

# NEWS

# BULLETIN

MISSISSIPPI GEOLOGICAL SOCIETY

Vol. XVIII, No. 1, September 1970



## FIRST FALL FROLIC—SEPT. 15 GEOLOGISTS GOLF—OCT. 2

### BARBEQUE AT FOWLER LODGE

The annual fall barbeque of the Mississippi Geological Society will be held Tuesday, September 15, at the Fowler Buick Lodge, on the Ross Barnett Reservoir, beginning at 4:30 p.m. Barbeque will be served at 6:30 p.m.; refreshments will be available from 4:30 until exhaustion (of drinks or drinkers). There is no charge for this affair, but it will be necessary to have paid your MGS dues either in advance or at the door. There is no formal program following the barbeque, but some of our more imaginative members will undoubtedly find ways to spend an entertaining (maybe even profitable) evening.

You should try to make it to this meeting. The fall beer and barbeque is probably the best chance you have to visit with fellow geologists, meet the new hands in town, and catch up on scuttlebutt after the long summer.

Skip Murrell, Entertainment Committee Chairman, would like an advance idea of attendance so that we do not run out of ribs before everyone is served. If you're planning to attend, please give Skip a call at 362-7758 by Monday, the 14th, afternoon.

### MISSISSIPPI GEOLOGICAL SOCIETY CALENDAR

- |          |  |
|----------|--|
| SEPT. 10 | Women's Auxiliary — Membership Coffee<br>Home of Dollie Ladner<br>10:00 a.m. to 12:00 noon |
| SEPT. 15 | Beer and Barbeque<br>Fowler Buick Lodge<br>Beer at 4:30 p.m.; barbeque at 6:30             |
| OCT. 2   | Golf Tournament<br>Live Oaks Country Club<br>Tee Off time — 10:00 a.m. until 1:30 p.m.     |

FOR RESERVATIONS TO SEPT. 15 MEETING, CALL SKIP MURRELL BY MONDAY, SEPT. 14. FOR RESERVATIONS IN GOLF TOURNAMENT, CALL CHARLIE BARTON, 354-2513.

### FIRST FALL GOLF TOURNEY

Date and site of the annual Mississippi Geological Society Golf Tournament has been set for Friday, October 2, at the challenging Live Oak Country Club. The tourney, formerly held in conjunction with the spring dance or barbeque, is being changed to take advantage of the fall weather and to provide better spacing of the various social events throughout the year. Green fee is \$3.00 and tee off time is 10:00 a.m. until 1:30 p.m.

Prizes for all type golfers plus plenty of refreshments will be furnished. All golfers will be accommodated but everyone is urged to contact Charlie Barton, Golf Chairman (354-2513), or Verne Culbertson (355-7831) prior to the tourney so they may have an estimate of the number to play.





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We wish to thank the sponsors of our News Bulletin. Without their financial support we could not print it.

To date we have 44 such sponsors, listed on the back pages. Graham Hughes, who did all the leg work in contacting our sponsors, expects to hear from several more in the coming weeks.

## MEMORIALS

### HENRY N. TOLER

Members of M.G.S. will miss the warmth and the respected counsel of the Dean of Mississippi Geology, with the passing of Henry N. Toler on May 29, 1970. A native of this state, Henry began a consulting practice in Jackson in 1931 after working as a petroleum geologist in South America and Texas. During the following nearly forty years of active professional life in Jackson, he served as Oil and Gas Supervisor for the State of Mississippi for three years, was Chief Geologist for Southern Natural Gas Company for fourteen years, and for the past eighteen years carried on an active practice as a consultant.

Besides being our first president of the Mississippi Geological Society from 1939 to 1940, he served two terms as Secretary-Treasurer of the American Association of Petroleum Geologists from 1949 to 1951, having been a member of that organization since 1926. With the formation of the Mississippi Geological Survey Board in 1958, he became member and later served as chairman from 1962 to 1970. In addition to his work in professional affairs, in recognition of which he was made an honorary member of M.G.S., he was active in several civic groups.

Most of all, Henry will be remembered as the thoughtful and friendly advisor who was always willing to give a hand to the newcomer. A model professional geologist, he was strict in his devotion to the truth, and to the highest professional ethics. Yet he was always in good humor and remained a vital force in our professional community to his last working day.

We of the Mississippi Geological Society who were fortunate enough to know Henry Toler will miss a great friend and a wise and just professional leader.

W. D. LYNCH

### THOMAS C. AITKEN

Thomas C. Aitken, distinguished petroleum engineer, executive, and oil operator was killed in an automobile accident on July 3, 1970. Tom's diligent work in the oil fields of Mississippi and Alabama for the past 10 years has been exemplary. He has helped shape both states' petroleum regulations favoring wide spacing and fieldwide unitization. While with Sun Oil Company in the early 1960's, he is credited to a large extent with the success of unitizing and water flooding the McComb Field, as well as a part in the unitization of the Citronelle, Little Creek, and Smithdale fields. In 1964, he accepted a position as chief engineer for Triad Oil and Gas Company and became president in 1967. In these capacities he played a major part in the unitization of the Summerland and Quitman fields. Tom's understanding and aggressive application of petroleum engineering principles will undoubtedly account for many million barrels of additional oil from the wells of Mississippi and Alabama.

After graduating from Texas A & M College in 1951, and prior to his tenure in Mississippi, Tom worked with his usual exuberance in oil areas of Texas, Louisiana, and Venezuela. He is survived by his widow, Joan, whom he married while in college, a daughter Cynthia and son Tom, Jr. He is greatly missed by his many, many friends, particularly those in the petroleum industry.

DUDLEY HUGHES

## from the editors-

It isn't often that we little men of the silent majority get to tweak the nose of the big men of vocal minority and come away feeling victorious. But it happened this summer and I think it's a story worth repeating because there is a moral to it.

Late in May on the Frank Blair morning news portion of the NBC Today Show, Mr. Blair reported an item which stated in effect that polar bears are seriously threatened by oil spillage, offshore drilling, and the growing market for their hides. Chevron's Joe Carl heard this; it got his dander up. (Chevron is still a little sensitive about oil spills.) Joe mentioned this news report to the car pool he rides in. No one could vouch for the hunter who is killing for hides; but it was agreed that in the vast experience of this car pool no one had heard of a polar bear's demise, or of even being threatened by an oil spill or offshore drilling.

It was agreed that if Joe would send a wire, the car pool would foot the bill. A telegram was composed and sent over John Lancaster's signature as MGS President. (The little man in this story has faded somewhat but not much.) The telegram to Mr. Blair requested a retraction or clarification of the polar bear statement, with regard to oil spillage.

In a few days, John was quite surprised, since everyone knows this sort of thing never does any good, to receive a letter from Mr. Blair, which read in part:

"We regret exceedingly our error about the oil spills in connection with the polar bear story we put on the air recently.

We appreciate your bringing this to our attention, and we intend to make a correction in our news broadcast on Friday, June 5, at 8:00 a.m., NYT."

Mr. Blair did indeed make the correction, as promised. And I hope the stature of the oil industry climbed just a few points in the estimation of many Americans.

My only part in this story was to contribute one dollar for a telegram, but it was one of the most worthwhile and satisfying investments I've ever made.

One of our goals for the 1970 - 71 volume of the News Bulletin is to print at least one technical article by a MGS member of interest to other members of the Society. What we have in mind is something along the line of a short field study, or a case history, or a field trip to a shark tooth collecting site. In addition, other subjects we'd like to see developed are the economic and political problems facing the industry and the petroleum geologist. We could use some help in lining up an author or two. If you are interested in writing an article or know of some one who could put one together, let us hear from you.



# president's notes

by John Lancaster



**JOHN LANCASTER**

Operating income for the Society comes primarily from three sources: contributions to the Newsletter, dues, and publication sales. Charlie Barton has already made plans for publishing three supplements to Volume II of the "Redbook" which will contain mostly data on the Jurassic fields of Mississippi and Alabama. These supplements along with other published articles on the geology of Mississippi should supply the necessary operating income for the year.

First, I want to say thanks to the previous administration responsible for leaving us with a healthy bank balance, for we are now able to sponsor a program that will hopefully appeal to everyone. Financially, we are in better shape than we have been in a long time. We began the year with a nice \$3,600.00 bank balance. One of our goals is to finish the year with an equivalent amount.



**CHARLIE BARTON**

Each of you should have received your Newsletter addressed correctly. Secretary Larry Walter has made great efforts to see that the mailing list and membership rolls are correct. All corrections or changes in address should be directed to Larry. He is expecting your comments for he wants the records to be correct. If you can't reach Larry, call me. Please don't contact our mailing service.



**LARRY WALTER**



**BUDDY TWINER**

Your other officers include Treasurer Buddy Twiner who is attempting to draft an operating budget to keep us in line. In my



**NED PHILLIPS**

absence, Ned Phillips, 1st Vice President has done a very capable job. With our past President's experience and advice, I will try to keep things in working order.

Committee appointments have gone very well. The 1970-71 committee assignments are as follows:

- A. Standing Committees
 

AAPG	Julius Ridgway
Entertainment	Frank Murrell
Field Trip	Harry Fritz
Nomenclature	Phillip Reeves
Program	Bob Beu
Projection	John Paxton
Publicity	John Ryall
  
- B. Special Committees
 

GCAGS Representative	Joe Morgan
Boy Scouts	Dave Lott

The Program Committee has laid out an excellent program for the coming year which includes local authors as well as AAPG distinguished lecturers. We will also be privileged to hear the President of AAPG at our regular November meeting. Topics include the Jurassic trend, recent sandstone deposition, the North Sea, and the North Slope. Plans are also being formulated for a joint meeting with one or more of the other professional societies here in Jackson.

The Field Trip Committee is working on the first field trip to be sponsored by the Society in eight years. How many of you were around in 1962 when we went on our last field trip to see the Paleozoics of Northwest Arkansas? This committee will need lots of help from you old-timers.

The Entertainment Committee has set up our two annual barbeques and the golf tournament. Changes this year are a fall golf tournament and an informal party with Geological Auxiliary in the spring. The scheduling of the golf tournament was made to take advantage of the weather and to relieve the busy spring calendar. The formal dances have been too expensive for the number attending.

The Publicity Committee has the job of putting out the Newsletter and this year's copy will be edited by experienced hands from last year's superb paper.

During the summer the Society sponsored a short course in geology for the Boy Scouts at Camp Kickapoo in Hinds County, Mississippi. Approximately 85 boys received training from a group of 18 professionals. Many thanks to those of you who participated in the program. Thanks also goes to those companies and supervisors who helped make the program possible.

## personal news-

by Jim Shaw

Two recent additions to Skelly's exploration group are **Bob Dickinson** and **Leonard Eversull**. Bob transferred to the geological section from Denver and Leonard moved from Tulsa to join the geophysical staff after twenty years with Amerada.

**Jim Shaw** has transferred to Jackson from Laurel as Schlumberger's new sales representative. Jim has offices in the Petroleum Building and his phone is 352-8589.

**Owen Schooler** is a recent returnee to Jackson and the MGS. Owen is a geophysicist with Chevron and was in Jackson before his transfer to Australia in 1965.

Murphy Oil's new senior area geologist is **Jim McElroy**. Jim was formerly with Chevron in New Orleans and prior to that for several years here in Jackson.

## MONDAY NIGHT GRADUATE PROGRAM AT USM

A series of three night graduate courses is offered for 1970-71 by the Department of Geology of the University of Southern Mississippi at Hattiesburg. One course each quarter is to be held on Monday evenings from 6:30 to 10:00 p.m. and are for students engaged in degree programs or for those interested in extending their geological training. This year's program consists of courses in Gulf Coast Stratigraphy, Sedimentary Environments and Tectonics. Other graduate courses are available in addition to the Monday night classes. Inquiries should be directed to Dr. Richard L. Bowen, Dept. of Geology, Box 44, The University of Southern Mississippi or call (601) 266-7195.

## GEOLOGY COURSES OFFERED AT MILLSAPS

Dr. Richard R. Priddy, Chairman of the Geology department at Millsaps College has announced five courses will be offered in geology during the Fall Semester for regular students or others interested in refresher work. Four are daytime courses and the other is a night class in Physiography. Interested persons should contact the Geology Department for further information.

## CARBONATE SEMINAR - UNIVERSITY OF MIAMI

The School of Marine and Atmospheric Sciences, University of Miami, announces a fall session of their new Field Seminar on Carbonate Facies will be held October 23-31. The format consists of four days of field trips to the Florida Keys and Bahama Banks plus three days of laboratory work. Enrollment is limited and early registrants include geologists from various parts of the world. Additional information can be obtained by contacting the school and Robert N. Ginsburg at 10 Rickenbacker Causeway, Miami, Florida 33134.

## GCAGS - SEPM CONVENTION OCTOBER 28 - 30 - SHREVEPORT, LA.

The GCAGS and SEPM will hold its 20th Annual Convention in Shreveport this year. Theme of the event is "Exploration Concepts for the Seventies". Preliminary notices indicate a number of interesting papers pertinent to the Gulf Coast area and industry in general are being assembled. In addition to the technical schedule, two field trips and a busy entertainment program are planned. The SEPM will host a visit on October 27 to an open pit iron mine and processing plant at Daingerfield, Texas, and the GCAGS will sponsor a trip on October 31 to examine Tertiary and Cretaceous outcrops plus several salt domes in north-central Louisiana.

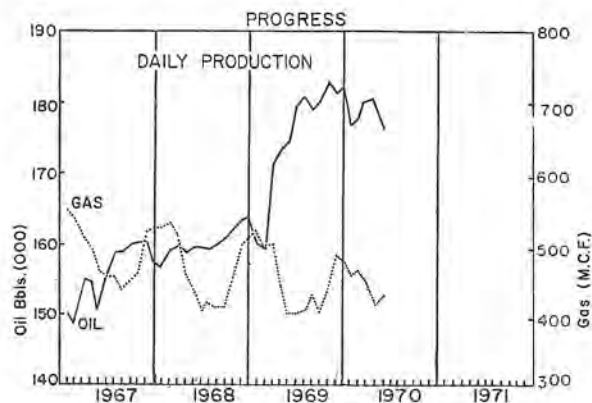
Entertainment is highlighted by a cocktail party, golf tournament, dance, ice capade show, and other functions primarily for the ladies. Registration and presentation of papers will be in the downtown Convention Center and Civic Theater with bus service available from all housing areas. More specific information will be forthcoming when final plans for the Convention are announced.

## W.G.A. PLANS MEMBERSHIP COFFEE

The annual membership coffee of the Women's Geological Auxiliary will be held from 10 A.M. to 12 A.M., September 10th, at the home of Mrs. Hilton Ladner (Dollie), 2573 Lake Circle. Ida Cummings is chairman of this meeting.

## progress-

by Jim McMullen



Daily Production	May, 1970	177,378	Bbls.	Oil
		429,174 <th>M.C.F.</th> <th>Gas</th>	M.C.F.	Gas
	May, 1969	174,859 <th>Bbls.</th> <th>Oil</th>	Bbls.	Oil
		403,645 <th>M.C.F.</th> <th>Gas</th>	M.C.F.	Gas

### Box Score Discoveries January - May, 1970

Eocene	U.K.	L. K.	C.V.	S.M.K.	Norphlet
2	1	2	0	3	1

### Box Score Discoveries January - May 1969

Eocene	U.K.	L. K.	C.V.	S.M.K.	Norphlet
4	0	1	0	3	0



## JACKSON GEOPHYSICAL SOCIETY TO MEET SEPTEMBER 21

by Herb Ferber

The Jackson Geophysical Society will hold its first fall meeting at the King's Inn, Monday, September 21st with fellowship starting at 5:30 p.m. Dinner at 6:30 will be followed by the technical program featuring Paul G. Mathieu, Supervisor of Gulf R & D Company's Seismic Playback Section at the Houston Technical Services Center. The paper "Multivariate Analysis Used in the Detection of Stratigraphic Anomalies" was presented at the 38th Annual International Meeting. The speaker will show how quantitative changes in amplitude of a peak or time intervals between peaks or qualitative changes in wave shape can be utilized for example in delineating sand vs. shale areas. This paper should be of interest to the members of the geological fraternity. Y'All Come!



## GEOLOGY MERIT BADGE KICKAPOO SCOUT PROGRAM

The MGS Boy Scout Committee, headed by Dave Lott, provided instruction leading to the geology merit badge at this summer's session of Camp Kickapoo, the Andrew Jackson Council Boy Scout camp, located near Clinton. The instructors gave the scouts an introduction to geology, covering sedimentary processes, structure, rock identification, mapping, geology of Hinds County and a visit to a local quarry. Instructors were: John Lancaster, Billy Cook, Tom Jones, Bill von Almen, Wayne Moore, Ray Lewant, Philip Reeves, Jim Smith, Bill Moore, Charlie Barton, Stewart Welch, Charlie Summers, Keith Patton and Dave Lott.



One of the merit badge instructors, Bill von Almen, with a group of scouts at Camp Kickapoo.

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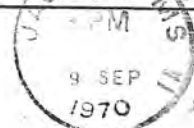
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# NEWS

# BULLETIN

mississippi geological society

Vol. XVIII, No. 2, October 1970



## BRYAN FIELD TURTLE SUBJECT FOR OCT. 6

### MARVIN OXLEY - DAN HERLIHY TO PRESENT PAPER TO MGS

"Bryan Field - A Sedimentary Anticline" will be the subject of a paper, co-authored by Dan Herlihy and Marvin Oxley, to be presented at the next meeting of The Mississippi Geological Society. The meeting will be held Tuesday, October 6, at the King's Inn at Maywood Mart. It will begin with a social period at 5:30 p.m. with dinner to be served an hour later.

The authors are in partnership as Oxley and Herlihy Exploration Consultants here in Jackson, and have collaborated on this paper to be presented later this year at the 40th international meeting of the Society of Exploration Geophysicists. Marvin will present the paper at the MGS meeting on October 6; Dan will give the paper at the SEG meeting in New Orleans in November and also to the New Orleans Geophysical Society in October.

Marvin Oxley was the well site geologist for the Bryan Field discovery well and later supervised development of the field, including the drilling of the initial deep test. He received a B.A. in Geology from Phillips University in 1955 and an M.S. in Geology from the University of Oklahoma in 1958. He was with Lone Star Producing Company from 1957 to 1968, at which time he resigned to form Bison Oil Company.

Marvin is a member of the Mississippi Geological Society, Jackson Geophysical Society, AAPG, and is certified as Petroleum Geologist No. 726. He has previously co-authored papers on Pool Creek Field and on the regional Jurassic stratigraphy of Mississippi, Alabama, and Florida.



MARVIN OXLEY



DAN HERLIHY

Dan is a member of the SEG, the MGS, the Jackson Geophysical Society, and is a registered professional engineer in Mississippi.

