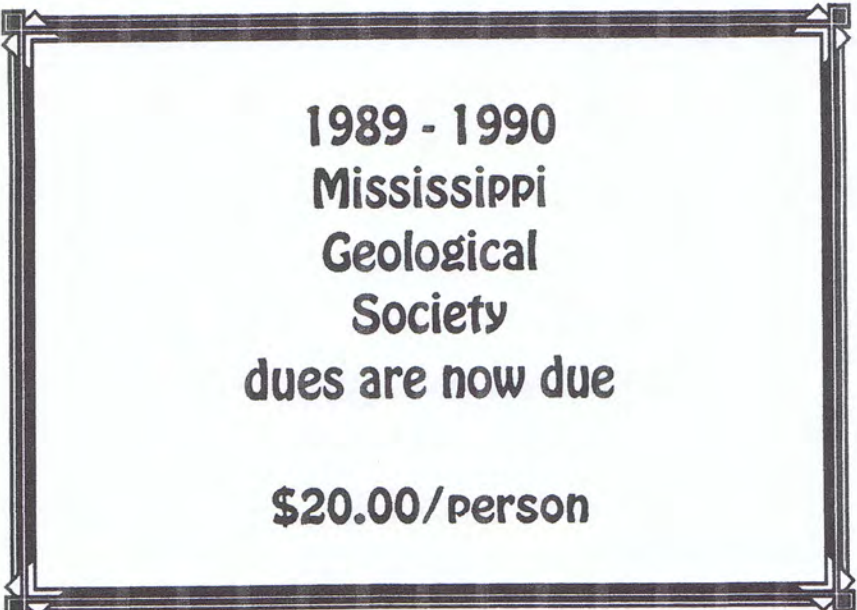
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|              | 8. Trimble -----            | Robert Schneeflock |
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|              | 10. East Yellow Creek ----- | Al Jones           |
| Florida:     | 11. Blackjack Creek -----   | Les Aultman        |
|              | 12. McDavid -----           | Phillip Reeves     |

Paleozoic Oil and Gas Fields

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|--------------|--------------------------|------------------|
| Mississippi: | 14. Shannon -----        | Ed Hollingsworth |
|              | 15. South Palmetto ----- | "                |
|              | 16. Maple Branch -----   | Kevin Henderson  |

Updates

- |             |                              |
|-------------|------------------------------|
| Mississippi | 17. Thompson's Creek -----   |
|             | 18. South Thompson's Creek - |
|             | 19. Wausau -----             |

Other

- \* If you have any additional fields to add or update for this current addendum, please contact Steve Ingram or Kevin Henderson at the Bureau of Geology, 601-354-6228.





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# MISSISSIPPI GEOLOGICAL SOCIETY

Volume XXXIX

No. 3

November, 1990



*B.L.C. Wailes in original charcoal drawing  
by John James Audubon*

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**ABOUT THE COVER:** See page 4

## PRESIDENT'S MESSAGE

I was pleased to see good representation of the MGS at the convention in Lafayette. The convention turned out to be both fun and productive. I represented the society at the GCAGS Annual Board of Directors Meeting where we formally elected next year's GCAGS vice-president, John Marble, and Kipp Ferns and Cragin Knox as general co-chairmen for the 1992 GCAGS convention.

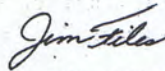
Both Kipp and Cragin have already filled most of the committee chairman positions for the convention here in Jackson. They really are hard to say no to and these are the type leaders we need for a successful convention.

Congratulations again to T. C. Rader on becoming our most recent MGS honorary member. T. C. has seen to it that our MGS membership was well entertained for the past twenty years.

I would like to thank Todd Hines for his efforts in finding sponsors for the fall BBQ. We ended the event in the black for the first time I can remember.

The MGS annual field trip will be in April and will involve a one night stay. Hopefully, we will have more details soon for you.

See you at lunch on November 13.



Jim Files

1990-91 MGS DUES OF \$20.00 ARE NOW DUE.

### BUSINESS MEETING LUNCHEON SCHEDULE

1990

November 13 • December 11

1991

January 8 • February 12 • March 12 • April 9 • May 14



# BUSINESS MEETING LUNCHEON

NOVEMBER 13, 1990 • 11:30 a.m.

Capitol City Petroleum Club, Smackover Room

## BOB ROGERS

### Biographical History

Graduated B.S. in Forestry  
from Mississippi State University  
1974

Masters in Wildlife Biology  
Louisiana State University  
1976

Employed by the Bureau of Pollution Control since 1976  
Oil and Chemical Resonse and Program Development

### Porgram Abstract

#### *Environmental Concerns for Geologists in the 1990's*

- 1) Oil and Gas Production
- 2) Hazardous Waste Management and Clean-up
- 3) Employment Opportunities

*The presentation of the portrait of Benjamin Leonard Covington Wailes to the Hall of Fame of the State of Mississippi was on June 24, 1990, at the Old Capitol in Jackson. He was elected to this honor in 1981. The following remarks are from the announcement for the presentation ceremony.*

### **Benjamin Leonard Covington Wailes**

Benjamin L. C. Wailes, scientist and planter, was born in Georgia on August 1, 1797, the eldest of the nine children of Levin and Eleanor Wailes. In 1807 the family moved to the Mississippi Territory where Wailes received his education at Jefferson College in Washington. He also learned surveying skills from his father, and from 1814 to 1820, he was engaged in surveying and clerical work at land offices in the old southwest. For a time, he was assistant to the Choctaw agent and attended the treaty conferences of 1818 and 1820 with the Choctaws. He became locally known as an authority on the geography of the country. On March 30, 1820, he was married to his distant cousin, Rebecca Susanna Magruder Covington, daughter of Brigadier General Leonard Covington, and they had ten children. Though Wailes was register of the land office at Washington from 1826 to 1835, his chief vocation was cotton planting, and he managed two family plantations in Warren County and a small establishment in Washington.

Wailes is chiefly remembered for his interest in the natural phenomena of the region in which he lived—its soil, rocks, fossils, and shells, and the plant and animal life—and for the collections he assembled for Jefferson College, the University of Mississippi, and the state capitol. His interests brought him in contact with John J. Audubon, Joseph Henry, Joseph Leidy, J. Louis Agassiz, and Benjamin Silliman. To these and other scholars he supplied information and specimens of the natural history of his region. In 1852 he was appointed assistant professor of agriculture and geological sciences in the University of Mississippi, and in this capacity performed the field work for a projected survey of the state. His *Report on the Agriculture and Geology of Mississippi* (1854) stands as a pioneer work. The history of his region became an increasingly absorbing interest to Wailes, and in November 1858 he organized the Mississippi Historical Society, of which he was the first president. Though the society died at the end of a year, a number of valuable documents were collected and preserved, and several worthwhile studies were made. Wailes wrote a short life of General Covington and served for nearly forty years as a trustee of Jefferson College. He was president of the board at the time of his death in 1862.

October 11, 1990

TO: ALL MEMBERS OF MGS

FROM: Michael A. Noone  
2nd Vice President

SUBJECT: Oil and Gas Industry Exhibit  
Mississippi Agriculture and Forestry Museum  
Jackson, Mississippi

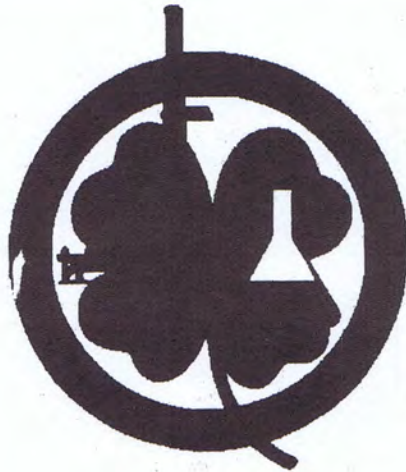
Dear Member(s):

This past year MGS helped host the 50th Anniversary to the discovery of oil in Mississippi and the resulting oil and gas industry that spawned from this important event. A gala convention and dedication ceremony was held at great efforts and expense. Furthermore, we had printed, for circulation at the museum, a very professionally done brochure informing the viewing public about the oil industry and the related museum exhibit. Well, bottom-line is this, the exhibit, if you have not seen it, is a complete disgrace. Not only is it barren for items and ideas, it is not even in a finished state. What this exhibit exhibits is a society and industry that only likes the ceremonies but not the where-with-all to finish its projects. These words may be harsh but truthful.

As your society's 2nd Vice President this year, I have formed and am chairing a Museum Exhibit Committee. Our sole purpose will be to formulate and finish this important exhibit. Currently, the following members, David Chastain, Stan Galicki and Stanley King, have volunteered to serve on this committee. We would like one or two other member volunteers to serve with us. If you have special talents that would benefit, please consider serving. Additionally, we will be asking for donations, either material to exhibit and/or money to finance. Please contact me during the day at 352-3314 to discuss volunteer or pledge monies to this worthwhile project. As a note of information, in 1989 the museum had almost 87,000 visitors, representing all 50 states and 37 foreign countries. This is an excellent museum facility and we should be proud to have this opportunity, so let's make sure...call and the ceremony goes on.

Thank you,

Michael A. Noone



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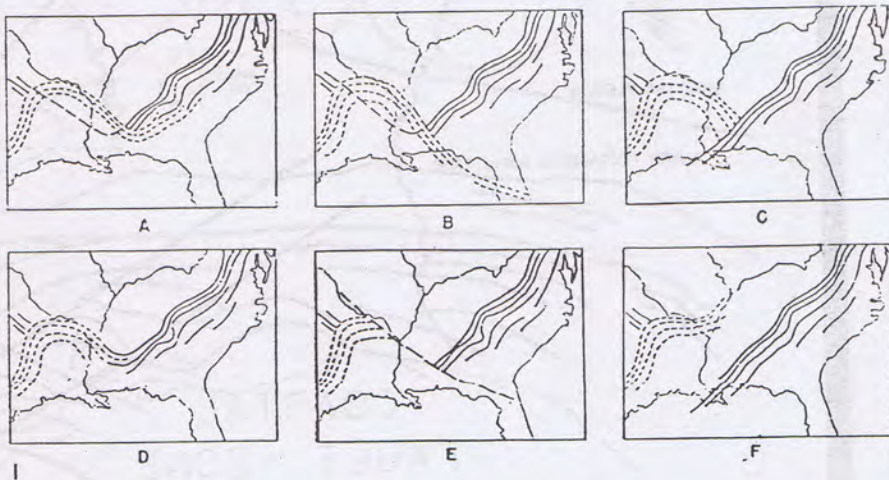
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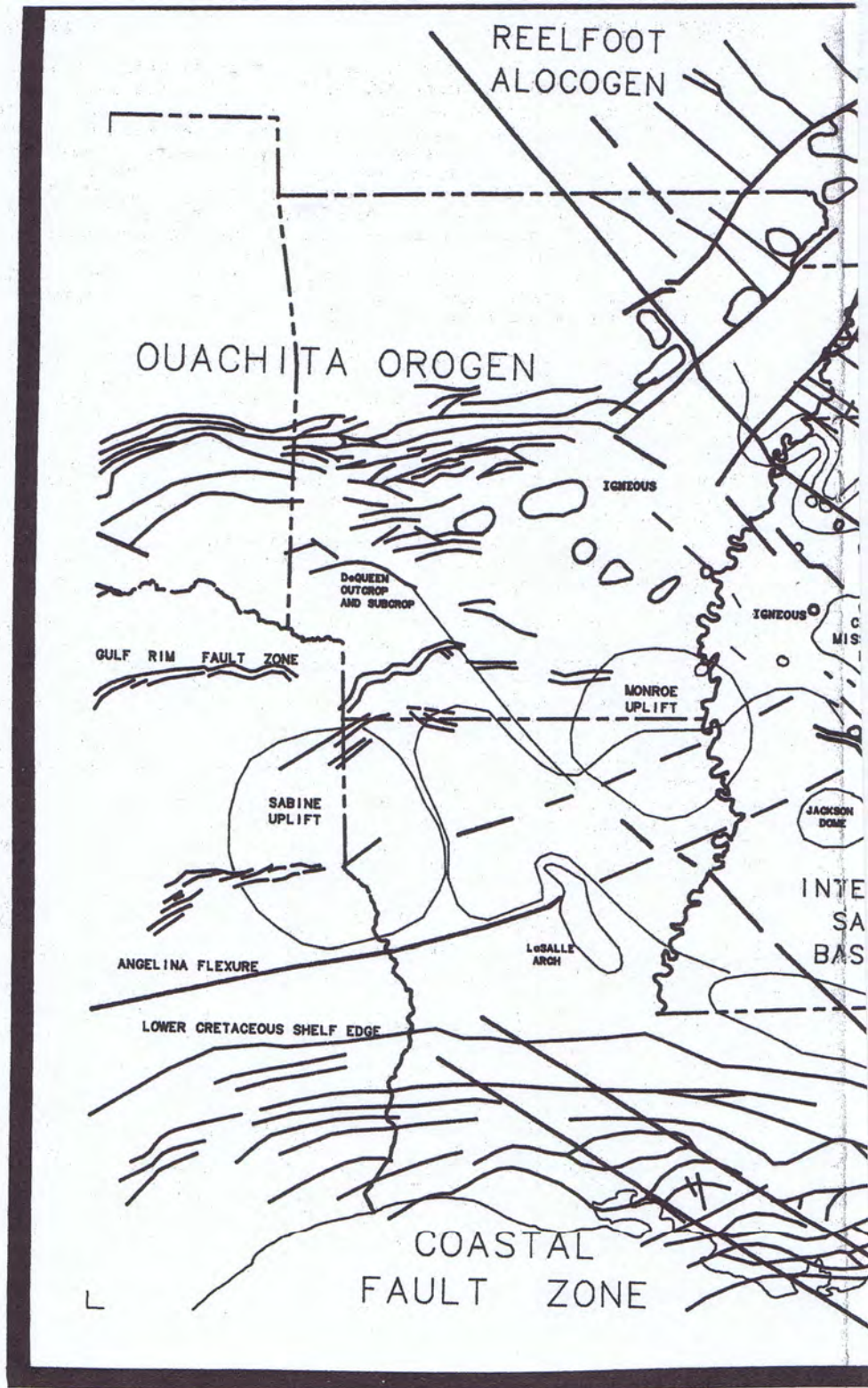
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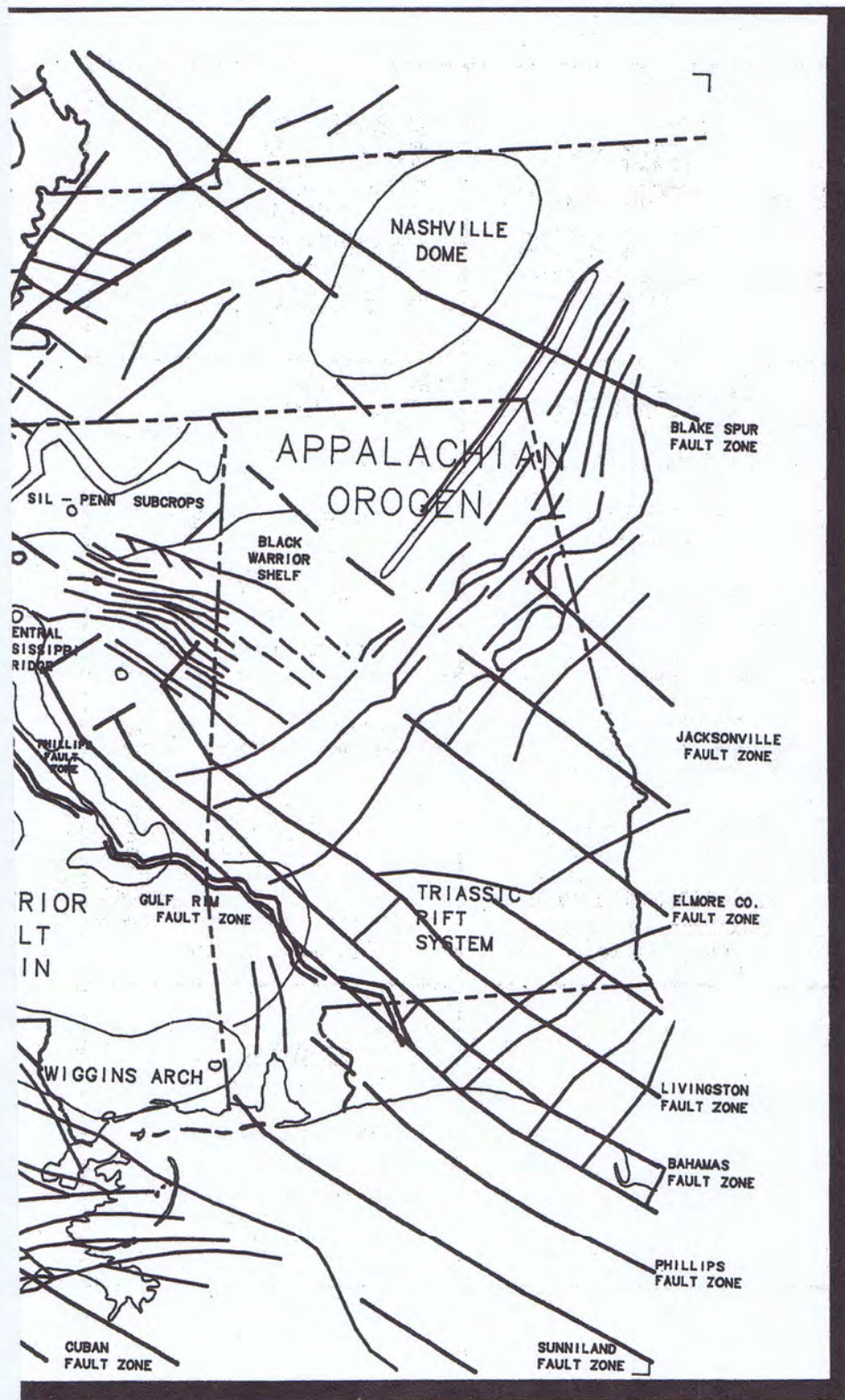
Just as promised, Marvin Oxley's tectonic map has been prepared for your review in this November MGS Bulletin. In recall of our May 1989 luncheon, Oxley focused mainly on the Knox play as confined to northern Mississippi. However, this particular map steps beyond our own state borders in order to give you a better view of the regional tectonics as proposed by Oxley, Klitgord, et al. Unfortunately, you will find the centerfold map a little busy at this scale; never the less, it has been left generally intact to allow you to visualize those structural and depositional links dealt with in our article reviews. I will make a larger scale print available to you if you wish to make your own copies. Additionally, this map is highly speculative and subject to changes in interpretation as the case may arise.

