



# MISSISSIPPI GEOLOGICAL SOCIETY

Volume XXXVII

No. 10

July 1989



1988-89



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1989-90**

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**ABOUT THE COVER:**

Monroes in a mud tidal flat. Small mud mounds form under the icefoot as a result of ice pressure which expels air, water or liquefied mud from the underlying strata. These features owe their name to the late movie star, Marilyn Monroe.

## PRESIDENT'S MESSAGE

The Society's new board of directors and special committee chairmen have been installed and are preparing for the coming year. On behalf of the board, I want to encourage all members to become interested in the Society's operations and direction. You elected us as your representatives, let us know how we are doing or how we might do it better.

If you have not heard, the Mississippi Geological Society will be celebrating its 50th birthday this fall. In addition, September 5th will mark the 50th year of production from the state's first oil discovery at Tinsley Field. The Society, in conjunction with the Mississippi Association of Petroleum Landmen, Jackson Geophysical Society, SIPES, and the Desk and Derrick Club, will commemorate both events on August 22nd. Following dinner and a key note address (speaker to be announced), a historical marker which will be placed near Tinsley Field on Highway 49 North will be unveiled. The petroleum industry's impact on Mississippi's economy will be stressed. Wil Harper is Chairman of the event. There is a great deal of work to be done, we need your help, please contact Wil at (878-2121).

A special thanks goes to Greg, Barclay, and T. C. Rader, and Steve Oivanki for making the Spring Fling a success. Chefs Rader and Oivanki did an excellent job preparing and serving the shrimp, potatoes, and corn, while Greg and Barclay shopped for those coveted door prizes.

### Miscellaneous

Due to the Tinsley-MGS 50/50 on August 22, we have elected to move the fall barbecue to October. Fowler's Lodge has been rented for Friday, October 13.

I know someone out there is contemplating volunteering for the position of Redbook Chairman. This publication is important to the society both professionally and financially. Publication sales income for the 1988-89 fiscal year ending May 31 was over \$4,600. This update is scheduled to include 15 fields from the Mississippi/Alabama area and should not be a difficult job. The update needs to be done this year and someone needs to do it, make my day, call me.

Many members have still not sent in their bylaw's ballots. Vote now and drop these cards in the mail so we can begin our tally.

In conjunction with the 50th Anniversary celebration of the discovery of Tinsley Field, the Society is arranging for space at the Mississippi Agricultural and Forestry Museum to display artifacts, tools, pictures, etc., relating to the oil and gas industry in Mississippi. We are requesting items to be loaned to the Society for temporary display at the Museum, as well as donations to the Museum itself for a permanent display on the Mississippi oil and gas industry.

If you have any appropriate items and would like to lend them to the Society for this purpose, or donate them to the Museum, please contact Gene Taylor (969-2117), Bernie Holman (948-2056, or Wil Harper (878-2121).

Stan Galicki

stan.man  
SG/dbc

**50**  
**50**

th Anniversary Tinsley Oil Field Discovery  
th Anniversary Mississippi Geological Society

**Historical Marker Unveiling**  
**August 22, 1989**

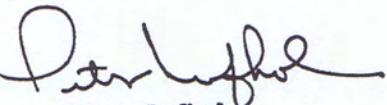
Dinner \$20.00 per Person  
Open Bar 6:00 - 7:00

Invitations to be mailed out to members.

Call Wil Harper For Details  
878-2121

TREASURER'S REPORT  
1988-1989 OPERATING YEAR

Cash Balance May 31, 1988	\$19,173.51
Cash Generated by Operations:	\$19,654.79
Operating Expenses:	<u>19,490.43</u>
	164.36
Money Market Account	\$18,896.61
Current Cash Balance	1,720.17
TOTAL CASH ON HAND (MAY 31, 1989)	\$20,616.78

  
Peter Lufholm  
Treasurer

## INCOME STATEMENT

OPERATING YEAR ENDING

MAY 31, 1989

GROSS REVENUES:

Membership Dues:	\$4,745.00
Advertising	1,810.00
Monthly Luncheons Meetings:	5,937.00
Publication Sales:	4,637.79
Fall Barbecue:	745.00
Fall Barbecue Sponsorship:	725.00
Christmas Party Sponsorship:	245.00
Spring Fling:	460.00
Spring Fling Sponsorship:	<u>350.00</u>
	 \$19,654.79

GROSS OPERATING EXPENDITURES:

Printing:	\$5,799.32
(inc. directory & by-laws)	
Postage:	1,007.80
Monthly Luncheons/Business Meetings:	6,455.09
Speaker Expenses:	1,701.92
Fall Barbecue:	1,400.00
Spring Fling:	1,966.31
Professional Fees (acctg.):	515.00
President's Expenses (GCAGS):	207.12
Donations (Memorial- Heart Foundation):	100.00
Miscellaneous	<u>337.87</u>
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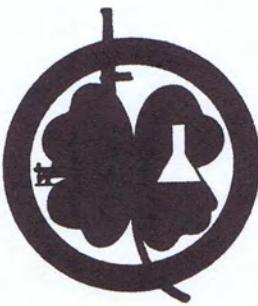
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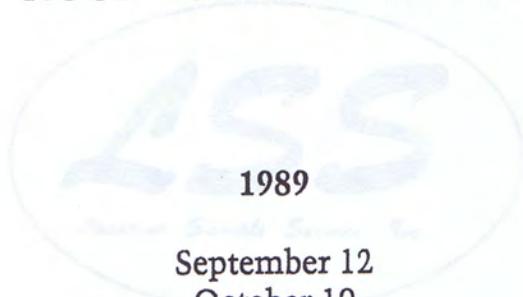
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September 12  
October 10  
November 14  
December 12

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	March 13
	April 10
	May 8

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Luncheon meetings will begin at 11:30 a.m.  
in the Petroleum Club Smackover Room.



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**ABOUT THE COVER:**

Volcanic Bomb (ejecta) and resulting sag structure. Boulder of pyroclastic material impacts and deforms underlying strata, creating a very localized depression. Kilbourne Hole, Western New Mexico. Photo by Jim Sinclair, OWLCO.

## PRESIDENT'S MESSAGE

I want to encourage all members to attend the Tinsley-MGS 50/50 celebration scheduled for August 22 and make the evening a success. Event Chairman Wil Harper, Special Committees, and contributing Societies have worked diligently planning this event. The evening begins with a complimentary social hour from 6:00-7:00 with hors d'oeuvres provided by Desk and Derrick. The social hour will be followed by a prime rib dinner and brief program. Each member should have received an invitation to the celebration. If you have not, look for ticket information in this bulletin.

Drilling rigs, pump jacks, tanks, and pipelines all serve as daily reminders of the industry's presence in Mississippi. We hope that recognition of Tinsley Field, placement of the Historical Marker, and establishment of the Museum exhibit will help make the petroleum industry's economic impact known. Please be a part of this celebration.

Do you know the whereabouts of a charter member of the MGS? We have published a list of members from the first MGS meeting and would appreciate some feedback. It would be wonderful to have them present for the 50/50 celebration. Contact me at 969-1126 if you can help.

Unocal is reorganizing and, after 20 years, closing the Jackson District. For the time being, my wife and I have chosen to remain in Jackson. Although I may not continue to work in the industry, I hope to remain President of MGS. I want to wish the best of luck to my fellow co-workers in their moves to Lafayette and Houston.

Fred Mellen and Wil Harper will be featured guests on WJTV's "Mississippi Morning" television show on August 18. The discovery of Tinsley Field and the impact that it has had on the state will be discussed. Catch it if you can.

Stan Galicki

We are trying to locate the Charter Members of MGS listed below. If you have any information on any of these individuals, please contact Stan Galicki or Wil Harper.

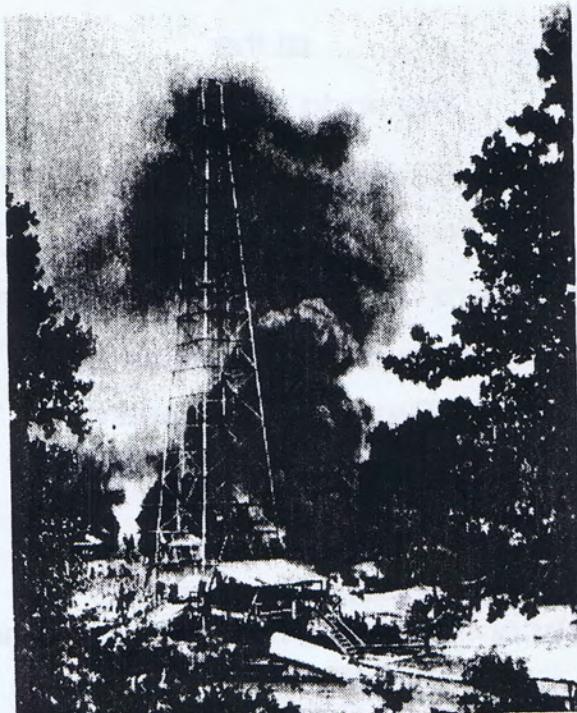
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50th Anniversary Tinsley Oil Field Discovery  
50th Anniversary Mississippi Geological Society  
on Tuesday, August 22, 1989  
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Complimentary Social Hour 6:00 p.m.  
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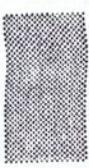
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October 10  
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December 12

### **1990**

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Volume XXXVIII

No. 1

September 1989



1989-90



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**ABOUT THE COVER:**

Differential Weathering of Uppermost Harperville Formation (Bluff Creek Sandstone) highlighting internal sedimentary structure of a fine grained meanderbelt. Farm road 1769, 2.5 miles west of Texas Highway 16, Young County, Texas.  
Photo by G. Hinterlong (OXY).

## PRESIDENT'S MESSAGE

The Tinsley-MGS 50/50 Celebration was a great success. A special thanks to those who worked so diligently. Members who were unable to attend can view the historical marker in the near future on Highway 49 north near Tinsley. The Society also awarded Honorary Lifetime Memberships to Verne Culbertson, Wendel Johnson and Wilbur Knight for their contributions to the Society over the years. Congratulations. If you had your photograph taken during the event and would like to order a picture, contact the photographer, Bob Alexander, at 956-2411.

The 1989 GCAGS Convention is scheduled for October 25 through 27 in Corpus Christi, Texas. Group discount fares may be available if enough people are interested. Jerry Zoble has agreed to act as coordinator; contact Jerry at 354-3577.

Julius Ridgway and Gary Wray are Co-Chairmen of the Committee to Organize Mississippi Independent Producers and Royalty Owners, MIPRO. This group will express concerns and communicate with government on regulatory and legislative matters. Look for more details in this bulletin.

We are fortunate to have one of our newly inducted Honorary Lifetime Members, Verne Culbertson, speaking at this season's first luncheon meeting on September 12, 1989, in the Petroleum Club's Smackover room at 11:30 a.m. Please call in your reservation to T. C. Rader at 969-3286.

Stan Galicki

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for

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3. The Lower Cretaceous formations throughout the salt basin, with depths ranging from 6,000 to 17,500 feet.
4. The Jurassic formations throughout the salt basin, with depths ranging from 10,000 to 22,500 feet.
5. The Paleozoic formations in the Black Warrior basin of northeast Mississippi and northwest Alabama, with depths ranging from 1,500 to 6,000 feet.

Each of these provinces have their own particular geological challenges and drilling techniques.

To assist explorationists in deciding where to commit their risk capital, an attempt has been made to determine which areas are yielding the maximum return on the investment.

By Verne L. Culbertson and  
David W. Miller

Call T.C. Rader (969-3286) for reservations.

**MIPRO**  
**Mississippi Independent Producers and Royalty Owners**  
P.O. Box 1635  
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August 2, 1989

TO: Independent Producers and Royalty Owners Who Have Interests in Mississippi  
FROM: Julius M. Ridgway and Gary Wray, Co-Chairmen  
Committee to Organize "MIPRO"

Last Saturday, July 22nd, nineteen (19) Independent Producers met together at the Holiday Inn Downtown in Jackson and made a commitment to organize the Independent Producers and the Royalty Owners to provide a forum to express our concerns and to communicate problems of interest to our members and to deal with legislative and regulatory matters for our common good.

Areas of immediate concern include:

- (1) New proposed spacing rules;
- (2) Incentives to reduce the number of marginal wells being plugged;
- (3) Access to well information;
- (4) Severance tax exemptions;
- (5) The right of equal access to the available gas markets on non-discriminatory terms;
- (6) Protection of accrued and suspended production with assurance of prompt payment.

The most pressing matters are the new proposed spacing rules and having access to the gas markets.

There are some remaining instances where small working interest owners continue to be denied access to the available markets while the wells are now nearing abandonment. These scattered examples still indicate the unfair and difficult environment under which we have participated in the discovery and development of existing and declining gas reserves.

As to the drilling of future gas reserves, we continue to work under a cloud of uncertainty and confusion when we obligate ourselves to share in the cost and risk of drilling and completion of our wells without the assurance of equal access to the available markets without discrimination.

On this matter, the Oil & Gas Committees of the Legislature have expressed an interest in hearing our complaint and working toward a satisfactory solution. We must move now to prepare for the coming session of the Legislature.