Dan Herlihy received the degree of Bachelor of Civil Engineering from Georgia Institute of Technology in 1947. Dan hired on with Magnolia Petroleum Company in 1947 and worked in various capacities on gravity and seismic field crews until 1959. At this time, he was transferred to the Jackson office of Mobil Oil Corporation as a Senior Geophysicist. Dan left Mobil in 1964 to work for Delta Exploration, in Jackson, until 1966. Since then, he has worked as a Consulting Geophysicist.

This paper by Marvin and Dan is the only effort we know of to promulgate local geological knowledge at regional or national meetings this year. Make a special effort to attend this meeting and offer constructive criticism if it is warranted, and moral support and praise, regardless.

### BRYAN FIELD - A SEDIMENTARY ANTICLINE

#### Abstract

Although Bryan Field has existed as a producing structure since 1958, this paper presents the first published data detailing the geologic history and origin of the structure. Discovery well for the Jurassic (Cotton Valley) sediments was preceded by a detailed seismic program which outlined an anticlinal feature corresponding to the shallow (Cretaceous) production.

Assuming the structure to be a salt cored anticline, the discovery well was permitted for 17,000 feet but was forced to drill to 21,005 feet before reaching salt. A re-evaluation of the data reveals Bryan Field as a classic example of the sediment cored anticline or turtle back structure. An unusual thickness of Haynesville sediments and a continued outward flow of salt into nearby salt cored anticlines combined to produce the sedimentary structure which is the subject of this study.

### 1970 S.E.G. MEETING IN NEW ORLEANS

The Society of Exploration Geophysicists will hold its 40th Annual International Meeting in New Orleans on November 8-12, 1970. Theme of the convention is "Searching the Seventies - From Moho to Mars". Hosted by the Southeastern Geophysical Society, the meeting features a stimulating technical program, exhibits, field trip, and a full entertainment schedule. The highlight of the technical program could be the first session, a special Symposium on "Geophysical Frontiers" which will include some of the best known experts in geophysical research.

The entertainment program includes a cocktail party, breakfast dance, and several affairs for the ladies. The field trip appears to be something special. It will be a seven day cruise departing from Miami for the Virgin Islands with stops at Haiti, San Juan, and St. Thomas (that's a field trip??). Convention Headquarters is the Jung Hotel which will also house the technical sessions and exhibit areas.

#### MISSISSIPPI GEOLOGICAL SOCIETY CALENDAR

- |         |   |
|---------|---|
| Oct. 6  | Herlihy-Oxley Paper - Kings Inn<br>Social Hour 5:30 p.m., Dinner 6:30 p.m.  |
| Oct. 20 | Women's Auxiliary: Bridge - Luncheon<br>River Hills, 10:00 a.m. - 2:00 p.m. |

FOR RESERVATIONS TO MGS MEETING, CALL SKIP MURRELL 362-7758 BY NOON, OCT. 6.



## MISSISSIPPI GEOLOGICAL SOCIETY

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Ned Phillips	1st Vice President	Dresser Atlas
Charles Barton	2nd Vice President	Am-Southwest Corp.
Larry Walter	Secretary	Consultant
Buddy Twiner	Treasurer	Skelly Oil
Kevin Cahill	Past President	Southeastern Exp.

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Harold Karges		Independent
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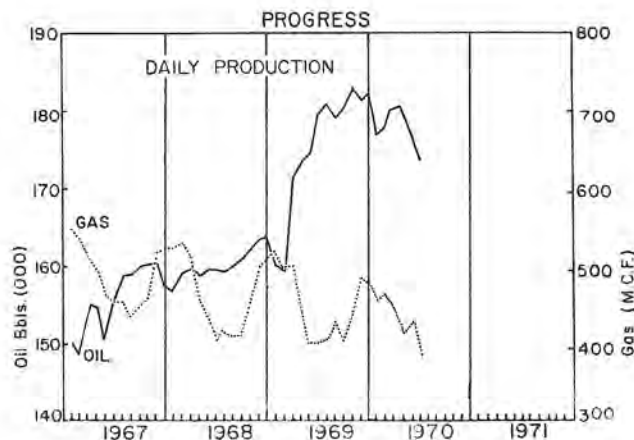
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Jim Shaw	Personal News	Schlumberger
Jim McMullin	Statistics	Chevron Oil
Pat Ryall	Women's News	

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## progress-

by Jim McMullen



## president's notes

by John Lancaster

Each year we face the problems of how to pay for the Happy Hour before each meeting and how to finance the News Bulletin. I'm afraid we would lose a few of you if we weren't successful in solving these problems. This year we are privileged to have a number of sponsors and contributors who have agreed to subsidize the cost of refreshments and literature. To those sponsors and contributors, I want to express my sincere thanks, and I hope each member will also express his thanks and consider these benefactors when conducting his business.

Two publications, the News Bulletin and a membership list have been mailed to every one on the membership list. This was done for two reasons: one, to show you what our coming program will be and how good our News Bulletin is; and two, to show you the potential size of our society. If every person who has shown the desire to join our Society by sending in an application and is qualified or is an active or associate member, and pays his dues, the Mississippi Geological Society will have 374 members. One of our goals last year was to attain a membership of 400. This year that goal should be within reach. I earnestly encourage each of you to pay your dues as soon as possible. This will be your last free ride for the News Bulletin. Next month's issue goes only to those paid up members.

Some membership cards have been misplaced over the years. Consequently, some of you old timers will receive or have received a request to resubmit an application card. Please don't feel insulted. Our Secretary is doing an excellent job. He has spent several full days making corrections. All he wants is a card for every name on the membership list.

Plans are now being generated for a joint meeting with our fellow oil men, the landmen, engineers, and geophysicists. On February 2nd, we shall have the honor of hearing a resume of the status of the petroleum industry from Mr. H. J. "Bill" Haynes, President of Standard Oil of California, and one time construction engineer in the Mississippi oil patch. We are anticipating an enlightening and authoritative talk from the viewpoint of management.

News from other societies indicates that geologists are again walking the streets of Houston and various other cities due to recent cut backs in personnel. This is very discouraging. A project under consideration is the establishment of a Personnel Placement Committee within the society whereby qualified geologists can find prospective employers. We in Mississippi are fortunate to be on the frontier of an excellent oil play. There is no reason why our members should have to hit the streets when the society can provide a number of suitable jobs. I hope to report more on this in the near future.

The extra events this month are the Fall Golf Tournament and the G.C.A.G.S. Convention in Shreveport, October 29 and 30. Both should be a fine time for all. Make an extra effort to attend them both.

Daily Production	June, 1970	173,985 Bbls.	Oil
		389,689 M.C.F.	Gas
	June, 1969	179,171 Bbls.	Oil
		403,246 M.C.F.	Gas

#### Box Score Discoveries January - June, 1970

Eocene	U.K.	L.K.	C.V.	S.M.K.	Norphlet
2	1	2	0	4	1

#### Box Score Discoveries January - June 1969

Eocene	U.K.	L.K.	C.V.	S.M.K.	Norphlet
7	0	1	0	4	0

## 1970-71 GEOPHYSICAL SOCIETY OFFICERS

Officers for the Jackson Geophysical Society during 1970-71 are: President - Dave Lott, Chevron; Vice-President - Herb Ferber, Gulf; and Secretary-Treasurer - Tom Clements, Skelly. In addition to serving as officers for the Geophysical Society, all three are upstanding members of the Mississippi Geological Society.

## personal news-

by Jim Shaw

**Clem Dazet** has resigned from Schlumberger Well Services to accept a position as log analyst for Cities Service Oil Company in Jackson.

**An-Son Oil Company** has opened an exploration office in Jackson at 1401 First National Bank Building. Heading this operation is **Emil Monsour**. Emil is a returnee to this area having formerly been here with Sun Oil Company. Emil retired from Sun after 33 years service.

**Max Gilpin**, independent geologist, has departed Jackson for greener pastures in Shreveport, La.

**Skelly Oil Company** has moved its offices in the Milner Building to the Dixie National Life Building on Interstate 55 North. New address is 3760 I-55 North, Box 12427, Jackson (39211) and phone is 362-1655.

**Jack Porter** has been promoted to Senior geologist in Chevron's Northern Division.



## FRANK RINKER CLARK AAPG HONOR WINNER

The following is an AAPG News Release concerning Mr. Frank Rinker Clark of Tulsa, 89 years old retired Vice-President of the Marathon Oil Company. Mr. Clark was the 1970 winner of the Sidney Powers Memorial Medal for outstanding contributions to Petroleum Geology, the highest annual honor of the AAPG! Mr. Clark has led a full and active life and his reminiscences about the oil patch and life in general should be of interest to old timer and newcomer alike.

In addition to this year's award, Mr. Clark served as AAPG President in 1933-34, and is chairman of the Headquarters Advisory Committee, the Long Range Planning Committee, and is an honorary member of the Association and the Tulsa Geological Society. He has also been appointed to the Association's Advisory Council.

### REFLECTIONS BY 1970 POWERS MEDALIST by Frank Rinker Clark

When a geologist studies the earth looking for oil or other minerals for more than a half century, things start to happen to him.

The universe is so well ordered that you begin to realize that the world was created and peopled for a divine purpose.

And you begin to wonder if that purpose is being fulfilled. We are educated—but we do not really know how to take care of the earth for its people. We continue to pollute the earth, the water, and the atmosphere that we breathe. We continue to murder, steal, fight one another over trifles. Technologically, man has done a marvelous job with this world, but with humanitarianism man has so far failed miserably. Perhaps we progress slowing in human relations.

I have been a geologist for a long time, and have found a few barrels of oil, and did my job as field geologist well enough to be promoted to an executive job behind a desk. I must say I liked field geology best.

This science of geology has progressed so much that I doubt that I could qualify as a field geologist today, but, at the same time, perhaps I can pass on some of my experiences as I have travelled the road of pleasant experiences of the successes and failures I have had.

Not enough geologists, or for that matter most professional men, take an active part in the life of their community affairs and human relations. The constant threat to our world is the lack of communication and understanding between people and nations, and our lack of worship of the Almighty Father. If we continue to ignore this counsel, we may find that our technological skills will be our downfall.

I can see a little of this lack of public relations in my own life history. I was born—fifth in a family of ten children—into the Church of Jesus Christ of Latterday Saints, and was taught the Gospel of Jesus Christ. I was active in the church my first thirty years. Then for many years I was wholly inactive, having lived in places where there was no organized branch of the Church. They say if you teach a child the truth, he will never depart therefrom. In 1953, I again became active in the Church, and have held several important positions of leadership in the Tulsa Ward.

You might wonder how a scientist, knowing that the geological processes took millions of years in building the earth, can reconcile this fact with the Biblical account of the Creation in six days. The fact is that no one knows the length of a Biblical day. So I accept without reservation the creation and peopling of the earth by a divine power.

Why did I become a geologist? Perhaps two reasons: First, certainly, I disliked farm labor as a means of livelihood; and second, I fancied the romance of an engineer probing the rocks for hidden treasure. My parents were, so to speak, the Salt of the Earth, but lacking in the world's riches. They encouraged me to get an education, but financed by myself, and it was. My parents were Mormon pioneers. My mother was born in a covered wagon in 1848, while crossing the plains in the Mormon trek from Illinois to Salt Lake Valley.

There was no high school at that time in Grantsville, Utah, where I was born and grew to manhood. I started to the University of Utah preparatory school for my high school work. My college work was done at George Washington University and at the University of Utah, where I was graduated with a B.S. in general engineering in 1910. Because my first love was the romance of mining, my courses were fashioned to get as much geology as possible. I attended George Washington Law night school for two years.

The turning point in my selection of a career came after I had spent one summer mapping coal beds in the Bull Mountains of Montana. From then on, it was geology all the way.

We geologists know that the earth is millions of years old, and we know better than anyone how well it is put together. After all, our job is to try to figure out its formation and reclaim its resources for the use of mankind. That job was the most rewarding, temporarily speaking, in my career. Working as a field geologist was the most satisfactory, because you see a prospect develop step by step until you find a structure taking form before your eyes, and the possibility that it might be an oil field adds an intense feeling of anticipation and excitement.

One of the greatest handicaps for young geologists today is the lack of field experience. That is where you see it as it is. Surface outcrops are frequently the key to subsurface reservoir rocks.

Following my graduation, I accepted a position with an English company for geological studies in Mexico searching for oil prospects. I was married the day before graduation, and left for Mexico two weeks later, leaving my bride in Salt Lake, to follow later. However, my expected reunion failed to materialize, due to the poor living conditions. So our honeymoon was spent apart. I was successful in finding two oil fields, one which was drilled while I was there. I got to witness the completion of the first well. At the end of my year, I returned to the States, in spite of an offer to stay on in Mexico at a substantial increase in salary.

I was with the United States Geological Survey from 1911 to 1919: field work in the summers and office work and compiling reports during the winter months. This was in the Fuel Branch, mapping coal fields, and one full year (1917-1918) in the Osage Reservation, mapping oil prospects in Oklahoma. I worked out of Sistersville, West Virginia, for oil companies in search of oil prospects (1919-1921), in Kentucky, West Virginia, Ohio, Oklahoma, Kansas and Montana, with only moderate successes—no giant finds.

I started to work for the Mid-Kansas Oil and Gas Company, July 1, 1923, as chief geologist. My territory included Kansas, Oklahoma, and Texas. The Mid-Kansas was a wholly owned subsidiary of the Ohio Oil Company—now Marathon Oil Company. I remember meeting the Commodore, as he was called, J. C. Donnell, the president of the Ohio Oil Company when I went to Findlay, Ohio's headquarters for an interview. He said to me: "If we hire you, young man, do not think you are going to find all the oil in the world. He was right, and I told him so. In those days, industry hired geologists because they were afraid not to hire them. Geologists were merely tolerated.

My first assignment with Mid-Kansas was to check three lease blocks in West Texas. They consisted of three ranches, Henderson, south of Big Lake field, the Stiles north of Big Lake, and Yates, where legend had it no oil would ever be produced, west of the Pecos River. The deal was recommended on the basis of three wells for a ½-interest, based on the surface structure at Yates, which could be seen by mere inspection. Three wells were drilled, all dry holes. One on Henderson, two on Stiles which completed the terms of the contract, leaving Yates untested.

What to do about Yates? To the local manager, it was just another block of leases. There were three alternative courses: Pay the rental, drill a test well, or cancel the leases. The division manager chose the cancellation route. It was not uncommon for division managers to buy, trade or cancel leases without so much as how-do-you-do from the company geologist. I was stunned when I happened to see a map of the Yates leases stamped "cancelled." I immediately took action, and sought the local manager, and pleaded my case, which was that the rentals be paid, and that before the leases expired, a test well must be drilled. He bought my plea, and wired the Findlay office to pay the rentals. By a stroke of good luck, and the delayed action of the Legal Department the leases were still in Findlay and the rentals would be paid.

Soon after the rentals were paid, we were approached by a third party to drill a well on Yates for ½-interest, with each of the then-owners contributing ¼-interest. This offer was turned down at my insistence, and it was then decided that Mid-Kansas and Transcontinental, the owner of the other half-interest, join and drill a test well.

The first well was located on the apex of the structure several thousands of yards west of Yates' Red Barn, a landmark, which was later converted into a hotel. The well came in big. First oil was encountered at 981 feet for a small well as Yates wells went. It was deepened to 1,032 feet, and was capable of producing 72,000 barrels per day. Gushers were the rule in Yates from then on. It was most fascinating to watch the pipelines from the well-head to the tanks shiver and shake as the great volume of oil surged through them. Even after 43 years, I often look at the Yates map and consider what a great catastrophe it would have been for the Mid-Kansas—and for me—if I had failed to follow my conviction, and the well had not been drilled at that time. The Yates field gave the industry a new dimension, the Ohio Oil a new push, and made me very happy in our accomplishment.

I joined the AAPG in 1920. I was at the 1917 dinner meeting, at which the ground work was laid for the organization of AAPG.

I am most grateful to AAPG for the privilege it affords me to work for its betterment. I never have, and hope I never will, raise the question, "What has the Association done for me?" but rather, "what have I done for the Association." I have been more or less involved in Association affairs since the early thirties (I was Secretary in 1931). The Association is a very necessary and valuable asset for the young geologist. I have a feeling that too many working geologists fail to realize the enormous value tied up in the BULLETIN over a period of more than fifty years. Do we read the BULLETIN as much as we should? The whole idea of the BULLETIN is a medium for exchange of ideas—the publication of geological, and mineral exploration facts and theories. We will continue to need more geologists. Geology is the most fascinating subject in the world. Many oil companies are going all out to acquire not only fuel reserves, but other minerals as well.

(continued on page 4)

## REFLECTIONS (continued from page 3)

I was retired from Marathon April 1, 1946. For a short time, I prospected around on my own, and was successful in opening two small oil fields. I then decided to do something toward the betterment of my fellow-men.

I have suffered from muscular arthritis since 1917, so naturally I wanted to help other arthritics. I was President of the Tulsa chapter for thirteen years, and at the end of this service, they elected me Honorary President for life. The headquarters office in New York presented me with two awards for distinguished service. I was also on the Governing Board of the National Arthritis Foundation, and was a member of the National Committee to review and rewrite the Constitution and By-laws. I was also Chairman of a committee to make a study of the needs of the old people in the Tulsa area.

Mine has been a good life—rewarding and satisfying, I say to young geologists, "Keep abreast of progress in your profession. Take advantage of the AAPG's continuing education program. Lead out and take an interest in your community and its people.

I have said it before, and here say it again—geology is a most fascinating career for you to follow. And I mean it!

## NOTES FROM WOMEN'S AUXILIARY

This year's officers for the Women's Geological Auxiliary are Joyce Bowman, President; Betty Oxley, First Vice-President; Dottie Porter, Second Vice-President; Pat Ryall, Secretary; Gloria Morgan, Treasurer; Gene Ellis, Reporter; and Beth Samsel, Corresponding Secretary.

Next meeting is a bridge-luncheon affair with Black Gold on Tuesday, October 20, 10:00 a.m. to 2:00 p.m., at River Hills. Chairman for this meeting is Oleta Harrell.

## MAYNE TO SPEAK TO GEOPHYSICISTS OCT. 19

W. Harry Mayne will be the speaker at The Jackson Geophysical Society's October 19th (Monday) meeting. The meeting will be held at the King's Inn, with fellowship beginning at 5:30 p.m., and dinner at 6:30 p.m.

Mr. Mayne is Vice-President, Technical Services, Petty Geophysical Engineering Company, San Antonio, Texas.

Mr. Mayne served as President of the Society of Exploration Geophysicists for the 1968-69 term. He is widely known as the inventor of the C.D.P. (Common Depth Point) technique which has been widely used by seismic contractors for the past several years.

His talk is titled "Creative Exploration - Key to Reserves." It should be of interest to geophysicists, geologists, and management.