Now, as a quick introduction, the following figures were taken from page nine of the spring 1985 issue of Petroleum Frontiers. As you can see, these unique sketches present six conceivable configurations for the Appalachian - Ouachita juncture ( OAJ ), after King, 1950. Of these, sketch E or a combination of E and D has become the most widely accepted exegesis for the connection between the two orogens. This, being the conceptual base for interpretation, asserts that much of the structural evolution of the OAJ originated by way of strike slip faulting. In fact, not only did the juncture move along a strike slip plane or planes but the thrust orogens themselves were propelled by oceanic spreading centers which are replete with subordinate transform faults.

The centerfold map shows many of the significant structural features known to the region. As well, it declares the proximity of several major northwest trending transform faults running through the Gulf and into the craton. It is very interesting to note the pattern which appears to relate the flexures in the thrust belts and the offsets in the Gulf Rim Fault Zone to those transforms. Several research groups are currently investigating the Gulf tectonics along this vein and we should be hearing much more regarding their findings in the near future. But for now, you have very good lead in using this information by virtue of your years of experience in exploration. Do consider reading some of the articles being emphasized. I feel certain that doing so could result in a decisive find for you and your company.







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Volume XXXIX

No. 4

December, 1990



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Obviously, our society members' pride runs deep. I was told by many over the past year, how Jackson could not support a convention because of the lack of people to run it. True, the task is formidable and most work is yet to be done, but by the number and quality of folks who have volunteered to date, I look forward to a convention in 1992 we will all be proud of.

December 11 (Tuesday), at 3:00 P.M., the MGS will host it's Annual Christmas Party. We will meet in the penthouse or 20th floor at the Capitol City Petroleum Club.

Congratulations again to the four recipients of \$1000 Bolin Scholarships at the November meeting. A special thanks to Jerry Zoble for his continuing effort to keep this scholarship committee organized.

Les Aultman and Bill Moore have volunteered for continuing education and public affairs committee chairmanships, respectively, for the society. If you have time and suggestions, please call these gentlemen.



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## INTRODUCTION

The purpose of this article is to generate professional discussion on the subject of fluid migration and diagenesis in association with salt induced faulting. Those concepts introduced in this text are not new but may be controversial. Additionally, this article was kept simple by avoiding the intricate processes of diagenesis and by confining our model to those premises as stated herein. Your responses are welcomed. Please send all written responses to Stan Thieling, editor of the Mississippi Geological Society Bulletin. The mailing address for the society is listed on the bulletin cover.

## THEORETICAL ASPECTS

The following three premises have been utilized in constructing a model for testing fluid migration and diagenesis along a faulted salt induced structure.

Premise # 1: Jackson and Talbot's paper gives a general description of the fluid movements adjacent to salt domes. Heat is conducted from the salt to the overburden. As the fluids in the overburden warm they ascend toward the crest of the salt dome. When and where faulting occurs, the convecting fluids migrate into the fault system.

Premise # 2: Wood and Hewett's diagenetic model is based on convective fluid flow. This model addresses typical reservoir conditions in relation to the thermal influences associated with a salt anticline. It predicts a diagenetic sequence which leads to cementation and hydrocarbon accumulation at the crest of an anticline. The illustration in Figure 1 shows the hypothetical streamline that develops in a sandstone reservoir along an anticlinal crest. This toroidal cell accommodates simple structural deformation but excludes the influence of faulting and fluid movements under pressure.

Premise # 3: Forced-flow fluid movements are governed by the laws of physics. Forced fluid movement occurs when confining pressures are lower than the pressures associated with a given hydrologic system. Fluid then moves from the higher pressured zone to the lower pressured zone. In Figure 3, the high pressured zones are located in the synclines where sedimentary compaction and fluid expulsion cause an increase in the fluid pressures. The low pressure zone occurs at the crest of the anticline where vertical confining pressures have been disrupted and reduced due to faulting. Fluids will therefore readily move under forced-flow pressure from the synclines to the anticlinal crest.

In recognition of these premise it should be said that the thermal conductivity of salt has long been considered a factor in the maturation and migration of hydrocarbons. Also, that the concept of fluid movements, forced flow or otherwise, in and through sediments via migration along fault planes is well accepted as an important mechanism by which hydrocarbons enter a fault-related trap. And finally, we do agree that much work needs to be done on the interrelationships that exist between these natural phenomena. Hence, the following theoretical model proposes some possible effects that may occur as a result of their interaction; ie predictable diagenesis.

## DISCUSSION

Figure 3 incorporates these concepts into one complex model which provides a more realistic test for the Wood / Hewett diagenetic hypothesis. Each premise has been considered along with the effects of faulting. The report is as follows.

In the toroidal convection cell of Figure 1 quartz solution / dissolution occurs in a thermal streamline loop. Figure 2 assigns spatial locations for the cycle of cementation / decementation along the fluid path. Hot fluid flows up the bottom of the reservoir toward the anticlinal crest, then loops and turns downward, flowing along the top of the reservoir as the fluid cools. Quartz dissolves along the base of the convection cell and is transported to the crest where the fluid undergoes cooling due to heat loss. Authigenic quartz minerals are thereby preferentially deposited at the crest of the convection cell as the mineral-laden fluid begins to cool.

When faulting intersects the fluid pathways the condition of intercommunication across fault planes becomes a significant factor. Fluid movements evolve into a more complex system and become subordinated to the control of the fault. The fault begins to act as a "switchboard", turning on or off communicating reservoir streamlines at the fault plane. The timing of the movement of the fault thereby activates and/or deactivates individual reservoirs as potential communicating fluid conduits. Figure 3 depicts fluid movements within the complex model. Reservoir A has been closed to cross-fault fluid communication by the downthrown shale at the fault plane. It appears to have been isolated and excluded as a communicating streamline, even though it may have been active in the past. Reservoir B is partially closed yet remains open, communicating fluids across the fault into Reservoir C, the main hydrocarbon pay horizon. Reservoir C is indirectly communicating with Reservoir D. Reservoir D is an open conduit without local restrictions to fluid movements.

From Figure 3 and in accordance with the Wood / Hewett model the following inferences may be made. First, that Reservoirs B, C, and D should test wet in Wells # 1, 2, & 3. These wells intersect the reservoirs at or along the flanks of the structural crest.

According to the toroidal cell, the hypothetical fluid movements at the borehole of these reservoirs would be mid-stream thermal counter currents. The reservoir rock properties encountered here should tend to be in a transitional stage of solution / dissolution along the respective heating or cooling streamlines. Well 1 cuts Reservoir A near the terminal loop of the convection cell. The degree of cementation should be greater at this location; however, Reservoir A may test wet depending on the lateral extent of cementation within the reservoir after being switched off by the controlling fault. Accordingly, Reservoirs B and C could become highly cemented in time if increased fault displacement isolates these reservoirs from communication with Reservoir D. If such were the case, the associated trapped hydrocarbons in Reservoirs B & C could become entombed, sealed by cementation.

In the case of Reservoirs B, C, & D there is a dynamic communication of fluids across the fault planes. The fluids from the compacting synclines are moving toward the faulted structural apex and then out of the system through those reservoirs. In the dynamic fluid system shown in Figure 3 it seems unlikely that a thermal fluid convection cell could develop in these reservoirs. The pressure-induced fluid movements from the synclines through Reservoirs B, C, & D would likely override the nominal thermal fluid pressures that exist in this hydrologic plumbing system. On the other hand, forced-flow fluid movements have been restricted in Reservoir A by the abutting shale at the fault plane where the downthrown shale is acting as a cap to the reservoir. It has "switched-off" the normal pressure-induced fluid movements in that reservoir, somewhat like closing the valve on a water faucet. Theoretically, the Wood / Hewett convection cell could develop in Reservoir A since the pressure-induced fluid movements which override the development of thermal fluid movements have been restricted.

Finally, the heat transfer - fluid flow model proposed by Ungerer et al. suggests that some pressure-induced fluid movement can occur in Reservoir A through the shale at the fault plane if the hydrodynamic pressures in Reservoir A are sufficient to force fluid communication through the shale to an adjacent and open reservoir. If this occurs, the amount of flow or leakage would directly affect the development of the thermal convection cell in Reservoir A. As discussed earlier, if the pressure-induced fluid movements are great enough they would tend to override the lower flow regime of a thermally convecting reservoir cell, effectively eliminating it as an influence in the reservoir. Nevertheless, if fluid movement is adequately restricted at the fault interface of Reservoir A, a predictable pattern of cementation could evolve throughout this sand reservoir in accordance with the Wood / Hewett model.

#### CONCLUSION

The drawing in Figure 3 was designed as a visual tool to express the physical relationships relevant to this complex model. It also

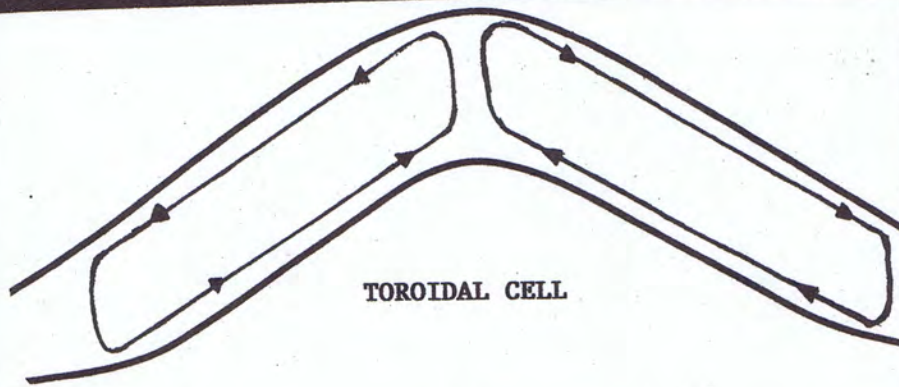
provides a limited perspective of hypothetical diagenesis at an "active" fault interface. Outside the more involved chemical processes known to occur in diagenesis, this complex model does address other conditions under which highly cemented and/or wet reservoirs may evolve. In essence, the Wood / Hewett diagenetic convective fluid flow model could exist in some measure as applied to the complex model proposed in this discussion. However, it would likely have to reflect similar conditions discussed in Figure 3 where Reservoir A is not subjected to hydropressures capable of forcing fluids through the shale at the fault plane. Therefore, the results suggest that there may be some possibility for predicting cementation in an isolated and/or truncated reservoir in the subsurface; a notion that will bring howls from the membership.

Again, this article has been submitted for open review with the hope that it will promote serious thought and discussion among society members and other professionals. The subject of diagenesis is certainly controversial, as well as hotly debated, owing to its importance. The need to expand our knowledge and understanding of this subject is implicit and we are asking you, the readers, to address this issue through your experiences in the field. We are looking forward to your written responses in the near future.

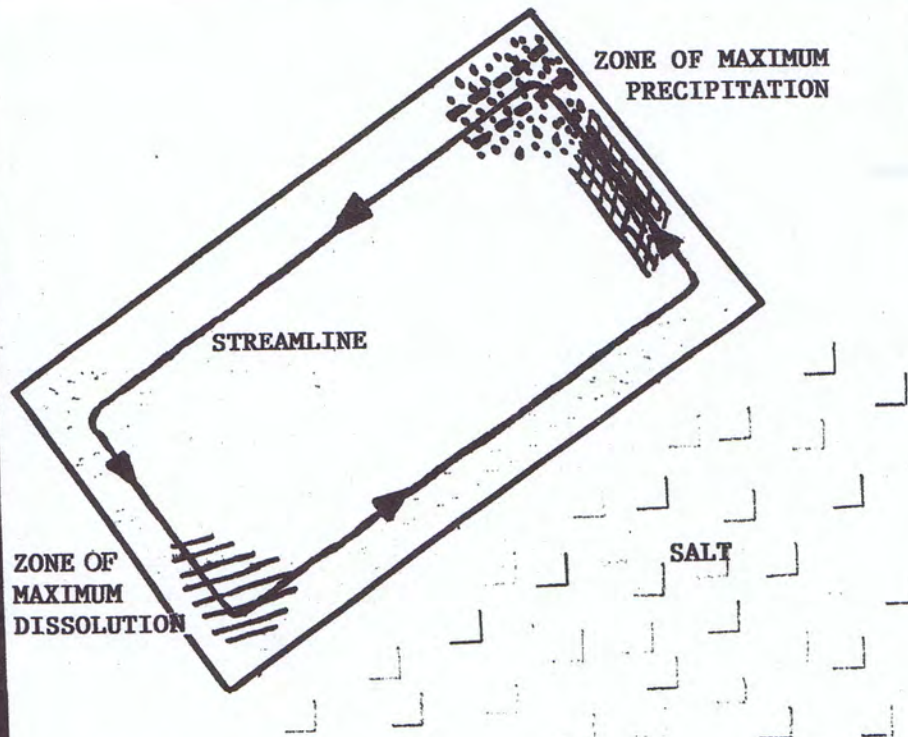
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**FIGURE 1** The Wood/Hewett convection model incorporates heat flow from anticlinal salt structures and proposes the evolution of fluid thermal cells which move from higher heat regimes at the base of this sandstone reservoir toward lower heat regimes along the top of the reservoir