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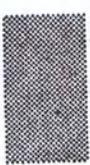
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Golf Tournament will be Wednesday morning 8:30 at Shady Oaks Country Club October 4<sup>th</sup> 1989.  
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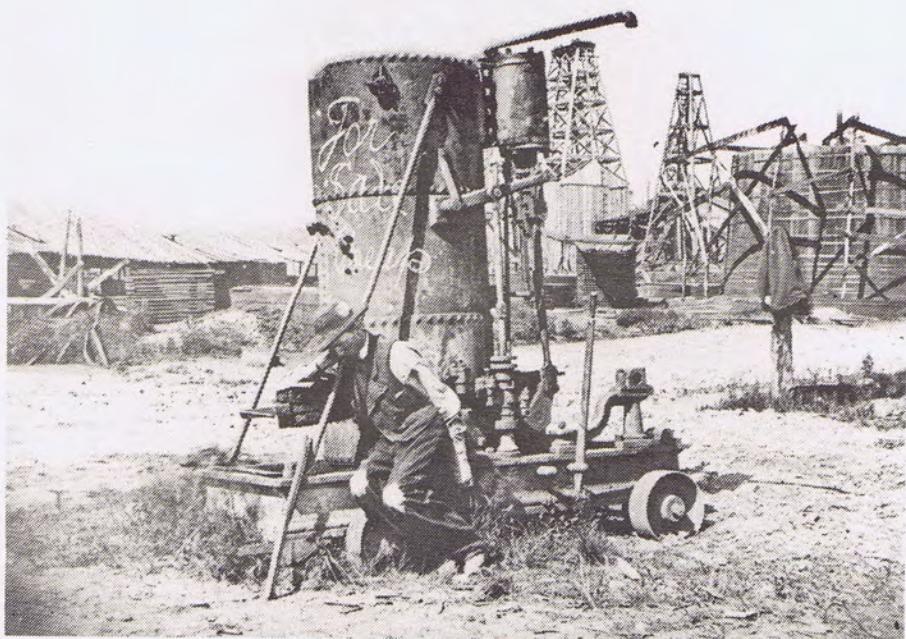


# MISSISSIPPI GEOLOGICAL SOCIETY

Volume XXXVIII

No. 2

October 1989



1989-90

## PRESIDENT'S MESSAGE

October 13th and Fowler's Lodge can mean only one thing . . . the Mississippi Geological Society's Fall Barbeque. Join us Friday, October 13th for refreshments and some of the finest barbeque around. The low price of \$10.00 (\$5.00 for students) at the door will provide you the opportunity to eat and drink with some of the best earth scientists around. Dinner is at 6:30.

The 1989 GLAGS Convention in Corpus Christi, Texas, is just around the corner. I know several members will be going. If you would, please consider service as a judge. Convention coordinators assure me that you will serve for more than two hours. Contact George Fegan, (512) 883-7300, for details.

Our noon luncheon meeting this month is scheduled for October 10th. The presentation will be made by William Wade. His talk will deal with the presence of H<sub>2</sub>S and the destruction of hydrocarbons in smackover reservoirs.

Please call in your reservations for lunch to T.C. Rader at 969-3286

Stan Galicki

## NOON LUNCH SCHEDULE

### 1989

September 12  
October 10  
November 14  
December 12

### 1990

January 9  
February 13  
March 13  
April 10  
May 8

Luncheon meetings will begin at 11:30 a.m.  
in the Petroleum Club Smackover Room.

# NOON LUNCHEON MEETING

October 10, 1989 • 11:30 a.m.

Capitol City Petroleum Club, Smackover Room

Speaker: William J. Wade

## CONTROLS ON H<sub>2</sub>S CONCENTRATION AND HYDROCARBON DESTRUCTION IN THE EASTERN SMACKOVER TREND

### ABSTRACT

H<sub>2</sub>S concentrations in deep Smackover reservoirs may reflect local steady-state conditions attained when generation of H<sub>2</sub>S is balanced by flux of H<sub>2</sub>S out of the system. H<sub>2</sub>S generated during thermochemical sulfate reduction within upper Smackover reservoirs is preferentially destroyed by reaction with metal ions to form sulfide minerals in the underlying Norphlet Formation. H<sub>2</sub>S concentrations are highest in and near Smackover reservoirs and decrease with depth to very low concentrations in the Norphlet Formation. Key factors controlling equilibrium H<sub>2</sub>S concentrations in Smackover reservoirs are porosity, tortuosity, and thickness of carbonates, nature of pore phase (oil, gas or formation water), and temperature (in excess of about 112°C).

Calculated diffusion-dispersion profiles successfully describe observed H<sub>2</sub>S concentration gradients. However, rates of molecular diffusion are insufficient to control H<sub>2</sub>S concentrations in Smackover reservoirs. It is possible that advective dispersion resulting from convective overturn is the means by which observed concentration gradients are maintained.

Because the rate of destruction of methane by thermochemical sulfate reduction is partly dependent on flux of H<sub>2</sub>S from Smackover reservoirs to the underlying Norphlet Formation, economic basement for Smackover reservoirs varies with H<sub>2</sub>S flux. The rate of methane destruction can be estimated from the H<sub>2</sub>S concentration gradient, convection rate, and temperature. Reliable estimates of porosity, permeability and thickness trends allow: 1) prediction of H<sub>2</sub>S concentrations in potential Smackover reservoirs with reasonable accuracy, and 2) estimation of local economic basement for Smackover reservoirs.

---

By

William J. Wade, Jeffrey S. Hanor, and Roger Sassen

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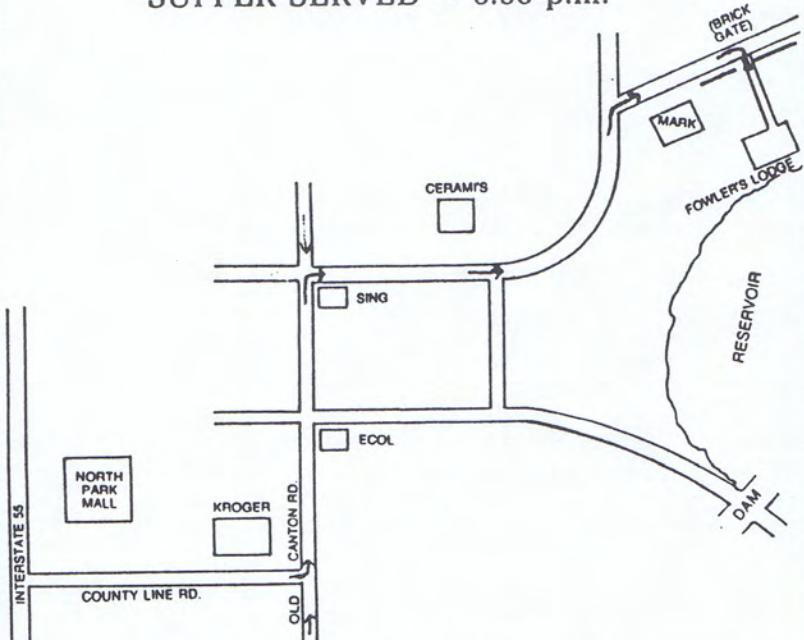
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**FRIDAY, OCTOBER 13  
FOWLER'S LODGE**

**FESTIVITIES START — 4:30 p.m.  
SUPPER SERVED — 6:30 p.m.**



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Volume XXXVIII

No. 3

November 1989



1989-90

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## PRESIDENT'S MESSAGE

The Fall Barbeque has come and gone and although attendance was low spirits were high. I want to thank our contributors and also T.C. Rader and Steve Ovanki for their time and effort. Preparing and serving a home cooked meal like that takes several days of planning. We appreciate your dedication, guys.

I have contacted Progress Productions and they have informed me that all orders for pictures from the 50/50 Celebration should have been filled. If you have any problems contact Robert Alexander at 956-2411.

Suggestions for those fields to be incorporated in this upcoming redbook supplement will be taken at the meeting on November 14. The supplement will include up to 20 fields. Please give it some thought so our committee can begin.

In addition to the presentation of a paper by Steve Mann from the Alabama Geological Survey on the Frisco City sand, we will recognize the winners of this year's Boland Scholarships. I would love to see 90 people at this luncheon, so call T.C. Rader at 948-3286 and make your reservation.

Stan Galicki

## NOON LUNCH SCHEDULE

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September 12  
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November 14  
December 12

1990

January 9  
February 13  
March 13  
April 10  
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Luncheon meetings will begin at 11:30 a.m.  
in the Petroleum Club Smackover Room.

# NOON LUNCHEON MEETING

November 14, 1989 • 11:30 a.m.  
Capitol City Petroleum Club, Smackover Room

## THE "FRISCO CITY SAND": A NEW JURASSIC RESERVOIR IN SOUTHWEST ALABAMA

Steven D. Mann, Robert M. Mink and Bennett L. Bearden, Geological Survey of Alabama, and Robert D. Schneeflock, Jr., Paramount Petroleum Co., Inc.

### ABSTRACT

The first commercial production of hydrocarbons from the Jurassic Haynesville Formation in southwestern Alabama was from the Frisco City field. The field currently produces 57.8° API gravity oil on 160-acre well spacing from a depth of about 3,660 m (12,000 ft). Perforations are in the "Frisco City sand" interval, in the lower part of the Haynesville Formation, which has an average porosity of 21 percent and an average permeability of 45 md. Currently, the field has two producing wells with cumulative production of over 180,858 barrels of oil and 275,747 Mcf of gas.

The trapping mechanism in the Frisco City field is a combination structural-stratigraphic trap. The structural component consist of a basement paleohigh, and the stratigraphic trap is produced by the termination of porous sandstone against the basement paleohigh.

The lower part of the Haynesville Formation in this area is composed of, in ascending order, the Buckner Anhydrite Member, the "Frisco City sand," and interbedded shale and anhydrite. Sediment of the "Frisco City sand" interval was probably deposited in a shallow marine, braid delta-front setting and has a blanket-like morphology. The sandstone is moderately to well sorted, very fine to fine grained, subarkose to plagioclase arkose, and contains angular pebbles of predominantly chlorite and mica schists. The sandstone is interbedded with thinly bedded, burrowed, sandy mudstone which produces, along with a variable distribution of carbonate and anhydrite cement, considerable reservoir heterogeneity. Porosity is predominantly intergranular and textural analysis revealed a significant amount of framework grain dissolution and decementation.

Call T.C. Rader (969-3286) for reservations.

**MIPRO**  
**Mississippi Independent Producers and Royalty Owners**  
P.O. Box 1635  
Jackson, Mississippi 39215

August 2, 1989

TO: Independent Producers and Royalty Owners Who Have Interests in Mississippi  
FROM: Julius M. Ridgway and Gary Wray, Co-Chairmen  
Committee to Organize "MIPRO"

Last Saturday, July 22nd, nineteen (19) Independent Producers met together at the Holiday Inn Downtown in Jackson and made a commitment to organize the Independent Producers and the Royalty Owners to provide a forum to express our concerns and to communicate problems of interest to our members and to deal with legislative and regulatory matters for our common good.

Areas of immediate concern include:

- (1) New proposed spacing rules;
- (2) Incentives to reduce the number of marginal wells being plugged;
- (3) Access to well information;
- (4) Severance tax exemptions;
- (5) The right of equal access to the available gas markets on non-discriminatory terms;
- (6) Protection of accrued and suspended production with assurance of prompt payment.

The most pressing matters are the new proposed spacing rules and having access to the gas markets.

There are some remaining instances where small working interest owners continue to be denied access to the available markets while the wells are now nearing abandonment. These scattered examples still indicate the unfair and difficult environment under which we have participated in the discovery and development of existing and declining gas reserves.

As to the drilling of future gas reserves, we continue to work under a cloud of uncertainty and confusion when we obligate ourselves to share in the cost and risk of drilling and completion of our wells without the assurance of equal access to the available markets without discrimination.

On this matter, the Oil & Gas Committees of the Legislature have expressed an interest in hearing our complaint and working toward a satisfactory solution. We must move now to prepare for the coming session of the Legislature.

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14. Mississippi Rocks of the Black Warrior Basin, Seventeenth Field Trip, 79 pp., April, 1978 .....	8.00
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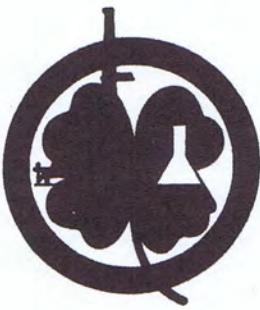
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The Petroleum Philatelic Society was organized late in 1974 for the purpose of advancing the philately (stamp collecting) of the oil, natural gas and petrochemical industries. In the short span of its existence the organization has enrolled members from thirty-six countries. The farflung global operations of the petroleum industry make it an ideal and extraordinary subject for the collector.

All phases of the oil industries are represented on world postage and revenue issues—exploration, production, refining, transportation, research, marketing, personalities and end-uses.

As a member, here is what Petrophil offers you: 1. You will belong to an international fraternity of petro-stamp collectors and collectors of other material related to the petroleum industry. A membership roster is published annually providing an opportunity to contact people with like interests around the world; 2. Each new member receives a copy of descriptive listing *Petroleum Stamps of the World*. Members who have received this listing are enthusiastic about it; 3. The *Petro-Philatelist* is the quarterly journal of the Society and is sent without additional cost. There is a Trading Post section for those who want to buy, sell or exchange stamps.

Current membership includes many of the pioneers in geophysical industry as well as men and women just beginning their careers. A great many of the world's principal oil companies, service companies, libraries and other institutions are also represented.

The Petroleum Philatelic Society encourages potential members who have questions to contact Jean Neil, 1896 Mt. Baker Highway, Bellingham, WA 98226.



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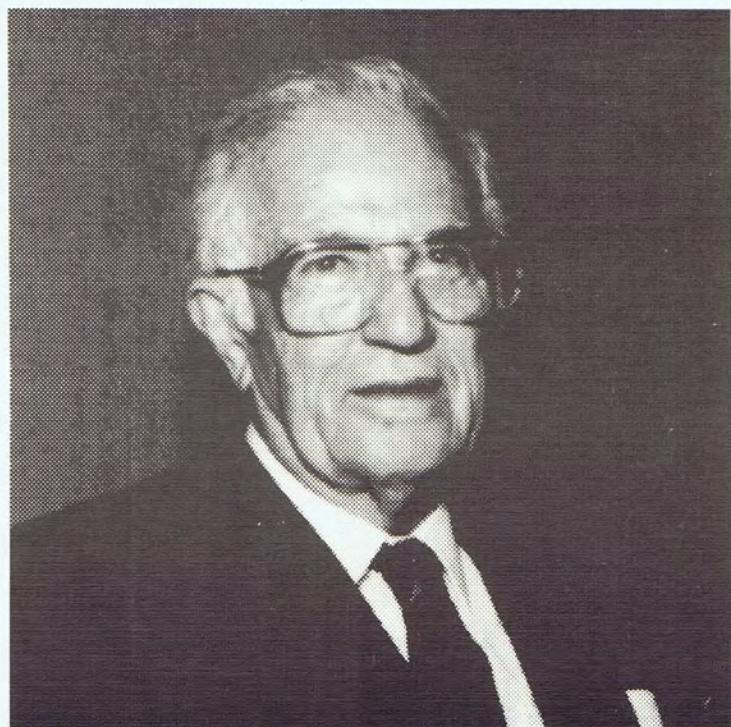


# MISSISSIPPI GEOLOGICAL SOCIETY

Volume XXXIV

No. 3

December, 1989



**Frederic Francis Mellen  
1911 - 1989**

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## PRESIDENT'S MESSAGE

The petroleum industry was saddened by the death of Fred Mellen last month. Fred recognized and documented an anomaly in Yazoo county, Mississippi as a geologist with the State. The result of his field investigations was the discovery of Tinsley Oil Field, Mississippi's first and largest. Fred was honored in August by all facets of the industry and a historical marker that recognizes Tinsley Field was erected close to the discovery well. Having accomplished what most petroleum geologists dream about, Fred Mellen will not only be remembered as an outstanding geologist, but also as a friend.