## EXPLORATIONISTS TO PROGNOSTICATE NEXT DECADE

For those of you needing to sharpen your exploration concepts, we have a reminder on the GCAGS meeting in Shreveport. The 20th Annual Convention of the GCAGS and SEPM will be in Shreveport, October 28-30. Its theme is "Exploration Concepts for the Seventies." In addition to the usually stimulating technical program, there will be the usual educational social gatherings, golf tournament, ladies functions and field trips. Registration and presentation of papers will be in the downtown Convention Center and Civic Theater.

## ENERGY CRISIS? AN INDUSTRY OPINION

by Dave Cate

"With little advance warning, the United States finds itself on the brink of an energy crisis." So goes the opening line of an article in a recent edition of the news magazine "U.S. News & World Report." Speaking for the oil and natural gas portion of the energy picture, we in the industry might have to take exception to at least part of this statement. Not that we could argue much about the possible fuel shortage but the advance warning has been made and more than a little. Industry spokesmen have for some time proclaimed the possibility of petroleum shortages unless the industry is granted more favorable legislation, better price structures, and less restrictions. Generally, however, warnings from the industry have been met by fierce and vociferous political opposition which, in conjunction with a few highly publicized and untimely oil spills in offshore areas, has resulted in an alarmingly low public image for oil and natural gas.

The article also states that "alarm is spreading at the highest levels in Washington." Well, maybe this is good and maybe we need some alarm over the energy crisis at the general public level. As stated in the news article, all energy sources must be expanded in the next decade if Americans continue to live in the style to which they have become accustomed. Scare tactics are never favorable but we can all remember a few months back when the majority of a Cabinet task force favored and recommended that the oil import quota system be revised so as to bring in more foreign oil and (so they claimed) lower prices of gasoline and petroleum products. Specifically, this revision involved implementation of an undesirable tariff system. On the surface, the proposals sounded good to the average citizen who was and is faced with an ever increasing cost of living. The petroleum industry naturally protested the task force recommendations as being extremely damaging to national security to say nothing of being harmful to a strong petroleum industry upon which the major part of a comfortable and convenient style of living is based. Unfortunately, this opposition was probably interpreted by many high placed individuals and most of the public as just more attempts by the petroleum industry to protect its already supposedly rich and overflowing coffers. Fortunately, the tariff proposal has been shelved but a further loss of favorable opinion towards the industry by the general public has quite possibly resulted.

Lately, certain developments have occurred that accounts to a large degree for the spreading of alarm at the highest levels in Washington. Although oil reserves have seemed adequate with a proved reserve to production ratio of about 10 to 1, the natural gas picture has been discouragingly bleak. A running battle by the industry with the FPC over gas prices in some areas has been going on for a long time with the FPC just now seeming to acknowledge problems exist (the chairman of the FPC reported on August 10 that natural gas supplies were "critically short."). Environment now seems to be a major concern facing the energy structure in the country. The U.S. News & World Report article points this out by quoting Charles Primoff, chief of the fuels and energy division of the White House Office of Emergency Preparedness, who stated to the effect that environment is a principal reason for the fuel scarcity. He points out that air pollution regulations now going into effect have created a demand for natural gas or low sulphur residual oil and omitted a demand for high sulphur fuels, especially coal.

Now keep in mind the natural gas shortages that the industry has been predicting for some time and add to it the fact, as Mr. Primoff says in the article, that refiners have cut back residual oil production for years because imports made the price unattractive. In addition, due to trouble in the Middle East which caused longer shipping routes, tanker rates and consequently prices on imported residual fuel from that area have soared. Also, Venezuelan crude which has been a major source for residual oil is now judged too high in sulphur content to meet present air pollution regulations without the installation of sulphur removal equipment. We're not knocking pollution control by any means but we can't help but wonder if the situation might not be better now had industry warnings over impending natural gas shortages been heeded and if a better domestic market for production of residual oil had been available in the past.

Well, so what? All this talk about zooming demand and faltering supply is nothing new to the petroleum industry since we have seen numerous forecasts and quotes from industry spokesmen in various trade journals. Thus, the U.S. News & World Report article might not seem especially significant to those of us most concerned with increasing the supply. We believe it or any other article of its type is significant, however, for a number of reasons. First it is objective, factual, and to the point. Secondly, it does not inject politics nor does it berate the oil industry unnecessarily. Thirdly, it is published in a magazine that undoubtedly reaches a much larger segment of the general public than any trade journal ever would. Finally, it contains information that should seem creditable and informative to the general public. The article makes no attempt to discuss the high cost of exploration, success (or failure) ratios, the fact that the rate of return for oil companies is no higher than for many manufacturing concerns,



or other facts, all of which may be another story but one which we feel should be aired objectively in a non-trade publication. In other words, let the general public hear some unemotional facts about the petroleum industry which is what this particular article has done to some degree.

Is there anything the geologist (or geophysicist or landman, etc.) can do? Perhaps a "grass roots" movement is needed. Get informed, learn some pertinent facts, use them when talking to people, try to be especially informative to those outside the industry, argue if necessary, write letters to editors, newsmen, or politicians expressing

your views or the industry's and questioning or lauding theirs. In other words, get involved somehow even if it seems rather small and ordinary. Now is no time to get complacent and retreat to a dark corner hoping our problems with supply and demand, politics, news medias, conservation groups, and the general public will miraculously vanish because they won't. Let them know that if met halfway we can supply the demand, we can operate in conjunction with a relatively clean environment, and that a strong petroleum industry is necessary to our way of life. After all, the future of the petroleum industry is in a very real sense your future too.

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**MISSISSIPPI GEOLOGICAL SOCIETY**  
P. O. Box 422  
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# NEWS

# BULLETIN

MISSISSIPPI GEOLOGICAL SOCIETY



Vol. XVIII, No. 3, November 1970

## AAPG PRESIDENT CURRY HERE NOV. 3

### CULBERTSON – MASON GOLF TOURNEY WINNERS

Verne Culbertson and Rip Mason tied for low gross honors with fine 76's in the first fall MGS Golf Tournament held October 2 at Live Oaks Golf Club. In the ensuing "coin flip playoff", Verne took home the low gross trophy but Rip was not shorted as he also won low net honors and therefore carted off an identical trophy. Winners in the various classes and contests were: Low Gross, Verne Culbertson, 76; Low Net, Rip Mason, 69, 76; Second Low Gross, Charlie Barton, 80; Second Low Net, Herb Ferber, 70, 81; High Gross, T. C. Rader, 127; Low Ball Foursome – Tie, 69 (Rip Mason, David Brooks, Herb Ferber, Harold White) (Verne Culbertson, Jack Pryor, Alan Jackson, Charlie Barton); Least No. Putts, Jack Pryor, 26; Long Drive, Bill McGowan, 300 yards; Closest to Pin, Marvin Oxley, 9'; Most 3's, Ray Foil, 4; Most 4's, Al Beasley, 8; Most 5's, Kerry Briggs, 10; Most 6's, Jim McElroy, 9.

All these fellows received nice prizes and those that didn't win a prize had an enjoyable time in beautiful weather on a popular and challenging golf course. Many thanks go to Golf Chairman Charlie Barton and to Verne Culbertson for organizing the affair. They not only organized it well but also managed to cop a couple of high place trophies. Maybe the tourney should be renamed the Barton-Culbertson Open! Unsung heroes were John Lancaster, Ned Phillips, Larry Walter, and Buddy Twiner, all MGS officers, who kept things functioning while everyone else played. Special thanks should go to these hardy souls for driving the "mercy wagon" and keeping the liquid refreshments coming to players on the course. They faced all sorts of hazards and perils while delivering the goods but seemed to come through in one piece.

The golf tournament is apparently one of the most popular functions of the MGS, at least for those participating. This year 47 golfers (?) turned out and it is hoped that many more will come out next year. You definitely do not have to be among the best of golfers to play as many of the scores indicate. Scoring is arranged so that all types have chances at prizes. Holding the tournament in the fall seemed to be well received by all concerned and we hope a precedent has been set for continuing the event every fall.

#### MISSISSIPPI GEOLOGICAL SOCIETY CALENDAR

- Nov. 3 Curry Talk – Kings Inn  
Social Hour 5:30 P. M., Dinner 6:30 P. M.
- Nov. 12 Women's Auxiliary Luncheon  
Riverside Club House, 11:30 A. M.

FOR RESERVATIONS TO MGS MEETING, CALL SKIP  
MURRELL 362-7758 BY NOON, NOV. 3.

### WILLIAM CURRY, JR. TO ADDRESS SOCIETY

Mr. William H. Curry, Jr., President of the AAPG, will be the speaker at the next meeting of the Mississippi Geological Society to be held Tuesday, November 3, 1970, at the Kings Inn in Maywood Mart Shopping Center, Highway 55 North at Northside Drive. Social hour begins at 5:30 p.m. with dinner following at 6:30 p.m.

An independent geologist from Casper, Wyoming, Mr. Curry has been a working geologist since 1927. His talk will concern some of the problems facing petroleum geologists and he will also have comments on the relationship of the AAPG to company and independent geologist alike.



W. H. CURRY, JR.

Mr. Curry graduated from Johns Hopkins University in 1926 with an A.B. degree in geology. After a year of graduate work at Johns Hopkins, he began his oil field career with Roxana as a field geologist in South and East Texas. This lasted until 1933 when he became Assistant Division Geologist in South and East Texas for two years. From 1935 to 1936, he was District Geologist for Roxana in San Antonio.

Mr. Curry was employed by Wellington Oil Company in San Antonio as Chief Geologist from 1936 to 1942 and as a geologist for Seaboard Oil Company from 1942 to 1943. At that time, he began his Rocky Mountain association by joining Atlantic Refining Company as a research geologist in Golden, Colorado. After a year, he became Rocky Mountain District Geologist for Atlantic in Casper, Wyoming. He remained in that capacity until 1949 when he joined Far West Oil Company as Vice-President and Rocky Mountain Manager. In 1954, he became an independent in Casper.

In addition to being the incumbent president of the AAPG, Mr. Curry also served as Vice-President in 1965-66. He is a member of the Rocky Mountain Oil and Gas Association for which he was President in 1956-57. He has also been Vice-President, Wyoming, of the Independent Petroleum Association of America and is an honorary member of the Wyoming Geological Association. Other professional affiliations include the American Petroleum Institute and the Geological Society of America. Mr. Curry has had a long, varied, and distinguished career in the petroleum industry and his remarks on November 3 should benefit everyone. Let's have a big turnout and give him a warm welcome to Jackson and the Mississippi Geological Society.



## MISSISSIPPI GEOLOGICAL SOCIETY

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## from the editor

Things seem to be looking up for the oil industry regarding the improving price picture and the growing public awareness that increasing imports would be a dangerous national policy. The industry may come out of the present situation in an improved financial condition and in a position to maintain and improve the strength of the domestic industry.

However, lest we become complacent, consider who is most likely to get the blame for any serious energy shortage or price increase which the public or Congress will probably find objectionable. I believe much of the present crisis on the Eastern Seaboard was generated through political maneuverings. But those who are directly or indirectly responsible and who must face the voters every few years are not likely to publicly admit their part in creating a bad situation. The FPC may indeed admit it was in part responsible; but the big noises, the ones that reach the public, are the politicians who take to the stump. Furthermore, if there is an industry rather than a governmental agency that is available as a convenient whipping boy, you can be sure a man up for re-election (even if he previously had made no stand on this issue) would not pick on a colleague in government. This would be particularly true in the oil-poor states in the Eastern Seaboard where that big, bad oil cartel is attempting to drive up prices to consumers.

Let me quote a few items to support my opinion from Jack Anderson's column in the September 27, 1970, JACKSON DAILY NEWS. The following quotes are Anderson's, but it is easy enough to visualize a nationally known senator or congressman saying the same things to his constituents or on national television for everybody's enlightenment:

When it comes to inflating the dollar, or deflating oil firm profits, the Nixon administration clearly is on the side of Big Oil.

A few months ago, Senator Ted Kennedy, D-Mass., began a correspondence with the White House on what the President was doing to hold down residual fuel prices. . . Nixon assigned (Assistant Interior Secretary) Hollis Dole to give Kennedy a full answer in a private letter.

Dole wrote: "It is questionable whether the United States can expect relief from. . . increased imports". . . and the oil industry will need "adequate price incentives to revise yields. . . to increase domestic supply."

In simpler words, the White House is willing to see residual fuel prices go up until the oil companies make the same fat profits from it that they do from gasoline and other fuels.

Kennedy has grumbled privately that the consumer is now being asked to pay for the oil companies' short-sightedness in failing to provide more residual fuel.

Undoubtedly, Senator Kennedy and probably many others will try to fully inform his constituency of where the blame lies on the energy crisis. The oil industry will realize some increase in prices and hopefully establish a better footing for the domestic industry, but let us hope that demagoguery and misunderstanding do not arouse public sentiment against the industry. Whatever victory the industry wins in the way of an improved price structure may be short lived and give way to new attempts to increase governmental control.

## presidents notes

by John Lancaster

Last year, just before the annual GCAGS convention, we had the honor of having Mr. Kenneth Crandall, then President of the A.A.P.G., speak at our regular October meeting. Later that month I had the privilege of being with Mr. Crandall for three days on a field trip after the GCAGS convention. Even though I had known Mr. Crandall for a number of years, I didn't have the foggiest idea how he actually felt about the working geologist. But, I learned that Mr. Crandall was sincerely trying to reach the membership of the A.A.P.G. through personal contact, to find out what they know, what they wanted to know, and what they wanted to do. He felt, as I am sure you do, that the only way to learn these things is to communicate with one another. I hope last year's visit by the President of the A.A.P.G. was the beginning of a tradition in our society whereby we will have the benefit of exchanging ideas with our national leaders. At our next meeting we will have the opportunity to do just that as we share the thoughts of our distinguished guest speaker, Mr. William Curry, President of the A.A.P.G.

On October 6, it was announced that the presidents of the societies comprising the G.C.A.G.S. are invited to become honorary members of the Mississippi Geological Society for their term of office. There has long been a need to have a personal contact with the other societies throughout the Gulf Coast. We want this to be a step toward establishing this needed contact. To these new members I extend a most hearty welcome. As you join our society we want you to come and enjoy the fellowship of our group of excellent Mississippi geologists.

Plans are well under way for our joint meeting with Mississippi Landmen's Association, the Jackson Geophysical Society, the A.I.M.E., and the A.I.P.G. on February 2, 1971. During the past year or so the oil industry has faced a number of crises, from the howling to cut our throats after the Santa Barbara incident to the present cry for more gas. We have managed to survive the import quota debate and several disturbances in the Middle East. The total impact of these incidents is felt by all of us. Our February meeting featuring Bill Haynes, President of Standard of California, is designed to bring you one man's ideas on how these variables effect our industry now and will continue to do so in the future.

Thanks and congratulations are extended to Marvin Oxley and Dan Herlihy for their excellent paper, *Bryan Field, A Sedimentary Structure*, presented at our October meeting. Papers by local members are always welcome. If you missed this one, you missed one of the best.

Be sure to call your reservations in to Murphy Oil Co. before noon Tuesday, November 3rd. Last time we had 66 reservations and 98 attenders.

## SOCIAL HOUR COURTESY OF BAROID

Baroid Mud Logging sponsored the social hour at the October 6 meeting and a great big thank you is hereby given on behalf of all the members of the MGS. Even though there seemed to be a determined effort by those present to completely drain the bar, plenty of liquid refreshments was available throughout the evening. Thanks again to Baroid Mud Logging.



## ANSWERS TO MISSISSIPPI OIL AND GAS QUIZ

Each question is worth 10 points, but on numbers 1, 5, 6, 7, and 9, you can be partly right and score something less than 10 points. The sources of the answers are as follows:

Oil and Gas Facts, Mississippi and Alabama, 1970 compiled by Earl Evans, Jr., Mid-Continent Oil & Gas Association, questions 1 & 3.

Mississippi State Oil and Gas Board Bulletin, May, 1970 (annual summary), questions 2, 6, 7, 9 (part 2), & 10

Mississippi State Oil and Gas Board Bulletin, July, 1970, questions 4, 5, 9 (part 1 & 3)

World Oil, February, 1970, question 8.

1. Date and place of first commercial discovery: October 6, 1926 in Amory Field in Monroe County. If you said 1939, at Tinsley Field, you can consider yourself half right. This was the date of the first oil discovery in the state. Score: 10 points if you got 1926, Amory Field, 7 points if you got one or the other, and 5 points if you picked Tinsley discovery.
2. d; Cumulative production to 1-1-70 was 1,201,613,626 barrels oil.
3. a; 376 million barrels oil.
4. c; 174,782 barrels oil. Shame on you if you missed this one - See our progress report by Jim McMullin.
5. Score 2 points for each correct placement you made on this:
 

Jurassic:	1,806,929 barrels oil
Upper Cretaceous:	1,683,461 barrels oil
Tertiary:	1,181,830 barrels oil
Lower Cretaceous:	745,895 barrels oil
Paleozoic:	123 barrels oil
6. Score 2 points for each correct field and 4 more points if you got the right three in correct order.
 

Tinsley:	182,396,943 Bbls. Oil (1-1-70)
Baxterville:	127,468,938 Bbls. Oil (1-1-70)
Brookhaven:	63,408,357 Bbls. Oil (1-1-70)

The next two are East Heidelberg with 61,228,160 Bbls. and Cranfield with 48,106,243 Bbls.
7. Score 1 for each correct company and 5 if you got these companies in the correct order. Production rates as of 1-1-70:
 

1. Gulf	20,867 BOPD
2. Shell	15,227 BOPD
3. Brandon Company	8,895 BOPD
4. Chevron	8,147 BOPD
5. Getty Oil	8,121 BOPD
6. Humble	6,447 BOPD
7. Pan American	5,890 BOPD
8. Texaco	5,726 BOPD
9. Robert Mosbaeher	4,901 BOPD
10. Pennzoil (Union Prod.)	4,741 BOPD
8. Ninth (9th) as of 1-1-70.
 

Texas	3.161 Million BOPD
Louisiana	2.312 Million BOPD
California	1.028 Million BOPD
Oklahoma	614 Thousand BOPD
Wyoming	408 Thousand BOPD
New Mexico	349 Thousand BOPD
Kansas	243 Thousand BOPD
Alaska	203 Thousand BOPD
Mississippi	176 Thousand BOPD

9. Score 3 points for parts 1 and 2, 4 points for part 3.

Part I: b; 643 pools in 289 fields  
 Part II: c; 308 pools in 179 fields  
 Part III: c; 3,428 wells

10. d; 23.5%. In 1969 51 Jurassic tests were drilled, resulting in 10 new field discoveries and 2 new pool discoveries.

Now that you have taken the exam, let's see where you belong in our profession. The ratings are:

- 0-70: Rich independents, company higher management, college deans
- 70-80: Middle income independent, company middle management, college professor
- 80-90: Poor independent, company peons, college lab assistants
- 90-100: Shoe salesmen, company stenos and Landmen, students

### 1970-1971 PROGRAM MISSISSIPPI GEOLOGICAL SOCIETY

"Chance favors the prepared mind." Pasteur

by Bob Beu

Our 1970-71 program is designed to keynote Mississippi Exploration for the 70's. It is conceptual rather than provincial and brings to the membership a broad base of big thinking which must be applied if we are to increase domestic oil and gas reserves to necessary levels.