**FIGURE 2**

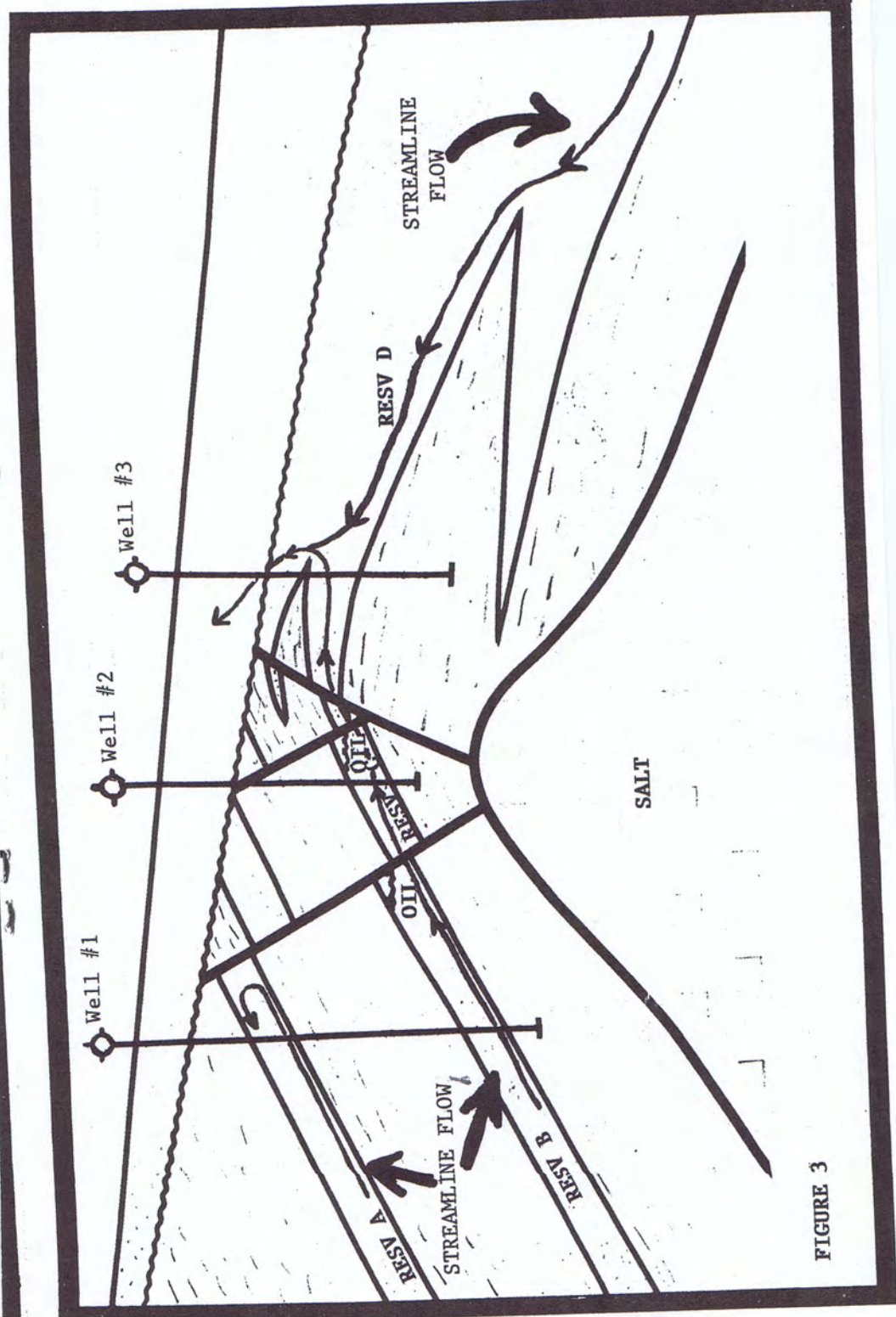
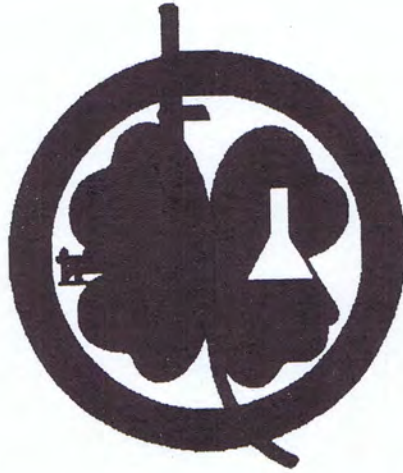


FIGURE 3



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  3. Mesozoic-Paleozoic Producing Areas of Mississippi and Alabama. Volume I. Maps and producing data on 57 fields, with 2 composite logs, clothbound, 139 pp., 1957 ..... 10.00
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Volume XXXIX

No. 5

91  
January, 1990



*1990-91 Larry Boland Scholarship Winners  
see page 4*

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## PRESIDENT'S MESSAGE

I hope you had a nice Christmas and are looking forward to a new and prosperous 1991. Even though the December 11th Christmas Party was billed as our MGS event, it was actually a joint venture with Jackson Geophysical Society as the year previous. We enjoyed the fellowship and hope to do this again next year.

A committee is presently selecting a slate of candidates for the election of a new AAPG delegate to represent our society as Phillip Reeves' term is expiring. The new three year term begins July 1, 1991. MGS members, who are also AAPG members, will receive a ballot within the next month. Please take the time to mail in your choice after receiving this ballot.

Former Mississippi State Professor, Dr. Ernest Russell, will lead our spring field trip to several outcrops of the Upper Cretaceous "Selma Chalk" (Selma Group) in northeast Mississippi on April 19th and 20th. Approximate cost for the trip of \$49 will include transportation, room (double occupancy), meals, and guide book. The bus will depart early Friday morning and will arrive back in Jackson late on Saturday. Because of the good price and limited space, reservations are on a first come, first serve basis. Send a \$20 deposit to: MGS Field Trip, P. O. Box 422, Jackson, MS 39205-0422. To date, the sponsors for this field trip are the MGS and Schlumberger. If you or your company wish to become a sponsor, contact George Vockroth, Todd Hines, or me.

Our public affairs committee has been very busy, thanks to the infamous earthquake prediction. Bill Moore and others have been before at least thirty groups in public during the month of November, discussing the likelihood of an earthquake in our area and how to best be prepared for one. If you need to "get the word out" about something geological to the public, such as Scouts, please contact Bill or an MGS officer and we'll try to help.

No, honorary member, Wendell Johnson, is not deceased, as previously listed in the past bulletin. So there was a good reason that "he looked great" just a few days before the bulletin came out. Sorry about that Wendell.

The MGS Board has decided to begin a classified ad section for our bulletin. You can advertise anything from "sale of office furniture" to "need a new secretary" for five dollars per twenty-five word ad. Please call Stan Thieling for further information.

HAPPY NEW YEAR!

*Jim*  
Jim Files

# BUSINESS MEETING LUNCHEON

JANUARY 8, 1991 • 11:30 a.m.

Capitol City Petroleum Club, Smackover Room

## ROCK VOLUMES: CONSIDERATIONS FOR RELATING WELL LOG AND CORE DATA

Milton B. Enderlin

Diana K. T. Hansen

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*Halliburton Logging Services: Fort Worth, Texas*

### ABSTRACT

When cores, whether whole or sidewall, are taken from a well the first task is to tie the core(s) to the open hole logs. When the observed core data marginally correlates with the log data a great deal of interest is generated about the quality and validity of the log in question and/or the core analysis technique. The difficulty encountered in log-log and log-core correlation can, in part, be attributed to an unclear sense of the volume of rock investigated by downhole logging tools and core analysis.

### BIOGRAPHY

Milt Enderlin

*Manager of Laboratory Petrophysics*

*Halliburton Logging Services, Inc.*

Milt holds a BS in Chemistry and a BS in Geology, both from the California State University at Sonoma. Before joining HLS in 1977, he was employed in resource study for the State of California Water Resources Department. During his career in the logging industry, he has held positions of field engineer, engineering specialist, formation testing/dipmeter specialist, and district manager. Milt assumed his current position in the petrophysics lab in 1987. He has authored and co-authored numerous technical papers, has several patents, and is a member of the American Association of Petroleum Geologists, Society of Professional Well Log Analysts, Society of Petroleum Engineers, Geologic Society of America, and the Society of Core Analysts.



## 1990-91 Larry Boland Scholarship Winners



### FROM LEFT TO RIGHT:

DAVID S. BEVERLY - Senior in geologic engineering at Mississippi University, who already completed work for a B.S. in geology and plans a career in waste disposal, hydrology or remote sensing.

CELESTE A. EVANS - Senior geology major at Mississippi State University who plans to continue in geology graduate school upon graduation.

KIM A. MADDUX - Geology senior at University of Southern Mississippi who will graduate in Geology with a minor in mathematics. Plans a career in marine geology.

DANIEL R. AYERS - Senior geology major at Millsaps College, who will graduate with a double major in Economics as well as Geology. Dan plans to continue his studies in graduate school.

### PROFESSORS FROM LEFT TO RIGHT:

Dr. George Brunton, University of Mississippi  
Dr. Charles Wax, Mississippi State University  
Dr. David Patrick, University of Southern Mississippi  
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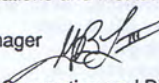
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FROM: Bruce Lemmon, Exhibits Manager 

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You are invited and encouraged to exhibit with us at the 1991 Annual Convention of the American Association of Petroleum Geologists. AAPG's 75th anniversary celebration will take place at the Dallas Convention Center, and over 8000 are expected to take part. It is going to be a very special convention.

The Association values the important role educational institutions, scientific and professional societies, and government surveys and agencies play in the diversity of the convention's exhibition. We hope you will take this opportunity to share your latest research, publications, or scientific data with those in attendance.

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A new feature in the hall this year is the "AAPG Mall," an area adjacent to the AAPG Bookstore for AAPG-associated displays such as the Foundation, divisions, affiliated societies, standing committees, and booths promoting future conferences and meetings. The Mall will be set off with a different color of aisle carpet and will be identified with a hanging banner overhead. All exhibitors with any appropriate theme are invited to be part of the AAPG Mall.

Exhibitor move-in will take place Friday and Saturday, April 5 and 6, and plan to attend a reception for exhibitors Saturday evening from 6:00 to 7:30. Your display must be ready by 3:00 p.m. Sunday, April 7; doors open to registrants at 5:00 p.m., with the Icebreaker cocktail party held in the exhibits hall until 8:00 p.m. The exhibition will be open on Monday and Tuesday from 8:00 a.m. to 5:30 p.m. and Wednesday from 8:00 a.m. to 12:00 noon. Teardown will begin at noon (NOT BEFORE) and must be completed by 12:00 midnight Thursday, April 11.

Your exhibitor service manual will be mailed to you as soon as you return the enclosed application with **FULL PAYMENT.** The manual will contain registration forms and other forms to order electrical service, booth furnishings, etc. Questions? Please give either Karen Carpenter or me a call at (918) 584-2555; our direct fax line is (918) 584-2274. We look forward to having you with us!

## ORIGIN OF GULF COAST OILS AND GASES SEPM Announces a New Publication

The Gulf Coast Section of the SEPM has just published its long awaited volume entitled "Gulf Coast Oils and Gases: Their Characteristics, Origin, Distribution, and Exploration and Production Significance."

The technical papers included in this volume were presented at the Ninth Annual Research Conference of the GCS/SEPM held in New Orleans in December of 1988. The conference was convened by Deet Schumacher (Pennzoil) and Chuck Kennicutt (Texas A&M) and brought together most of the individuals working in Gulf Coast geochemistry and its applications to exploration and production. Reviews of this conference have previously been published in the Oil and Gas Journal (7/17/89) and in the April 1989 HGS Bulletin.

The 33 papers and abstracts included in the Proceedings volume cover a wide range of topics and exploration/production applications including: the characteristics and origin of oil and gas in Jurassic, Cretaceous, and Tertiary reservoirs onshore and offshore; applications of geochemistry in development geology; hydrodynamics in south Louisiana; hydrocarbon seepage and related diagenesis; and quantitative modeling of hydrocarbon generation and migration.

Most of the papers in this volume present previously unpublished data and interpretations. These papers record the current views of a diversity of scientists on topics of great importance to explorationists and oil and gas producers in the Gulf Coast basin. Application of the concepts presented here should stimulate the formulation of more effective exploration and development strategies by providing a better understanding of the processes that have led to the formation and occurrence of Gulf Coast oils and gases.

This volume, edited by Deet Schumacher and Bob Perkins (UT-Arlington), has a sales price of \$ 38.00 and is available from Earth Enterprises, Inc., in Austin, Texas (512-345-3007).

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	12. McDavid -----	Phillip Reeves

Paleozoic Oil and Gas Fields

Mississippi:	13. Shannon -----	Ed Hollingsworth
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	15. Maple Branch -----	Kevin Henderson

Updates

Mississippi:	16. Thompson's Creek -----	Steve Ingram
	17. South Thompson's Creek -	"
	18. Wausau -----	"

The Red Book Committee is now preparing for the drafting phase of this project which puts us about mid-stage in the publication process. We would like to sincerely express our gratitude to the persons listed above for contributing their time and effort in support of this final supplement to Volume III of our Red Book series, MESOZOIC - PALEOZOIC PRODUCING AREAS OF MISSISSIPPI AND ALABAMA. We hope that this effort will pave the way for another addition in the next year, a Volume IV.

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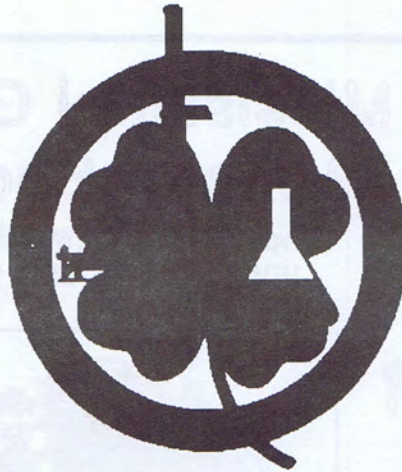
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- A Practical Understanding of Migration and Dip Moveout (DMO)**  
April 15-16 New Orleans (SEG Gulf Coast Meeting)  
November 9-10 Houston (SEG Annual Meeting)
- An Introduction to Reflection Seismic Interpretation**  
April 6-7 Dallas (AAPG Meeting)  
August 15-16 Tulsa
- AVO: Seismic Lithology**  
March 25-28 Houston  
September 16-19 Denver
- Basin Analysis and Sedimentary Geology:**  
**A Primer for Geophysicists**  
May 4-5 Houston (OTC)  
May 13-14 Calgary (CSEG Meeting)
- Borehole Gravity Surveys**  
December 2-3 Tulsa
- Carbonate Seismology**  
September 23-24 Tulsa
- Deconvolution and Wavelet Processing**  
October 7-11 Tulsa
- Delineation of Hydrocarbon Reservoirs and Stratigraphic Traps with Synthetic Sonic Logs**  
February 27 – March 1 Tulsa
- Depth Conversion Techniques**  
June 27 Denver
- Engineering Geophysics**  
March 4-5 Bakersfield (SEG/AAPG/SEPM/SPWLA Meeting)
- Evaluation of Petroleum Reservoirs**  
July 26 Tulsa
- Field Acquisition for Exploration Objectives**  
February 6-8 Tulsa
- Fundamentals of Digital Seismic Processing**  
August 12-14 Tulsa
- In Situ Seismology: Elastic Rock Properties, Crosswell Logging and VSP**  
April 3-5 Tulsa
- Introduction to Seismic Inversion Methods**  
August 27 Tulsa
- Marine 3-D Surveys: Navigation Systems and Methods for Quality Assurance**  
November 9-10 Houston (SEG Annual Meeting)
- Quality Assurance — Land Seismic Acquisition**  
September 26 Calgary  
November 9 Houston (SEG Annual Meeting)
- “Quick Look” Well Log Analysis**  
July 23 Tulsa

<b>Reduction, Analysis and Interpretation of Gravity and Magnetic Survey Data</b>	
May 13-14	Calgary (CSEG Meeting)
December 4-5	Tulsa
<b>Reservoir Characterization</b>	
March 16	Tulsa (SEG Midwest Meeting)
October 21-22	Anchorage
<b>Reservoir Rock Geology</b>	
September 10-11	Tulsa
<b>Resistivity and Porosity Basics</b>	
July 22	Tulsa
<b>Seismic Data Acquisition</b>	
February 4-5	Tulsa
<b>Seismic Stratigraphy, Absolute Sea Level Ranges and Causes, Chronostratigraphy</b>	
August 29	Tulsa
<b>Seismic Stratigraphy: Geological Systems — Seismic Responses</b>	
April 6-7	Dallas (AAPG Meeting)
April 15-16	New Orleans (SEG Gulf Coast Meeting)
<b>Seismic Tomography</b>	
February 15	Tulsa
<b>Shear Waves and Anisotropy in Exploration Seismology</b>	
February 21-22	Calgary
September 12-13	Tulsa
<b>Statics: A Survey of Modern Techniques in Datum Corrections</b>	
March 16-17	Tulsa (SEG Midwest Meeting)
<b>3-D Seismic Exploration</b>	
February 11-13	Dallas
October 16-18	New Orleans
<b>Velocity as an Interpretation Tool</b>	
November 9-10	Houston (SEG Annual Meeting)
<b>Wave Equation Migration</b>	
October 24-25	Tulsa
<b>Well Logging: Bridging Seismic Exploration and the Reservoir</b>	
June 5-7	Houston
<b>Well Logs in Shaly Formations</b>	
July 25	Tulsa
<b>Well Logs Vital to Geophysicists</b>	
July 24	Tulsa

### **Tuitions:**

1-day course	— \$150 (U.S.) SEG Members, \$175 (U.S.) Nonmembers
2-day course	— \$290 (U.S.) SEG Members, \$325 (U.S.) Nonmembers
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5-day course	— \$680 (U.S.) SEG Members, \$800 (U.S.) Nonmembers

## ENROLLMENT INFORMATION

**To enroll** in any course, complete and mail the attached registration form no later than 20 working days prior to the class or call **(918) 493-3516**. Confirmation of your registration will be made prior to the seminar. Space reservations will be considered tentative until full payment is received.