Stan Galicki

## NOON LUNCH SCHEDULE

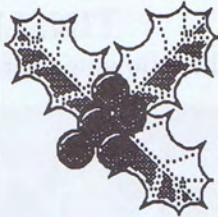
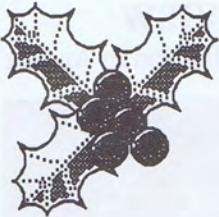
### 1989

September 12  
October 10  
November 14  
December 12

### 1990

January 9  
February 13  
March 13  
April 3  
May 8

Luncheon meetings will begin at 11:30 a.m.  
in the Petroleum Club Smackover Room.



# *Christmas Social*

December 12, 1989

Capitol City Petroleum Club

Smackover Room

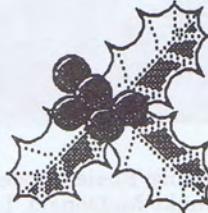
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## TINSLEY MGS 50/50 IN REVIEW

The following photographs were taken at the celebration in August



**TINSLEY-MGS 50/50 PLANNING COMMITTEE**

Standing: Mike Quick, David Miller, Bernie Holman, Wil Harper (Chairman), Gene Taylor, R.W. McCarley, George Vockroth, Jim McElroy

2nd Row: Claudia Berry, Dot Cunningham, Ronake McDonald, Nita Hicks, Julia Stacy, Mary Grace McCarley

1st Row: Conrad Gazzier, Stanley King, Stan Galicki, Mike Noone, Jim Files

Missing: Rosie Rhodes, Steve Champlin, Steve Ingram, Todd Hines, Les Aultman, Brad Truett, Will Knight, Chuck Peel, Jack Moody, Midge Samsel, Howard Patton, Jim Furrh, Dave Cate



**DESK AND DERRICK CLUB**

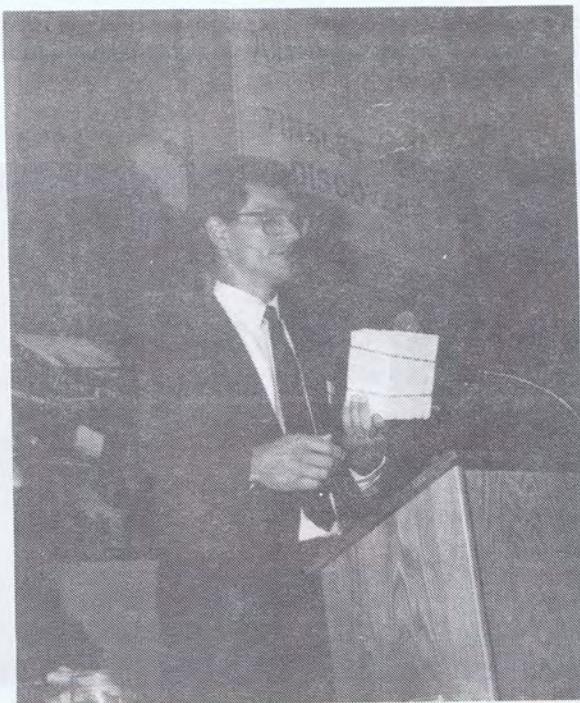
Standing: Rosie Rhodes, Mary Grace McCarley, Mary Jenkins, Lisa McCoy, Roanoke McDonald, Lucy Basseler

Seated: Denise Hawkins, Julia Stacy, Nita Hicks



#### MISSISSIPPI ASSOCIATION OF PETROLEUM LANDMEN

Officers with Tinsley Marker, left to right: Mike Quick, David Miller, Toxey Puckett, Bernie Holman



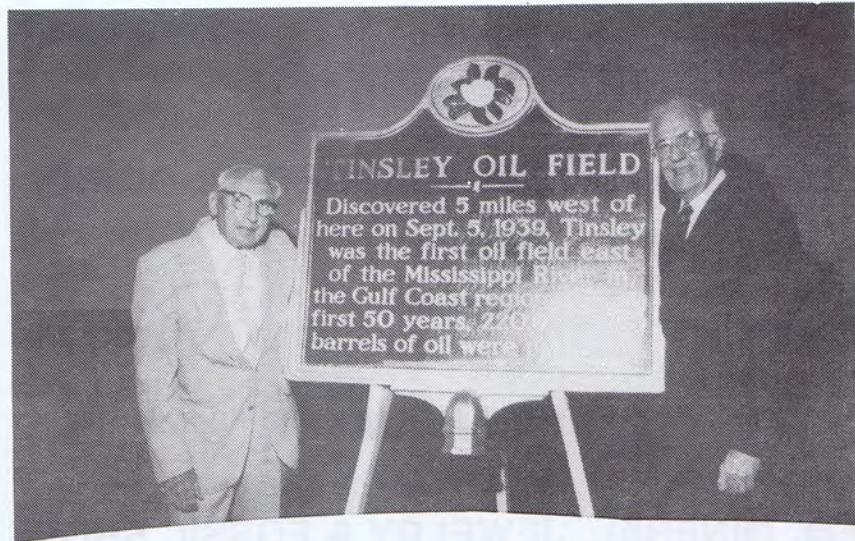
Stanley King, MGS Past President, displays notes for his brief historical review of the Society's first 50 years.



Three dedicated geologists were elevated to honorary lifetime members of the Mississippi Geological Society. From left to right: Wendell Johnson, Vern Culbertson, and Wilbur Knight



Scottie Holland (left), President of Pennzoil Producing Company, delivered the keynote address. Posing with Mr. Holland is Jim Lewis, President of AAPG.



Dave Harrell, MGS Charter Member and Honorary Lifetime Member, poses with Fred Mellen beside the Tinsley Marker.



The culmination of the evening was the unveiling of the historical marker. It is now in its permanent location on State Highway 49 just north of the town of little Yazoo.

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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
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October 16, 1989

Mr. Stanley King, President  
Mississippi Geological Society  
P.O. Box 422  
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Dear Mr. King,

I am contacting you on behalf of the Geology and Geological Engineering Students at Ole Miss. Unfortunately, the University of Mississippi Geological Society (UMGS) has been inactive for the past several years. I am happy to report that we now have a new crop of graduate and undergraduate students who are very interested in reviving UMGS.

As students we are eager to meet with professionals who are willing to share their knowledge and experience. Therefore, our first priority is to invite Geologists and Engineers to address our group concerning topics relating to geology and geological engineering. Anyone who may have an interest in speaking to our group is invited to contact us.

I urge you to inform members of the Mississippi Geological Society that we are soliciting speakers and would greatly appreciate their participation. Anyone who may be interested or would like more information may contact me at the above address or call (601) 232-7707. In addition I ask that your group inform us of any upcoming Mississippi Geological Society events which our students may find of interest. Thank you for your time and consideration.

Regards,

*Rusty Tarver*  
Rusty Tarver

Graduate Student  
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# MISSISSIPPI GEOLOGICAL SOCIETY

Volume XXXVIII

No. 5

January, 1990



1990 - 1991



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BOLAND MEMORIAL SCHOLARSHIP RECIPIENTS: Left - Right: James Brown,  
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## PRESIDENT'S MESSAGE

Happy New Year! Our joint venture with the Jackson Geophysical Society was very successful. I was pleased to see over 80 explorationists at the JGS-MGS Christmas Social. There are quite a few projects in the works and I want to briefly mention them.

The 1992 GCAGS Convention is scheduled to be held here in Jackson on October 21st through the 23rd. The Ramada Inn Coliseum has been selected as the convention site. The Ramada Inn's facilities, proximity to the Trade Mart, and availability of parking make it a logical selection. In addition, their experience from the 1983 GCAGS convention will be valuable to the planning committee. We are currently going over the society's membership list and selecting those to be contacted in regards to serving on the planning committee. If you or your spouse are willing to volunteer, please contact an officer of the society.

In the coming months, the society must hold elections to fill vacancies to the House of Delegates of the AAPG. Two newly elected delegates will serve from July 1, 1990, to June 30, 1993. If nominated, please give the position careful consideration because it does involve some travel.

The society is considering the establishment of a scholarship fund in the name of Frederic Mellen. Details pertaining to the administration and distribution of the award are being worked out. If you have suggestions, please contact an officer.

Conrad Gazzier, Director of the Bureau of Geology, will be our guest speaker at the January 19th luncheon meeting. The luncheon begins at 11:30 in the Petroleum Club's Smackover Room. Please call T.C. Rader at 969-3286 for reservations..

Stan Galicki

## NOON LUNCH SCHEDULE

### 1989

September 12  
October 10  
November 14  
December 12

### 1990

January 9  
February 13  
March 13  
April 5  
May 8

Luncheon meetings will begin at 11:30 a.m.  
in the Petroleum Club Smackover Room.

# NOON LUNCHEON MEETING

January 9, 1990 • 11:30 a.m.  
Capitol City Petroleum Club, Smackover Room

Mississippi Geological Society  
P. O. Box 422  
Jackson, MS 39205

Gentlemen:

As professional geologists and fellow members of the Mississippi Geological Society, we are asking for your help. The Mississippi Bureau of Geology has acted as a scientific investigative agency and as a repository of geologic information since its creation in 1850. We have 140 years of dedicated cooperation and service to the public of our state and have continually maintained representation in the Mississippi Geological Society since its inception.

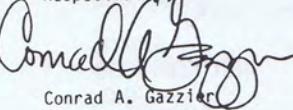
Over the past several years we have been working to promote our state's resources. Our efforts have been rewarded by generating outside interest and cash flow into the state. All of us are benefitting from this exposure. Our state is competing for investment with other states.

We are soliciting your help in promoting Mississippi's petroleum potential. Our purpose and goal is to channel investment and profits into the state and to do this we need to focus on some important fundamentals which cemented our past friendship and success.

The Bureau of Geology needs samples and cores from wells drilled in the state to be designated for storage at the Bureau Sample and Core Library. The Library currently has cores from 755 wells and drill cuttings from over 5700 wells. Additions to these core and sample collections will encourage further scientific research. We are working jointly with several colleges and universities supporting their research activities. We can make provisions for exclusive security of confidential information if requested by the contributor. By strengthening the liaison between the Bureau and the professional community we will focus our best efforts on those areas of greatest need and toward those areas of highest economic potential for the people of our state.

We are therefore asking you to direct all well files, samples, cores, and a complete suite of logs to the Bureau of Geology. We anticipate and encourage your active participation in these efforts for without it we cannot achieve our goals. Ultimately, you will become the benefactor of our teamwork. Please call me if you have information to contribute now, and consider making preparations for sample collection in the future.

Respectfully,



Conrad A. Gazzier  
Director

BUREAU OF GEOLOGY, P.O. BOX 5148, JACKSON, MS 39296-5148, (601) 354-6228

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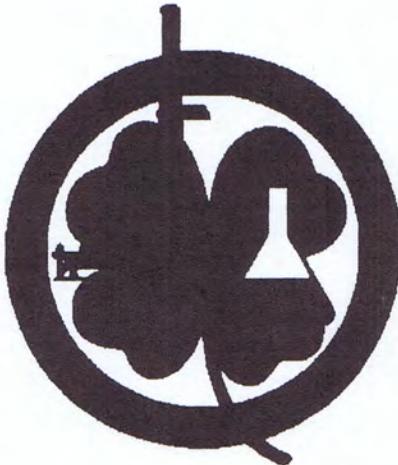
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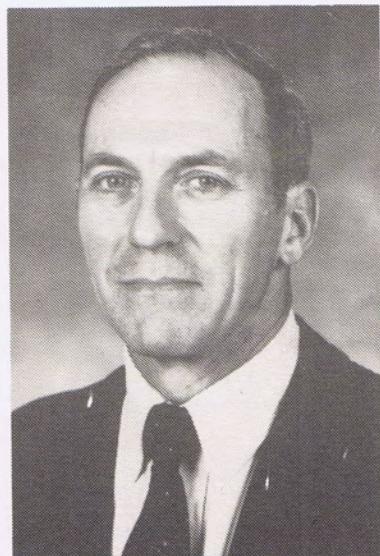
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# MISSISSIPPI GEOLOGICAL SOCIETY

Volume XXXVIII

No. 6 February, 1990



W. J. EBANKS, JR.  
AAPG Foundation  
Haas-Pratt Distinguished Lecturer

*Development Geology – Advances in  
the Eighties, Prospects for  
the Nineties*

1990 - 1991

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## PRESIDENT'S MESSAGE

It is a pleasure to open this month's President's Message with relatively good news. As of January 2nd the State Oil & Gas Board has adopted a new pricing schedule for services and reproduction of data. The adjustment rolled back the cost of copies to the 1983 level. A special thanks to our Oil & Gas Board Liaison, Harry Spooner, and all other dedicated members who expressed their concern to the Oil & Gas Board and worked for this change. A copy of the new regulation is published in this Bulletin.

The Society has just completed the 1990 advertising campaign. I want to welcome our new advertisers to the Bulletin and thank our longtime advertisers for their continued support. MGS members are encouraged to submit for publication in this Bullet any information they feel would benefit the membership. We welcome the opportunity to publish the results of your research when you are ready to release it.

Our first AAPG distinguished lecturer will be in town for the February 13th meeting. W. J. Ebanks, Jr. will present his lecture entitled "Development Geology - Advances In The Eighties, Prospects For The Nineties". Please support our efforts to bring you quality speakers and join us in the Petroleum Club's Smackover Room at 11:30.