October: "Bryan Field, a Sedimentary Anticline" by Marvin Oxley (speaker) and Dan Herlihy.

This paper, by two of our members, was presented October 6 to one of the largest turnouts in the history of this society. It was especially well done and should be well received at the National SEG meeting in New Orleans in November.

November: "The AAPG-1970-71" by William H. Curry.

Mr. Curry is the incumbent President of the AAPG. He is an independent geologist from Casper, Wyoming, and has been a working geologist since 1927. He will be able to answer many questions, including the relationship of the Association to the independent geologist.

December: "Sand-Making Processes - Normal and Abnormal" by Dr. William R. Walton.

Dr. Walton directs geological research for Pan American in Tulsa, Oklahoma. His paper deals with effects of storms on recent sand deposition along the northern strand line of the Gulf of Mexico from the Rio Grande River to Mobile Bay. His findings have direct application to interpretation of sand distribution patterns in ancient sediments. Geologists working with Tuscaloosa or Wilcox-take note!

January: "Permian Rotliegendes of Northwest Europe" by K. W. Glennie (AAPG Distinguished Lecture).

Mr. Glennie is a Senior Research Geologist with Royal Dutch/Shell, The Netherlands. He was born in England, educated at Edinburgh University, and joined Shell in 1954.

His paper describes the Permian red beds of the North Sea area, which contain some of the world's largest gas reserves. The paper describes criteria for recognition of desert-arid sedimentary facies, including Wadi, Eolian, and Sabkha. Rotliegendes gas reserves are trapped beneath the widespread Zechstein salt.

February: "The Future of the Domestic Oil and Gas Industry" by H. J. Haynes.

Mr. Haynes is president of the Standard Oil Company of California. He is a graduate of Texas A & M and began his career in 1949 as a construction engineer in Natchez, Mississippi, for the California Company (now Chevron).

This important meeting will be a joint affair with AIME, MAPL, JGS, AIPG, and API and will be held at the Jackson Country Club on Tuesday evening, February 2, 1971.

## MISSISSIPPI OIL AND GAS QUIZ

ATTENTION OIL FINDERS AND PRODUCERS! Here is an opportunity to demonstrate how much you really know about Mississippi hydrocarbon production. Some of you have been in the oil business for a long time, here in Mississippi. Others are quite new at the game. Still others have been in the business for a long time and are still quite new at the game. In any case, we thought you might be interested in some of the historical facts and statistics covered by this quiz. It should test your knowledge and memory and be informative too.

Bob Beu of Chevron dreamed up the questions. The News Bulletin staff dug up most of the answers - in the event you find a boo-boo, you can argue with us not him.

After you take the quiz, score yourself with the answers on the reverse of this page. You will see a category into which you should fit, based on your score. Those neophytes in Mississippi might use the ratings to plan your future in industry or academe. Those who have been here long enough and find your score does not match your proper rating, you're either spending too much time on the golf course, or you cheated. If you were honest and work hard and your score still does not fit, return to "GO" and start over again.

Each question is worth 10 points; a perfect score would be 100 points. Some questions carry a range of points, for example, on number 7, it is possible to get partial credit if you can list the top five producers, even though not in their correct order.

1. What was Mississippi's first commercial field and when was it discovered?
2. Mississippi's cumulative production to 1-1-70 was:
  - a. 637 million barrels
  - b. 873 million barrels
  - c. 1.007 billion barrels
  - d. 1.202 billion barrels
3. The state's estimated proved remaining reserves as of 1-1-70 were:
  - a. 376.0 million barrels
  - b. 557.7 million barrels
  - c. 850.0 million barrels
  - d. 1.107 billion barrels
4. The daily production for Mississippi in July, 1970 was:
  - a. 148,798 barrels
  - b. 164,003 barrels
  - c. 174,782 barrels
  - d. 188,971 barrels
5. List in order of rank, the current (July 1970) daily production rate for the following age grouping:
 

Tertiary	_____
Upper Cretaceous	_____
Lower Cretaceous	_____
Jurassic	_____
Paleozoic	_____
6. Name in order the three Mississippi oil fields having most cumulative production as of 1-1-70.
7. List in order the top five oil producing companies, in terms of daily production rates.
8. Mississippi ranks \_\_\_\_\_ among oil states based on current production rates.
9. A three part "gee-whizzer" -
  - Part I. How many pools and fields are producing, as of July, 1970?
    - a. 501 pools in 195 fields
    - b. 643 pools in 289 fields
    - c. 708 pools in 357 fields
    - d. 708 pools in 401 fields

Part II. How many pools have been abandoned, to 1-1-70?

- a. 91 pools in 48 fields
- b. 213 pools in 91 fields
- c. 308 pools in 179 fields
- d. 400 pools in 191 fields

Part III. How many producing wells were there in Mississippi as of July, 1970?

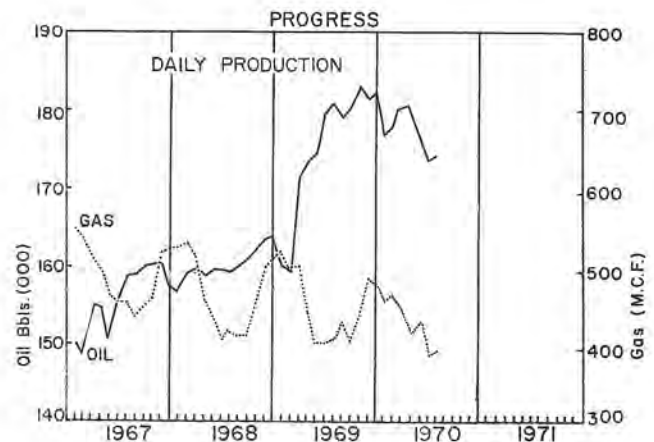
- a. 1796
- b. 2622
- c. 3428
- d. 4103

10. In 1969, Jurassic wildcatters in Mississippi were rewarded with a success ratio of:

- a. 7.5%
- b. 13.5%
- c. 15.5%
- d. 23.5%

## progress-

by Jim McMullin



Daily Production	July, 1970	174,782 Bbls. Oil
		398,009 M.C.F. Gas
	July, 1969	181,540 Bbls Oil
		404,734 M.C.F. Gas

Box Score Discoveries January - July, 1970

Eocene	U.K.	L.K.	C.V.	S.M.K.	Norphlet
2	1	2	0	4	1

Box Score Discoveries January - July, 1969

Eocene	U.K.	L.K.	C.V.	S.M.K.	Norphlet
7	0	2	0	6	0

## AAPG TALKS FOR PUBLIC AVAILABLE

AAPG Headquarters has available a series of six "canned talks" which were prepared for members interested in carrying the story of geology to the general public in their communities. Resumes of the following talks can be obtained from AAPG Headquarters on request, as can full papers, together with sets of slides to use for illustration.

1. Geology - For Human Needs
2. Geology - American Style
3. Geology from the Air
4. The Water Beneath Us
5. Development of the Earth and Its Resources
6. Percentage Depletion

These talks sound like fine projects to give to men's or women's groups, scout groups, church groups, or any other general public group. If anyone is interested, he is urged to contact the AAPG for further details.



March: "How the Computer can be used for Effective Exploration" by Dr. James M. Forgotson, Jr.

Dr. Forgotson is Vice President of Petroleum Information in Denver, Colorado. For several years, he worked in the computer field for Pan Am.

This paper is directed to the working geologist and is thus, user oriented. Avoid obsolescence--be there.

April: "The Geology and Discovery of Prudhoe Bay Field, Eastern Arctic Slope, Alaska" by Mr. Dean L. Morgridge. (AAPG Distinguished Lecture)

Mr. Morgridge is Alaska District Geologist with Humble's Western Division Exploration Department, Los Angeles, California.

This paper describes the geologic history and geologic controls which cause entrapment of oil in the Prudhoe Bay Field, currently recognized as probably the largest oil field in North America.



*The largest room in the world is the room for self improvement.*

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## personal news-

by Jim Shaw

**Jerry Kinsley**, formerly with Texaco, Inc. in Jackson and New Orleans, has returned to Jackson and is now employed as a geologist by Lone Star Producing Co. We understand Jerry had problems getting his web feet to develop while in the Bayou Country and so has returned to the highlands of Mississippi. Welcome back, Jerry!

**Jim Kohm** and **Jeff McManus** have recently joined Chevron Oil as development geologists. Jim hails from Connecticut, but got his B.S. in geological engineering from Colorado School of Mines. Jeff, who is from Minnesota, got his M.S. from the University of Missouri.

### W.G.A. LUNCHEON NOV. 12

The Women's Geological Auxiliary will have a covered dish luncheon at the Riverside Club House on November 12, 1970. Chairman for the event, which begins at 11:30 a.m. is Mrs. E. R. Hines, Jr.

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**MISSISSIPPI GEOLOGICAL SOCIETY**  
P. O. Box 422  
Jackson, Mississippi 39205



# NEWS

# BULLETIN

MISSISSIPPI GEOLOGICAL SOCIETY



Vol. XVIII, No. 4, December 1970

## SAND-MAKING PROCESSES SUBJECT FOR DEC. 8

### SPECIAL ELECTION DEC. 8 TO REPLACE NED PHILLIPS

MGS President John Lancaster has called for a special election to be held at the regular meeting of the Society on Tuesday, Dec. 8 at the King's Inn at 6:30 p.m. The purpose of this election is to replace Ned Phillips, who has vacated the office of 1st Vice President because of his transfer to Corpus Christi, Texas.

According to Section II, A, of the MGS By-Laws: A special election shall be held at the next meeting subsequent to the permanent vacancy of any office excepting the President. The sole purpose of such election shall be to fill the vacated office or offices. Prior written notice to the membership will be given regarding the special election.

In accordance with the By-Laws, a Nominating Committee has selected candidates for this office. They are:

Larry Boland  
Paul Day  
Bill Moore

Larry Boland has been with Harkins and Co., since February of this year. Prior to that, he was with Amerada, and here in Jackson, for almost 22 years. He received his B.S. from the University of Kentucky in 1940 and did graduate work in 1946 and 1947 there.

Paul Day received his B.S. from Millsaps in 1951 and M.S. from L.S.U. in 1955. After 11 years with Pan American, he joined James B. Furrh in 1966.

Bill Moore graduated from Millsaps in 1953 with a B.S. and obtained an M.S. from Emory University in 1954. He worked for Shell from 1954 to 1960, at which time he joined the Mississippi Geological Survey. Bill, our State Geologist, was promoted to that position in 1965.

#### MISSISSIPPI GEOLOGICAL SOCIETY CALENDAR

- |         |  |
|---------|--|
| DEC. 8  | Walton Talk and Special Election<br>Kings Inn<br>Social Hour 5:30 P.M., Dinner 6:30 P.M. |
| DEC. 10 | Women's Auxiliary with Black Gold Sherry Party<br>Home of Harold Baker<br>3:00 P. M.     |

FOR RESERVATIONS TO MGS MEETING, CALL SKIP  
MURRELL, AT 362-7758 BY NOON, DEC. 8.

### W. R. WALTON TO ADDRESS SOCIETY

Dr. William R. Walton, Geological Research Director with Pan American Petroleum, Tulsa, Oklahoma, will speak at the next meeting of the Mississippi Geological Society, on Tuesday, December 8. The meeting will be at the King's Inn at Maywood Mart, and will begin with a social hour at 5:30 p.m. with dinner following at 6:30 p.m.

Dr. Walton's paper is entitled "Sand-Making Processes - Normal and Abnormal". The abstract of Dr. Walton's paper is printed on an inside page of this Bulletin. Those familiar with the Mississippi Gulf Coast should be particularly interested in the discussion and photos of the damage to islands and beaches caused by Hurricane Camille.

Although born in Texas, Bill Walton attended Amherst College in Massachusetts, from which he received an A.B. degree in geology with honors in 1949. He studied at Woods Hole Oceanographic Institution for a year, and then entered Scripps Institution of Oceanography of the University of California, from which he received a Ph.D. in Oceanography in 1954.



W. R. WALTON

Dr. Walton worked for Gulf Research from 1953 to 1957. In 1957 he joined Pan American in Tulsa as a paleoecologist and sedimentologist in the Exploration Department. He was transferred to Houston in 1958, where he became Division Consulting Geologist in 1960. In 1963 he returned to Tulsa as Geological and Geochemical Research Director of Pan American's Research Center.

He has received the Journal of Paleontology's Best Paper Award in 1955 for "Ecology of Living Benthonic Foraminifera, Todos Santos Bay, Baja California"; the AAPG President's Award in 1957 for "Shelf-Edge, Calcareous Prominences in Northeastern Gulf of Mexico" (with J. C. Ludwick); and the best paper in paleontology award at the 1962 meetings of the GCAGS.

SEASON'S

GREETINGS

## MISSISSIPPI GEOLOGICAL SOCIETY

### OFFICERS

John Lancaster Ned Phillips Charles Barton Larry Walter Buddy Twiner Kevin Cahill	<b>President</b> <b>1st Vice President</b> <b>2nd Vice President</b> <b>Secretary</b> <b>Treasurer</b> <b>Past President</b>	Chevron Oil Dresser Atlas Am-Southwest Corp. Consultant Skelly Oil Southeastern Exp.
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### REPRESENTATIVES

Julius Ridgway Harold Karges Joe Morgan	AAPG House of Delegates  GCAGS	FNB Independent Skelly Oil
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## presidents notes

by John Lancaster

Last month I had the privilege of meeting and talking with the presidents of the societies within the G.C.A.G.S., the officers of the G.C.A.G.S., officers of the AAPG and candidates for office within the AAPG. If there is but one common denominator in all these organizations, it would have to be the concern for the future of geologists. We have worked our way into a corner; and at the moment, there is no visible way out. Everyone has his own idea as to what the problem is and who should solve it. But most of the time that someone is someone else and not us. In order to change that someone else to us so that something can be done, I would like to recommend to the society the following ideas as a starter:

Expand the present Publicity Committee to include at least three additional members as follows:

- (1) Chairman and Editor of the News Bulletin – would be responsible for publishing the News Bulletin and distributing all information to the members and to the public all pertinent information learned from the other members of the committee.
- (2) Committeeman for National Affairs – would be responsible for assembling facts concerning national issues, federal agencies that may exert some control both directly and indirectly over the geologic profession, and national organizations that include geologists in its membership or whose activities affect the geologic profession.
- (3) Committeeman for State Affairs – would assemble data concerning statewide issues and have a working knowledge of the state agencies that affect the profession.
- (4) Committeeman for Local Affairs – would act as a coordinator for such local service projects or the high school and civic club talk series sponsored by the Mississippi Petroleum Council, the Boy Scout Merit Badge program, etc., and become familiar with the needs of the local schools in the field of geology.

The purpose of this recommendation is to provide the society with a means of becoming more informed on the whole spectrum of our profession. Once this is done, the pathway toward determining our problems will be better defined. Action can then be taken that will help solve the dilemma of the exploration geologists.

This year the society has been confronted with at least three issues that have necessitated a working knowledge of the functions of several

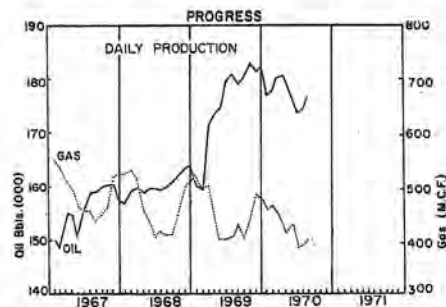
state agencies and how the actions taken by these agencies can affect our members. Twice last year we were confronted with issues of national importance. And each year individuals within our society are called on to appear before the public at the local level. It is imperative that we be informed on all the issues if we are going to claim a better stake in our society. The services of a fact finding committee would be invaluable to the society.

At the last meeting, it was announced that we are losing our 1st Vice President as one of our more faithful members, Ned Phillips, moves to Corpus Christi, Texas. All of us wish you the best of luck, Ned.

In order to fill the vacancy created by Ned's move, a special election is to be held at the regular meeting December 8. The By-Laws state that those present shall determine the vote. Three excellent candidates have been selected by a nominating committee. Make sure your vote counts. Attend the meeting.

## progress-

by Jim McMullin



Daily Production	Aug., 1970	177,062 Bbls. Oil
		400,956 M.C.F. Gas
	Aug., 1969	178,603 Bbls. Oil
		439,494 M.C.F. Gas

### Box Score Discoveries January, 1970

Eocene	U.K.	L.K.	C.V.	S.M.K.	Norphlet
2	1	2	0	4	1

### Box Score Discoveries January, 1969

Eocene	U.K.	L.K.	C.V.	S.M.K.	Norphlet
8	0	2	0	7	0

## EXPLORATION COURSE AT UNIV. OF TULSA

A two week refresher course in petroleum geology will be held January 4-15, 1971, at the University of Tulsa. The course has been presented the past nine years and is taught by leaders from both academic and industry circles. It is designed for experienced explorationists and fulfills a continuing need for evaluating and updating exploration technology. Ten weekday classes will be held from 8:30 a.m. to 5:00 p.m. plus a Saturday field trip. A different subject will be discussed each day by a different lecturer.

Included in the course are subjects on economic evaluation of prospects, exploration in the oceans, computer handling of geological data, subsurface fluids and petroleum accumulation, carbonate reservoir rocks and facies, source rocks, and stratigraphic traps. Registration is limited and interested persons can contact Parke A. Dickey, Dept. of Earth Sciences, University of Tulsa, 600 S. College Ave., Tulsa (74104).



## NEW POWER SYSTEMS — ANSWER TO AIR POLLUTION?

The following is a partial reprint of a paper entitled "Protecting the Environment: Auto Emissions", from the Public Relations Department of the Standard Oil Company of California:

### AUTO EMISSIONS

There are now over 100 million cars, buses and trucks on the American roads — more than one for every two persons.

These vehicles travel over one trillion miles a year. About 85% of all travelers and 82% of the commuters use them.

By 1980, there will be in the neighborhood of 115 million passenger cars and 25 million trucks on the nation's roads.

In this country, it is estimated that the auto accounts for 60% of all air pollution emissions. Industry is second with 17%, followed by power plants with 14%, space heating and refuse disposal with 9%.

Automobile pollutants primarily consist of carbon monoxide, unburned hydrocarbons, and oxides of nitrogen. There also is some fine particulate matter in auto exhaust, consisting partly of lead added to the gasoline to improve antiknock quality. Lead particulates, however, are emitted in much smaller quantities than the three primary ingredients.

Autos are responsible for emissions of appreciable quantities of hydrocarbons and oxides of nitrogen. When appropriate concentrations of these two constituents, together with oxygen, are acted on by sunlight, they form photochemical smog — characterized by eye irritation, reduction in visibility, and plant damage. This type of smog was first chemically measured at the California Institute of Technology, Pasadena, in the late 1930's. But the auto was not established as the main source of smog-forming pollutants until the early 1950's.