**The registration fee** includes all lecture and workshop materials and break refreshments. Participants are responsible for their own hotel and travel arrangements and costs. **Payment** of the tuition for the program(s) selected is to be made in advance.

**Registration** is on a first-come, first-served basis. All courses have minimum and maximum class size limits; early registration is urged. If the course you select is fully subscribed at the time SEG receives your tuition, you will be notified and placed on a waiting list as an alternate. *On-site registration is discouraged due to class size restrictions.*

**Refunds** will be granted only to registrants who cancel **in writing** on the following basis:

- 30 days or more in advance — full refund;
- less than 30 days but more than 72 hours in advance — refund less cancellation penalty (\$35.00 for a one-day course, \$70.00 for a two-day course, \$100.00 for a three-day, and \$125.00 for longer courses.)
- No refund is allowed for cancellation made less than 72 hours in advance; course materials will be sent to the registrant.

In the event a course is cancelled, registrants will receive a full refund or may apply their tuition to another presentation.

**Substitutions** are permitted. Please notify the SEG Continuing Education Department in advance whenever possible.

**Hotel reservations** at the seminar site are to be made by the individual participants. Information regarding the specific hotels will be forwarded to you upon registration.

**RESTRICTIONS:** Taping of sessions is not permitted.

**U.S. TAX DEDUCTION:** An income tax deduction may be permitted for continuing education expenses undertaken to maintain and improve professional skills or which meet express requirements of an employer or law imposed as a condition to retention of employment, job status, or rate of compensation.

# REGISTRATION FORM

Please register me for the course(s) noted below:

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PUBLICATION LIST

1. Mississippi Geological Society Photo Directory, 1981 ..... \$ 2.00
  2. Wilcox Fields of Southwest Mississippi, Maps and production data on 171 fields, in ring binder, 350 pp., 1969 ..... 28.00
  3. Mesozoic-Paleozoic Producing Areas of Mississippi and Alabama. Volume I. Maps and producing data on 57 fields, with 2 composite logs, clothbound, 139 pp., 1957 ..... 10.00
  4. Volume II. Maps and producing data on 77 fields, includes Supplement 1, in ring binder, 143 pp., 1963 ..... 15.00
  5. Supplements 2 through 7 for Volume II, Maps and producing data on 35 fields, 110 pp. .... 15.00
  6. Supplement 8 for Volume II, Maps and producing data on 34 fields, 108 pp., 1980 ..... 25.00
  7. Volume II, complete with Supplements 2-8, 361 pp., 146 fields ..... 50.00
  8. Volume III, 85 pp., 46 fields, 1987 ..... 50.00
- FIELD TRIP GUIDEBOOKS
9. Upper Cretaceous Outcrops, Northeast Mississippi and West Central Alabama, Fourteenth Field Trip, 29 pp., May 1959 ..... 4.00
  10. Cenozoic of Southeast Mississippi and Southwest Alabama, Fifteenth Field Trip, 52 pp., May 1960 ..... 6.00
  11. Cenozoic of Horn Island and the Pascagoula Valley 10th Annual GCAGS Meeting, 24 pp., October, 1960 ..... 2.50
  12. The Paleozoics of Northwest Arkansas Sixteenth Field Trip, 48 pp., May, 1962 ..... 5.00
  13. Tertiary Type Localities of East-Central Mississippi, 25th GCAGS Meeting, 133 pp., October 1975 ..... 5.00
  14. Mississippi Rocks of the Black Warrior Basin, Seventeenth Field Trip, 79 pp., April, 1978 ..... 8.00
  15. Tertiary and Upper Cretaceous Depositional Environments, Central Mississippi and West Central Alabama 33rd Annual GCAGS Meeting, 40 pp., October 1983 ..... 7.50
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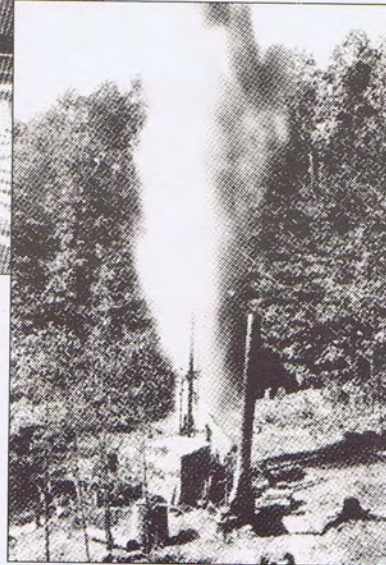
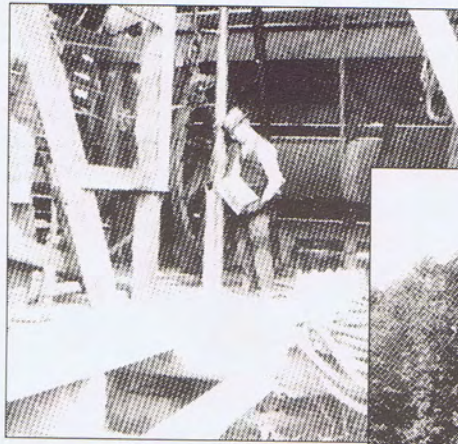


# MISSISSIPPI GEOLOGICAL SOCIETY

Volume XXXIX

No. 6

February, 1991



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## **PRESIDENT'S MESSAGE**

Well, we knew it wouldn't last forever. No, I'm not talking of oil prices but of the site of so many of the past fall and spring functions, Fowler's Lodge. The property has been sold and the building is to be moved to some unknown location., If you have any good suggestions for a new place for the Spring Fling, please call me.

Les Aultman, chairman of our continuing education committee, has come up with a dandy. Friday, March 22, from 9:00 a.m. to 1:00 p.m., Mr. Howard Yorston will offer a seminar on salt domes within the Mississippi Salt Basin. This will be held in the Smackover Room of the Capitol City Petroleum Club at a cost of \$40 advanced registration (\$50 non-members / \$10 students) or \$50 the morning of the seminar (\$60 non-members), which also includes lunch. This is quite a bargain when you consider the alternative cost of traveling to Houston to hear this gentleman.

Our field trip committee, consisting of George Vockroth, Verne Culbertson, Neal Barnes, Todd Hines, and Bill Moore are doing a first rate job. Also, I would like to thank many others who are working "behind the scene" as field guide authors, sponsors, etc. Please take notice of the enclosed ad for our spring field trip. The MGS Board and committees sincerely hope the March seminar and april field trip are well attended and therefore successful. If so, it will send a positive message to future MGS boards to continue these educational events.

To reserve your spot for the field trip and Salt Dome Seminar, send a check to MGS, P.O. Box 422, Jackson, MS 39201. See you at the Tuesday noon meeting.

Jim Files

## **BUSINESS MEETING LUNCHEON SCHEDULE**

1991

February 12 • March 12 • April 9 • May 14

# BUSINESS MEETING LUNCHEON

FEBRUARY 12, 1991 • 11:30 a.m.  
Capitol City Petroleum Club, Smackover Room

## ABSTRACT

The bulk of all hydrocarbons are concentrated near the top of abnormal pressure in clastic sedimentary basins. Abnormal pressure is related to formation temperature and the availability of isolated reservoirs. As pressure builds up beyond the fracture gradient of the formation in an isolated reservoir, an eruption will occur. Fluids, including hydrocarbons, will pulsate out of the reservoir and migrate up to near the top of abnormal pressure. As pressure bleeds off, the fracture will seal off and the cycle is repeated. New insight into the distribution and migration of hydrocarbons come from a computer analysis of over 5.5 billion barrels of oil and 71 Tcf of gas produced by 33,000 well completions.

## ABOUT THE COVER:

The Roberts brothers invented the torpedo shooting technique to increase oil production making marginal wells economical. Wells are often completed today in this area using this same technique.

# ORIGIN OF HIGH PURITY CARBON DIOXIDE GAS IN MISSISSIPPI

Richard Ahern, Consulting Geologist  
Jeff Lundy

The genesis of high purity carbon dioxide gas in central Mississippi has been attributed to a number of possible sources. The most popular theory being derivation from carbonates of the Smackover formation by thermal decomposition caused by igneous activity associated with the Jackson Dome. In any case, there should be several lines of evidence to support a proposed origin, including (1) regional geochemistry of alteration, (2) sources of other associated gases, and (3) identification of physical and chemical relationships between the carbon dioxide gas and its' proposed source.

1. **CALCIUM** If more than 6 trillion MCF of carbon dioxide were driven off, a stoichiometric equivalent amount of calcium must be accounted for. It may have been (1) adsorbed into the igneous melt, (2) altered, perhaps into a calc-silicate, metasomatic skarn adjacent to the intrusive, (3) flushed from the system to be reprecipitated elsewhere.

2. **OTHER OCCURRENCES** The wide distribution of lesser amounts of carbon dioxide found in association with other gases such as helium, nitrogen and methane must be accounted for, as well as the carbon dioxide gas produced by bacterial activity.

3. **ISOTOPIC EQUILIBRIUM** If the high purity carbon dioxide in the Norphlet gas pool of Mississippi was derived from the Jurassic carbonate rocks, as suggested, then the isotopic composition of the gas should correlate in some way with that of the Smackover formation.

A sample of high purity carbon dioxide gas from the Goshen Springs field and a sample of Smackover carbonate from deep drilling in central Mississippi were tested for carbon isotope ratios ( $\delta^{13}C$ ) with results of  $-7.4$  and  $+4.4$   $\delta^{13}C$  PDB respectively. The slightly negative  $\delta^{13}C$  character of the gas and the over eleven per mil difference between the two samples may not be conclusive but it does not appear to provide much support of a Smackover origin for the carbon dioxide.

References and background data are available on request from the authors who would welcome comments and invite further discussion.

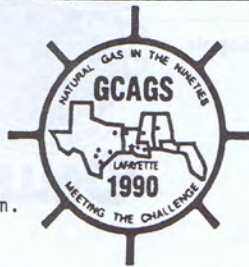
Richard Ahern, 2705 W. Lambert Lane, Tucson, Arizona 85741  
Jeff Lundy, Route 1, Box 31, Flora, Mississippi 39071



# The Gulf Coast Association of Geological Societies

GCAGS Convention 1990  
Post Office Box 52611  
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40th Annual Convention  
October 17-19, 1990  
Sponsored by Lafayette  
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From:

Michael J. Nault  
1990 Judging & Awards Chrm.  
GCAGS and GCSSEPM

GCAGS Best Paper Awards  
1990 GCAGS/GCSSEPM Convention  
Lafayette, La.

## First Place & A.I. Levorsen Award

Michael P. Prescott  
Big M Exploration  
928 Americana Bldg.  
Houston, Texas 77002

Paper Title: The Maurice Field: New Gas Reserves From Buried  
Structure Along The Oligocene Trend of  
Southwestern Louisiana

-----

## Second Place

Philip L. Cook, Jr.  
Cook Energy, Inc.  
111 East Capital St.  
Suite 450  
Jackson, MS 39201

Robert D. Schneeflock \*  
& John D. Bush  
& John C. Marble  
Paramount Petroleum  
111 East Capital St.  
Suite 240  
Jackson, MS. 39201

Paper Title: Trimble Field, Smith County, MS: 100 BCF of  
By-Passed Pay at -7000'

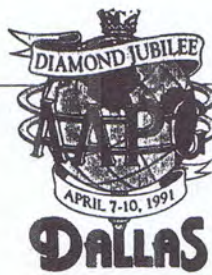
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## Third Place


Daniel J. Tearpock \*  
Consulting Geologist  
208-I Long Plantation Blvd.  
Lafayette, LA. 70508

Harvey Pousson  
Dept. of Mathematics  
University of Southwestern La.  
Lafayette, LA. 70504

Paper Title: A Three-Dimensional Correction Factor Equation  
For Deviated Wells



TO: Non-Profit Agencies, Organizations and Institutions

FROM: Bruce Lemmon, Exhibits Manager 

RE: Exhibiting at the 1991 AAPG Convention and Diamond Jubilee Celebration  
April 7-10, Dallas, Texas

You are invited and encouraged to exhibit with us at the 1991 Annual Convention of the American Association of Petroleum Geologists. AAPG's 75th anniversary celebration will take place at the Dallas Convention Center, and over 8000 are expected to take part. It is going to be a very special convention.

The Association values the important role educational institutions, scientific and professional societies, and government surveys and agencies play in the diversity of the convention's exhibition. We hope you will take this opportunity to share your latest research, publications, or scientific data with those in attendance.

We offer non-profit exhibitors booth space at an extremely attractive price: **each 10 ft. x 10 ft. space is only \$375.** But even though you pay nearly \$1000 less per 100 sq.ft., you nevertheless receive practically the same services commercial exhibitors do. We do provide you with only one complimentary registration per 100 sq.ft. rented, and we determine your exact location. Otherwise, look forward to full service at a fraction of the regular price.

A new feature in the hall this year is the "AAPG Mall," an area adjacent to the AAPG Bookstore for AAPG-associated displays such as the Foundation, divisions, affiliated societies, standing committees, and booths promoting future conferences and meetings. The Mall will be set off with a different color of aisle carpet and will be identified with a hanging banner overhead. All exhibitors with any appropriate theme are invited to be part of the AAPG Mall.

Exhibitor move-in will take place Friday and Saturday, April 5 and 6, and plan to attend a reception for exhibitors Saturday evening from 6:00 to 7:30. Your display must be ready by 3:00 p.m. Sunday, April 7; doors open to registrants at 5:00 p.m., with the Icebreaker cocktail party held in the exhibits hall until 8:00 p.m. The exhibition will be open on Monday and Tuesday from 8:00 a.m. to 5:30 p.m. and Wednesday from 8:00 a.m. to 12:00 noon. Teardown will begin at noon (NOT BEFORE) and must be completed by 12:00 midnight Thursday, April 11.