Finally, several members will probably be going to the Annual AAPG Convention in San Francisco June 3-6, 1990. Please consider serving as a judge. The Planning Committee is in need of your service. A form to volunteer will be included in the registration package.

Stan Galicki

## LETTERS TO THE EDITOR

I would like to see our Bulletin become more informative and do a better job of serving the needs of MGS members, individually and as a group. This will require ideas, a slight effort, and some participation on the part of you the member to come about. If anyone has ideas how to do this please contact myself or any of the officers. I am beginning this column as a first step. I have noticed we are an opinionated group, at the very least, so here is your chance to be in print. Does anyone have a paper or abstract to publish? How about papers from our Universities or colleges? Comments about a central geological data repository? Professional registration?

- Editor

## BUSINESS MEETING LUNCHEON SCHEDULE

1990

February 13 • March 13 • April 5 • May 8  
Spring Fling - May 18

# BUSINESS MEETING LUNCHEON

February 13, 1990 • 11:30 a.m.

Capitol City Petroleum Club, Smackover Room

*Development Geology - Advances in the Eighties, Prospects for the Nineties*

W. J. Ebanks, Jr. - ARCO Oil and Gas Company - Plano, Texas

Development geology is crucial to maximize the ultimate economic recovery and value of hydrocarbon resources. Important economic decisions about a field can best be made if reservoir engineering models used to forecast production behavior are designed with a thorough understanding of the field's physical properties. Accurate, detailed description of a field is the key to successful reservoir management from discovery to abandonment, and important advances have been made recently in formulating and using these descriptions.

All reservoirs are heterogeneous. Geological complexity can have a profound influence on the paths fluids take in interwell volumes. Increasing experience with enhanced oil recovery projects and infill drilling programs has emphasized the importance of anisotropic permeability and of barriers to fluid flow as major causes of incomplete recovery of hydrocarbons. Good progress has been made in understanding the geological causes of reservoir heterogeneity, but progress in expressing these insights quantitatively has been slow. Greater computing power and innovative graphic displays enable petroleum engineers to use more geological detail in models of reservoir behavior. This ability to use more detail has increased the demand for quantitative expression of geological information. To meet this demand, stochastic modeling techniques are being applied to estimate spatial variability of reservoir quality and evaluate uncertainty in development drilling.

Detailed description of reservoirs has increased awareness of the need for more deterministic information about them. Geophysical techniques, especially improved surface three-dimensional and crosswell reflection surveys, are being used more frequently. Engineering methods, including pressure transient analyses and tracer injection surveys, are being applied to estimation of effective, large-scale properties of reservoirs. Geological understanding is essential to correctly interpret both geophysics and engineering measurements. Similarly, historical production data can be used to refine geologic interpretations in some cases.

Research on the microscopic controls on distribution and flow of fluids in reservoirs has led to a better understanding of absolute and relative permeability and of capillarity. As a result, classifications of pore geometry that focus on that geometry's effects on fluids rather than on the geometry's origin has gained renewed acceptance. This concept is especially useful in communicating information from the petrographer to the petrophysicist and the engineer. This has led to more representative sampling of reservoir rocks for petrophysical measurements and fluid flow experiments, and, consequently, better estimates of ultimate productivity.

During the 1990's, the prospects are good for further improving the accuracy and usefulness of reservoir descriptions. The demand for greater quantification will lead to more detailed studies of outcrops, with emphasis on variations in petrophysical properties and bedding geometry. Armed with these new insights, geologists will be able to design conditioned stochastic models, which will increasingly be used to make equiprobable estimates of the distribution of reservoir properties in the surface. Geophysical methods of detecting reservoir lithology and variations in porosity will continue to improve, as will the capability to monitor the subsurface movement of fluids. Further integration of well-log analysis with petrographic and petrophysical information will enhance the recognition of lithological variations in reservoirs, especially by application of formation microscanning and geochemical logging techniques.

As the emphasis in industry shifts from exploration to development, one of the most important changes will be much greater integration of geology and engineering at a working level. Multidisciplinary teams of professionals working on reservoir-management problems will overcome traditional barriers to communication, resolve conflicting priorities, and develop a more holistic view of the reservoir than has commonly been done. This trend, which has already begun, will require broader training, better mutual understanding, and sharing of information and ideas among team members. Geologists will continue to play an important role in reservoir analysis, and challenging opportunities for this type of work will increase.

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  14. Mississippi Rocks of the Black Warrior Basin, Seventeenth Field Trip, 79 pp., April, 1978 ..... 8.00
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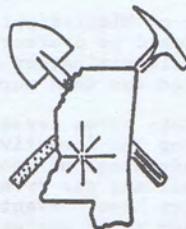
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**MISSISSIPPI INDEPENDENT PRODUCERS AND ROYALTY OWNERS ASSOCIATION**

Founded and organized in August, 1989, the Mississippi Independent Producers and Royalty Owners primary goal is to protect the interest of the independent and royalty owner segment of the Mississippi oil and gas industry. MIPRO members recognized the need for a voice in legislative and regulatory issues affecting their segment of the oil and gas industry.

During the 1990 Legislative Session, MIPRO will be pushing for the passage of House Bill Number 964, introduced by Representative Mike Gunn of Hinds County. Forty-six other members of the House of Representatives have joined him as co-authors. House Bill 964 provides for the ratable production and distribution of oil and gas.

The State of Mississippi has relied on its laws governing its State Oil and Gas Board to protect the rights of all owners in a pool of oil and gas from discriminatory and abusive purchasing practices. The rules implemented for this purpose are referred to as "Ratable Take" rules.

Ratable Take rules serve the twin interest of conservation and fair dealing by removing the incentive for one owner, with the help of its purchaser, to take advantage of another owner by either draining the disadvantaged owner's oil and gas from him or forcing him to "leave it in the ground." These rules have prevented an unscrupulous operator from an agreement with a purchaser to an exclusion or detriment of other owners in the well.

The states' legitimate interest and concern is to prevent the drainage of one owner's oil and gas by another while allowing equal access to the market to produce and recover his fair share of production. The purpose of the above legislation is to seek state legislation to redirect the responsibility and obligation --to protect the coequal and correlative rights of all owners-- from the purchaser to the operator. The legislation provides for a "ratable production" rule as opposed to a "ratable take" rule.

***Summary of Ratable Production Legislation***

***House Bill 964 (Gunn)***

- Sec 1
  - o Conforms the requirements to promptly pay royalty owners proceeds from the sale of oil or gas within 120 days after first sale with working interest owners. Legitimate late payments subject to 8% interest.
  - o Willful violations subject to penalties.
  - o Jurisdiction in Chancery Court of County where well is located.
- Sec 2
  - o Production and payment proceeds shared ratably.
  - o Oil and natural gas liquids to be allocated on a current monthly basis.
  - o Prior to date of first production, operator to notify owners of general provisions and terms of proposed contract for sale of natural gas. Within 30 days of receipt of notice, owner elects in writing to separately dispose of its share of gas or have operator sell his share of gas.
- Sec 3
  - o Under an existing well, non-contracted owners have 30 days to elect to separately dispose of his share of other contracts.
- Sec 4
  - o Gas produced daily is owned in proportion to each owners interest in the well. An owner separately must account to other interest owners for gas sold.
- Sec 5
  - o An owner cannot escape the requirements of the Act by receiving payments directly from the purchaser
- Sec 6
  - o Disclaimers; Provides for each operator to produce ratably from the pool consistent with the prohibition of "waste"; and, Definitions.
- Sec 7
  - o Empowers the Oil and Gas Board.

—Letter Sent to All Members of the House of Representatives—

**MISSISSIPPI INDEPENDENT PRODUCERS & ROYALTY OWNERS**  
**Post Office Box 135, Jackson, MS 39201; 770 Lakeland Drive #207, Jackson, MS 39216**

January 17, 1990

\*\*\*\*\* COPY \*\*\*\*\*

Representative Mike Gunn  
House of Representatives  
State Capitol  
Jackson, Mississippi

Dear Representative Gunn:

Obviously there has been some controversy concerning an oil and gas bill (House Bill 964 by Gunn) which deals with "Ratable Production."

This particular legislation has been before the Legislature for the past three years and has been opposed most directly by the major companies and pipelines. The bill has not had a fair hearing in Committee or been before the full body although it is supported strongly by the small independent oil and gas producer and operator and the many royalty owners and land owners in the state of Mississippi. The bill could be considered a bill to protect the small investor and land owner and should not come down to an issue of "BIG" versus "small."

The bill is fair and should be non-controversial. Simply stated, the bill's intent is to protect and prevent the drainage of one interest owner's oil and gas by another interest owner and allowing equal access to the marketplace to produce and recover all working and non-working interest owners fair share of production. A primary purpose of the bill is to redirect the responsibility and obligation of the operator with the intent of protecting the coequal and correlative rights of all owners - all the way from the purchaser to the operator to the smallest interest owner.

House Bill 964 serves the twin interests of conservation and "fair dealing" by removing the incentive for one owner, with the help of its purchaser, to take advantage of another owner by either draining the disadvantaged owner's oil and gas from him or forcing him to "leave his share of production in the ground." It is further intended to prevent an unscrupulous operator from making an agreement with a purchaser to the exclusion or detriment of other owners in a well.

We are simply asking for the courtesy of being granted a fair hearing on the bill since it is not new. Every other oil and gas producing State (Texas, Louisiana, Arkansas and Oklahoma, for instance) has a law on the books or regulations for this identical protection. We are willing to work with any other group or company to assure fair treatment, but the rights of the small independent and the small royalty and land owners, should be considered first and foremost. We are currently attempting to work with all concerned parties to assure everyone has input and is treated fairly.

Until MIPRO was organized, the small producer, royalty owner and land owner did not have a collective voice in the State Legislature. From time to time, there will definitely be issues where the major/large producers interests will be in conflict with the small producer and the small royalty and land owner. However, in most cases the industry will be in agreement on most issues.

Should you have any questions or if you need additional information, please feel free to call us. A summary of the bill and a business card is attached for your reference.

Sincerely,

Julius Ridgway  
President, MIPRO

C. Wayne Harmon  
Legislative Representative, MIPRO

cc: Mid Continent Oil and Gas Association  
MIPRO Membership  
Members of the Mississippi House of Representatives

REGULATION

MISSISSIPPI STATE OIL AND GAS BOARD  
RESEARCHING OF RECORDS, PROVIDING COPIES  
AND CHARGES THEREFOR

SECTION I. REQUEST FOR RECORDS

A. A request for a public record of the Mississippi State Oil & Gas Board may be made orally or in writing, however, the agency reserves the right to require a request to be made in writing, and shall be addressed to the Mississippi State Oil & Gas Board.

B. A request must reasonably describe the desired record, including the approximate date.

SECTION II. TIME LIMITATIONS

Within fourteen (14) working days (excluding Saturdays, Sundays and legal public holidays) of the receipt of a request and the prepayment of cost, the Mississippi State Oil & Gas Board will respond to requests for copies of specifically identified documents which may lawfully be released.

SECTION III. FEES

A. Charges for services rendered in response to information requests shall be as follows:

1. A minimum charge of one (1) dollar for the first invoice billed and an additional charge of one (1) dollar for each subsequent billing of the same invoice will be assessed to cover the cost of re-billing.

2. Charges for researching of records at the rate of nine (9) dollars per hour per person.

3. Copies of forms and letters made by electrostatic or xerographic copy machines - 8 1/2 by 11 and 8 1/2 x 14 - at the cost of twenty-five (25) cents per copy; oversized copies at the rate of thirty (30) cents per copy.

4. Telephone requests for information from well files will be limited to three wells per day. Copies of the information provided will be forwarded with a statement for the applicable charges. Request for information from more than three (3) wells must be in writing.

5. Continuous copying of a well log shall be at the rate of sixty-five (65) cents per linear foot. Copies of any portion of a well log will be copied on either 8 1/2 x 11 or 8 1/2 x 14 paper at the rate of seventy-five (75) cents per page. All requests shall be numbered in order of receipt and filled in sequence.

6. Appeals of Board Orders shall have the following charges to the appellant:

a) Copying of any materials will be at the rates

c) This does not include the court reporter's fee for transcription, which must be paid directly to the court reporter.

7. The actual cost of mailing, postage, and envelopes or boxes will be charged.

8. The State Oil & Gas Board Statutes, Rules of Procedure and Statewide Rules and Regulations Book shall have a cost of fifteen (15) dollars each plus the actual cost of mailing.

9. Costs of production reports:

- a) Subscription for the twelve (12) monthly production reports, one (1) Annual Production Report and one (1) Book of Maps - \$100.00 per year.
- b) One copy of a monthly production report - \$8.50.
- c) One copy of an annual production report - \$25.00
- d) One copy of a book of maps - \$25.00.

10. A cost of four (4) dollars will be charged for each "pipeline map" plus the actual cost of mailing.

11. A charge of one (1) dollar shall be made for each certification of true copies of agency records.

B. When a response to a request requires services or materials for which no fee has been established, the actual cost of such services or materials, including staff time, to the Mississippi Oil & Gas Board will be charged.

C. Fees for searches and copies are payable in advance, unless arrangements for subsequent payments are made.

D. Remittance shall be in the form either of a personal check or bank draft drawn on a bank in the United States, a postal money order or cash. Remittance shall be made payable to the order of the Mississippi State Oil and Gas Board. The agency will not assume responsibility for cash which is lost in the mail.

E. Credit Services will not be provided to parties with past due balances with the Board.

F. A receipt for fees paid will be given only upon request. No refund will be made for services rendered.

G. The Board directs the Oil and Gas Supervisor to continuously monitor cost represented in this Regulation. Any future change in the cost of services as set forth in this Regulation will be made as actual costs of providing the services rise.

H. This Regulation shall be in effect on and after January 2, 1990.

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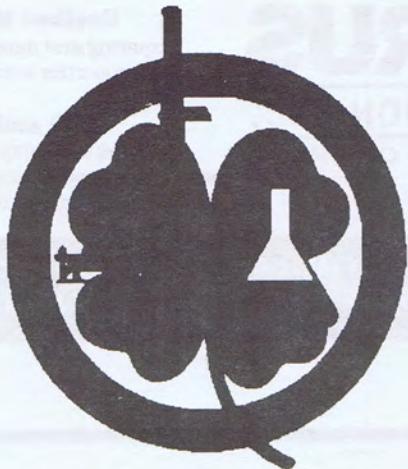
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Volume XXXVIII

No. 7

March, 1990



1990 - 1991

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**ABOUT THE COVER:**

The Drake Well . . . August 27, 1859, oil was struck at 69 1/2'; the beginning of the petroleum industry.