### ALTERNATE POWER SYSTEMS

So far, no one has been able to develop a good substitute for the internal combustion engine, to meet today's private transportation requirements. Nor is there any development on the horizon which will replace the internal combustion engine in the foreseeable future.

Increased concern over air pollution has intensified the search for alternate, cleaner-burning power sources. However, even some of these proposed low-emission systems will be hard pressed to meet the rigid standards under which the internal combustion engine will be operating in the 1970's. Indeed, by 1980, automobile manufacturers are forecasting a virtually pollution-free internal combustion engine.

On paper, at least, the steam engine appears to be a highly promising alternative system. A hydrocarbon-fueled burner converts water into steam in a boiler. The steam pressure drives pistons and powers the car. Fuel isn't exploded as it is in the internal combustion engine; it is burned continuously and more completely in the boiler. Thus, the steam engine, it is figured, emits about 70% less hydrocarbons and oxides of nitrogen than today's internal combustion engine, and about 90% less carbon monoxide.

But auto men reject the steam engine because of a number of special problems it creates. The engine itself is bulky and heavy. It has major lubrication and mechanical problems. Further, at this stage, steam engines are quite expensive. A Pennsylvania manufacturer as recently as 1967 was taking orders for engines at \$6,450 each, based on minimum 10-unit orders.

### ELECTRIC CAR

Another alternative, the all-electric car, has been ruled out by Detroit — at least for the near future.

Electric propulsion has the advantage of being quiet, smooth, and completely free of objectionable emissions. On the minus side, however, are the electric car's short operating range, the inconvenience of frequently required battery charging, the heavy weight of the battery

system, very poor high-speed performance, and high initial cost. Also, conventional lead-acid batteries wear out too quickly, and a practical substitute has yet to be developed.

The electric car itself would be pollution-free. But, under wide-scale usage, the demand for electric power to recharge the batteries would increase power consumption tremendously. This, in turn, could cause a sharp boost in air pollution from another source — the utility plants needed to generate the necessary power.

### GAS TURBINE

For the near future, the gas turbine engine is probably the most promising alternative system. The turbine burns fuel nearly completely in a precisely controlled manner. It puts out 60-90% less unburned hydrocarbons and 70-90% less carbon monoxide than the current internal combustion engine, although some experimental turbines emit more oxides of nitrogen than their piston counterparts.

The turbine can operate on a variety of light fuels such as unleaded gasoline, diesel fuel, or kerosene. It is generally simpler than conventional engines and requires less maintenance and service.

Researchers say, however, that turbines consume more fuel and accelerate poorly. Also, they could cost three times as much as conventional engines, since exotic metals needed for some of their parts are in short supply. They also require a large filtration system to filter dirt particles from the tremendous volume of air they consume.

Some fleet operators have experimented with liquid petroleum gas (butane and propane) and compressed and liquid natural gas fuels. These reduce hydrocarbons and carbon monoxide emissions; however, costs to convert a gasoline engine to burn these alternate fuels are quite high. Moreover, supplies of these fuels would be far too inadequate to meet total motoring requirements.

Although these fuels are adaptable to certain fleet operations, supply and distribution problems would prevent them from being used generally by the motoring public. Extensive revamping of the nation's refineries — which are primarily geared up for gasoline production — would be needed. And service station facilities would have to be redesigned to make the fuel available to the public. Also, specially trained technicians and mechanics would be needed to handle refueling and maintenance.

It thus appears that, unless significant breakthroughs occur, the internal combustion engine will be around for a long time — but will contribute a fraction of the emissions per unit that it did in the 1960's.

### MGS SPEAKERS AT GCAGS CONVENTION

Members of the Mississippi Geological Society who spoke at the recent GCAGS-SEPM Convention in Shreveport were Joseph K. Morgan, Skelly Oil Company, Jackson, and Richard L. Bowen, Department of Geology, University of Southern Mississippi, Hattiesburg. Joe presented his paper on the "The Central Mississippi Uplift" to the GCAGS and Dr. Bowen presented his paper entitled "Epi-Paleozoic Hypersalinity and Marine Biotic Extinctions" to the SEPM.

## personal news-

by Jim Shaw

Dale Reese, formerly with Pan American in Jackson, and a consultant since 1965 in this area, has joined Southeastern Exploration Company.

Ned Phillips, Regional Sales Manager with Dresser-Atlas, has been transferred from Jackson to Corpus Christi, Texas. Ned, who has been in Jackson for 8 years, and the current 1st Vice President of the MGS, will be the new Regional Sales Manager in Corpus Christi.

Aaron W. Cook, who came to Jackson from Lafayette, last June, has been promoted to Regional Sales Manager for Dresser-Atlas.

## W.G.A. TO PARTY WITH BLACK GOLD DEC. 8

The December meeting of the Women's Geological Auxiliary will have a Sherry Open House, held jointly with Black Gold. It will be held at the home of Harold Baker, 2032 Culleywood, from 3:00 P.M. to 6:00 P.M. Chairman for the affair is Mrs. Emil Mansour.

### STATEWIDE RULE 24 REVISED

A significant amendment of Statewide Rule 24 was ordered recently by the Mississippi State Oil and Gas Board. The order was in response to a petition filed by Harold Karges, local independent and MGS member, and the Mississippi Section of the AIPG to permit reproduction of electrical logs contained in the files of the Board. Rule 24 with the added amendment (c) now reads as follows:

#### RULE 24. Well Logs

(a) Copies of electrical surveys or logs or radioactive surveys or logs, except such surveys or logs obtained on stratigraphic tests, shall be filed with the Board within thirty (30) days, with Form No. 3. If requested by the person filing an electrical survey or log, the Board shall keep such log confidential for a period not exceeding six (6) months from the date on which it is filed. If such electrical or radioactive logs are not run, the driller's logs, as defined herein, shall be attached to Form No. 3.

(b) Copies of electrical surveys or logs or radioactive surveys or logs obtained on stratigraphic tests shall be filed with the Board within six (6) months, with Form No. 3. If requested by the person filing an electrical survey or log, the Board shall keep such log confidential for a period of not exceeding one (1) year from the date on which it is filed.

(c) At the expiration of time in which any log or logs shall be held as confidential by the Board as provided under paragraph (a) or (b) above, said log or logs shall be placed in the open files of the Board and any party or firm shall have the right to examine and/or reproduce copies of said log or logs by photography or other means not injurious to said records, subject to the provision that before any person or firm shall remove any log or logs from the Board's office for purposes of photographing or reproducing the same, he or it shall first obtain written approval from the Supervisor and shall comply with the terms and conditions as may be established by the Board, including the giving of surety bond in such amount or amounts as may be fixed by the Board.

### SAND-MAKING PROCESSES — NORMAL AND ABNORMAL

by William R. Walton

#### ABSTRACT

The shoreline sands occurring along the coastlines of the northern Gulf of Mexico offer excellent examples of the varying processes that have created them and that determine their distribution. Sands of such varying origin as eolian sands of the south Texas sand sheet, the barrier islands and lagoonal sands of Padre Island — Laguna Madre, the barrier island sands of the Central Texas Bay — Barrier Island Province, the chenier sands of southwestern Louisiana, the channel sands of the active and inactive passes of the Mississippi River delta complex, the reworked sands of the old distributary channels of the Mississippi Delta, and the Mississippi-Alabama barrier island chain, are well documented in this almost unique basin of deposition. The point is strongly made that these sands are "made" by nearshore processes from other sand-containing sediments and are not deposited as such from their source. They, in essence, are all multicycle sands.

The "normal" shoreline and nearshore processes maintain these sand deposits in their present environments. Major storms, however, completely disrupt these "normal" processes and cause unusual sand distributions. Many of the storm-caused distributions are repaired by the "normal" processes shortly after they are formed. Some, however,

remain as a permanent distribution and probably are included in the geological record as such.

Many examples of sand bodies in the subsurface Tertiary of the Gulf Coast geosyncline are directly analogous to the "normal" and "abnormal" sand bodies available for study in the northern Gulf of Mexico. Photographs and discussions of Hurricane Camille damage are included.

### SOCIAL HOUR COURTESY OF GEOREX AND LOCATION SAMPLE SERVICE

The membership of the MGS appreciates the generous contributions of Georex and Location Sample Service to our November 3 meeting. They provided for the refreshments at the social hour.

### NEWS BULLETIN CONTINUING EDUCATION PROGRAM

It has been said that our present pace of research and education is such that most of what we learn in school is obsolete within ten years. We all should take advantage of the opportunities to occasionally up-date ourselves with the material currently being presented to student geologists. The News Bulletin will print, whenever possible, courses of a geologic nature being offered by schools in the area. In addition, the Bulletin will publish from various sources comments regarding fundamental geological concepts now coming from the academic community. Following are several, gleaned from tedious research during the past summer:

The importance of geology to geography is that, without geology, geography would have no place to put itself.

When geologists see loose rocks on the ground they know this is a good sign. So, they start digging. They dig and dig and the lower they dig the closer they know they are coming to IT. And then finally, there IT is—SOLID ROCK! That's how they make a living.

Limestone is a green-tasting rock.

Although geologists know that it is very hot at the center of the earth they do not know exactly how hot. Only bad people know for sure.

The above may appear as a revelation to some; to others, a source of controversy. We only wish to pass them along to you - we do not intend to take sides. Another thought, though non-geologic but of universal concern, and sure to engender some debate is:

Think of our ancestors. Are they behind us or did they go ahead of us? It is one of the mysteries of history.

We simply don't have the space to consider all the ramifications of that one. We do have room for one final thought, with which most men should agree:

Women usually live several years longer than people.

Those of you wishing to pursue research of these topics will find the source of these comments in *A Child's Garden of Misinformation* by Art Linkletter. Class dismissed.

Hi! have a  
Merry Christmas  
and a  
Happy New Year



## MONKEY MAKES GOOD

One of the more amazing success stories that we've ever heard was supplied to us recently by a member of the Society who prefers to remain anonymous. Swears its the truth, so help him. Maybe some of you have heard it. We suspect its an old story.

Seems there was this well sitter in South America who taught a monkey to do his job for him. Day in, day out, the well sitter would lie in the shade while the monkey worked. The monkey got so good that one day the District Geologist told the well sitter to collect his pay, they were going to have to let him go. The District Geologist said it just wasn't profitable to pay him good money for laying in the shade while the monkey worked like a fiend for a mere stalk of bananas now and then. Besides that, the monkey was darn good.

So, the well sitter came back to the States. A couple of months later, he got a telegram from South America. It said to come on back down to South America, his old job was open. It was from the monkey. He had just made District Geologist.

(Ed's Note: Now before we make all our bosses mad, please note that this story can be changed around to fit various situations. Got one in mind?)



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**MISSISSIPPI GEOLOGICAL SOCIETY**  
P. O. Box 422  
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# NEWS

# BULLETIN

mississippi geological society



Vol. XVIII, No. 5, January 1971

## GAS-RICH RED BEDS TO BE DISCUSSED JAN. 6

K. W. GLENNIE TO  
PRESENT PAPER

Mr. K. W. Glennie, a member of the 1970-71 AAPG Distinguished Lecture Tour, will be the speaker at the next meeting of the Mississippi Geological Society on Wednesday, January 6, 1971. The meeting will be at the Kings Inn in the Maywood Mart Shopping Center, I-55 North at Northside Drive. Social hour begins at 5:30 p. m. and dinner at 6:30 p. m.

Mr. Glennie's paper is entitled "Permian Rotliegendes of Northwest Europe". This talk, which is concerned with red beds in the North Sea area, should be of particular interest to the MGS membership in view of the red bed sequences in the subsurface of Mississippi and surrounding areas.

Born in Yeovil, England, Mr. Glennie attended Edinburgh University where he received his B. S. degree in 1949 and M. S. degree in 1954. Since that time he has been employed by Royal Dutch/Shell, The Netherlands, where he is now Senior Research Geologist.

Mr. Glennie worked in New Zealand from 1955 to 1958, Canada (Rocky Mountains and Canadian Arctic) from 1959 to 1962, Nepal (Himalayan Foothills) from 1962 to 1963, and KSEPL, Rijswijk, from 1963 to the present. He studied desert geology in Libya, Southeast Arabia, India, Germany, and England from 1963 to 1966. From 1966 to 1970, he has done studies in the Oman Mountains of Iran and in Turkey.



K. W. GLENNIE

PERMIAN ROTLIEGENDES OF  
NORTHWEST EUROPE

by  
K. W. GLENNIE  
ABSTRACT

The basal Permian Rotliegendes red beds of the North Sea area, in the Northwest Europe Permo-Triassic basin, contain some of the world's largest gas reserves. Groningen field, The Netherlands, discovered in 1959, has proved, plus probable, gas reserves of 66.7 Tcf ( $1,904 \times 10^9$  m<sup>3</sup>). Smaller Netherlands and northwestern Germany fields contain proved, plus probable, gas reserves of 8.4 Tcf ( $240 \times 10^9$  m<sup>3</sup>); North Sea gas fields, 22.5 ( $700 \times 10^9$  m<sup>3</sup>).

The Northwest Europe Permo-Triassic basin is north of the Variscan mountain chain, which was folded during Pennsylvanian time and which extends from the southern British Isles to central Germany. North of the Variscan mountain chain is a block-faulted foreland on which the Mid-North Sea and Fyn-Grinsted highs formed. The WNW-ENE-trending Northwest Europe Permo-Triassic basin is between these highs on the north and the Variscan chain on the south. A second Permo-Triassic basin, whose boundaries are not defined, may lie north of the Mid-North Sea and Fyn-Grinsted highs.

The sediments of the basal sedimentary unit of the Permo-Triassic basin, the Rotliegendes, were derived mainly from the Bariscan mountain chain. As this mountain chain rose and was eroded, increasingly arid conditions predominated. As a result, the Rotliegendes is primarily a desert deposit, though marginal fluvial and local evaporitic sediments are present. When the arid climatic depositional conditions and desert origin of the subsurface Rotliegendes were recognized, it became imperative to develop criteria for the recognition of different desert-arid sedimentary facies, so that an exploratory program could be developed. Modern desert studies were made, and three major sedimentary facies were recognized:

1. Wadi (intermittently flowing streams) gravel and sand which border highlands;
2. Eolian sand, derived from deflation of wadi deposits and outcrops, forms barchan dunes (probably formed from intermediate-velocity winds) and linear (seif) dunes, parallel with the dominant wind direction (probably formed from high-velocity winds); and
3. Sabkha deposits of both the inland (wadi or oasis types) and coastal varieties, including both layered and interstitial evaporitic deposits.

### MISSISSIPPI GEOLOGICAL SOCIETY CALENDAR

JAN. 6 Glennie Talk-Kings Inn  
Social Hour 5:30 P.M., Dinner 6:30 P.M.

JAN. 14 Women's Auxiliary Informal Coffee  
Home of Felix H. Webster  
5420 Hialeah Drive  
10:00 A.M. to 12:00 Noon

FOR RESERVATIONS TO MGS MEETING, CALL SKIP MURRELL, 362-7758, BY NOON, JAN. 6.

(continued on page 2)



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## JOINT MEETING SCHEDULED FEB. 2

The MGS February meeting will be held at the Jackson Country Club jointly with five other professional societies composed of landmen, geologists, engineers and geophysicists. Members are urged to attend. Guests whose work is associated with the industry are welcome. Featured speaker is H. J. "Bill" Haynes, President of the Standard Oil Company of California.

Mr. Haynes joined Standard of California as a construction engineer for the California Company in Natchez, Mississippi. This was in 1947 and Mr. Haynes was 22 years of age. Ten years later at age 32, Mr. Haynes was a Vice-President of a subsidiary and in another 11 years was named Corporation President at age 43. He has been asked to speak about the future of the domestic oil industry.

Tickets are \$6.00 each and are now available from the persons listed below. The supply is limited and none will be sold at the door. Tickets will be sold only to members, including tickets for guests.

NAME	SOCIETY	COMPANY
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## presidents notes

by John Lancaster

Most of you are aware of the status of the treasury. And, most of you realize that what we have is a result of the recent sale of the "Wilcox" book. But we cannot operate indefinitely on what we have. Our stock has to be replenished. Things have to be kept moving. To do this, we need you. Charlie Barton reports that some 63 fields have not been mapped that could be added to our Redbook series. If all were completed, we could publish twelve supplements to the Redbook and provide a net profit to the Society of approximately \$6,000. I do not advocate that all of the work be done today. I want you to recognize that we do have a rare opportunity to place ourselves favorably before the industry. To do so requires your assistance. Charlie works alone on this project at this time. If you want to help, call Charlie Barton and volunteer to complete a map for the Redbook.

## GEOPHYSICISTS ON THE MOVE

Pete Heinrich, Geophysicist for Lone Star Producing Company, was transferred to Jackson from San Antonio, Texas. Pete has been with Lone Star since 1967. Prior to that he worked for Pan American and G.S.I.

Recent additions to Gulf's Geophysical staff in Jackson are Kevin Foster and James Dubee. James transferred from Gulf's Technical Services Lab in Houston and Kevin transferred from Gulf Oil Eastern in Denmark.

## LARRY BOLAND ELECTED

### 1st VICE PRESIDENT

In a special election held by the Society at the regular meeting on December 8, Larry Boland was elected to serve as 1st Vice President for the remainder of the 1970-71 year. A Nominating Committee had previously selected Larry, Paul Day, and Bill Moore as candidates for the position to replace Ned Phillips who was transferred to Corpus Christi. The ballot was extremely close and a runoff was necessary to determine the winner. Larry is with Harkins and Co. and is a long-time Jackson resident and MGS member.

(ABSTRACT continued from page 1)

All three facies have been recognized in the Rotliegendes.

Generally, the wadi facies are basal or peripheral within the basin. Most are broad alluvial fans along the northern flank of the Variscan mountain chain. The eolian facies is widespread—some as thick as 660 ft. (200 m). The lack of linear dunes suggest intermediate wind velocity values. Directional data indicate a west-to-east wind flow, as in the modern horse-latitude deserts. Sabkha facies also are widespread, particularly in the upper and central parts of the basin. These include interior-desert sabkha deposits, where wadi waters reached the surface; as well as coastal sabkha deposits, the precursors of the later Permian Zechstein sea.

Although the environmental conditions which produced the Rotliegendes persisted locally, these environmental conditions eventually were replaced by the rapid transgression of the Zechstein sea when the basal Kupferschiefer (Copper shale) and associated marine evaporite deposition began.

## from the editor

Back in our first issue of the News Bulletin, we stated that one of our goals for the year would be to print a technical article by a MGS member that would be of interest to the membership. We were hopeful but not too expectant. We didn't know anyone willing to contribute, we didn't really expect volunteers, and we weren't sure how to work an article into our limited Bulletin space. In short, the situation looked pretty sad. Still, a note of optimism would flare up now and then when we would hear of someone that might be a likely candidate.