Your exhibitor service manual will be mailed to you as soon as you return the enclosed application with FULL PAYMENT. The manual will contain registration forms and other forms to order electrical service, booth furnishings, etc. Questions? Please give either Karen Carpenter or me a call at (918) 584-2555; our direct fax line is (918) 584-2274. We look forward to having you with us!

## ORIGIN OF GULF COAST OILS AND GASES SEPM Announces a New Publication

The Gulf Coast Section of the SEPM has just published its long awaited volume entitled "Gulf Coast Oils and Gases: Their Characteristics, Origin, Distribution, and Exploration and Production Significance."

The technical papers included in this volume were presented at the Ninth Annual Research Conference of the GCS/SEPM held in New Orleans in December of 1988. The conference was convened by Deet Schumacher (Pennzoil) and Chuck Kennicutt (Texas A&M) and brought together most of the individuals working in Gulf Coast geochemistry and its applications to exploration and production. Reviews of this conference have previously been published in the Oil and Gas Journal (7/17/89) and in the April 1989 HGS Bulletin.

The 33 papers and abstracts included in the Proceedings volume cover a wide range of topics and exploration/production applications including: the characteristics and origin of oil and gas in Jurassic, Cretaceous, and Tertiary reservoirs onshore and offshore; applications of geochemistry in development geology; hydrodynamics in south Louisiana; hydrocarbon seepage and related diagenesis; and quantitative modeling of hydrocarbon generation and migration.

Most of the papers in this volume present previously unpublished data and interpretations. These papers record the current views of a diversity of scientists on topics of great importance to explorationists and oil and gas producers in the Gulf Coast basin. Application of the concepts presented here should stimulate the formulation of more effective exploration and development strategies by providing a better understanding of the processes that have led to the formation and occurrence of Gulf Coast oils and gases.

This volume, edited by Deet Schumacher and Bob Perkins (UT-Arlington), has a sales price of \$ 38.00 and is available from Earth Enterprises, Inc., in Austin, Texas (512-345-3007).

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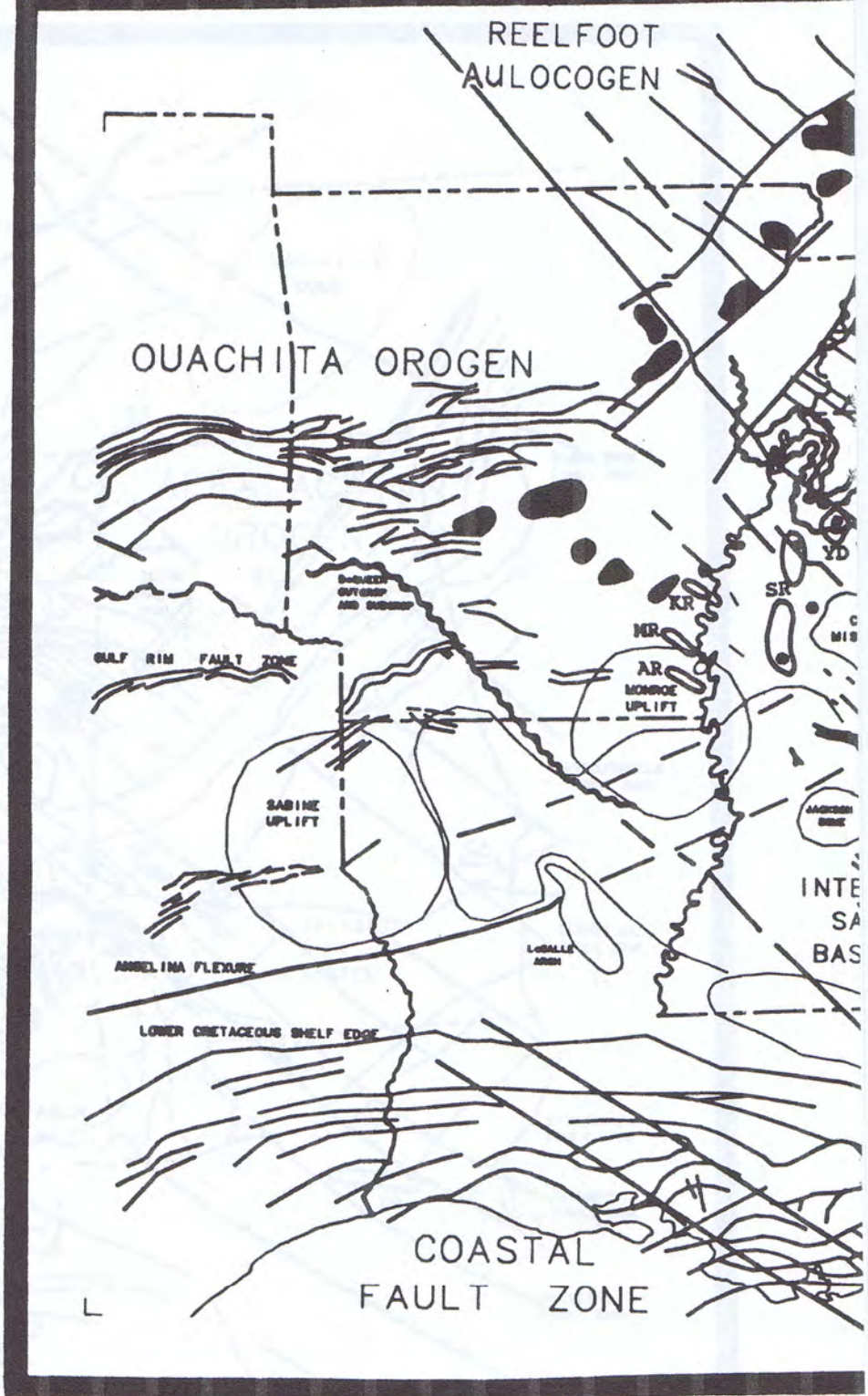


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## Zoble elected head of petroleum group

Mid Continent Oil and Gas Association, a regional petroleum trade group, recently elected new officers for 1991 during its 46th Annual Meeting at Point Clear.

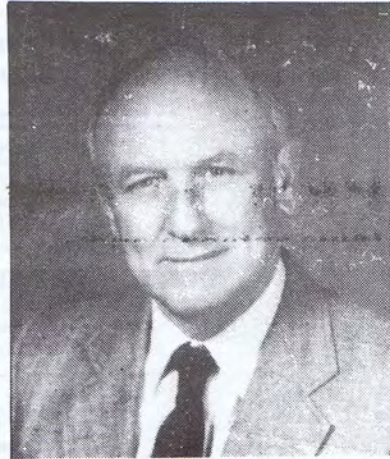
The newly elected officers are chairman, ~~Jerry Zoble~~, Zoble Exploration; vice chairman, W. A. Baute, Shell Offshore Inc.; president, Joseph K. Sims, Mid Continent Oil and Gas Association; and secretary/treasurer, William R. James, Pruet Oil Company.

The Mississippi/Alabama Division of Mid Continent, with offices in Jackson, is an organization which represents in legislative, regulatory and public affairs approximately 300 firms involved in the oil and gas industry in Mississippi and Alabama.

Paramount Petroleum Company, Inc. of Jackson and Houston, Texas was awarded the association's prestigious 1990 Bill and Emmett Vaughney Wildcat Award at the annual meeting.

The award is given annually by the association to those persons or

companies in the industry who have made outstanding contributions to Alabama's and Mississippi's oil and gas petroleum industry.



**Jerry Zoble**

This month our centerfold presents the second map of this review series on the Structural Architecture of Mississippi. You will find that a few structural features have been added to the original map published in November. They are as follows : the major fault systems in the Mississippi Salt Basin, several pronounced magnetic anomalies from northern Mississippi and Alabama, nine anticlines, and a couple of other features of the region. Yes, the map is a bit busy; never-the-less, a pattern can be seen that supports the contention that the common link in the development of these structures lies with strike-slip movements along basement lineaments of at least late Pre-Cambrian / early Cambrian age.

The map published in November implies that there is a relationship between Klitgord's transforms (megashears) and the regional structural grid or trend. You can easily see that the relationship is strongly inferred where the northwest-southeast striking megashears intersect the Paleozoic thrust systems, the Triassic rift system, and the listric faults of the coastal zone. Flexures or changes in each of these particular fault systems consistently occurs at those intersections.

The December map advances support for the previous statement by proposing that both the structural anticlines and magnetic anomalies added to this map probably denote right lateral strike-slip movement along Klitgord's transforms. These structures range in age of deformation from the Carboniferous to the Tertiary and look a lot like drag folds or some transpressive/transensional counterpart associated with strike-slip movement.

The fault systems of the Mississippi Salt Basin and the Black Warrior Basin will be discussed in later issues along with magnetic and gravitometric interpretations from each respective area. Additionally, it's my hope that we will be able to tie some of the subsurface depositional systems into a basement architectural model for our state.

Below are the names and abbreviations for the features that have been added to this base map.

I - igneous (solid black)	? - unnamed
DA - Destin Anticline	SA - Sequatchie Anticline
FA - Fayette Arch	MU - Muldon Uplift
CU - Calhoun Uplift	YD - Yacona Dome
TD - Tippah Dome	MD - Marshall Dome
TR - Tishomingo Ridge	LR - Lafayette Ridge
HA - Hatchetigbee Anticline	MA - Marvin Anticline/Land Dome
CA - Comer Anticline	BA - Brewer Anticline
AR - Ashley Ridge	MR - McGehee/Desha Ridge
KR - Kelso Ridge	BF - Bethel Fault
PA - Peachtree Anticline	SR - Sunflower Ridge

**REFERRING TO THE ARTICLE IN THE  
DECEMBER 1990 MGS BULLETIN**

Stan Thieling, Editor

I am not familiar enough with diagenetic and fluid flow systems to really appreciate the significance of the problem being addressed. It seems to me that premise #1 and #2 are mutually compatible Thermo Fluid Conduction Systems. The only difference is the highly problematic return and recycling of the depleted fluid. That leaves Thermo-drive vs Pressure-drive for further consideration. A combination of these would provide the easiest mechanism for dissolution and reprecipitation of interstitial cement and/or grain material.

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\*\*\* The note above was left for me on my desk by a kind friend and a very good hard rock geologist from Denver. He avoided the obvious pitfalls left in the original article such as ben thickness and heterogeneity.

SLI

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  3. Mesozoic-Paleozoic Producing Areas of Mississippi and Alabama. Volume I. Maps and producing data on 57 fields, with 2 composite logs, clothbound, 139 pp., 1957 .....10.00
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Volume XXXIX

No. 7

March, 1991





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## PRESIDENT'S MESSAGE

Dear Members,

I would like to remind you of the upcoming AAPG convention, April 7-10, in Dallas. Also, please note dates of the MGS Salt Dome Symposium and the Selma Chalk Field Trip.

You should have received a ballot for the election of your new AAPG delegate. Please take a moment to vote and drop this in the mail.

The latest Redbook supplement is now in drafting. I would like to thank the authors of these new additions for their hard work and dedication in continuing this great tradition. While on this subject, it has been brought to my attention that prints of Volume I of our Redbook have run out. Earth Enterprises, who markets these issues for us, recommends we not reprint this volume because they feel we would lose money. The 1957 volume sells for only \$10 and has limited demand. If you have any comments on this, let me know.

I look forward to seeing you at the March 12th meeting!

Jim Files

## BUSINESS MEETING LUNCHEON SCHEDULE

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MARCH 12, 1991 • 11:30 a.m.

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## The Knox Group of Alabama: Overview and Potential for the Future

by Dorothy E. Raymond

### ABSTRACT

Recent discoveries of oil and gas in the Late Cambrian-Lower Ordovician Arbuckle Group carbonates of the Arkoma and Ardmore basins of Oklahoma have resulted in increased interest in the potential for similar discoveries in the equivalent Knox Group in Alabama and Mississippi. The Knox carbonates were deposited in a shallow marine shelf environment. In outcrop the group is divided, in ascending order, into the Copper Ridge Dolomite, Chepultepec Dolomite, Longview Limestone, and Newala Limestone. In the subsurface, the Knox is generally undifferentiated. The top of the Knox in the subsurface is often picked as the uppermost dolomite bed; however, recent paleontological studies indicate that the uppermost dolomite locally may be Middle Ordovician in age. Cross sections based on wells penetrating the Knox in Alabama indicate that the upper Knox is predominantly dolomite on the margins of the Black Warrior basin and in the Appalachian Plateaus and western Valley and Ridge. However, limestone dominates the upper part of the section in the middle of the basin. Because only a few wells have penetrated the Knox in Alabama, the Knox is essentially untested.

### BIOGRAPHY

Dorothy E. Raymond received a bachelor's degree in mathematics from Vassar College in 1966 and a master's degree in geology from the University of Alabama in 1974. She has taught geology on the college level and worked as a consultant until 1977, when she joined the staff of the Geological Survey of Alabama. There she has served in the past as scientific editor. Presently, she works in the Stratigraphy-Paleontology Division where she studies surface and subsurface stratigraphy, structure, and biostratigraphy. Dorothy has studied the Miocene gas play in Baldwin and Mobile Counties, the new deep wildcat wells in the Appalachian fold and thrust belt, Pottsville petrography and subsurface stratigraphy, and the Triassic sediments and basement rocks of south Alabama. In progress is a study of the Knox in Alabama. She also has been a contributor to the AAPG project on the Correlation of Stratigraphic Units in North America. Publications at the Survey include "Alabama Stratigraphy," "Selected Columnar Sections for the Coastal Plain, Appalachian Plateaus, Interior Low Plateaus, and Valley and Ridge Provinces in Alabama," "Petrography of Sandstones of the Pottsville Formation in the Jasper Quadrangle, Black Warrior Basin, Alabama," and "Depositional Sequences in the Pensacola Clay (Miocene) of Southeast Alabama." From 1987-89 she served as president of the Alabama Geological Society.

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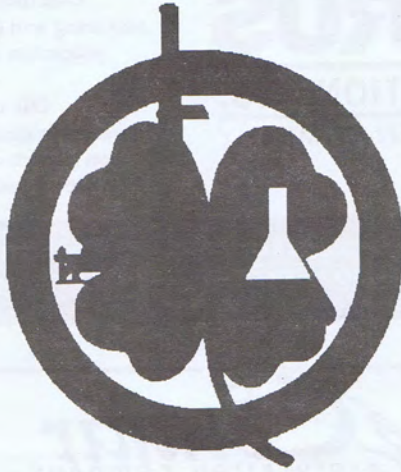
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**SPE**

March 19, April - no meeting - golf tournament date TBA  
Petroleum Club Smackover Room, 11:30 a.m.  
\$10, reservations not required

**MAPL**

March 11, April 8, Usually 2nd Monday of Month,  
except Summer months - 5:30 p.m. at Primos Northgate  
For Reservations call 352-0662 or 352-7782

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# HOT ENTERTAINMENT IN "BIG D"!

by Dwight E. "Skip" Roberts  
Entertainment Chairman

It is the first week of April, 1991, and you are at the baggage claim area at either DFW Airport or Love Field in Dallas, Texas. While waiting for your luggage to arrive in one or more pieces, you look around and see the banner "AAPG MEMBERS-WELCOME". Thoughts of- "why am I here?" come to mind. You remember that you want to attend 5 or 6 of the talks that pertain to the trend you are working and to see 10 or so of the poster sessions. What about the fun factor? You now remember the spectacular entertainment program put on by the Dallas Geological Society.

On Sunday, April 7th you can either play golf in the "Diamond in the Rough" tournament or tennis in the "Ace of Diamonds" tournament both at the Hyatt Bear Creek Golf and Racquet Club at DFW Airport. The co-sponsor for these tournaments is Atlas Wireline Services. The buses will leave from the Fairmont Hotel at 7 a.m. and return around 2:30 p.m..