## PRESIDENT'S MESSAGE

The coming of spring means it is time to begin thinking about our selection of officers for the next year. If you have political yearnings, why not start here! The nominative committee will be meeting soon to begin the process. If you are interested make yourself known. Candidates will be announced in the April Bulletin.

The AAPG has been notified and will be mailing out delegate election ballots to active AAPG members. Kipp Ferns, Gerald Kinsley, and Steve Walkinshaw have been nominated to fill two delegate positions for the 1990-93 term. Please vote and return your ballot promptly.

The petroleum industry exhibit at the state Agricultural and Forestry Museum is beginning to take shape. The Society is printing brochures that promote the industry's impact on this state's economy and will be available at the Museum within weeks. The exhibit needs a drill bit; if someone has a spare and would like to put it on permanent loan to the Museum call me and I'll see that the Museum gets it.

Our monthly luncheon is scheduled for March 13, in the Petroleum Club's Smackover Room. This month's guest speaker, Daniel J. Tearpock, will present his paper entitled "Mapping Throw in Place of Vertical Separation: A costly Subsurface Mapping Misconception". Lunch is available at 11:30 a.m., with the meeting and lecture presentation beginning at approximately 12:10. Please join us.

Stan Galicki

## LETTERS TO THE EDITOR

## BUSINESS MEETING LUNCHEON SCHEDULE

1990

March 13 • April 5 • May 8  
Spring Fling - May 18

# BUSINESS MEETING LUNCHEON

March 13, 1990 • 11:30 a.m.  
Capitol City Petroleum Club, Smackover Room

## ABSTRACT

### MAPPING THROW IN PLACE OF VERTICAL SEPARATION: A COSTLY SUBSURFACE MAPPING MISCONCEPTION

Perhaps one of the most costly subsurface mapping errors made by industry today is to use throw instead of vertical separation to contour across faults. Indeed the two terms are often confused or used interchangeably, i.e. vertical separation is often called throw and throw is substituted for vertical separation. These two terms are however, not the same and are a measure of two distinctly different geometric properties. In this paper we demonstrate that to contour throw across faults (normal or reverse) instead of vertical separation can typically (commonly) result in mapping errors on the order of 25% or greater. We define the fault components applicable to subsurface mapping, present the quantitative relationship of vertical separation to throw, introduce the correct technique to contour vertical separation across a fault and discuss the analysis of errors caused by mapping throw in place of vertical separation.

### DANIEL J. TEARPOCK BIOGRAPHICAL SKETCH

Daniel J. Tearpock is currently the owner of SUBSURFACE CONSULTANTS & ASSOCIATES, a geological, geophysical, and engineering consulting firm in Lafayette, Louisiana. He received his Bachelor Degree in geology from Bloomsburg University in 1970 and his Masters Degree from Temple University.

Prior to the sale of Tenneco Oil Company, Mr. Tearpock was a Project Geological Engineer in the Central Gulf Division. In addition to conducting detailed field studies in the divisions older offshore fields, he was responsible for the organization and development of the company's subsurface training manual and the teaching of subsurface mapping courses offered to Tenneco's worldwide staff of geologists, geophysicists, and petroleum engineers.

Prior to working for Tenneco Oil Company, he was a petroleum consultant in New Orleans, Louisiana. He conducted and supervised a broad range of geological, engineering and economic studies both onshore and offshore. In addition he helped organize and co-taught an industry course in subsurface mapping. One of Tearpock's areas of specialization is the evaluation, remapping and redevelopment of older oil and gas fields.

Tarpock has authored or coauthored several publications in the area of subsurface mapping. He is currently writing a graduate level/industry textbook entitled, "Applied Subsurface Geological Mapping". The textbook is to be published by Prentice-Hall, Inc. (Publication date-October 4, 1990) and marketed worldwide. In addition to offering a wide range of consulting services, Mr. Tearpock offers industry and in-house training courses in the area of subsurface geological mapping. He is the program and short course chairman for the 1990 GCAGS convention. He is a certified petroleum geologist and a member of the AAPG, GCAGS, SPE, GSA, and LGS.

## 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  
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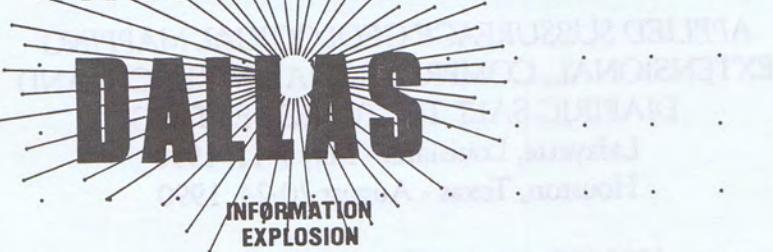
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\* Daniel J. Tearpock is the co-author of a new textbook entitled "Applied Subsurface Geological Mapping" being published by Prentice-Hall, Inc. (Available date 9/90).

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**NEWSLETTER**

February 26, 1990

**HOUSE BILL 964: RATABLE PRODUCTION**

The State Affairs Committee consisting of Billy Powell, Jim Rawls, Julius Ridgway, Dan Herlihy, H. E. Karges, Vaughn Watkins and Gary Wray met to discuss and analyze the status of our proposed legislation to protect our right to market our gas on the same terms as the operator. Considerable opposition was voiced on behalf of the Mid-Continent Oil & Gas Association and by some of our membership closely associated with the leadership of the Mid-Continent Oil & Gas. The division of support by some of our more prominent members caused concern to the Oil & Gas Committees of the Legislature, thus, expressing reluctance to deal with this issue in this session.

On Friday, January 26, 1990, MIPRO members Billy Powell, Vaughn Watkins, Glenn Taylor and Julius Ridgway participated in the Mid-Continent Ad Hoc Natural Gas Committees meeting addressing the concern of H.B. 964. Although it was apparent we would not get their support for H.B. 964 this session, a majority of the participants endorsed the need for the concept of this legislation and proposed that a draft of an "industry" bill be jointly prepared by September 1990.

With this cooperation expressed, the Oil & Gas Committees were notified of our plans for the future and MIPRO's agreement to participate with Mid-Continent Oil & Gas.

Our appreciation should be and will be conveyed to those members of the Legislature who sponsored and co-sponsored the bill in the House of Representatives. Rep. Mike Gunn did an outstanding job of introducing the bill and gathering co-sponsors in our effort.

Also, our appreciation is expressed to Mr. Wayne Harmon who ably assisted us in this effort during this part of the session. He has now returned to Baton Rouge where he is President of LAIPRO.

REGULATION

MISSISSIPPI STATE OIL AND GAS BOARD  
RESEARCHING OF RECORDS, PROVIDING COPIES  
AND CHARGES THEREFOR

SECTION I. REQUEST FOR RECORDS

A. A request for a public record of the Mississippi State Oil & Gas Board may be made orally or in writing, however, the agency reserves the right to require a request to be made in writing, and shall be addressed to the Mississippi State Oil & Gas Board.

B. A request must reasonably describe the desired record, including the approximate date.

SECTION II. TIME LIMITATIONS

Within fourteen (14) working days (excluding Saturdays, Sundays and legal public holidays) of the receipt of a request and the prepayment of cost, the Mississippi State Oil & Gas Board will respond to requests for copies of specifically identified documents which may lawfully be released.

SECTION III. FEES

A. Charges for services rendered in response to information requests shall be as follows:

1. A minimum charge of one (1) dollar for the first invoice billed and an additional charge of one (1) dollar for each subsequent billing of the same invoice will be assessed to cover the cost of re-billing.

2. Charges for researching of records at the rate of nine (9) dollars per hour per person.

3. Copies of forms and letters made by electrostatic or xerographic copy machines - 8 1/2 by 11 and 8 1/2 x 14 - at the cost of twenty-five (25) cents per copy; oversized copies at the rate of thirty (30) cents per copy.

4. Telephone requests for information from well files will be limited to three wells per day. Copies of the information provided will be forwarded with a statement for the applicable charges. Request for information from more than three (3) wells must be in writing.

5. Continuous copying of a well log shall be at the rate of sixty-five (65) cents per linear foot. Copies of any portion of a well log will be copied on either 8 1/2 x 11 or 8 1/2 x 14 paper at the rate of seventy-five (75) cents per page. All requests shall be numbered in order of receipt and filled in sequence.

6. Appeals of Board Orders shall have the following charges to the appellant:  
a) Copying of any materials will be at the rates

c) This does not include the court reporter's fee for transcription, which must be paid directly to the court reporter.

7. The actual cost of mailing, postage, and envelopes or boxes will be charged.

8. The State Oil & Gas Board Statutes, Rules of Procedure and Statewide Rules and Regulations Book shall have a cost of fifteen (15) dollars each plus the actual cost of mailing.

9. Costs of production reports:

- |    |   |
|----|---|
| a) | Subscription for the twelve (12) monthly production reports, one (1) Annual Production Report and one (1) Book of Maps - \$100.00 per year. |
| b) | One copy of a monthly production report - \$8.50.   |
| c) | One copy of an annual production report - \$25.00   |
| d) | One copy of a book of maps - \$25.00.   |

10. A cost of four (4) dollars will be charged for each "pipeline map" plus the actual cost of mailing.

11. A charge of one (1) dollar shall be made for each certification of true copies of agency records.

B. When a response to a request requires services or materials for which no fee has been established, the actual cost of such services or materials, including staff time, to the Mississippi Oil & Gas Board will be charged.

C. Fees for searches and copies are payable in advance, unless arrangements for subsequent payments are made.

D. Remittance shall be in the form either of a personal check or bank draft drawn on a bank in the United States, a postal money order or cash. Remittance shall be made payable to the order of the Mississippi State Oil and Gas Board. The agency will not assume responsibility for cash which is lost in the mail.

E. Credit Services will not be provided to parties with past due balances with the Board.

F. A receipt for fees paid will be given only upon request. No refund will be made for services rendered.

G. The Board directs the Oil and Gas Supervisor to continuously monitor cost represented in this Regulation. Any future change in the cost of services as set forth in this Regulation will be made as actual costs of providing the services rise.

H. This Regulation shall be in effect on and after January 2, 1990.

# SPRING FIELD TRIP

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In June 1986, Leblanc retired from Shell after 38 years. He recently opened the Rufus J. Leblanc School of Clastic Sediments so he could continue to share his knowledge and experience with explorationists.

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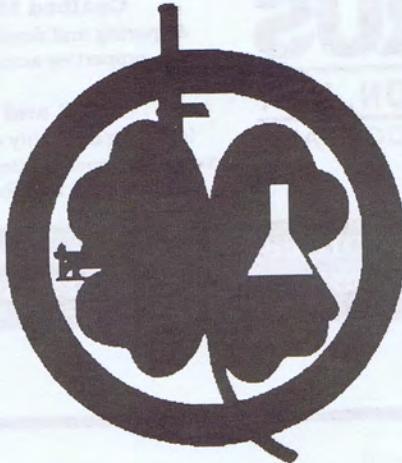
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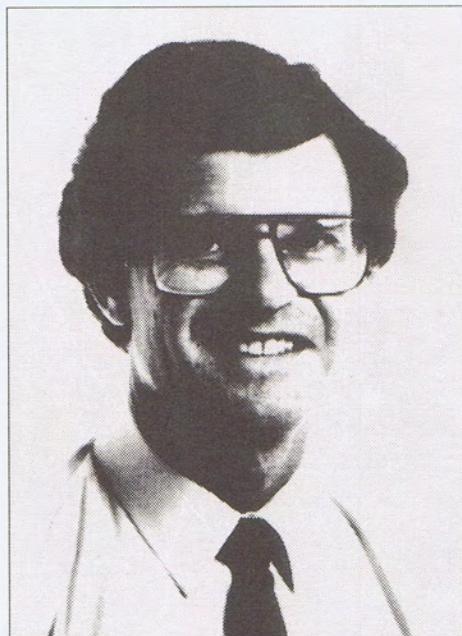


# MISSISSIPPI GEOLOGICAL SOCIETY

Volume XXXVIII

No. 8

April, 1990



LESLIE B. MAGOON

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## **PRESIDENT'S MESSAGE**

Mark your calendars! This month's meeting is on Thursday, April 5th. The change was made to accommodate our speaker, Leslie B. Magoon, an AAPG Distinguished Lecturer, who will present his talk entitled "Arctic National Wildlife Refuge - Petroleum Potential In One Of The Last Alaskan Frontiers". Make plans to join us. The talk should be very interesting. Please call T. C. Rader at 352-3340 and make your reservations. The Petroleum Club will charge the Society for settings not used so help us plan for the appropriate number of members attending.

Elections are scheduled for May's noon luncheon meeting. Your new officers will assume office at the Spring Fling (which is May 18th). A list of candidates, with biographical information on each, is provided in this Bulletin. Take time to look it over.

I want to thank Dale Myers for donating a drill bit to the Agricultural and Forestry Museum's Petroleum Industry Exhibit. Members who view the exhibit are encouraged to make suggestions on how the exhibit can be improved. A generous amount of space at the Museum has been committed so let's make the most of it.