Finally we heard Stewart Welch's name in connection with the Black Warrior Basin. Now that would be a real coup! An article about the Black Warrior Basin, the exploratory enigma of the southeast, and just when it is receiving renewed attention by industry! Hot Dang! Giddy with excitement, we rolled into action. Fearing the worst (a turn down), we decided to add prestige to our plea by enrolling the services of our fearless leader, John Lancaster. John took charge while we waited with abated breaths and nervous stomachs. At last, the fateful day. Well, what did he say? Sure, no sweat, Stewart would be glad to do an article, when did we want it?

That's all there was to it. No fuss, no fight, no pleading, just get the space set and off to the printers on time. In fact, it all seemed so easy that we got to thinking. Maybe we should revise our initial goal to two articles this year. There must be dozens of would be authors out there in membership land just aching to be asked to whip up an interesting and informative technical article. Right? Right! So, if the phone rings and an authoritative voice says, "This is John Lancaster, would you..." say yes, its your opportunity! Come to think of it, if it was all so easy, what do we need him for? Hmmm, maybe.....



# BLACK WARRIOR BASIN - A SLEEPING GIANT?

By Stewart W. Welch

Could the Black Warrior Basin be a sleeping giant? Apparently a number of companies think this is a real possibility, judging from the increased activity in recent months. Texaco, Shell, and Humble are leading the way and over six million acres have been leased during the last year and a half. As might be expected, the leasing activity has been accompanied by considerable geophysical activity. From three to seven seismic crews have been active in the basin during this time. The next step is an obvious one; a substantial drilling program will be required to evaluate the seismic prospects and large leaseholdings. In fact, Texaco has already commenced this phase of their operations with a recent 10,224-foot wildcat in Clay County, Mississippi, having been abandoned after testing non-commercial shows, and with a deep well currently testing undisclosed shows in northwestern Oktibbeha County, Mississippi. The Oktibbeha County well, Texaco's No. 1 Sheely, has already set a new depth record for the basin at 17,415 ft., and could set a new production depth record if commercial production is established.

In addition to the major company activity, a number of independents and smaller companies have been active in the basin, mainly in the intermediate and shallower areas. Most noteworthy of these is in the Lamar County, Alabama area where two recent

discoveries have been reported. The discovery wells, the L. R. Tatum No. 1 Delaney and the Titan Oil Company No. 1 Gilmer, are both productive from the Upper Mississippian Carter sand. The Delaney well is being completed on pump as an oil well, and the Gilmer well is an indicated gas discovery. The Gilmer well is also reported to have tested gas and a small amount of oil from the slightly shallower Millerella limestone.

The activity in the Black Warrior Basin appears to be primarily a part of a national scramble for new gas reserves. With the national shortage of gas becoming more and more acute and the projected demand calling for a sharp increase in gas reserves, many companies and individuals foresee better economics for gas exploration and production. Thus, a substantial increase in gas prices is expected over the next few years accompanied by an improved demand for gas in both interstate and intrastate markets.

The presence of major gas reserves in the Black Warrior Basin is as yet unproved, but its similarity to other Paleozoic basins in eastern and mid-continent portions of the United States makes it seem a strong likelihood. In particular the Black Warrior Basin has striking similarities,

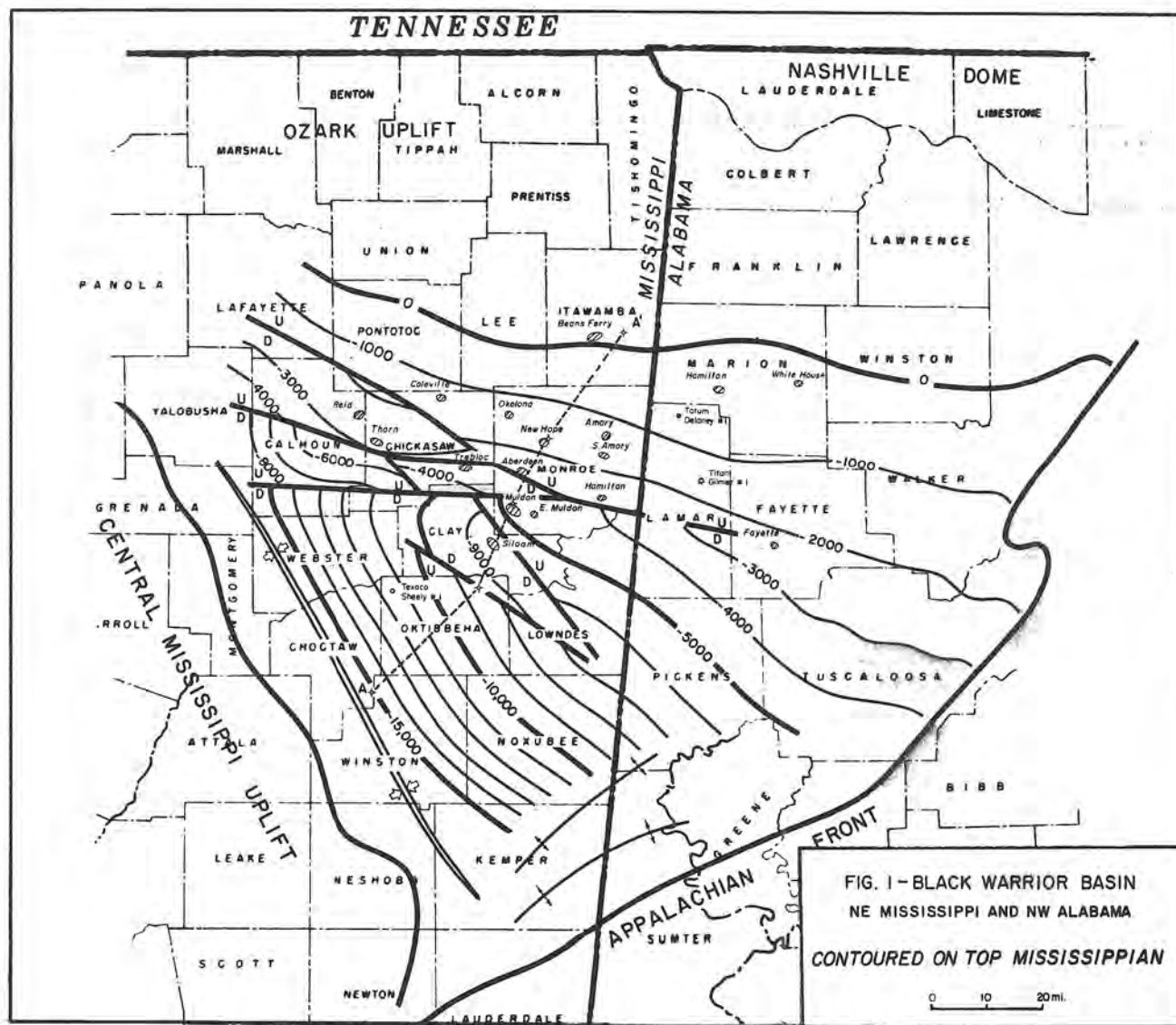


FIG. 1 - BLACK WARRIOR BASIN  
NE MISSISSIPPI AND NW ALABAMA  
CONTOURED ON TOP MISSISSIPPIAN

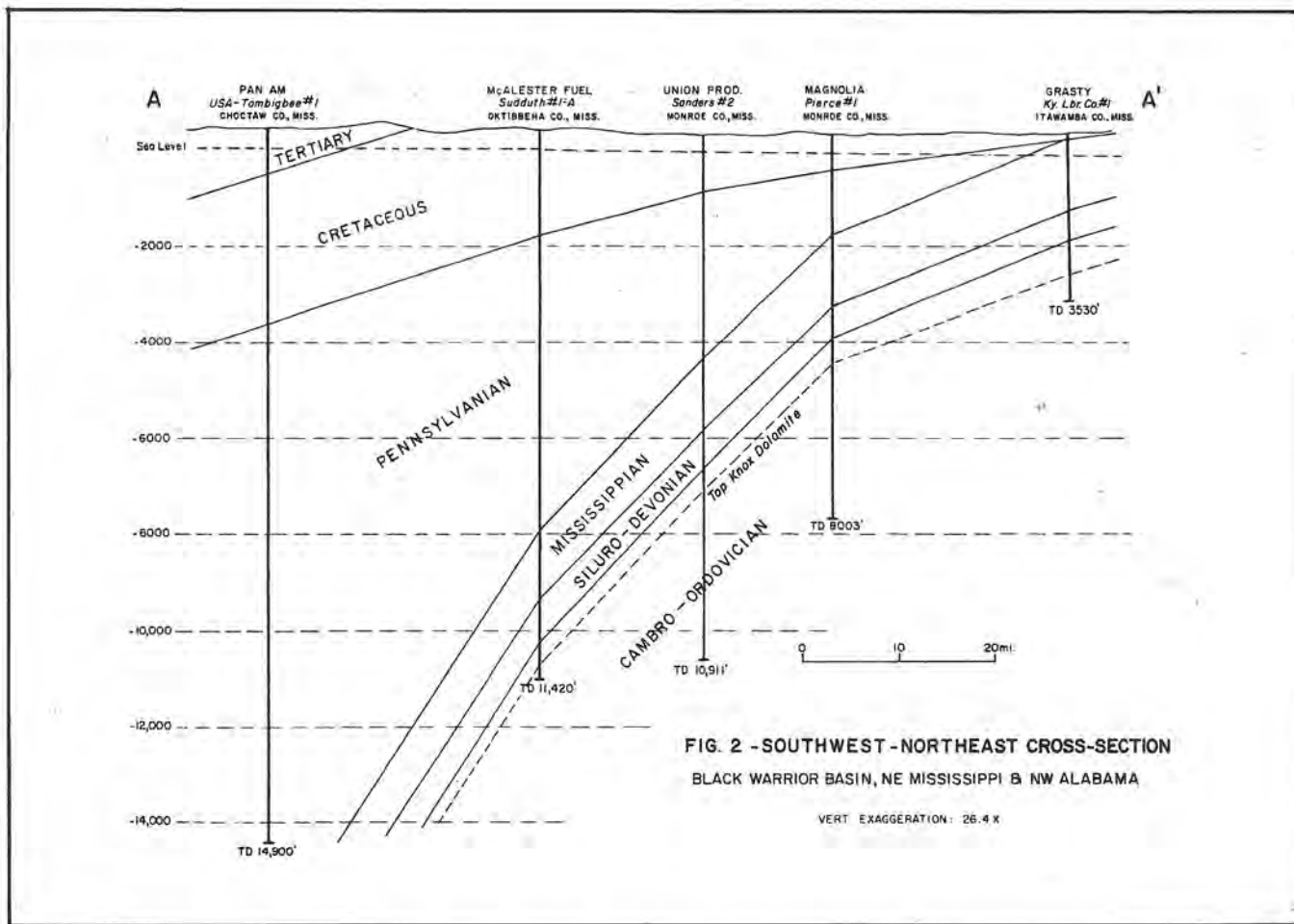


FIG. 2 - SOUTHWEST-NORTHEAST CROSS-SECTION  
BLACK WARRIOR BASIN, NE MISSISSIPPI & NW ALABAMA

VERT. EXAGGERATION: 26.4 X

both structurally and stratigraphically, to such basins as the Appalachian Basin, the Arkoma Basin, and the Anadarko Basin, all of which are major gas producers. The principal differences and probably the reasons for its slow development are its geographic location, being a "step-child" in a Gulf Coast province, and the presence of a Tertiary and Cretaceous cover over most of the basin. These younger sediments not only mask Paleozoic structures but in most cases cause poor seismic results. However, with the development of improved seismic techniques in recent years, this last problem has apparently been overcome.

Past exploration in the basin, mainly in the 1950's and early 1960's, resulted in the discovery of several small gas fields and two non-commercial oil fields. This activity was concentrated in and around Monroe County, Mississippi, with sands in the Mississippian Chester as the primary objectives. Muldon field, with eight wells producing from a Chester sand, has been the best of the gas fields with a cumulative production of about 64 billion cubic feet of gas and 314,000 barrels of condensate and an expected ultimate recovery of about 80 billion cubic feet of gas. Oil production has been from the abandoned one-well New Hope field with a cumulative of 7813 barrels of 35° gravity oil from the top of the Cambro-Ordovician Knox dolomite and from the discovery well in the South Amory field with a cumulative of 5521 barrels from the Mississippian Carter sand. In addition to Mississippian and Ordovician production, gas production has also been established in Pennsylvanian sands at Siloam and Aberdeen fields in Mississippi and Fayette field in Alabama.

#### STRUCTURE

The Black Warrior Basin is a large triangular-shaped basin bounded on the southwest by the Central Mississippi Uplift (Neshoba Uplift) which is believed to be a buried extension of the Ouachita trend, on the southeast by the Southern Appalachians, and on the north by the Nashville Dome and a buried extension of the Ozark Uplift (Figs. 1 and 2). The axis of the basin lies near the southwest margin where an estimated thickness of approximately 30,000 feet of sedimentary section is expected. The actual subsidence and development of this

basin began at least as early as Devonian time and continued until sometime in the Pennsylvanian as evidenced by isopachs and facies relationships.

As basin subsidence increased during Pennsylvanian time, a system of normal faults developed along the shelf area. The principal movement of this fault system was down-to-the-southwest or basinward with displacements of the major faults being on the order of 2000 to 5000 feet. The magnitude of the major faults in turn gave rise to a system of secondary or complimentary faults which are mainly down-to-the-northeast. This overall system of faulting and associated movements provide a multitude of structural traps for the accumulation of oil and gas. Several of the previously discovered fields, such as Muldon, Siloam, and Trebloc, are on such fault-related structures.

#### OBJECTIVES

##### Cambro-Ordovician

Multiple objectives are present in the basin ranging in age from Cambrian to Pennsylvanian (Fig. 3). The oldest objective zone that has been penetrated by the drill is the Cambro-Ordovician Knox dolomite. This formation is a thick limestone-dolomite sequence (4000' plus) with porosity developed primarily in the dolomitized zones. It is correlative with the lithologically similar Arbuckle and Ellenberger formations of the Mid-Continent and Southwest. Best porosity developments in the Knox have been observed in the shallow shelf areas on the north flank of the basin, and numerous shows of both oil and gas have been reported there. The Knox is also considered a principal objective in the intermediate and deep portions of the basin where porosity may be enhanced by fracturing on some of the large fault-related structures.

Other objectives in the Ordovician include porosity developments in dolomitized zones in the Chazyian and in shallow-water limestones of the Black River-Stones River group. Also, the Patterson sand\* provides an objective at the top of the Ordovician in the northwestern part of the basin.



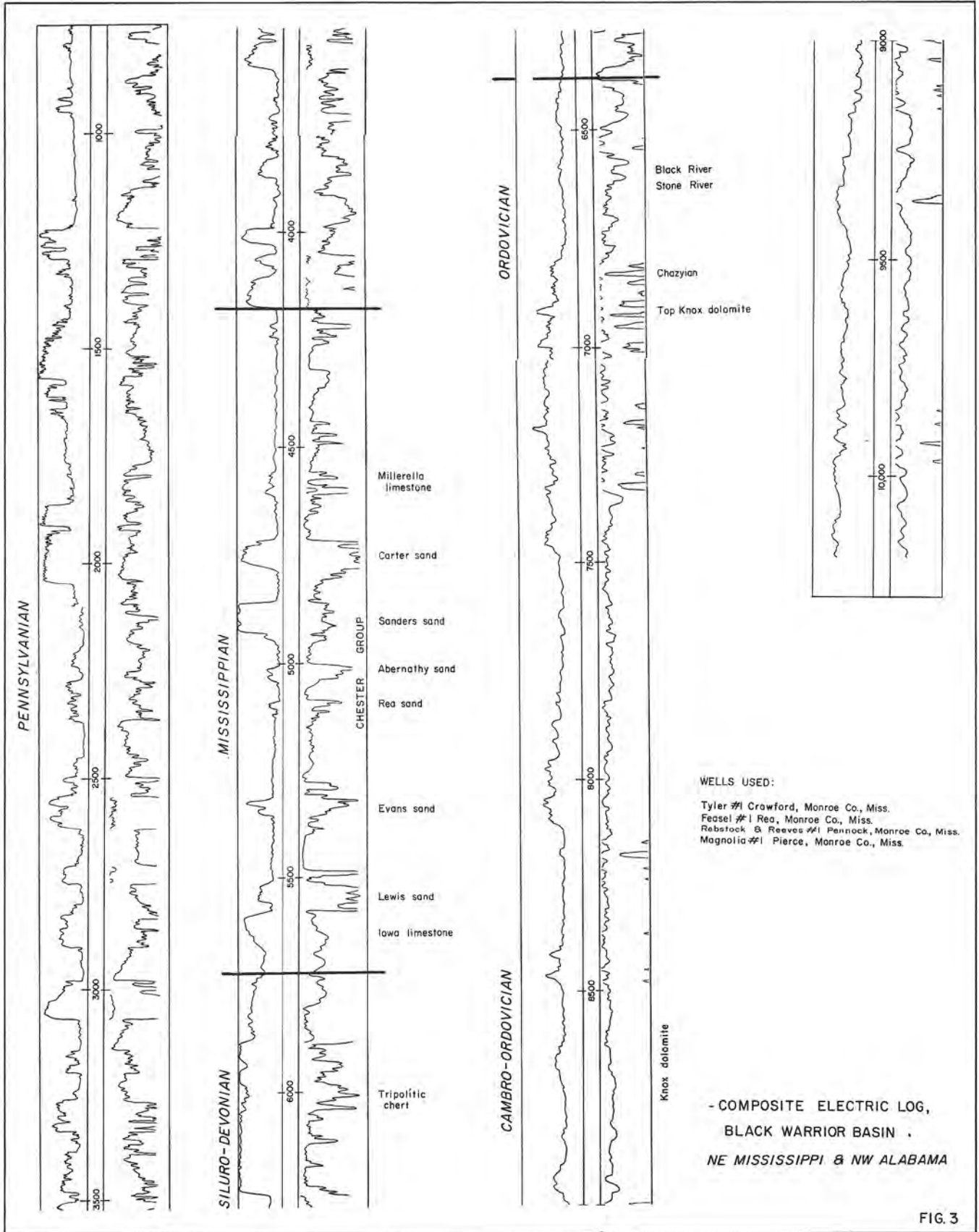


FIG. 3

## Devonian

Another principal objective is a zone of tripolitic chert of Devonian age which occurs at intermediate to shallow depths in the basin. This zone appears to be related to a temporary drop in sea level following deposition, at which time silicic carbonates were leached developing the highly porous tripolitic chert. This zone, with a maximum thickness of over 300 feet, not only has great potential on structural prospects, but due to regional truncation to the northeast by the unconformity at the base of the overlying Mississippian has important stratigraphic entrapment possibilities. This seems especially significant when compared to similar relationships of rocks of correlative age in other basins such as the Corniferous of the Appalachian Basin, the Hunton of the Anadarko Basin, and the Devonian of the Midland Basin; all of which produce from stratigraphic as well as structural traps. Commercial production has not yet been established in this zone in the Black Warrior Basin, but shows of both oil and gas have been encountered in several wells in the area.