For nighttime entertainment on Sunday, April 7th, you can attend the "Diamond Jim's" Sunday Night Celebration at Dallas Alley, in the historic West End of downtown Dallas. Buses will leave from the Convention Center and make a hotel loop starting at 6:30 p.m. with the dinner, dancing, and playtime starting at 7 p.m.. Food and entertainment will be at Alley Cats and Bobby Sox (West End) until 11 p.m.. Return buses will run from 8 p.m. until 11:15 p.m., picking you up at the West End and returning you to your downtown hotel. Halliburton Logging Service, Inc. is the co-sponsor of this event.

On Monday night, April 8th, I am planning to eat bar-b-que, honky tonk, and watch a bullriding exhibition at the "Rough Cut" Country Evening at Billy Bob's Texas located in the old Ft. Worth Stockyard District. The buses will leave the Fairmont Hotel at 6:00 p.m. and 6:15 p.m. for the trip to Ft. Worth and then will begin leaving for the trip back at 10 p.m.. Again, the buses will shuttle back to the downtown hotels. Oryx Energy Company is the co-sponsor for the night at Billy Bob's.

Also on the night of Monday, April 8th, there will be the DGS Diamond Jubilee Dinner at the Dallas Petroleum Club, located in the Texas Commerce Tower, downtown Dallas. This evening of dinner, dancing and a surprise is for our distinguished AAPG colleagues with membership of 35 years or more. The bus shuttle service will start leaving the Fairmont at 6 p.m. with pickup from the Petroleum Club starting at 9:30 p.m. through 10:30 p.m.. It will make drop offs at downtown hotels. Enserch Exploration, Inc. is the co-sponsor for the dinner.

A decision must be made about Tuesday night, April 9th. For the price of \$25, I can either attend a Diamond Studded Evening at "The Mort" or the "Multi-Faceted" night at the Improv for \$28.

The event at the Morton Meyerson Symphony Hall in downtown Dallas will be a great time to socialize beginning with a lavish cocktail reception complete with hors d'oeuvres, wine, champagne, cheese, fruit and a cash bar. This reception will start at 7 p.m. and the concert hall doors will open at 8:15 p.m.. The 85 piece Symphony Orchestra will present an upbeat pops repertoire. Dress can be either casual or coat and tie. A bus shuttle service for the downtown hotels will start the pickup circuit at 6:30 p.m. and will depart from the Mort starting at 10 p.m. This fabulous event is made possible through the generosity of our co-sponsors, Mobil Research and Development Corp. and Mobil Exploration and Producing Services, Inc.

The evening at the Mort will be alot of fun, but for those who favor a different sort of entertainment, you can attend dinner and a show at the Improvisation, America's Original Comedy Showcase and Restaurant. The Improv is located in the Corner Shopping Center at Walnut Hill Lane and North Central Expressway. Buses will depart at 6:30 p.m. and 6:45 p.m. from the Fairmont. The return buses will start departing from the Improv at 10 p.m. The co-sponsor of this event is ARCO Oil and Gas Company with Schlumberger Well Services acting as co-sponsor for the event's transportation.

The Entertainment Committee had four specific goals when putting together this spectacular program. Each event needed to 1) give the attendees ample time to socialize and have fun, 2) provide generous amounts of food and great "Texas Hospitality", 3) keep the price low and affordable to all, and 4) reflect the high quality of our association. The Dallas Geological Society, as the sponsor of the Diamond Jubilee social events, wants each of the convention participants to enjoy themselves and have a great time at this 75th anniversary celebration of the AAPG. Ya'll come and have fun.

We would like to extend a special thank you to all of our terrific co-sponsors, without whose help and generosity none of the events would have been possible.

Finally, please don't forget that as an attendee to any of the events, you must have your name badge and the ticket for that event.



As the February issue of the AAPG EXPLORER put it, "It's All There in the Knox Play".

Some of us have been waiting a long time (or so it seems) hoping to see what would come from the hype and excitement over the North Mississippi Knox Play. I should also say that some of us were wondering what it was all about. Well, we actually saw a well drilled and the rumors are flying! Even though the Marathon, #1 Lay test in Tallahatchie County has been plugged and abandoned, I am certain that all parties are very busy working out its "meaning" to the future exploration of this frontier.

From a recent issue of the Southeastern Oil Review we saw Arkla and Amoco declared their intentions to begin exploration in the Black Warrior Basin. This announcement adds their name to an already growing list of serious contenders : Anadarko, Arco, Coastal O&G, CNG, H&H Star, Hardy O&G, Independent Energy, Mobil, Occidental, Penzoil, Phillips, and Union Pacific Resources. Moreover, some sources say that we could see another two or three wells drilled within a year or so in an attempt to tap the deeper Cambrian-Ordovician potential that must lay below.

By virtue of these developments I am focusing on several articles that bear more on the Paleozoics than on the Mississippi Salt Basin. But not to worry. You salt basin explorationists should find some very pertinent relationships that tie the Cambro-Ordovician Shelf (or Black Warrior and its structures) into the ensuing Triassic Rift which confines that salt you so revere.

Finally, so as not to confuse anyone, I would like to let it be know that I personally prefer salt. Nevertheless, I have found that I can no longer ignore the rocks upon which it sits. In measure, the evolution of the Mississippi Salt Basin and its salt features appear to be more related to those Paleozoic rocks than has previously been acknowledged by most of us; and whether or how this information will aid us in finding more oil will have to be left to those minds willing to exploit this potential. Its my hope that some of us will be successful in doing so.

Seismic properties and the origin of reflectivity from a classic Paleozoic sedimentary sequence, Valley and Ridge province, southern Appalachians, Feb. 1991, Christensen and Szymanski, GSA Bulletin, v.103, p.277-289.

The seismic and synthetic tie to deep reflectors in the subsurface of eastern Tennessee looks an awful lot like some of the reflectors I've seen in north Mississippi seismic. I'll let you be the judge of its utility, but it just may be that someone with the majors or larger independents is being paid to make those correlations now.

Nested Paleozoic "successor" basins in the southern Appalachian Blue Ridge, Nov. 1990, Tull and Groszos, GAS Bulletin, v.18, p.1046-1049.

Just as is implied, the authors attempt to incorporate the existence of "successor" basins into the tectonic evolution of the area. The Black Warrior and the Arkoma Basin may have some affinity with this concept of tectonic synthesis but we are only now beginning to take a more detailed look at new or updated models of the Appalachian-Ouachita System(s). Keep this one on the shelf. It could be some time before we can examine it in relation to the Black Warrior.

Converging clastic wedges in the Mississippian of Alabama, 1974, Thomas, GSA Special Paper #148, p.187-207.

Here's the first of a couple of old one's (1974). As we say, "Age does not deter the beauty!". Please take note of the figures. The plunging of the southern Appalachians in Figure 2 may well relate to lineaments of the Reelfoot Aulocogen (C-O Shelf) and Klitgard's transforms of the Atlantic ocean basin. Other figures map isopachs or isoliths of several units; look for and observe the orientations of this information.

Regional stratigraphy, environments of deposition, and tectonic framework of Mississippian clastic rocks between the Tuscumbia and Bangor limestone in the Black Warrior Basin of Alabama and Mississippi, 1986, Higginbotham, GCAGS Transactions, v.36, p.161-169.

Again, the figures tell the story. While the text mentions the presence of lineaments (strike-slip faults) what becomes most prominent is the relationship of the isopachs to the regional structural grid or trend. Most of you Black Warrior explorationists already know or understand this relationship but what impresses me is the strong alignment of the isopachs to the regional faults (see centerfold maps of Nov. & Feb. MGS Bulletins). You know, I have heard that some of the Carboniferous lignites or coals also have a preferred orientation to these major faults within the basin. This seem to be a strong hint that some of the faulting in the Warrior Basin is responding to lineaments in the Cambrian Shelf.

Chester and Pottsville depositional systems, outcrop and subsurface, in the Black Warrior Basin of Mississippi and Alabama, 1980, Cleaves and Broussard, GCAGS Transactions, v.30, p.49-60.

Shall I say it again? The isopachs in the figures could be suggesting that the orientation of deposition of the Lewis delta has been influenced by the architecture of the basement. Even the erosional limits of the subcrops in these figures have a strong preferred orientation (NW to SE and NE to SW). Comparison of these strikes to the major structural lineations on the centerfold maps (NW to SE and NE to SW) of both November and February MGS Bulletins imply that basement indeed has had a major impact on these

Paleozoic units. Even more, the Reelfoot Aulocogen, being that portion of the North American Craton that we are effected by, in part forms the C-O and Black Warrior Shelves; and those structural elements which construct the Reelfoot (transforms, lineaments, and half-grabens) tend to express considerable influence (structural and depositional) on all Paleozoic rocks in the area. One last statement on this matter is that both Mesozoic and Tertiary units can be shown to have a direct tie back to the those structural elements of the Reelfoot. This includes the salt.

I will leave you with the next article and accompanying figures.

Block structure of continental crust derived from gravity and magnetic maps, with Australian examples, 1985, Wellman, Society of Exploration Geophysicists: The Utility of Regional Gravity and Magnetic Anomaly Maps, p.102-108.

This particular article discusses linear gravity and magnetic patterns in layman's terms. If you could take 20 or 30 minutes to digest this information (and it is easy understandable reading) you could then relate the regional trends (faults, thrusts, preferred depositional orientations, etc.) mapped in our earlier issues; and, please catch this, you should be able to swallow this camel a lot better. Especially when and if we discuss the Mississippi Salt Basin.

The figures on the adjoining page have come from Wrench Fault Tectonics, AAPG Reprint Series #28. Figure 1 illustrates some possible structural responses to right lateral strike-slip faulting. Here, g (modified by Ingram) most closely depicts the structural development of the Black Warrior Basin as a "pull apart" basin. Assuming that most translation or movement at the Appalachian-Ouachita Juncture occurred along the Livingston Fault Zone then both transpressive (compression or thrusting) and transtensional (extension or stretching) features should be present at critical locations (Figure 1g). This appears to be the case as that a very large unnamed positive magnetic feature is mapped in Southwest Noxubee County, Mississippi (Structural Features Map, Miss. Br. of Geology) just below the regional faults of the Black Warrior Basin. If you work out the probable stresses according to the figure then you would predict such a structure in this area, just below the extensional (pull apart) faults in the Warrior.

Figure 2 illustrates the theoretical structural responses to right lateral wrench faulting. Try comparing this diagram to the our centerfold maps from November and February issues. And finally, Figure 3 illustrates a portion of the left lateral wrenching seen in Dasht-e Bayaz, Iran. With a little time, you should begin to see some of the relationships being promoted in this review series.

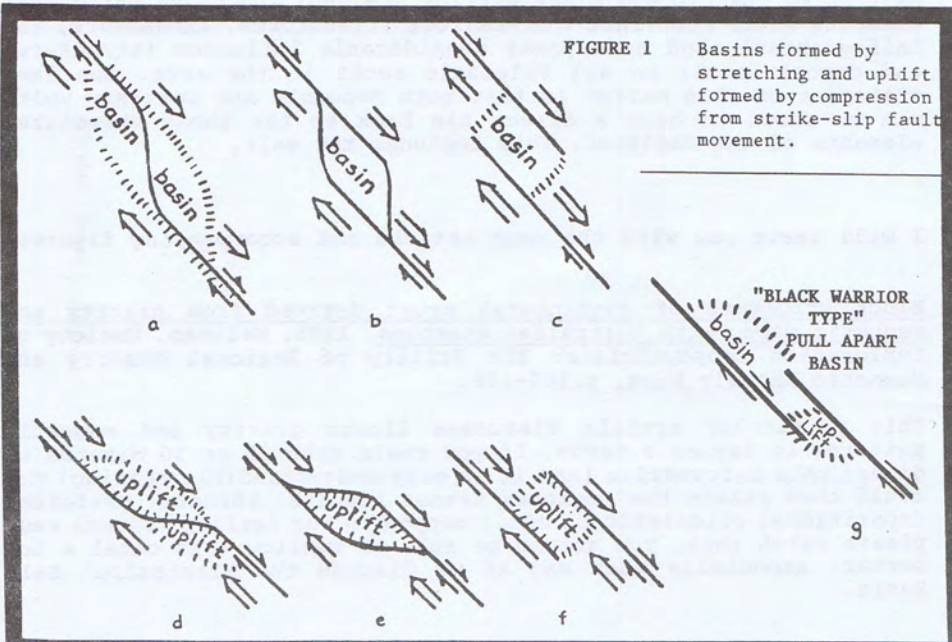


FIGURE 2 Diagram of the Riedel experiment. (R) riedel shear. (R') conjugate riedel shear. (W) width of shear zone.

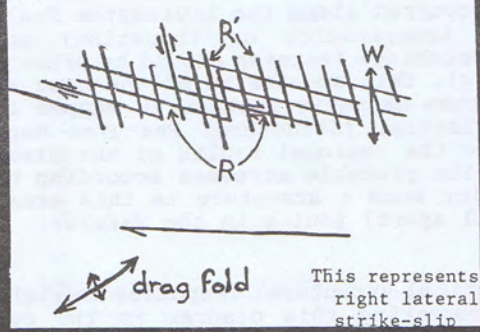
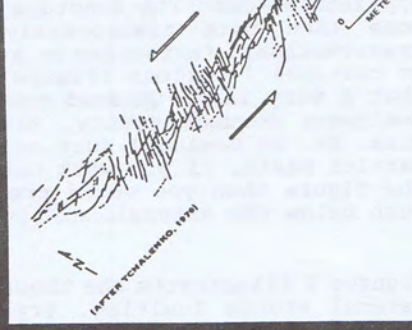


FIGURE 3 Part of Dasht-e Bayaz (Iran) earthquake fracture zone along left-lateral wrench.



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  11. Cenozoic of Horn Island and the Pascagoula Valley 10th Annual GCAGS Meeting, 24 pp., October, 1960 ..... 2.50
  12. The Paleozoics of Northwest Arkansas Sixteenth Field Trip, 48 pp., May, 1962..... 5.00
  13. Tertiary Type Localities of East-Central Mississippi, 25th GCAGS Meeting, 133 pp., October 1975 ..... 5.00
  14. Mississippi Rocks of the Black Warrior Basin, Seventeenth Field Trip, 79 pp., April, 1978 ..... 8.00
  15. Tertiary and Upper Cretaceous Depositional Environments, Central Mississippi and West Central Alabama 33rd Annual GCAGS Meeting, 40 pp., October 1983 ..... 7.50
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16. Composite Mesozoic Log of South Mississippi and South Alabama ..... 2.00
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Volume XXXIX

No. 8

April, 1991





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\* Deceased

# PRESIDENT'S MESSAGE

Dear Members:

I know you are "filled with the knowledge", salt knowledge that is, if you were one of the lucky ones who attended the Mississippi Salt Basin Tectonics Seminar. Special thanks to Les Aultman and Brad Truett for a job well done on this continuing education effort. Les, Brad and I had figured the meeting would draw about 30 attendants, but we had 68. Eighteen attendants hailed from out-of-state, most from Dallas or Shreveport but with one from Rockford, Illinois. I don't know if it was due to the low price of admission or the topic of discussion, but with this type of turnout, our society should be planning many more of these type events for the future.

Time is running out for those who have not registered but want to attend the Spring Field Trip. This is a rare opportunity to view a full core of the Cretaceous chalk of northeast Mississippi along with eight outcrops exposing the complete chalk section. For members, \$45 covers transportation, room (double occupancy), guidebook, and all meals except breakfast on Saturday morning. This must get to our P. O. Box 422 or an MGS officer by April 10th.

Please notice within this bulletin a list of candidates for MGS officers. The election will be held at our noon luncheon meeting in May.

See you at the April 9th meeting!



Jim Files

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**ABOUT THE COVER:** Plymouth Bluff on the Tombigbee River near Columbus, Mississippi is one of the outcrops that will be visited during the 18th MGS Field Trip this April 19th and 20th. The Tombigbee Sand Member of the Eutaw Formation forms the lower bench and the marls of the Mooreville "Chalk" of the Selma Group comprise the bluff. Information on registration for this field trip can be found in the advertisements of this issue. Photograph was donated by Field Trip Leader, Dr. E. E. Russell.