Stan Galicki

## **SIPES NOTICE**

April 5 meeting postponed to April 12  
Speaker - Marvin Oxley

Regular May meeting  
Speaker - Dudley Hughes

11:30 a.m. - Petroleum Club

## **BUSINESS MEETING LUNCHEON SCHEDULE**

**1990**  
April 5 • May 8  
Spring Fling - May 18

# BUSINESS MEETING LUNCHEON

April 5, 1990 • 11:30 a.m.  
Capitol City Petroleum Club, Smackover Room  
Reservations: 352-3340

Leslie B. Magoon

Born:

San Jose, California

Education:

1964	University of Oregon, Eugene, BS (Biology)
1966	University of Oregon, Eugene, MS (Geology)

Experience:

1966-1974	Shell Oil Company, Los Angeles, California, Farmington, New Mexico, Denver, Colorado, and Houston, Texas; Exploration Geologist
1974-present	United States Geological Survey, Menlo Park, Research Geologist
1974-1980	Project Chief, Cook Inlet basin, Alaska
1977-1984	Project Chief, Petroleum Geochemistry of National Petroleum Reserve in Alaska
1984-1985	Principal Editor, AAPG Studies in Geology 20 on Alaska North Slope oil/rock correlation study
1984-1986	Project Chief, Petroleum Geochemistry of the Arctic National Wildlife Refuge
1986-1987	Co-editor, USGS Bulletin 1778 on Petroleum Geology of the ANWR
1984-1988	Project Chief, North Slope Gas Hydrate Project
1985-present	Project Chief, Oil and Gas Potential of Alaska Interior Basins
1987-present	Project Chief, Petroleum Systems of the United States

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The Society of Organic Petrology

# Arctic National Wildlife Refuge - Petroleum Potential in One of the Last Alaskan Frontiers

LESLIE B. MAGOON

Research Geologist

United States Geological Survey  
Menlo Park, California

The coastal plain of the Arctic National Wildlife Range (ANWR) lies between two important petroleum provinces, the Prudhoe Bay area on the west and the Mackenzie delta on the east. The Prudhoe Bay area originally contained at least 13 billion bbl of oil and 31 trillion ft<sup>3</sup> of gas, whereas the Mackenzie delta contains 1-2 billion bbl of oil and more than 10 trillion ft<sup>3</sup> of gas. Presently, oil production from fields in the Prudhoe Bay area contributes 25% of the United States daily production. Estimated in-place undiscovered resources are a mean of 13.8 billion bbl of oil and 31.3 trillion ft<sup>3</sup> of gas in part of the ANWR coastal plain.

The assessment of the ANWR petroleum potential can be viewed at four levels: basin analysis, petroleum-system study, play evaluation, and prospect evaluation. Basin analysis emphasizes regional geology; petroleum systems emphasizes the hydrocarbon "plumbing" systems; and plays emphasize structural and stratigraphic reservoir trends, and prospects emphasize individual traps.

Rocks with petroleum potential in the coastal-plain area are mostly younger than Devonian and are divided into an older (Ellesmerian) sequence of Mississippian to Early Cretaceous age and a younger (Brookian) sequence of Cretaceous and Cenozoic age. Basement rocks consist of Precambrian to Devonian metasedimentary and minor igneous rocks. South of the coastal plain, the Ellesmerian sequence is about 1 km (3,300 ft) thick and is composed of nearly equal amounts of carbonate and clastic rocks. These rocks record marine and nonmarine deposition along a slowly subsiding continental margin in which the land lay to the north and the sea to the south. Ellesmerian reservoirs are the primary oil-producing rocks in the Prudhoe Bay area. An Early Cretaceous regional unconformity truncates the Ellesmerian sequence and older rocks northward across the ANWR coastal plain. This unconformity is believed to limit the occurrence of Ellesmerian units in much of the northern coastal-plain area. The Brookian sequence consists of as much as 7 km (23,000 ft) of marine and nonmarine siliciclastic deposits representing debris shed from the ancestral Brooks Range; depocenters migrated northeasterly across a subsiding basement ridge and rifted margin. The Brookian sequence provided the deep burial and attendant heat necessary for hydrocarbon maturation in both Ellesmerian and Brookian source rocks on the North Slope.

Two petroleum systems, the Ellesmerian and Hue-Sagavanirktok, are important on the ANWR coastal plain. The most important source rocks in the Ellesmerian petroleum system are the Shublik Formation, Kingak Shale, and pebble shale unit. Major migration conduits include the Sadlerochit Group and Sag River Sandstone, and important reservoirs include the pre-Mississippian and Ellesmerian-sequence carbonate and siliciclastic rocks. Traps formed during the Cretaceous and Tertiary. Early formed hydrocarbons occurred to the south and west of the coastal plain and migrated north-northwestward before Brooks Range thrusting in the Late Cretaceous to early Tertiary. The Hue-Sagavanirktok petroleum systems includes the Hue Shale as the most important source rock; major migration conduits are turbidite sandstones of the Canning Formation and faults, and important reservoirs are turbidite sandstones of the Canning Formation and deltaic sandstones of the Sagavanirktok Formation. Structural traps formed during the Tertiary in the coastal-plain area, coincident with migration of Hue-Sagavanirktok petroleum.

For the United States Geological Survey play assessment, the ANWR coastal plain was divided into two areas, undeformed and deformed, along the northwest flank of the Marsh Creek anticline. In-place oil and gas resources were assessed in seven plays: five to the northwest in the undeformed area and two to the southeast in the deformed area. Three-quarters of the petroleum resources is estimated to occur in the deformed area: 50% in the folded Ellesmerian/pre-Mississippian play, and 25% in the imbricate-fold-belt play.

Twenty-six structural prospects, identified and mapped from seismic data, were assessed for recoverable oil by the United States Bureau of Land Management. Because of the high costs of development, operation, and transportation on the North Slope, a single accumulation of more than 440 million bbl of recoverable oil was judged to be the most likely minimum economic field size. Under the most likely case, 18 of the 26 prospects were modeled as being economic at least once during many Monte Carlo simulations. For these 18 prospects, conditional mean resource estimates ranged from 0.5 to more than 3.5 billion bbl of economically recoverable oil.

## TO THE EDITOR

I am flattered that I have been nominated to serve as Secretary for the MGS. I have a somewhat extensive background in the oil fields; from cooking on an inland barge in the late 70's to my last full-time job in December 1989.

I have been employed by the Department of Environmental Quality for the past 3 months. During that time, I have had the opportunity to discuss with many Bureau of Pollution Control & Bureau of Land & Water personnel, the different professional societies in which geologists and engineers hold membership. Many of these professionals are not presently members of professional organization, but are yearning to be affiliated with one. Some of these professionals have discussed the possibility of developing the Mississippi chapter of the National Water Well Association into an organization better suited to their needs than is the MGS. Some of the geologists indicate that the single most important thing that a society could do for them is to provide a forum for them to discuss state registration of geologists (its cost, duration, grandfather clause, test, etc.)

What does this mean to MGS? When these individuals decide to go the route of the NWWA, the MGS stands to lose a shot at enlisting 30+ geologists and engineers initially, and probably many more in the long run. Why? Because if an environmental society is established, not only will it become populated with geologists and engineers from the Bureau of Pollution Control and the Bureau of Land and Water, but also from the Bureau of Geology, the U.S.G.S. The Waterways Experiment Station, the Bureau of Land Management, the Forestry Service and the Highway Department. If the MGS is to be successful at enlisting some of these individuals, a drastic change in the program content will be necessary. For example, changing from having 7 to 8 petroleum related programs per year to as few as 3 to 4. The remaining 4 to 5 would be environmental or geotechnical in content.

Having been in regular contact with one state university geology department and seeing its drastic decrease in population of undergraduates and graduates since 1982, and having watched the crowds at Flower's Lodge dwindle, it is my opinion that new blood from the universities will be harder to come by (those few geology graduates that do emerge will be headed for the environmental field). As a result, our membership will continue to decrease.

Where are the young geologists and petroleum engineers? They're in the Department of Environmental Quality, a large percentage of them casualties of the oil business.

I invite open discussion of this situation and hope to hear your feedback. The time to act on this is now, because the fall might be too late.

- Chris Bowen

Members of the Mississippi Geological Society:

It has been brought to our attention by a member of the Mississippi Association of Petroleum Landmen, that Vann C. Michael, a long-time member and former president of that association, is suffering from a serious malignancy. Vann has not been able to work steadily since last year and recently has stopped working completely due to his health problem.

Vann, a valuable co-worker in our industry, needs our prayers and our support. Anyone wishing to help Vann financially can do so by sending a contribution to:

St. Columb's Episcopal Church  
Vann Michael Fund  
301 Claiborne Avenue  
Jackson, MS 39209

This request is being sent out without the knowledge of Vann or any members of any family but out of true concern for them by friends in the industry. Your prayers, thoughts and support will help Vann and his family in this time of crisis.

Board of Directors  
Mississippi Geological Society  
March 22, 1990

# Candidates for Mississippi Geological Society Officers 1990-1991

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### David L. Chastain

#### Education:

BS Geology, U. No. Carolina-Wilmington,  
1979

MS Geology, U. of Miss., 1981

#### Experience:

Cities Service 1981-84

TXO Production Corp., 1984-86

Petron Exploration Corp., 1986-present

#### Professional Associations:

MGS, AAPG

### Chris L. Bowen

#### Education:

BS Geology, U So. Miss., 1984

#### Experience:

Hogan Exploration, 1984-86

Crosby Miss. Resources, 1986-89

Miss. Bureau of Pollution Control,  
1989-present

#### Professional Associations:

MGS, AAPG

## TREASURER

### Brad Truett

#### Education:

BA Biology, U. of Miss., 1976

BS Geology, Millsaps, 1982

#### Experience:

U.S. Energy Search, 1982-85

Morrow Oil & Gas, 1985-present

#### Professional Associations:

MGS, AAPG

### Kevin S. Henderson

#### Education:

BS Geology, U. So. Miss., 1985

#### Experience:

Consultant, 1985-88

MS Bureau of Geology, 1988-present

#### Professional Associations:

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### David K. Hancock

#### Education:

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#### Experience:

Placid/Hunt Oil, 1979-89

Coastal Oil & Gas, 1989-present

#### Professional Associations:

MGS, AAPG

### Michael A. Noone

#### Education:

BS Bus. Admin., U So. Miss., 1971

BS Geology, Millsaps, 1984

#### Experience:

Ind. Pet. Landman, 1978-82

Shiloh Oil & Gas, 1984-present

#### Professional Associations:

MGS, AAPG, MAPL

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### Neil Barnes

#### Education:

BS Geology, LSU, 1978

MBA, Millsaps, 1989

#### Experience:

Texaco, 1978-82

ANR & Coastal, 1982-present

#### Professional Associations:

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### Steve Ingram

#### Education:

BS Geology, Millsaps, 1985

#### Experience:

Miss. State Dept. Health, 1986-88

Shiloh Oil & Gas, 1988-89

MS Bureau of Geology, 1989-present

#### Professional Associations:

MGS, AAPG

Dr. Charles Wax, head of the Department of Geology & Geography has provided the following list of MS Theses completed at Mississippi State University in the past five years. I see at least three that I intend to read, and expect that many of you will do the same. I have not checked with Carolyn Woodley at the Bureau of Geology, but if she does not already have these, I am sure she can assist in obtaining them. There is obviously a great deal of work being done within our state. I wonder how many of us are aware of the research being done at our universities, and how many of us use the results. Thanks to Dr. Wax for providing this list.

- 1984 Salomon, Ralph A., Calcareous Nannoplankton of the Tupelo Tongue (Upper Cretaceous), Lee County, Mississippi. 194 pp., 16 figures and 34 plates.
- 1984 Nitz, Kim M., The Relationship Between Physical Setting and Sense of Place. 70 pp., 6 figures.
- 1984 Aksoy, M. Zihni, Surface Geology of Portions of the Sulligent SW Quadrangle and the Vernon Quadrangle, Alabama. 102 pp. (Upper Cretaceous units, terrace deposits and alluvium), 21 figures and 3 plates.
- 1984 Arikan, Ender, Surface Geology of Portions of the Hightogy and Millport NW Quadrangles, Lamar County, Alabama. 108 pp. (Upper Cretaceous units, terrace deposits and alluvium).
- 1984 Eren, Ahmet A., Surface Geology of the Millport Quadrangle and Western Half of the Kennedy Quadrangle, Alabama." 111 pp. (Upper Cretaceous units, terrace deposits and alluvium).
- 1984 Heller, Noah R., Geology of the Henson Springs Quadrangle, Alabama." 72 pp. (Pennsylvanian Pottsville, Upper Cretaceous units, terrace deposits and alluvium), 23 figures and 4 plates.
- 1984 Rogers, David M., Geomorphology and Sedimentology of the Hancock County Ridge Complex, Coastal Mississippi." 52 pp., 19 figures.
- 1985 Tabora, Oscar, Surface Geology of the Western Quadrangle, Alabama." 94 pp., 22 figures and 2 plates.
- 1985 Laird, Peggy Harper, The Effects of the El Nino/ Southern Oscillation Phenomenon on Mississippi's Normal Weather Patterns." 105 pp., 17 figures.
- 1985 Taylor, Richard H., "Planktonic Foraminiferal Biostratigraphy of the Demopolis Formation (Campanian/Maastrichtian) in Lowndes and Oktibbeha Counties, Mississippi." 134 pp., 5 figures and 10 plates.
- 1985 Lacko, Peter J., Selected Aspects of the Geology of the Eoline and Cottondale Formations (Upper Cretaceous) Southeast of Fayette, AL."
- 1986 Carlson, Alane R., "Surface Geology of the Beaverton Quadrangle, Alabama." 92 pp., 13 figures and 2 plates.

- 1986 Cook, Philip R., "Sedimentary Structures as Possible Indicators of Depositional Environment in the McShan Formation (Upper Cretaceous) in Mississippi and Alabama." 105 pp., 27 figures.
- 1987 Pody, Robert D., "A Survey of the Depositional Environments and Paleoecology of the Upper Pottsville Formation in the Black Warrior Basin Along Alabama State Highway 69."
- 1987 Olive, Robert S., "Surface Geology of the Pleasant Grove Quadrangle, Colbert and Franklin Counties, Alabama." 102 pp., 22 figures and 2 plates.
- 1987 Devery, Hugh B., "Analysis of the Microfauna, Facies Variation, and Stratigraphy of Selected Outcrops of the Bangor Limestone (Chesterian; Mississippian) in Colbert, Franklin, and Lawrence Counties, Northwest Alabama." 210 pp., 39 figures and 12 plates.
- 1987 Pace, Forrest Wilson, Jr., "Sedimentology of a Holocene, Platform Margin Carbonate Lagoon, San Salvador Island, Bahamas." 116 pp., 39 figures and 4 plates.
- 1987 Puckett, Terry Markham, "Biofacies Analysis of Ostracodes from the Pride Mountain Interval in Colbert, Lawrence and Jefferson Counties, Northern Alabama." 202 pp., 25 figures and 14 plates.
- 1988 Statom, Richard A., "Surface Geology of the Halltown Quadrangle, Franklin County, Alabama." 103 pages, 38 figures, 6 plates, 27 references.
- 1988 Rob Stowers, "Stratigraphy and Geochronology of Pleistocene Carbonates: Sandy Point Area Southern San Salvador Island, Bahamas." 103 pp., 37 figures, 72 references.
- 1988 Jon Ootek Garbisch, "Facies Variation, Depositional Environments and Paleoecology of the Interval Between and Inclusive of the Mary Lee and Pratt Coal Groups, (upper Pottsville Formation) in Walker County, Alabama." 113 pp., 15 figures, and 46 references.
- 1988 Daryl Darnell Clark, "Textural and Compositional Analyses of Modern Holocene Carbonate Beach Sediment, San Salvador Island, Bahamas." 151 pp., 9 figures, and 46 references.
- 1988 Peter Nicholas Vogel, "Carbonate Island Hydrology and Solution Conduit Genesis San Salvador Island, Bahamas." 143 pp., 67 figures, 2 tables, and 74 references.
- 1988 John Wayne Nelson, "Structural and Geomorphic Controls of the Karst Hydrogeology of Franklin County, Alabama." 165 pp., 47 figures, 6 tables, 4 plates, and 127 references.