## Mississippian

Mississippi objectives have been the principal targets of the past in the Black Warrior Basin and have provided most of the production to date. The majority of these objectives are from the Upper Mississippian Chester sequence which is much like the Chester of the Illinois Basin consisting of alternating sands, shales and limestones. The sands are of deltaic and shore line origins with a source to the north, indicating a probable connection with the Illinois Basin at the time of deposition. The sands are generally clean and quartzose with porosities ranging up to 20% or more, and with permeabilities up to several hundred millidarcies. The most important objectives of this sequence are the Carter and Sanders sands which have their best development in the north-central shelf area. Other Chester sands include the Abernathy, Rea, Hartselle, \* Evans, and Lewis.

In the northeastern part of the basin much of the sand-shale sequence is replaced by a thick limestone development, the Bangor limestone.\* Several oolitic zones are present in the Bangor, particularly in the upper part, and are considered important objectives in this area. Oil and gas shows have been reported in a number of instances, and some minor gas production has been obtained from these zones.

The Lower Mississippian Iowa limestone, which is unconformably overlain by the Chester sequence, is also considered an important objective and has had numerous oil and gas shows reported from intercrystalline and vugular porosity, mainly from near the top of the formation.

Both the sandstones and the limestones of the Mississippian are of shallow water origin and interfinger with dark shales and siltstones basinward to the southwest indicating a continued influence of basin subsidence throughout Mississippian time.

## Pennsylvanian

The Pennsylvanian is a thick sand-shale sequence ranging in thickness from zero at the updip limits on the north flank of the basin to more than 10,000 feet in the deeper portions of the basin. Numerous sands are present in the shelf area, which like the Mississippian sands, interfinger with dark shales and siltstones of the basin facies to the southwest. The sands are mainly of deltaic origin with some alluvial and shore line sands present. Porosities and permeabilities vary considerably depending mainly on the mode of deposition and the depth of burial, but the better sands are comparable to the better sands of the Mississippian with porosities of 20% or more.

As the basin continued to subside during Pennsylvanian time, deposition kept pace along the broad shelf with sediments being supplied by a major stream system coming from the northeast down the Appalachian trough. A secondary source of sediments was probably being supplied by the Piedmont area to the southeast which was being uplifted and eroded at that time.

The Pennsylvanian of the Black Warrior Basin is almost identical in character and depositional history to that of the Arkoma Basin. In fact, evidence indicates that the two basins are structurally connected

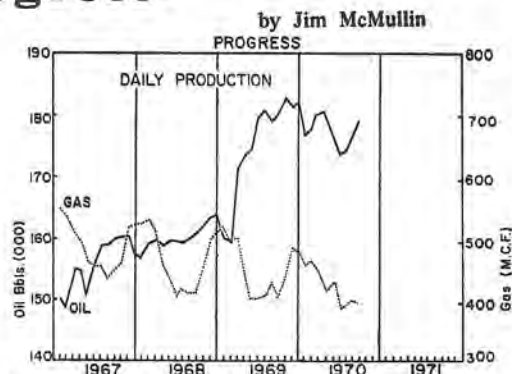
beneath the Mississippi Embayment and that they merely represent two separate depositional centers along a common geosynclinal axis. As the Pennsylvanian is responsible for almost all of the gas reserves of the Arkoma Basin, the great potential of this strikingly similar sequence in the Black Warrior Basin appears obvious.

In conclusion, based on the favorable depositional and structural history of the basin for the generation and entrapment of hydrocarbons, the multiple objective zones throughout the stratigraphic section, and the strong similarity to other Paleozoic basins having large oil and gas reserves, the Black Warrior Basin may indeed be a sleeping giant. In fact, we may see this giant awaken in the next few years.

\* Not present in wells used for composite log; Fig. 3.

About the author: MGS member Stewart Welch has about 10 years of experience in the Black Warrior Basin, with the USGS, with Shell, and now as a consultant. His career started with the USGS in 1950 after graduation from Oklahoma A & M. In 1958, Stewart went to work for Shell. Since 1965, he has been associated with W. Fleming Browning as a consultant.

## progress-



Daily Production	Sept., 1970	179,504 Bbls. Oil
		390,918 M.C.F. Gas
	Sept., 1969	180,046 Bbls. Oil
		411,903 M.C.F. Gas

### Box Score Discoveries January - September, 1970

Eocene	U.K.	L.K.	C.V.	S.M.K.	Norphlet
3	1	4	0	4	1

### Box Score Discoveries January, - September, 1969

Eocene	U.K.	L.K.	C.V.	S.M.K.	Norphlet
8	0	2	0	8	0

### New Field Discoveries Sept., 1969

Dollar Lake -	Pan American #/ Brogden Sec. 26 - 17N - 2W Leflore Co. IP/F (6536-6538) Hosston 168 BOPD + 15 MCFGPD + 3 BWPD 10/64" ch; TP 380 Grav. 48.8°
	IP/F (6648-61) Hosston 120 BOPD + 9 MCFGPD + 2 BWPD 10/64" ch; TP 275 Grav. 47.5°
North Clear Springs -	Champex Co. & Best & Weaver #A-IVSA Sec. 10-5N - 2E Franklin Co. IP/P (4678½ - 79) Stewart "B" 44 BOPD + 176 BWPD 12/64" ch; Grav. 30°
Frances Creek -	The Brandon Co. #1 Tucker 3-8 Sec. 3 - 2N - 16E Clarke Co. IP/F (6878 - 6881) Paluxy 212 BOPD 12/64" ch; TP 400 Grav. 33°



# jackson geophysical society news-

By Dan Herlihy

## VIBROSEIS SYSTEM SUBJECT FOR JAN. 13 MEETING

The Jackson Geophysical Society will meet Wednesday, January 13, 1971, at the Kings Inn in Maywood Mart to hear a talk by Dr. John M. Crawford and Mr. W. E. Laing concerning the basic operating principles and field examples of the VIBROSEIS System. Social hour begins at 5:30 P. M., followed by dinner at 6:30 P. M.

Dr. Crawford received a B. A. degree in physics from Phillips University in 1932 and his M. S. degree from Oklahoma in 1934. He was awarded an honorary Doctor of Science degree in 1957 by Phillips University. He joined Continental in 1934 and transferred to the Research and Development Department in 1957. In 1960, he was made Assistant Manager of the Research Department with responsibility for all research divisions. Dr. Crawford has been active in various societies and in 1963, he toured the U. S. and Canada as a Distinguished Lecturer for the SEG. Along with W. E. N. Doty and Milford Lee, he

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received the SEG Medal Award for development of the VIBROSEIS System. His talk will be on the operating principles of the system.

Bill Laing is Manager of Geophysical Operations for Continental in Ponca City, Oklahoma. He joined Conoco in 1951 after receiving a B. S. degree from the University of Wisconsin. In 1965, he received his MBA degree from Oklahoma City University. Prior to being named to his present position in 1968, Bill served in various positions for Conoco in Oklahoma, Montana, and Texas. His talk will concern field examples and the quality of data obtained in a number of different areas in the United States.

## SSC AND SCHLUMBERGER SOCIAL HOUR SPONSORS

Refreshments for the social hour at the December 8 meeting were provided through the courtesy of Seismograph Service Corporation and Schlumberger Well Services. The MGS membership is grateful for their generous contribution and support.

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**MISSISSIPPI GEOLOGICAL SOCIETY**  
P. O. Box 422  
Jackson, Mississippi 39205



# NEWS

# BULLETIN

mississippi geological society



Vol. XVIII, No. 6, February, 1971

## "U.S. OIL-CHOICES AND CHALLENGES" TOPIC FOR SOCAL PRES. HAYNES FEB. 2

### JACKSON COUNTRY CLUB SITE OF LARGE JOINT MEETING

On Tuesday, February 2, Mr. H. J. "Bill" Haynes, president of Standard Oil Company of California, will address the Mississippi Geological Society in joint meeting with five other professional societies at the Jackson Country Club. A cocktail hour beginning at 6:00 P.M. will precede the dinner, which will be served at 7:00 P.M.

The title of Mr. Haynes' talk will be: "U. S. Oil - Choices and Challenges." Mr. Haynes is in a position to give us one of the best informed insights into the future of our industry. The meeting should be mandatory fare for anyone with a stake in the domestic oil business.

Bill Haynes was elected president of SOCAL in July 1969, at age 43.

He was born in Fort Worth, Texas, and graduated as a civil engineer from Texas A & M in 1947, after serving with the U. S. Navy in World War II.

Mr. Haynes joined SOCAL as a construction engineer for the California Company in Natchez, Mississippi in 1947. Subsequently he served in the company's producing activities in Venezuela and in East Coast marketing operations.



H. J. HAYNES

He was named assistant vice president of Standard in 1962 and was elected president of Western Operations, Standard's largest operating subsidiary, in January, 1965. He served in the latter assignment until election to the vice presidency of the parent corporation in August, 1966. In December of 1966, he was named a director of Standard of California.

Haynes is a director of the American Petroleum Institute, a trustee of The Petroleum Engineering Foundation of Texas A & M, and the World Affairs Council of Northern California.

He is a member of the Executive Board, Marin County (California) Council of Boy Scouts; the Stock Exchange and World Trade Clubs of San Francisco; The California Club in Los Angeles and The University Club in New York City.

The other societies associating with the MGS for this special meeting are the AIME, AIPG, API, JGS and MAPL. All members are urged to attend and encouraged to bring guests. It is requested, however, that the guest list be restricted to those people who have a stake in the oil industry.

Tickets are \$6.00 each and are now available from the persons listed below. Space at the Jackson Country Club will require limiting attendance to 350. No tickets will be sold at the door unless these tickets have been reserved. Tickets will be sold only to members of the listed societies, including tickets for guests.

Name	Society	City	Company
Clem Dazet	AIME	Jackson	Cities Service
Tom Clements	JGS	Jackson	Skelly
Jim McElroy	AIPG	Jackson	Murphy
Jack Porter	MGS	Jackson	Chevron
Bob Beu	MGS	Jackson	Chevron
Lloyd Tankersley	MAPL	Jackson	Phillips
Pat Foster	MAPL	Jackson	Union of Cal.
Armand Ricci	MGS	Natchez	Gulmon
W. R. Seltzer	AIME	Laurel	Halliburton

This meeting has been put together by Bob Beu of Chevron and his ad hoc Haynes Program Committee and is in keeping with Bob's objective of providing top-notch speakers on a conceptual theme. The setting and the speaker should combine to make this meeting one of our best. Tickets are limited, and with six participating societies and guests competing, may not last long. Refunds will be available to those who buy tickets and are subsequently unable to attend, so long as ticket salesmen are notified by February 1, the day prior to the meeting.

#### MISSISSIPPI GEOLOGICAL SOCIETY CALENDAR

- FEB. 2** Haynes Talk - Joint Meeting of MGS, AIPG, API, AIME, JGS, MAPL  
Jackson Country Club  
Cocktails 6:00 P. M. - Dinner 7:00 P. M.  
Cost \$6.00
- FEB 11** Women's Auxiliary - Style Show  
Luncheon with Black Gold  
Kings Inn - 11:30 A. M.
- ADVANCE TICKET PURCHASE REQUIRED FOR FEB. 2 MEETING.**



## MISSISSIPPI GEOLOGICAL SOCIETY

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## from the editor

Relaxation. Out of the office. On the town. Parties. Old acquaintances. New acquaintances. Technical sessions. All these and many more are tangible aspects of a convention. After attending a convention, however, the question of whether any real professional or personal benefit is obtained from such affairs occurs repeatedly. This question becomes especially acute after sitting (or dozing) through a talk with an interesting title but disappointing content and presentation. The individual begins to ask himself what is the value of this or that paper or of the entire proceedings to his own small niche in the petroleum industry. In short, are conventions really worthwhile to the geologist?

We believe they are but the answers to this question are many and varied, depending on the individual. Some geologists may immediately discover an idea or learn some information that will aid them in their work. Some may not learn any miraculous truths at the moment but a helpful idea may soak through at a later date. Others may get nothing at all except inspiration and enthusiasm which will enable them to work with renewed vigor. Then there are those who do nothing but have a fun time and let the more profound considerations take care of themselves. Actually, the majority probably obtain some combination of all these benefits whether they care to admit it or not.

Speaking from the company geologist viewpoint, management apparently recognizes the benefits of permitting its diligent personnel to attend industry-wide functions pertinent to their area of operation and responsibility. At least it should. The company that insulates its employees or encourages them to insulate themselves from the rest of the oil fraternity is kidding itself. The petroleum industry will survive its periodic crises and continue to progress partly through a combined effort of all members, company or independent. Each member of the industry will in turn survive and progress largely through the professional improvement and advancement of its employees. In his keynote address to the recent GCAGS Convention in Shreveport, Michel Halbouty stated "the direction and growth of oil companies during the Seventies will, to a great degree, depend on the quality and loyalty of their petroleum scientists". It seems obvious, therefore, that it is to the companies best interests, present and future, to nurture, develop and enlarge this employee quality and loyalty.

Aside from internal considerations (salaries, benefits, advancement, etc.) an oil company can best do this by encouraging and permitting as many of its employees as feasible to attend or, better yet, participate in industry functions such as conventions, local professional societies, seminars, continuing education programs and so on. As a result, the individual's professional and personal quality will improve and, in knowing that his employer is interested in his improvement, his loyalty to the company will also improve. When this happens, both employer and employee should prosper.

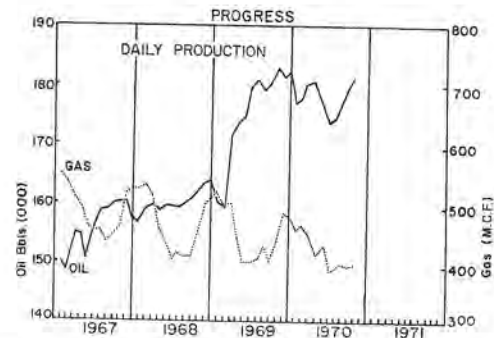
The final overall conclusions, therefore, are that conventions are worthwhile, they do benefit both company and individual alike, they are an integral part of the industry, and they should be supported by increased attendance and participation of industry personnel.

## SOCIETY FINANCIAL POSITION EXCELLENT

As of the middle of December, Mississippi Geological Society Treasurer Buddy Twiner reports that the total cash assets of the Society were \$6,342.85. Of this amount, \$3,000.00 was deposited in a savings account and the remainder of \$3,342.85 was in a checking account. At the end of the last Society year (June, 1970), the cash bank balance was \$3,592.63. Up to mid-December, therefore, the Society added \$2,750.22. This is considered an excellent accomplishment and indicates a strong Society with capable leadership and enthusiastic contributors and membership.

## progress-

by Jim McMullin



Daily Production	Oct., 1970	181,891 Bbls. Oil
		391,242 M.C.F. Gas
	Oct., 1969	183,269 Bbls. Oil
		446,958 M.C.F. Gas

### Box Score Discoveries January - October, 1970

Eocene	U.K.	L.K.	C.V.	S.M.K.	Norphlet
3	1	4	0	5	1

### Box Score Discoveries January - October, 1969

10	0	3	0	8	0
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### New Field Discoveries October, 1970

East Barber Creek - Continental Oil Co.  
 No. 1 C.G. Henderson 17-8  
 Sec. 17 - 5N - 8E Scott Co.  
 IP/F (14820-830) Smackover  
 253 BOPD + .8% btr.  
 33/64" ch. TP 250 #

## CALL FOR PAPERS - GCAGS DEADLINE NEAR

Anyone interested in presenting a paper at the next GCAGS meeting should begin preparations now. Although the convention is not until October, 1971, papers pertinent to the Gulf Coast area are presently being considered for the program. Deadline for titles and abstracts is March, 1971 and June for completed manuscripts. Theme of the convention, which will be held in New Orleans, is "Where The Action Is". Contact Willis Tyrrell directly at Pan American Petroleum Corporation, New Orleans, if you are interested.

## SOCIAL HOUR COURTESY OF CONSOLIDATED LAB AND O'MALLEY LAB

Refreshments for the January 6 meeting were provided through the courtesy of Consolidated Lab, Inc. and O'Malley Lab, Inc. The MGS membership is grateful for their generous support.



# OIL INDUSTRY - LOOK OF THE 1970's

by Charles H. Williams, Jr.

In light of the oil industry's outstanding record of accomplishments it is rather difficult to imagine that we are still a target industry and the victim of deteriorating public attitudes. Mr. Otto Miller, Chairman of the Board, Standard Oil of California, recently stated that "the oil industry has been so efficient in providing an energy source at bargain rates that the consumer has no idea just how complex the exploration, production, refining and transporting picture really is. Therefore, when the industry has a problem, the public screams." The truth of this has been clearly borne out by recent events. It was, and still is, hard to find a friend when the regrettable oil spills occurred. Raise the price of oil and the public outcry is even louder.

The oil industry enters the decade of the 1970's facing severe challenges. Problems confronting our industry fall mainly into three categories: Environment, Regulation and Consumerism.

"Environment" has become the current by-word. The Santa Barbara incident furnished the impetus and we don't know where it will stop. Changing attitudes, more people, idealism, youth, professional groups and political leaders have all helped to frustrate the issue. Surely more and more regulations will be imposed, thus adding to the expense of exploring and producing. The Clean Air Act amendments have brought fuels and internal combustion engines under attack.

Federal policy and regulations affecting our industry can be amply demonstrated by President Nixon's recent actions. Oil was singled out for criticism three times in one week by the Nixon administration. The much needed and long overdue oil price increases were criticized first in the White House article "Inflation Alert," then by the President and by Federal Reserve Board Chairman Burns. The President's actions were: (1) A Federal takeover of oil production allowables on U.S. off-shore leases where allowables previously were set by conservation departments in adjacent states, and (2) Increasing Canadian oil imports. Nixon stated that "these actions will increase the supply of oil and . . . help restrain the increase of oil and gasoline prices." The fact that gasoline prices have increased less than practically any other consumer item during the past ten years was completely ignored.

At a time when exploration capital is so dearly needed the 1969 Tax Reform Act was passed. This act included reduction of the depletion allowance from 27½% to 22%. A recent study made for Mid-Continent Oil & Gas Association by an independent accounting firm shows that the result of this act increased petroleum industry taxes by \$658 million a year. Add to this the continued inflation, greater expenses required for pollution control, higher lease costs and higher drilling and equipment costs.