---

## BUSINESS MEETING LUNCHEON SCHEDULE

1991  
April 9 • May 14  
SPRING FLING - May 23

# BUSINESS MEETING LUNCHEON

APRIL 9, 1991 • 11:30 a.m.

Capitol City Petroleum Club, Smackover Room

## ABSTRACT

"Software and Hardware Considerations for a Low-Cost Graphics Workstation for the Independent Geologist"

by Steve Cash

Department of Environmental Quality  
Office of Land and Water Resources  
Division of Hydrologic Investigation and Reporting

Experience with numerous software packages and hardware systems, will fuel this discussion on some of the more practical alternatives to consider when selecting a complete computer system designed for the independent geologist. Since not everyone may be aware of exactly what benefits a graphics workstation can provide, a brief explanation on some of the advantages of a digital system over manual techniques will be presented. This review will be for those geologists who wish to familiarize themselves with the uncertainties of the technological benefits of the current "state of the art" systems in this dynamic field. Alternative decisions based on prices of both software and hardware will be discussed along with the merits of both the more expensive solutions along with the less expensive solutions.

## BIOGRAPHY

I was born in Jackson, Mississippi (1951), went to high school at Wingfield, and Junior College at Hinds. Truly a "Local Yokel", I began to work at 18 as a roughneck in the oilfields around Laurel and over the years worked between semesters with numerous contracting companies on land rigs, inland barges and offshore platforms. After a tour in the Navy, I returned to college and earned a Bachelor of Science Degree from the University of Southern Mississippi in 1981 with a double major in Geology and Geography. Since that time I have worked for NASA's Earth Resources Laboratory, the U.S. Naval Oceanographic Office as an Oceanographer, the Coastal Engineering Research Center as a Research Physical Scientist, with Associated Minerals as a Field Geologist (heavy mineral exploration), and most recently for the Department of Environmental Quality as an Environmental Scientist. These positions usually required working with both remote sensing and digital mapping packages.

## REVIEW

AAPG - GULF COAST REGIONAL CROSS SECTION, edited by Richard Q. Foote, et al.

AAPG has recently published the three sheet set of the GULF COAST REGIONAL CROSS SECTION. Available separately for \$25.00 per sheet, or as a set for \$65.00, they are each not only works of art, but very impressive exhibits of regional geologic information. This is the first set in a series. Within the next six months, AAPG plans to publish similar cross sections for the Pacific Coast (three sheet set) and Atlantic Coast (single sheet). This set is coordinated by Richard Q. Foote and edited by D. L. Stoudt, R. P. McCulloh, L. G. Eversull, P. J. Hutchinson, P. T. Gordon, R. A. Morton, R. Q. Foote, L. M. Massingill, R. H. Wells and S. L. Thompson. Each sheet, approximately 40" by 60" on heavy paper, is available rolled and shows similar information.

The first things to catch the eye, as each sheet is unrolled, are a regional stratigraphic cross section normal to regional dip, and a geologic map covering an area just over 30' of longitude on either side of the trace of the cross section. Stratigraphic zones in each cross section are color coded and each well is color coded by lithology. Productive zones are shown. Accompanying the map and cross section are a generalized chart showing time and surface rock units of the map area, and a stratigraphic chart showing subsurface formations and biostratigraphic units shown on the cross section. Wells used in the cross section and shown on the geologic map are listed in a data block as to name, location, status, date drilled, elevation, TD and API number.

Each sheets segment of the cross section is accompanied by two or more seismic lines, which nearly parallel the line of section. All wells and stratigraphic units are also shown on the seismic lines in as much detail as scale allows. The area covered by the geologic map is located on a regional stratigraphic and structural framework map, which also shows the location of the other sheets of the cross section.

Finally, for those of us who want to work with this wealth of information (this is the purpose of the set, after all) and not just admire it, are lists of references and contributors sufficient to allow anyone, not familiar with the literature of the region, a starting point.

Together the three sheet set makes a continuous North - South cross section along the 94° of longitude from Howard County, Arkansas through the Offshore Texas High Island Area, East Addition, South Extension.

This cross section is a valuable tool for the Gulf Coast Geologist / Manager concerned with regional geologic correlations. Structural and stratigraphic relationships from the Ouachita Front to the Texas Offshore are clearly illustrated and beautifully presented.

Stan Thieling, Editor

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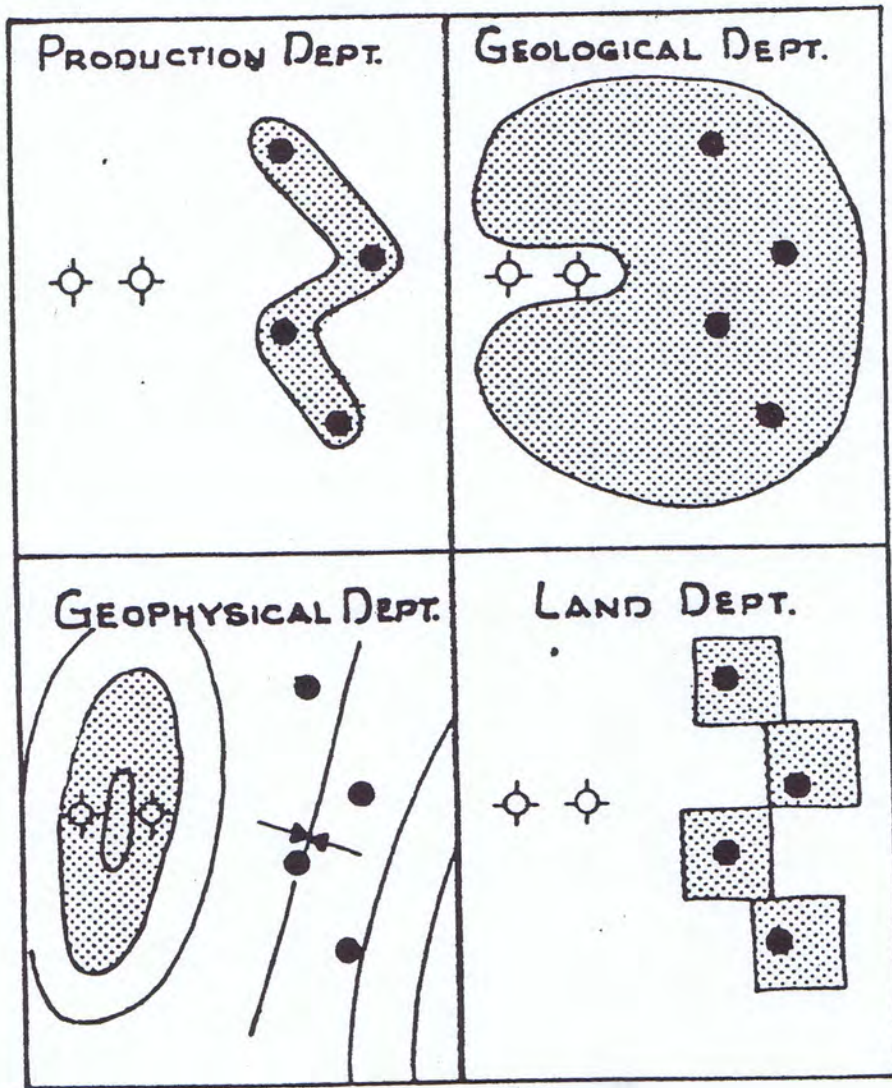
Send check for registration to: **GULF COAST SECTION SEPM FOUNDATION**  
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*Biographies of the Candidates will appear  
in next month's Bulletin.*



**18th FIELD TRIP OF THE  
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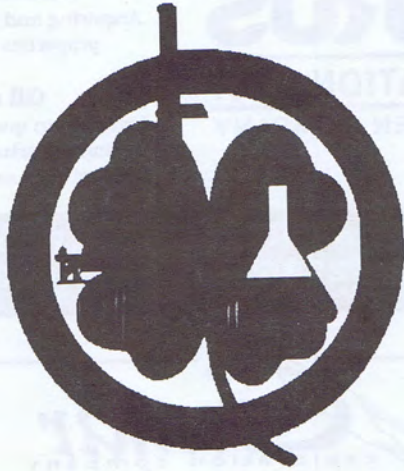
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**REMINDER OF LOCAL SOCIETY MEETINGS**

**SIPES**

Regular Meeting 1st Thursday of Month, 11:30 a.m.  
Petroleum Club

**SPE**

April - no meeting - golf tournament date TBA  
May 9 - Speaker: R. Jurgens, V.P., Drilling Systems Eastman-Christiansen  
Petroleum Club Smackover Room, 11:30 a.m.  
\$10, reservations not required

**MAPL**

April 8, Usually 2nd Monday of Month,  
except Summer months - 5:30 p.m. at Primos Northgate  
For Reservations call 352-0662 or 352-7782

**D & D**

1st Wednesday of Month, except July - 12:00 noon at Petroleum Club  
Rosemary Jenkins, 355-1578

**MIPRO**

Mid year meeting - Thursday, May 23rd

**GEOPHYSICAL SOCIETY**

4th Wednesday of Month, April 24  
11:30 a.m. at Petroleum Club. Reservations not required

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MARRY INTO A WEALTHY FAMILY**

If you have an override:  
**IT WILL BE DRY**  
If you have a working interest:  
**IT WILL ALMOST MAKE A WELL**

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BO found 38-years earlier in the area where  
42-years ago you conducted your 1st field work:  
**PURSUE GEOLOGY AS A HOBBY**

Don't tell people your troubles; half don't care and the other  
half will think you got what was coming to you:  
**BE PHILOSOPHICAL**

In part, from the bulletin board at the entrance to  
the geology lab of a midwest university.  
Copied by Dale Myers

**From earlier MGS Bulletins,  
for those of us who did not know  
many of our Honorary Members.**

Courtesy of Ed Minihan

**news of honorary  
members-**

By Ed Minihan

Being a geologist is an incurable disease; being a female and a geologist does not give one immunization. Though retired since 1961, Miss Winnie McGlamery is still practicing her geological profession in Tuscaloosa, Alabama as a consultant.

She was a strong right arm for the Alabama State Geological Survey for thirty years and made many outstanding contributions to the knowledge of the stratigraphy of Alabama. For those who work Alabama, Miss McGlamery's logs are invaluable—most of the time they are the only dependable well information available, particularly in the Paleozoic rocks of Black Warrior Basin.

Miss McGlamery attended the University of North Carolina for three years and received her A. B. Degree from Goucher College in Baltimore, Maryland. She did graduate work at John Hopkins University for two and one half years. The American Museum of Natural History in New York City employed her as a Paleontologist for one year. Her first experience with the oil business was as a Paleontologist for Humble Oil and Refining Company for one year in Houston. After the short tenure with Humble she moved to the Alabama State Geological Survey where she remained until she retired in 1961. Miss McGlamery is now a consultant in Tuscaloosa and still very active.



**WINNIE McGLAMERY**

January 1970



## news of honorary members-

by Ed Minihan

Dave Harrell was born on April 19, 1904 in Burnet, Texas. He attended public schools in Austin, Texas and graduated from the University of Texas with a B. A. in Geology in 1927.

Dave and his wife Oleta were married June 15, 1929. Oleta is a Geologist also with a M. A. in Geology from the University of Texas. She too had a distinguished career.

Dave's career is as follows: From 1927 to 1929 he worked for Roxana in Oklahoma and Texas; From 1929 to 1932 he worked for Standard of New Jersey in Java and Sumatra; From 1933 to 1936 was in Argentina for Standard of New Jersey; He worked from 1937 to 1939 for Standard of Louisiana and Carter Oil Company doing surface work in Southwest Arkansas, North and South Dakota and Northeast Kansas; In 1939 he came to Jackson as District Geologist for Carter Oil Company; In 1943 he went with Sun Oil Co. as District Geologist. During this interval he made short trips to Egypt and Venezuela for Sun.



**DAVE HARRELL**

In 1957 Dave became a consulting Geologist in Jackson.

Dave was President of the Mississippi Geological Society for the year 1942-1943.

May, 1970

Call for Papers and Posters  
The Gulf Coast Association of Geological Societies  
and  
The Gulf Coast Section of SEPM  
42nd Annual Convention  
Jackson, MS  
October 21-24, 1992

Hosted by Mississippi Geological Society

Papers should be prepared in accordance with AAPG Guidelines, and should have application to Gulf Coast Geology. There will be three types of presentation:

- \* Papers accepted to **oral presentation**, which will be published in full in the Transactions.
- \* **Poster presentations**, which will be published as extended one-page abstracts with the option of half a page of illustrations.
- \* **Core presentations**, which will be published as extended two-page abstracts to include photographic illustrations.

We would like to encourage you to display conventional cores from hot plays or with features of sedimentological interest or other distinctive reservoir characteristics.

Abstracts should be submitted with answers to the following questions: (1) Has this material been published previously? (2) If so, where and when, and how does your submission differ from the original? (3) In your opinion, is your paper more applicable to GCAGS or to SEPM? (4) Is the paper submitted for oral, poster or core presentation, and would you consider a change of presentation type if necessary?

Submit all abstracts by January 4, 1992 for the 1992 GCAGS Convention to:

Steven S. Walkinshaw  
Cougar Exploration  
111 East Capitol Street, Suite 208  
Jackson, MS 39201

Notification of acceptance will be by February 16 and completed papers will be due by April 4, 1992. Other than poster presentations, full manuscripts will be required for all papers.

John Marble, President  
C. Kipp Ferns, Co-Chairman  
S. Cragin Knox, Co-Chairman  
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Volume XXXIX

No. 9

May, 1991



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## PRESIDENT'S MESSAGE

Dear MGS Members,

I'll have to be honest with you. Being president of the Society was not nearly as tough as I had anticipated, but here's the secret: I have had plenty of good help including the other officers, committee chairmen and their members, plus many others. It has been a pleasure.

Due to a death in my family, I was unable to attend the spring field trip, but I understand it received great reviews. I heard they had fulfilling food, reviving refreshments stupendous sleeping quarters laudable leaders, outstanding outcrops, a forthright field guide mostly but not always trusty transportation.

I hope everyone that is able will come to the May meeting on the 14th, to not only hear Marvin Oxley, but also to elect new officers. Biographies may be found inside this bulletin.

The Spring Fling will be held at Miller's Lodge on May 23 (Thursday). Please feel free to bring spouses or girl friends. There will be games, prizes, boiled shrimp, good company, and refreshments. See you there!

Jim

**ABOUT THE COVER:** This month's cover photo shows the Paleocene - Eocene boundary recently excavated behind the Red Hot Truck Stop in Meridian, Mississippi. The contact is disconformable and (in this photo) is picked at the abrupt change in color from the light grey sand and the white sand above (see arrow). This is the upper Wilcox - lower Wilcox boundary where the Tuscaloosa Formation is represented by the grey sand below. The Bashi Formation, a transgressive marine unit, lies some four to ten feet above this boundary. Therefore, the white sand in the photo likely represents low stand deposits laid down prior to the Bashi marine transgression.

---

## BUSINESS MEETING LUNCHEON SCHEDULE

1991

April 9 • May 14

SPRING FLING - May 23

# BUSINESS MEETING LUNCHEON

MAY 14, 1991 • 11:30 A.M.

Capitol City Petroleum Club, Smackover Room

## ABSTRACT

### Gravity and Tectonic Map of Mississippi and Alabama

by: Marvin Oxley

Structural interpretations in the blossoming Cambro-Ordovician play of Mississippi and Alabama must take into account structural style, timing, and orientation of local, basin and continental scale tectonic features in attempting to understand local anomalies. Rifts, wrench faults, regional transformations, high low angle thrusts, horsts and igneous plugs have all imparted the original Cambro-Ordovician sediments and structures.