## 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 FGield 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 Balck 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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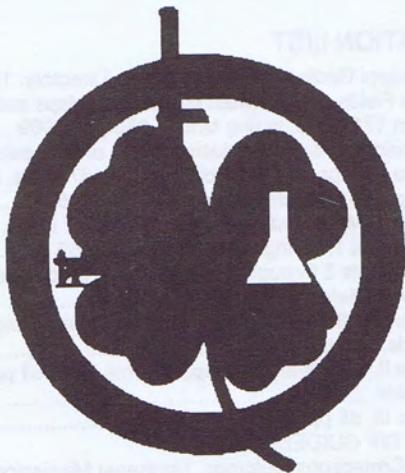
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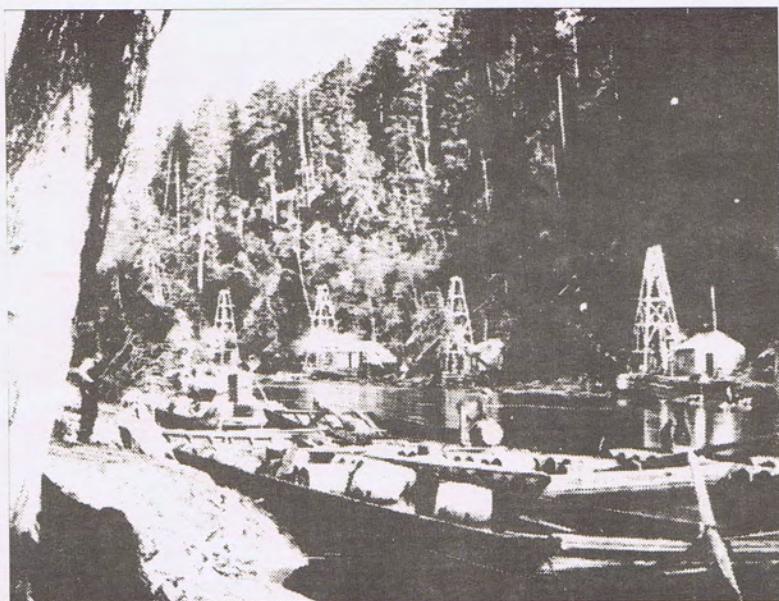


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Volume XXXVIII

No. 9

May, 1990



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### ABOUT THE COVER:

#### Wells And Flatboats Along Oil Creek

Some of the first theories about the occurrence of oil believed it was somehow related to rivers. It was thought oil flowed in veins near waterways. As a result, wells were drilled as close to Oil Creek as possible.

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Due to an unforeseen scheduling conflict, our scheduled speaker Mr. George Vockroth has had to cancel. Our new speaker for the May 8, 1990 Business Luncheon will be Jackson geologist

MARVIN L. OXLEY

Mr. Oxley will speak on the Ordovician play in Northern Miss. This is the newest HOT 'Frontier Area' in the S.E. U.S.!

# BUSINESS MEETING LUNCHEON

May 8, 1990 • 11:30 a.m.

Capitol City Petroleum Club, Smackover Room

Reservations: 352-3340

"Physical Constraints To A Compacting Basin"

by

GEORGE B. VOCKROTH

A better understanding of the physical processes that affect a compacting or developing sedimentary basin is necessary if we are to begin to develop realistic models for the generation, migration and accumulation of hydrocarbons.

This paper discusses some of the characteristic and known limits to the porosity profile, pressure profile and temperature profile in a compacting, sand-shale cenozoic basin. The causes of and variations in temperature gradients is discussed along with the implication for hydrocarbon maturation. Some of the causes of abnormal pressure are discussed and how abnormal pressure may or may not affect porosity based on the known generating mechanisms. The changes in porosity with depth in a basin is reviewed to give us a conceptual model of fluid movement during compaction.

The Society needs help in locating the following back issues of the Bulletin for its files:

August, September October, November and December, 1988

January, May, June/July and November, 1989

Please contact Stan Thieling at 353-5850 if you have any of these issues and are willing to donate them.

MISSISSIPPI GEOLOGICAL SOCIETY

PROPOSED RED BOOK ADDITION FOR 1990

Jurassic 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
Florida:	10. Blackjack Creek ----- Les Aultman
	11. McDavid ----- Phillip Reeves

Paleozoic Oil and Gas Fields

Mississippi:	12. Shannon ----- Ed Hollingsworth
	13. South Palmetto ----- "
	14. Maple Branch ----- Kevin Henderson

Updates

Mississippi	15. Thompson's Creek ----- "
	16. South Thompson's Creek - ----- "
	17. 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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Education:	Education:
BS Geology, U. No. Carolina-Wilmington, 1979	BS Geology, U So. Miss., 1984
MS Geology, U. of Miss., 1981	
Experience:	Experience:
Cities Service 1981-84	Hogan Exploration, 1984-86
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Petron Exploration Corp., 1986-present	Miss. Bureau of Pollution Control, 1989-present
Professional Associations:	Professional Associations:
MGS, AAPG	MGS, AAPG

## TREASURER

<b>Brad Truett</b>	<b>Kevin S. Henderson</b>
Education:	Education:
BA Biology, U. of Miss., 1976	BS Geology, U. So. Miss., 1985
BS Geology, Millsaps, 1982	
Experience:	Experience:
U.S. Energy Search, 1982-85	Consultant, 1985-88
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MBA, Millsaps, 1989	
Experience:	Experience:
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ANR & Coastal, 1982-present	Independent, 1985-86
Professional Associations:	Miss. State Dept. Health, 1986-88
MGS, AAPG, SEPM, NOGS, SPE	Shiloh Oil & Gas, 1988-89
	MS Bureau of Geology, 1989-present
Professional Associations:	Professional Associations:
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## CONSIDER THE POSSIBILITIES OF HORIZONTAL DRILLING

Jack S. Moody  
Mississippi Bureau of Geology  
Subsurface Section

Texas has a really hot play going in the horizontally drilled Austin Chalk. Is there potential here in Mississippi for a similar play in a chalk, say the Selma? Let us briefly consider the possibilities.

In Texas the play is to produce from fault-induced fracture systems. These fracture systems are being played as strike-oriented fractures (parallel to the faulting). There are multiple fracture systems which generally are parallel to each other. The horizontal drilling enables the operator to drill perpendicular to the fault trend and intersect multiple fault (fracture) systems. The early production results are very impressive.

Here in Mississippi there are at least two different plays that might be made following the Texas analog. The first would look for fractured reservoirs along a regional fault trend like the Pickens-Gilbertown system. If one could demonstrate favorable structural setting, effective seal and faulting one might have a drillable, maybe even saleable fractured chalk prospect. The second play would be on the many faulted structures we have in the state. Many of these salt-supported structures have multiple zone production (so we know the hydrocarbons are there), they have faulting which could produce natural fractures in the chalk, and there is chalk production in some of these fields.

A brief look at the history of the Texas play is an encouraging exercise. There were areas in Texas, where early (1936) vertically drilled wells established chalk production. Occasional wells did very well but most wells were poor and the play died. The boom days (1980) sent drillers back into these previously noncommercial plays with more money than sense and once again they drilled many vertical wells; some were good, most were not, and the play went from boom to bust. Then enters horizontal drilling, and once again the play goes back to the same old areas. This time it looks like the right method has turned a piece of coal into a diamond. Who knows, with the right combination of technology and imagination Mississippi might one day host its own horizontally drilled chalk play. But don't limit the use of horizontal drilling to the chalk. This new technology is going to have numerous applications here in Mississippi. Those who learn to use it properly are going to benefit.

## ONE OIL FINDER'S PERSPECTIVE

By Jack S. Moody  
Mississippi Bureau of Geology

Theron Crockett was born in Shreveport, Louisiana, in 1924. He graduated from the University of Alabama and then attended the University of Oklahoma for his masters. In 1952 he moved to Magnolia, Arkansas, in order to work for Lawton Drilling as the geologist and whatever else was needed. With Lawton he found himself with as many as six rigs running at a time. He had to play the part of geologist and part time completion engineer, which kept him on the run. During his three years with Lawton the company went from zero production to 3000 BOPD. This production was located in South Arkansas, New Mexico, West Texas and East Texas.

After three good years with Lawton Theron decided he could do the same thing for himself, so he became an independent. For the next five years he worked out of Magnolia, Arkansas. During this time he found production in a number of fields, including Bradley, Stephens, Lewisville, and Stamps in Arkansas and Colquett Field in N. Louisiana. He even arranged to sell some production; would you believe a lot of cash in a suitcase type sale? Even though this time was successful for Theron he began to seek alternatives to his S. Arkansas area. He felt the area was getting too picked over and the size potential was getting smaller than he cared for. He tried Pampa, Texas, for one year before moving to Jackson, Mississippi, in 1961. Theron felt that Mississippi had the ingredients he liked for a successful exploration area. There were a lot of big producing and nonproducing structures with big reserve potential.

Yet his first efforts were in the Wilcox play. In those days the typical deal was \$12,500 and an eighth to the contractor. Theron didn't like playing the Wilcox game so he turned his attention to the salt basin

of Mississippi. He joined up with a landman named John Rogers and they formed Crockett and Rogers. For the next 12 years he and John were able to establish production in such fields as Flora, Bay Springs, West East Fork, and Mize. In 1982 he and John Rogers decided to split up and Theron let his son Theron, Jr., join him in Crockett Oil Producers. Since that time Theron has managed to continue his oil-finding pace by adding some really nice production to his coffers from Bryan Field, Nancy and now Bay Springs Field.

All of the above is presented in order to establish that Theron

Crockett is an "oil finder," not just once or twice but throughout his exploration career. Having established this fact the author wished to know Theron's thoughts and methods which have resulted in his successful career. Perhaps the author and some others might be able to learn a bit from an old master.

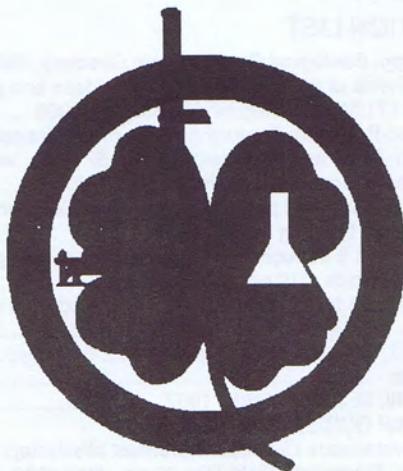
Theron was kind enough to pass along the following thoughts. He likes used oil fields. In other words, he likes to play for new reservoirs in existing fields. New reservoirs offer the big reserve potential that is needed for today's prospect market. He also mentioned the importance of dealing with water drive reservoirs in these older fields. He feels that in some cases the coning of water into the older wells has left commercial quantities of oil for the picking. Each of his latest two discoveries, Nancy and Bay Springs, are examples of the above principles.

When asked about his thoughts on seismic, he replied it was necessary for selling today's drilling deals. For his type of prospects he thinks seismic is like those things one puts under his arms when he has a broken leg but he still needs to get around.

What advice can he give to those of us who have not yet made it in terms of financial independence? Theron feels the change in tax laws has brought an end to the individual or small independent promoter. Today one must sell prospects to companies which are looking for big reserves on seismic prospects. The cost of putting this type of deal together is so high that the small independent can't afford to put his prospect together. So what do you do? He suggested two routes. The first is to get hired by an independent oil company, one that has the money to play the game right. He didn't think the majors would hire anyone with experience. If you remain independent, you'll need to work with one of these independent companies, but don't expect any financial support from them. You put up your time and effort and they put up working capital for the prospects. Your rewards will come from your share of the production. Theron summed up his view when he said, "you just can't make it any more the way I did." The oil and gas world has changed and those who survive will have to change with it.

How does this oil finder spend his days? You'll find him in his office from 8:00 a.m. until 12:00 noon. His afternoons are generally spent on the old homestead, perhaps in the metal shop or wood shop, or involved in some building project like his bilevel 40 x 20 greenhouse.

Even under this rigorous schedule he manages to develop numerous prospects. He presently has four deals ready to sell and four more are in the works. It seems Theron has mastered more than finding production; he has mastered the use of his time.



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FROM THE FILES OF THE BUREAU OF GEOLOGY

Following is the bit record for the Adams Oil & Gas Company #1 Zollie E. Lewellen (Sec.9-T10S-R1W Lafayette Co., MS). Spudded on June 6, 1939, 424 bits were used to reach a total depth of 4185' some 17 weeks later on October 14, 1939. This number of bits is considered by many to have been the worlds record at the time (probably still is?). Considering only 2340' of Paleozoic section was penetrated, this represents an average of less than 5 feet of hole made per bit. Assuming it took approximately 16 weeks to drill the Paleozoic rocks and allowing 3 hours per bit trip, then each bit was run for only about 3 hours. Not ideal conditions for rig hands, but a great time to be a bit salesman.

BIT RECORD

"Used 10 and occassionally 12 points of weight to 3775' and 7 to 8 from there to 4185'. Rotary speed at approximately 60 revolutions to 2700' and 35 to 40 to 4185'. Pump pressure varying from 375 to 500#."