NOTE: Free map at meeting

**From earlier MGS Bulletins,  
for those of us who did not know  
many of our Honorary Members.**

Courtesy of Ed Minihan

**news of honorary  
members-**

by Ed Minihan

The Mississippi Geological Society has many outstanding Honorary members, none are more outstanding in their contributions to our society than are Paul and Esther Applin. It would be impossible to list all of their publications in the allotted space. It would be harder still to list the number of geologist who have sought and been freely given the advantage of their work and study.



**PAUL APPLIN**

U.S.G.S. and specialized in the Mesozoic stratigraphy of the Gulf Coast, salt domes, and oil geology.

Paul Livingston Applin was born in 1891 in Keene, New Hampshire; received his A.B. degree from Dartmouth in 1914; did graduate work at Yale; and taught mineralogy at Dartmouth. Paul's career has been varied. He has worked for the following companies: Roxana Petroleum Co., Texas Pacific Coal & Oil Co., Mid-West Refining Co. East Coast Oil Co., Rio Bravo Oil Co., Cosden Oil Co., and the Danciger Oil & Refining Co. He was an independent consulting geologist from 1931- 1943. In 1943 he started working for the

ESTHER RICHARDS APPLIN  
was born in Newark, Ohio in 1895. Esther received her A.B. and M.A. degree from the University of California. From 1919 until 1927 she was in charge of paleontological work for the Rio Bravo Oil Company. During this time Esther pioneered and proved the value of Foraminifera in subsurface correlations. From 1927-1942 she was a consulting geologist and paleontologist; from 1942-1945 she was an assistant professor of geology at the University of Texas; and in 1945 she joined the U.S.G.S. Esther too, has authored many papers on the Gulf Coast stratigraphy.



ESTHER APPLIN

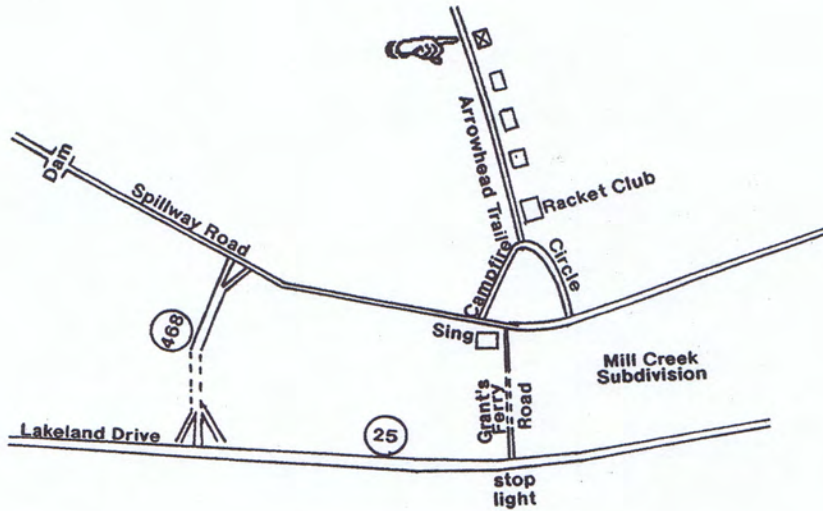
In 1923 Paul and Esther were married in Houston, Texas. They had two children, Louise Richards (Mrs. Emmitt A. Lawless, Jr.) and Paul Livingston, Jr. Both of Paul and Esther's children have made outstanding careers of their own. They now have twelve grandchildren and one great grandchild.

Are Paul and Esther busy since retirement? They are, Paul and Esther are still working on the complex stratigraphy of Florida and Alabama.

First Appeared in  
February, 1970  
Mississippi Geological Society  
News Bulletin

# SPRING FLING

Thursday, May 23  
Miller's Lodge



4:30 p.m. - Refreshments  
6:30 p.m. - Dinner

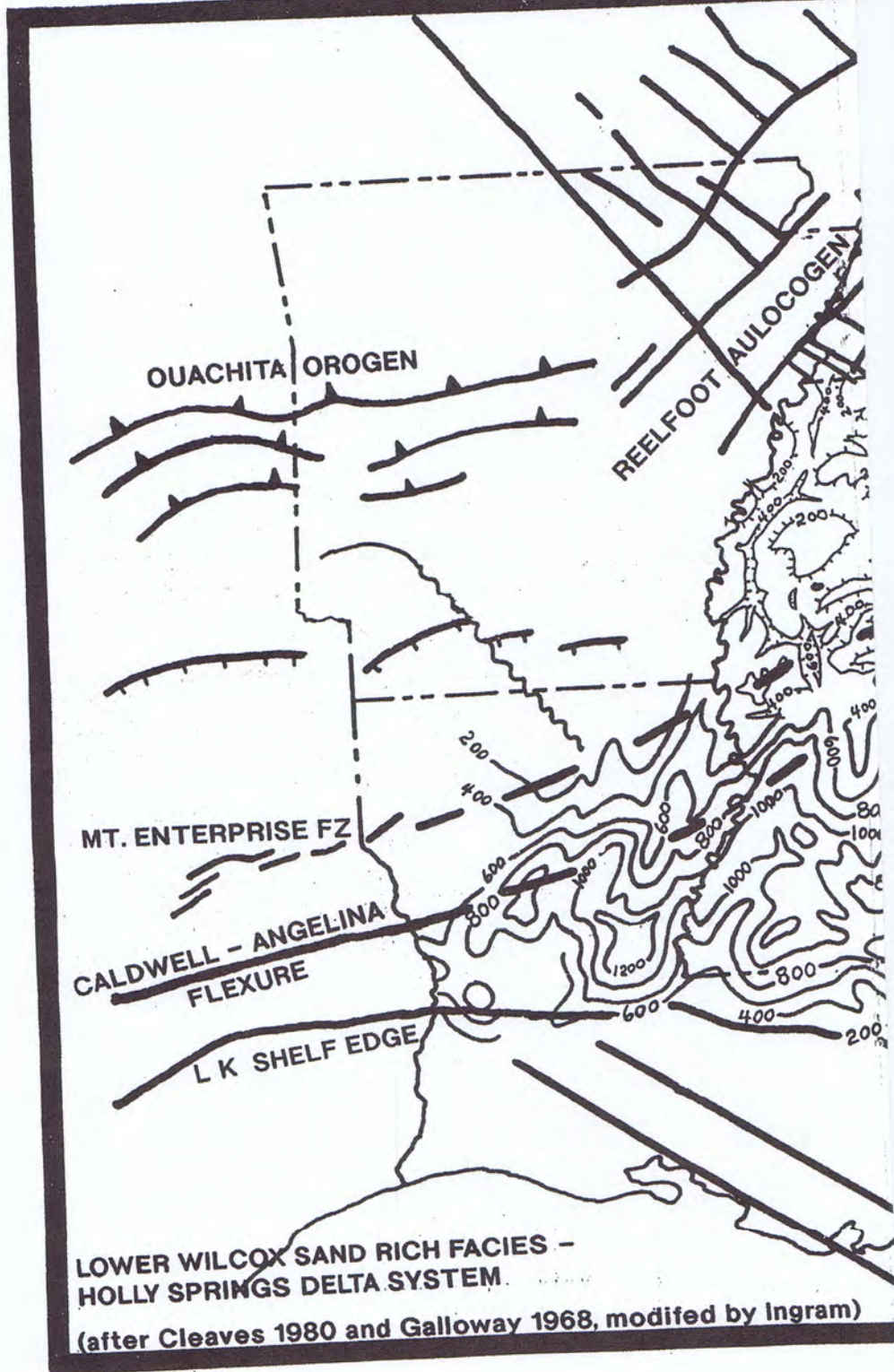
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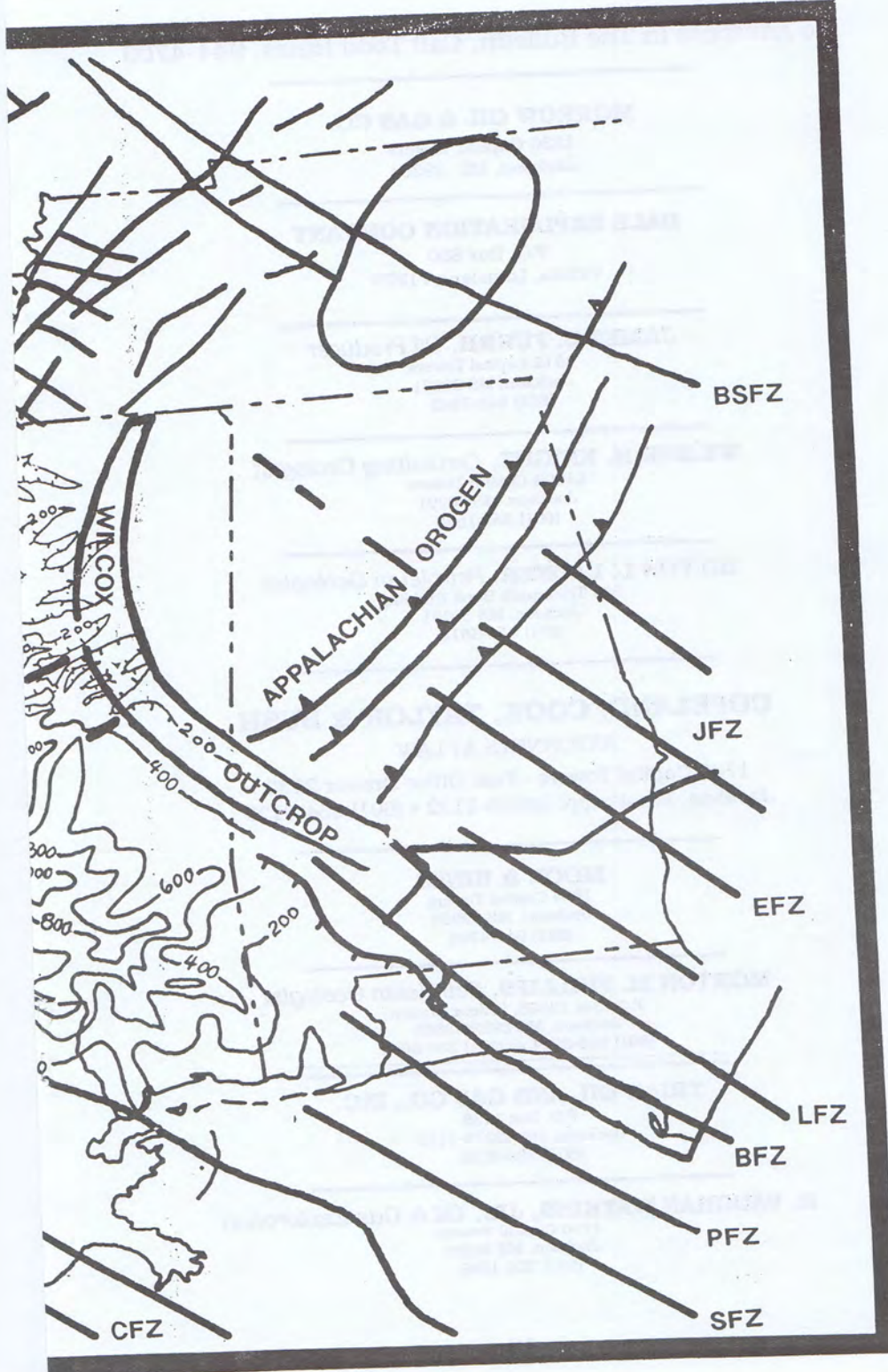
ARTICLE REVIEW :

After having enjoyed a conversation with a Wilcox Trend geologist at the March 22nd, MGS Salt Basin Seminar, I have suddenly realized that I have yet to mention anything with which they can relate as having to do with this review of the structural architecture of Mississippi. Therefore, I have prepared the following map which associates the Holly Springs Delta System (HSDS) with the regional tectonics. It is of great significance that all our members analyze this particular map in that it gives the first clear example of sedimentary response to the inherent structural configuration of the basement. Yes, it is Tertiary in age and is well up the stratigraphic column with respect to the basement. Nevertheless, it gives us a powerful illustration of how much influence the basement has exerted on the overlying sedimentary units.

When comparing this map with the regional maps published in the November and February issues of your MGS Bulletin, you will notice that there are two major hinges striking NE-SW which have an impact on the depositional response of the HSDS. One hinge strikes NE-SW in alignment with the Mt. Enterprise Fault Zone in Northwest Louisiana - Northeast Texas. The other hinge, the Caldwell-Angelina Flexure, is shown to extend northeastward some 100 plus miles into central Mississippi (to my knowledge, this extension has not been proposed before). The isolith map in this bulletin indicates that the deltaic component of the HSDS was dumped off these NE-SW striking hinges. Whereas, the fluvial component developed into a system of entrenched "paleotroughs" having both the NE-SW and NW-SE lineations or trends shown in the November and February tectonic maps. Finally, I want you to take note of the fact that both the Pearl and Big Black River's continue to follow this trend (not to mention the Sunflower, Tallahatchie, Yalobusha, etc). Also, those of you who have a copy of the STRUCTURAL FEATURES MAP published by the Office of Geology will recognize that the magnetic data provided therein confirms the structural alignment(s) proposed heretofore.

So, plough on ! Our next review(s) and map(s) may provide the key(s) to help you more fully augment your petroleum exploration here in Mississippi.







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Regular Meeting 1st Thursday of Month, 11:30 a.m.  
Petroleum Club

**SPE**

May 9th Petroleum Club Smackover Room, 11:30 a.m.  
\$10, reservations required

**MAPL**

Usually 2nd Monday of Month,  
except Summer months - 5:30 p.m. at Primos Northgate  
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**D & D**

1st Wednesday of Month, except July - 12:00 noon at Petroleum Club  
Rosemary Jenkins, 355-1578  
June Meeting TBA - Picnic

**MIPRO**

Mid year meeting - June

**GEOPHYSICAL SOCIETY**

4th Wednesday of Month, No May Meeting  
11:30 a.m. at Petroleum Club. Reservations not required  
Golf Tournament - Picnic - May 30-31

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The Gulf Coast Association of Geological Societies will hold its 41st Annual Convention in Houston, Texas, October 16 - 18, 1991. We are currently seeking advertisers for the 1991 Transactions - the annual publication of the association which contains the technical papers presented at the convention. Preliminary indications suggest that over 3,000 people will register for the convention and each registrant will receive a copy of the 1991 Transactions. This technical publication is purchased by both industry and schools and is widely used as a reference.

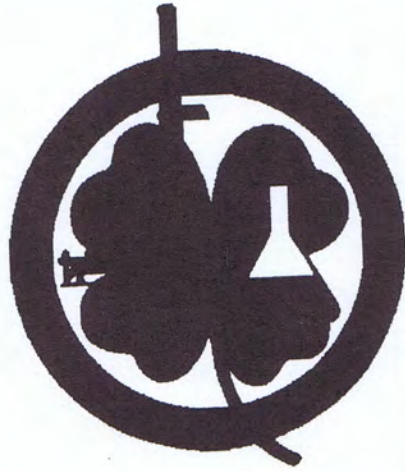
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**October 21-24, 1992**

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Abstracts should be submitted with answers to the following questions: (1) Has this material been published previously? (2) If so, where and when, and how does your submission differ from the original? (3) In your opinion, is your paper more applicable to GCAGS or to SEPM? (4) Is the paper submitted for oral, poster or core presentation, and would you consider a change of presentation type if necessary?

**Submit all abstracts by January 4, 1992 for the 1992 GCAGS Convention to:**

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Notification of acceptance will be by February 16 and completed papers will be due by April 4, 1992. Other than poster presentations, full manuscripts will be required for all papers.

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- conventional (2-man)
- limited (1-man)
- Portable drill-time and gas monitor
- online data acquisition systems (print-outs and plots)
- additional well-site geol. / eng. services

**CORE ANALYSIS**

- core slabbing
- x-ray diffraction analysis
- thin section preparation
- scanning electron microscopy
- petrographic analysis
- core photography

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