The first of this record was lost but first rock bit was run at 1640'. Drag bits were used to there. 8 3/4" bits used to 2717' and 7 7/8" bits were used from 2717' to 4185'(TD).

RUN	TYPE	DEPTH	FT.	RUN	TYPE	DEPTH	FT.	RUN	TYPE	DEPTH	FT.
22	HRS	2259	10	57	W7	2472	4	92	W7	2761	12
23	W7	2269	4	58	W7	2476	5	93	W7	2773	30
24	HRS	2273	5	59	DK3C	2481	2	94	W7	2803	11
25	W7	2278	3½	60	?	REAMING		95	W7	2814	9
26	HRS	2281½	3	61	HRS	2483	2	96	DK3C	REAMING	
27	DKI	2284½	5½	62	HRS	2485	2½	97	DK3C	REAMING	
28	W7	2290	5	63	W7	2487½	2	98	DK3C	REAMING	
29	W7	2295	6	64	W7	2489½	25½	99	DK3C	REAMING	
30	W7	2301	9	65	W7	2515	69	100	W7	2824	3
31	W7	2310	10	66	DINS	2584	33	101	W7	2827	4
32	W7	2320	3	67	W7	2617	29	102	W7	2831	9
33	W7	2323	4	68	W7	2646	8	103	W7	2840	6
34	DK3C	2327	8	69	W7	2654	3½	104	W7	2846	3
35	DK3C	2335	1	70	W7	2657½	5½	105	W7	2849	6
36	DK3C	2336	2	71	W7	2663	4	106	W7	2855	5
37	DK3C	2338	2	72	W7	2667	9	107	W7	2860	6
38	HRS	2340	5	73	W7	2685	5	108	W7	2866	5
39	W7	2345	4	74	W7	2690	1	109	W7	2871	4
40	W7	2349	3½	75	W7	2691	1	110	W7	2875	4
41	W7	2552½	6½	76	W7	2692	1	111	W7	2879	1
42	W7	2358	4	77	W7	2693	1	112	W7	2880	4
43	W7	2362	4	78	W7	2694	3	113	W7	2884	3
44	W7	2366	6	79	W7	2697	4	114	W7	2887	4
45	W7	2372	6	80	W7	2701	3	115	W7	2891	4
46	W7	2378	9	81	W7	2704	1	116	W7	2895	2
47	W7	2387	7	82	W7	2705	3	117	HRI	2897	1
48	W7	2394	6	83	DK3C	2708	2	118	HRI	2898	3
49	W7	2400	3	84	DK3C	2710	4	119	HRI	2901	1
50	W7	2403	5	85	DK3C	2714	2	120	HRI	2902	3
51	W7	2408	9	86	DK3C	2716	1	121	HRI	2905	3
52	W7	2417	25	87	DK3C	2717	5	122	W7	2908	3
53	W7	2442	14	88	HRI	2722	6	123	W7	2911	1
54	W7	2456	6	89	HRI	2728	10	124	W7	2912	3
55	W7	2462	8	90	W7	2738	23	125	W7	2915	3
56	W7	2470	2	91	W7	2761	12	126	W7	2918	5

RUN	TYPE	DEPTH	FT.	RUN	TYPE	DEPTH	FT.	RUN	TYPE	DEPTH	FT.
127	W7	2923	8	185	W25	3062	2	243	W7	3267	2 $\frac{1}{2}$
128	W7	2931	7	186	W25	3064	2	244	W7	3269 $\frac{1}{2}$	1 $\frac{1}{2}$
129	W7	2938	6	187	W7	3066	3	245	W7	3271	1 $\frac{1}{2}$
130	W7	2944	3	188	W7	3069	5	246	W7	3272 $\frac{1}{2}$	3 $\frac{1}{2}$
131	HRI	2947	3	189	W7	3074	3	247	W7	3276	2
132	HRI	2950	3	190	W7	3077	4	248	W7	3278	1 $\frac{1}{2}$
133	W7	2953	2	191	W7	3081	4	249	W7	3279 $\frac{1}{2}$	3 $\frac{1}{2}$
134	W7	2955	3	192	W7	3085	3	250	W7	3283	2
135	W7	2958	3	193	W7	3088	4	251	W7	3285	2
136	W7	2961	4	194	W7	3092	5	252	W7	3287	2
137	W7	2965	3	195	W7	3097	6	253	W7	3289	1 $\frac{1}{2}$
138	HRI	2968	2	196	W7	3103	6	254	W7	3290 $\frac{1}{2}$	1 $\frac{1}{2}$
139	HRI	2970	3	197	W7	3109	7	255	W7	3292	2
140	HRI	2973	1	198	W7	3116	8	256	W7	3294	2
141	HRI	2974	2	199	W25	3124	9	257	W7	3296	1
142	HRI	2976	1	200	W7	3133	1	258	W7	3297	1
143	W25	2977	2	201	HRI	3134	2 $\frac{1}{2}$	259	W7	3298	1 $\frac{1}{2}$
144	W7	2979	2	202	W25	3136 $\frac{1}{2}$	5 $\frac{1}{2}$	260	HRI	3298 $\frac{1}{2}$	1 $\frac{1}{2}$
145	W7	2981	2	203	W25	3141	6	261	HRI	3300	1
146	W25	2983	3	204	W25	3147	3	262	W7	3301	1
147	W25	2986	3	205	W25	3150	4	263	W7	3302	1
148	W7	2989	3	206	W25	3154	3	264	W7	3303	1
149	W7	2992	2	207	W25	3157	4	265	W7	3304	1 $\frac{1}{2}$
150	W7	2994	3	208	W25	3161	4	266	W7	3304 $\frac{1}{2}$	1
151	W7	2997	2	209	W25	3165	3	267	W7	3305 $\frac{1}{2}$	1
152	W7	2999	2	210	HRI	3168	4	268	W7	3306 $\frac{1}{2}$	1
153	HRI	3001	1 $\frac{1}{2}$	211	W7	3172	4	269	W7	3307 $\frac{1}{2}$	1
154	W7	3001 $\frac{1}{2}$	1 $\frac{1}{2}$	212	W7	3174	2	270	W7	3308 $\frac{1}{2}$	1 $\frac{1}{2}$
155	W7	3003	1 $\frac{1}{2}$	213	W7	3176	3	271	W7	3310	1 $\frac{1}{2}$
156	W7	3003 $\frac{1}{2}$	2 $\frac{1}{2}$	214	W7	3179	3	272	W7	3311 $\frac{1}{2}$	1 $\frac{1}{2}$
157	W7	3006	1	215	W7	3182	3	273	W7	3313	2
158	W7	3007	2	216	W7	3185	3	274	W7	3315	1 $\frac{1}{2}$
159	W7	3009	1	217	W7	3188	4	275	W7	3316 $\frac{1}{2}$	1 $\frac{1}{2}$
160	W7	3010	1	218	W7	3192	2	276	W7	3318	1
161	W7	3011	2	219	W7	3194	4	277	W7	3319	1 $\frac{1}{2}$
162	HRI	3013	1	220	W7	3198	2	278	W7	3319 $\frac{1}{2}$	1 $\frac{1}{2}$
163	HRI	3014	1	221	W7	3200	2 $\frac{1}{2}$	279	W7	3321	1 $\frac{1}{2}$
164	W7	3015	2	222	W7	3202 $\frac{1}{2}$	2 $\frac{1}{2}$	280	W7	3322 $\frac{1}{2}$	1 $\frac{1}{2}$
165	W7	3017	2	223	W7	3205	5	281	W7	3324	1 $\frac{1}{2}$
166	W7	3019	2	224	W7	3210	3	282	W7	3325 $\frac{1}{2}$	1
167	W7	3021	2	225	W7	3213	4	283	W7	3326 $\frac{1}{2}$	1 $\frac{1}{2}$
168	W7	3023	2	226	W7	3217	4	284	W7	3328	1
169	W7	3025	2	227	W7	3221	2	285	W7	3329	1 $\frac{1}{2}$
170	W7	3027	4	228	W7	3223	3	286	W7	3330 $\frac{1}{2}$	1 $\frac{1}{2}$
171	W7	3031	2	229	W7	3226	3	287	W7	3332	2
172	W7	3033	2	230	W7	3229	4	288	W7	3334	3
173	W7	3035	3	231	W7	3233	4	289	HRI	3337	2 $\frac{1}{2}$
174	W7	3038	2	232	W7	3237	2	290	W25	3339 $\frac{1}{2}$	3 $\frac{1}{2}$
175	W7	3040	3	233	W7	3239	3	291	W7	3343	2 $\frac{1}{2}$
176	W7	3043	2	234	W7	3242	2 $\frac{1}{2}$	292	W7	3345 $\frac{1}{2}$	2 $\frac{1}{2}$
177	W25	3045	2	235	W7	3244	2 $\frac{1}{2}$	293	W7	3347	5
178	W25	3047	2	236	W7	3247	3	294	W7	3352	2
179	W25	3049	3	237	W7	3250	5	295	W7	3354	2
180	W25	3052	2	238	W7	3255	5	296	W7	3356	3
181	W7	3054	2	239	W7	3260	3	297	W7	3359	2 $\frac{1}{2}$
182	W25	3056	2	240	W7	3263	1 $\frac{1}{2}$	298	W7	3361 $\frac{1}{2}$	2 $\frac{1}{2}$
183	W25	3058	2	241	W7	3264 $\frac{1}{2}$	1 $\frac{1}{2}$	299	W7	3364	1
184	W25	3060	2	242	W7	3265	2	300	W7	3365	1 $\frac{1}{2}$

RUN	TYPE	DEPTH	FT.	RUN	TYPE	DEPTH	FT.	RUN	TYPE	DEPTH	FT.
301	W7	3365½	½	343	W25	3470	5	384	W7	3605	6
302	W7	3368	2	344	W7	3472	2	385	W7	3638	33
303	W7	3370	2	345	W7	3474	2	386	W7	3649	11
304	W7	3373	3	346	W7	3477	3	387	W7	3652	3
305	W7	3375	2	347	W7	3480	3	388	W7	3654½	2½
306	W7	3378	3	348	W7	3483	3	389	W7	3657	2½
307	W7	2280	2	349	W7	3485½	3½	390	W7	3663	5½
308	W7	3882	2	350	W7	3488	2½	391	W7	3674	5½
309	W7	3385	3	351	W7	3492	4	392	W7	3701	27
310	W7	3385½	½	352	W7	3493	1	393	W7	3703	2
311	W7	3386½	½	353	W7	3495	2	394	W7	3706	3
312	W7	3389	3	354	W7	3498	3	395	W7	3713	7
313	W7	3390	1	355	W7	3504	6	396	W7	3717	4
314	W7	3394	4	356	W7	3508	4	397	W7	3722	5
315	W7	3396	2	357	W7	3511	3	398	W7	3723½	1½
316	W7	3398	2	358	W7	3514	3	399	W7	3725	1½
317	W7	3400½	2½	359	W7	3518	4	400	W7	3728	3
318	W7	3402	1½	360	W7	3521	3	401	W7	3730	2
319	W7	3405	3	361	W7	3525	4	402	W7	3732	2
320	W7	3408	3	362	W7	3529	4	403	W7	3735	3
321	W25	3410	2	363	W7	3531½	2½	404	W7	3738	3
322	W25	3412½	2½	364	W7	3535	3½	405	W7	3741	3
323	W25	3413	½	365	W7	3538	3	406	W7	3744	3
324	W25	3419	6	366	W7	3541	3	407	W7	3747	3
325	W25	3422	3	367	W7	3544	3	408	W7	3749	2
326	W25	3423	1	368	W7	3546	2	409	W7	3751	3
327	W25	3425	2	369	W7	3548	2	410	W7	3752	1
328	W25	3426½	1½	370	W7	3551	3	411	W7	3755	3
329	HRI	3427½	1	371	W7	3553½	2½	412	W7	3759	4
330	W25	3433	5½	372	W7	3557½	4	413	W7	3762	3
331	W7	3434	1	373	W7	3561	3½	414	W7	3764	2
332	W7	3338	4	374	W7	3565	4	415	W7	3767	3
333	W7	3340	2	375	W7	3568	3	416	W7	3774	7
334	W7	3443	3	376	W7	3572	4	417	W7	3833	59
335	W7	3444	1	377	W7	3577	5	418	W7	3864	31
336	W25	3448	4	378	W7	3581	4	419	W7	3903	39
337	W7	3451	3	379	W7	3584	4	420	W7	4003	100
338	W7	3454½	3½	380	W7	3589	4	421	W7	4057	54
339	W7	3458	3½	381	W7	3591	2	422	H25	4169	31
340	W7	3460	2	382	W7	3595	4	423	W7	4184	15
341	W7	3463	3	383	W7	3599	4				
342	W7	3465	2								

#### FORMATION TOPS

Pennsylvanian (Top of Paleozoic)	1845'
Mississippian (Lewis Zone)-FAULTED	2415'
Iowa ? Ls	2610'
Maury Ss	2648'
Devonian Chert	2650'
Dutch Creek Ss Zone	2680'
Clear Creek Chert	2800'
Silurian ?	3395'
Wayne	3695'
Patterson Ss (Ordovician)	3700'
Black River-Stones River Ls	3767'
Murfreesboro Ls	3900'
"Knox" Dolomite	4040'

WELL-LOGGING SERVICES

CORE ANALYSIS



## Location Sample Service, Inc.

135 OLD FANNIN • BRANDON, MISSISSIPPI 39042

Telephone (610) 992-1104

WATS # 1 (800) 748-9031

FAX # 1 (601) 992-1107

Mobile # 1 (205) 344-5174

### BRANDON, MISSISSIPPI

R.A. (BOB) LEGATE

JOEL McGLAUN

OFFICE: (601) 992-1104

### Corporate Offices & Core Lab

135 Old Fannin Road  
Brandon, Mississippi 39042-9262

### Mobile Laboratory

6715-A Old Shell Road  
Mobile, Alabama 36609

### WELL-LOGGING

- 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

### VICE PRESIDENT

Joel R. McGlaun  
(601) 992-1104

### OPERATIONS

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(601) 992-1104

### OPERATIONS MANAGER

Silas Ross  
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