Certain influential liberal congressmen and a segment of the press are blaming the current energy crisis on the oil industry. They claim that the oil companies are "hiding" vast reserves of gas until the shortage causes a price rise. In fact, the energy crisis was brought on by a combination of factors: interruptions in the Trans Arabian pipeline, Libyan export cut backs, tanker shortage, spiralling rise in the use of residual oil. Long range causes contributing to the energy shortage are the conditions affecting other energy sources. Projected nuclear power supplies have been delayed due to zoning problems, pollution fears and delays in plant construction. Coal costs have risen due to increased taxation, stiffer safety standards, spiralling labor and transportation costs, plus the effect of anti-pollution regulations. Gas is in short supply mainly because of unreasonable EPC price controls which have stifled exploration activities. The current crisis has instigated nine separate Federal investigations.

With all these problems facing our industry in the 1970's it would seem that we are in the worst shape ever, but the oil industry has faced crises before and emerged stronger. Incidences involving public opinion and Federal actions which nearly spelled doom in the past were: passage of Sherman Antitrust Act in 1890, Teapot Dome scandal in 1923, the National Guard and State Militia shut down of production in 1931, fuel oil shortages in 1947-48 (14 separate government investigations), several antitrust cases during the Eisenhower administration.

Though the problems facing our industry are great, let's look at the one overriding promising outlook for the 1970's. Studies indicate that the demand for oil will be more than double that of the 1960's. To meet this demand geologists will have to find almost as much oil between now and 1980 as has been produced in the U.S. since the first well was drilled here in 1859. What geologist could ask for a

better opportunity for his prospects? I believe we will meet these challenges, and thus see public opinion shift in appreciation of our efforts.

## LOCAL SCENE

To bring you up to date on the local legislative scene, the Mississippi Legislature convened at noon January 5. Senator Marion W. Smith was elected as President Pro-Tem of the Senate and Mr. John R. Junkin is Speaker of the House. Both men are able leaders and knowledgeable of oil problems.

Mississippi's fiscal condition is encouraging. The Mississippi Commission of Budget and Accounting has proposed a \$383,384,535 General Fund Budget. This represents an increase of \$15,892,830 over the 1970 budget. It is estimated that the unencumbered cash balance at the beginning of the 1971 fiscal year (June 30, 1971) will be \$41,668,278 and that the revenues during the next fiscal year, based on existing statutes will amount to \$375,689,692, with total available funds for the next fiscal year of over \$417,000,000. If the Legislature adopts the Budget Commission's recommendations it is anticipated that there will be approximately a \$35,000,000 surplus in the General Fund at the conclusion of the next fiscal year.

If the recommendations of the Commission of Budget and Accounting are adopted and the Legislature does not enact any new far reaching programs, there will not be any need for increasing taxation during the coming fiscal year. However, this is the first time in the history of Mississippi that a legislative session has been held during a general election year. The Legislature may be inclined to increase appropriations considerably beyond the recommendations of the Budget Commission. Also, there may be an effort made to decrease income and sales taxes below their present levels or to further increase exemptions.

The Alabama Legislature will convene in May. Governor Wallace is aware of the oil producing potential of Alabama and we feel confident that the oil industry will continue receiving encouragement from his administration.

I would encourage the members of the Mississippi Geological Society to become personally acquainted with members of the Mississippi Legislature and other government officials. Speaking to them as Mississippi citizens concerned with their problems, as well as the problems facing our interests, will generally be helpful to them and greatly appreciated. The time may come when the facts you have given them could have a great effect on the livelihood of every member of our profession and the industry which forms the basic reason for our existence.

## EDITOR'S NOTE:

The preceding article by MGS member Charles H. Williams, Jr. is not only timely for the oil industry in general but also to this issue of the News Bulletin, because its theme is similar to that which will be expressed by Mr. H. J. Haynes in his address at the next meeting. As Director of Public Relations for Mid-Continent Oil & Gas Association, Mississippi-Alabama Division, Charlie is in an excellent position to recognize problems facing the industry. He was a geologist with Monsanto for 10 years before joining the Mississippi Geological Survey for 3 years. Prior to joining Mid-Continent, he was an independent in Jackson.



CHARLIE WILLIAMS

Mid-Continent, directed by Mr. Earl Evans, was organized to serve the constructive interests of the oil industry. Both local and national in scope of activity, the Association is involved in such matters as equitable taxation, constructive legislation, public relations, conservation of petroleum resources, air and water pollution, reasonable regulations, educating the public in oil and gas development, and production problems. The Mississippi-Alabama Division was organized in 1944 and has since actively participated in the solution of oil and gas development and production problems.



## OIL AND GAS FACTS

The number of factual statistical items concerning the petroleum industry is considerable and almost impossible to remember by the average working staff. Printed below, however, are a few oil and gas facts taken from a list published by the Committee on Public Affairs of the American Petroleum Institute. These shouldn't be too difficult to remember and might just come in handy sometime when you want to sound impressive.

\*\*\*\*In the 1960-69 decade, oil companies earned 11.7 per cent on invested capital, compared with 12.2 per cent for all manufacturing companies.

\*\*\*\*Motor fuel tax collections by the federal and state governments were expected to exceed \$9.9 billion during 1970.

\*\*\*\*The petroleum industry will need to spend an estimated \$235 billion worldwide between 1970 and 1980 to meet the needs of consumers here and abroad.

\*\*\*\*Oil companies spend more than a million dollars a day on air and water conservation.

\*\*\*\*The U.S. is the leading oil producing country with 21 percent of the world's production. Annual production of crude oil in the U.S. now totals 3.2 billion barrels.

\*\*\*\*Of every 100 exploratory wells drilled in search of new fields, less than 2 on the average find enough petroleum to make a profit.

\*\*\*\*Oil, natural gas, or both are produced in 32 states.

\*\*\*\*Between now and the turn of the century, Americans will consume more than twice the amount of oil as has been consumed in this country since 1859 when the U.S. oil industry was born.

\*\*\*\*Some 3,000 products are processed from petroleum.

\*\*\*\*From 1960 through 1969, the national average retail price of regular grade gasoline (excluding taxes) increased 13.6 percent while the consumer price index for all items rose 23.9 percent.

## O&GJ BOOKLET AVAILABLE

The Oil and Gas Journal has a booklet available that contains the first 23 installments of their Fiction & Fact article which they have been printing each week for the enlightenment and use of the readers. The format of the weekly article is to print statements (Fiction) made by the news media, politicians, public officials, or self styled experts that concern the petroleum industry but either erroneous or distorted and not the true picture. The Journal then prints a rebuttal (Fact) based on factual data and thoroughly discusses all aspects of the case under fire. These articles are excellent sources of factual information, not only for those in the industry but especially for those outside it who frequently see the Fiction and very seldom the Fact. Orders can be made to: Book Dept., The Oil and Gas Journal, Box 1260, Tulsa, Okla., 74101. Prices are: 1 to 10 copies, 50 cents each; 11 to 50 copies, 40 cents each; 51 to 100 copies, 30 cents each; 101 to 300 copies, 25 cents each. There's a minimum order of \$1.00 and payment must accompany orders of \$5.00 or less.

## GEOHERMAL SURVEY PROJECT OF AAPG

The AAPG has initiated a research project with Oklahoma State University entitled "A Geothermal Survey of North America." The objective of the survey, which is scheduled to last 4½ years, is to determine the regional distribution in the geothermal gradient over North America including the continental shelf. Findings will be presented in the form of geothermal gradient or geoisotherm maps.

Geothermal data is being supplied to OSU for processing by many AAPG members and other interested scientists. The Mississippi district is represented by Chairman Harold Province, Chevron; Jim White, Skelly; Lowell Ellis, Gulf; and Ray Lewand, Cities Service. From this study, it is hoped a better understanding can be had of tectonics, stratigraphy, mineral deposits, continental drift, heat flow through aquifers, etc.

## AAPG-SEPM CONVENTION IN HOUSTON

The annual AAPG-SEPM Convention will be held March 29-31, 1971, in Houston, Texas. Theme of the event is "Geologic Explosions." In addition to a number of papers concerning specific areas in the USA and foreign lands, the AAPG will have sessions on such topics as exploration for stratigraphic traps, uranium and other mineral deposits, petrology and sedimentation, geophysical methods, and general petroleum geology - worldwide. Also, a research committee symposium on new global tectonics is scheduled. The SEPM meeting will be highlighted by a research committee symposium on geologic history of oceans.

Field trips include two by the AAPG, one by the SEPM and one daily excursion to NASA headquarters. The AAPG will sponsor a two day trip to study uranium deposits in middle tertiary sediments in south Texas and a one day affair to examine alluvial, deltaic and barrier island sediments in southeast Texas. The SEPM trip will be for three days to study several outcrops in central Texas that have a variety of trace fossils within their stratigraphic context. Social events befitting a national convention will be available plus the sight-seeing and party opportunities in the Houston area.

## AUXILIARY PLANS STYLE SHOW LUNCHEON WITH BLACK GOLD

Our spouses (could more than one spouse be spice?) are planning, as usual, and if their meeting is a huge success, it will cost us more money - as usual. This time it is for a style show, jointly with the Black Gold, to be held at the Kings Inn, 11:30 a.m., Thursday, February 11. Mrs. Ben Edwards, chairman of this event, has several beautiful models signed up - - February 11 just might be a good day to have lunch at the Kings Inn.

## CURRY PREDICTS NEW ERA FOR U. S. OIL

The following is the text of an AAPG News Release, sent out 12-29-70:

TULSA, OKLA. - The president of the world's largest geological organization forecast at year's end that 1971 "will likely be the start of a new era of the U.S. petroleum industry".

William H. Curry, of Casper, Wyoming, an exploration consultant, issued a statement as president of the American Association of Petroleum Geologists, headquartered here, that stressed renewed and better exploration for oil and gas in the United States.

"The petroleum industry, because of public pressures and technical advances, has matured much during 1970", he said. "Purchasers have had the courage to begin realistic price increases for crude oil, and more should follow. Profits of oil companies are expected to increase during 1971, and we are expecting more money to be earmarked for greater exploration in order to bring production and reserves into line with demand."

Curry explained that the great increases in demand which are forecast will require a revitalized exploration effort by the domestic industry. Studies of oil and gas potential in the United States indicate that many new fields will be discovered if the incentives of non-restrictive legislation, proper price, and reasonable taxes prevail. He said that the public and legislators alike will have to recognize and accept the fact that new environmental control demanded will add to the cost accounting of new exploration and production.

Curry said the differences and objectives between major and independent oil producers have become so slight that the oil industry now presents a unified front to the lawmakers, as well as to the public. He pointed out that widespread threats of shortages of natural gas and fuel oil have made citizens of non-producing states aware of their dependence on the oil industry.

"We hope for more understanding from federal legislators, as well as the public, as the oil industry moves into high gear in the search for new domestic reserves and the costs that go with it," he said.



"We work within the free enterprise system, and energy requirements of the United States are such a large order that we must have full support from all sources. We believe that we will have this."

Curry added that increased efficiency and technical skills of all involved in the oil industry will keep costs lower than would have been possible for such an all-out assault in domestic exploration, even five years ago. "Geologist, geophysicists, and engineers have much more in common today", he said. "We work together for one big objective, to find the oil and gas that can be economically produced and put on the market."

Curry said it normally takes three to five years to bring exploration from its initial conception into full productive fruition, thus a time lag exists between demand and supply that the public should understand.

## NEW PROVINCE FOR OIL HUNTING?

Tired of looking at the same old prospects? The same old geology? Interested in greener pastures for oil hunting? Like to indulge in some far out geological thought? If your imagination cannot be found by mere mortal ties on this off-punctured planet, then you might be interested in an offering of the Geological Society of America: a Map of Mars. The scale is a bit regional for prospect work - 1:35,000,000 - but it is colorful, and cheap; only \$2.50. Even if the United Nations hasn't put it up for competitive bids yet, you might be able to get some federal funds to study the feasibility of drilling on and transporting oil from, the red planet.

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**MISSISSIPPI GEOLOGICAL SOCIETY**  
P. O. Box 422  
Jackson, Mississippi 39205



# NEWS

# BULLETIN

mississippi geological society



Vol. XVIII, No. 7, March, 1971

## FORGOTSON TO SPEAK MARCH 2 ON COMPUTER APPLICATIONS

### TOOLS OF THE FUTURE TOPIC OF PI VEEP

James M. Forgotson, Jr., Vice President of Petroleum Information, Denver, Colorado, will be the speaker at the next regular meeting of the Mississippi Geological Society, to be held Tuesday, March 2 at the Kings Inn in Maywood Mart Shopping Center. A social hour will begin at 5:30 p.m. and dinner will follow at 6:30 p.m.

The title of Dr. Forgotson's talk will be: "Well Data Files and the Computer, Exploration Tools for the 70's."

Born in Albuquerque, New Mexico, Dr. Forgotson grew up in Shreveport. He received an A.B. in geology from Washington University in 1951 and a B.S. in petroleum engineering from the University of Texas in 1952. He then attended Northwestern University, from which he received an M.S. in geology in 1954 and a Ph.D in 1956.

After working as an Exploration Geologist for James Forgotson, Sr., for two years, Dr. Forgotson went to work for Pan American Petroleum for 12 years in Pan Am's research organization. In 1968 he left to become a Vice President of Petroleum Information Corporation.



JAMES FORGOTSON, JR.

Dr. Forgotson has several publications to his credit, including papers on the Jurassic and Lower Cretaceous of the Gulf Coast and computer applications.

Dr. Forgotson is a member of several professional societies, but is particularly active in the AAPG. In 1963 he was the recipient of The President's Award and since 1964 he has served on four AAPG committees and served as a Lecturer for the Continuing Education's Program. In 1968 he served as Secretary-Treasurer of the AAPG.

### WELL DATA FILES AND THE COMPUTER — EXPLORATION TOOLS FOR THE 70's

by James Forgotson, Jr.

#### ABSTRACT

Computer processable well data systems in the United States and Canada contain information from more than 700,000 wells. Ownership, location, well classification and status, drilling and completion activities, tests, depths to formation tops, core descriptions, shows and other data are included. The use of computers to extract, analyze and display this information is essential for economically efficient exploration where large amounts of data are available.

Well data files are used at various stages of the exploration process for basin evaluation, selection of prospective stratigraphic intervals and areas for further study and for building peripheral files containing proprietary, technical and economic data. A study of the Muddy play in the Powder River Basin illustrates an exploration application of computer processing a large well data file. Prior to the discovery of Bell Creek, data from the file revealed areas in Wyoming and South-easternmost Montana with abundant hydrocarbon shows in the Muddy Formation. North and South Dakota and the rest of Montana had no Muddy shows. In the area of abundant shows geological maps based on formation tops obtained from the file indicated trends on which subsequent drilling has discovered more than 250 million barrels of reserves. East and West Sandbar, Ute, and Whitetail fields are related to deposition around a pre-Muddy positive feature defined by Skull

(continued on page 2)

#### MISSISSIPPI GEOLOGICAL SOCIETY CALENDAR

- MARCH 2 Forgotson Talk — Kings Inn  
Social Hour 5:30 p.m., Dinner 6:30 p.m.
- MARCH 26 Women's Auxiliary — Couples Barbecue with  
Black Gold,  
Fowler Lodge, 7:00 p.m.

FOR RESERVATIONS TO MGS MEETING, CALL SKIP  
MURRELL 362-7758 BY NOON, MARCH 2.



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## president's notes

by John Lancaster

At the conclusion of the first joint meeting of our society with our fellow explorationists and engineers, I extend my thanks to the members of the "Haynes Committee" and its chairman, Bob Beu, for the excellent job of organizing, coordinating, and executing the most successful meeting we have enjoyed in a number of years.

When this meeting was first conceived, it was decided that its purpose would be to join together members of the production and exploration branches of the oil industry on common grounds to share the thoughts of an outstanding member of the profession on a subject common to all. Our expectations were more than exceeded. Oil men from the entire Southeastern United States met and heard a critique of past accomplishments, including mistakes, and at the same time were given a



JOHN LANCASTER

challenge for the future — to accept a position in the world as productive, necessary professionals performing a job for which they can all be proud. This meeting has provided a common platform for all the participating societies to create a program that will disseminate and communicate ideas to the general public. The Geological Society has already begun organizing such a program through its Publicity Committee. Other organizations are challenged to do the same.

At the last meeting of the Board of Directors it was decided that the society should use a new approach to the problem of having a Field Trip. A good field trip has to be planned in detail. One year is not long enough to organize such an undertaking. It was decided to create a Special Field Committee with a two year duration instead of one. Bill Moore has accepted the challenge of heading this committee. We are looking forward to the first Society sponsored field trip since 1963.

I am also pleased to note that the Geothermal Gradient Map Committee is organized and working hard toward an April 1st deadline, thanks to the efforts of Harold Province.

The National AAPG Convention is being held in Houston March 29-31. Our two delegates, Julius Ridgeway and Harold Karges are both signed up to attend. This will be the first year that the House of Delegates has actually functioned under the new constitution. Both of our delegates have new responsibilities in that they alone can represent Mississippi geologists to the Association under the new system. All members of the AAPG, however, who can attend the convention are encouraged to do so.

### CALL FOR PAPERS MISSISSIPPI ACADEMY OF SCIENCES

Anyone interested in presenting a paper at the 1971 Annual Meeting of the Mississippi Academy of Sciences, Division of Geology and Civil Engineering, should submit a copy of the title and abstract by March 15. The meeting will be held April 23 — 24 at the University of Southern Mississippi in Hattiesburg. Please send the information to Wendell B. Johnson, Department of Geology, Millsaps College, Jackson, Mississippi 39210.

### COUPLES BARBECUE PLANNED BY LADIES

The Women's Geological Auxiliary is planning for a couples barbecue with Black Gold at Fowler Lodge at 7:00 p.m. on Friday, March 26, 1971. Chairman for this event is Mrs. Dean Kebert.

(ABSTRACT cont. from page 1)

Creek structure and Muddy isopach residual maps. Recluse and Odehoven are related to a channel defined on a Muddy isopach residual map. No commercial production has been found to date in the "no show" area.

At the time of discovery of Recluse and Bell Creek information was available within the Rocky Mountain Well History Control System to suggest areas favorable for similar types of production from the Muddy. With addition of new well control and proprietary information the well data file can aid in the planning of development drilling, analysis of completion practices, and reservoir evaluation. Large well data files and proper application of the computer to these data will become increasingly important in the discovery of oil and gas during the 70's.

## OIL POLLUTION OF WATER DEFINED

Everyone knows what an "oil slick" is. Or does he? The term is frequently used to describe spilled oil on sea or inland waters but it's meaning can be rather vague as far as amount and degree of contamination goes. In other words, an "oil slick", although certainly undesirable, may not be as bad as news media reports indicate it to be. The U.S. Coast Guard and various oil companies are aware of this descriptive gap and have formulated the following set of general definitions for use in describing the amount of oil in pollution reports.

It may take a sharp eye to judge these conditions but, hopefully, it can be done and more accurate reporting will result.

**Sheen** — a silvery gloss of oil on the water, a very light amount of oil.

**Rainbow** — bright bands of color visible on the water, enough oil to refract light. More oil than a sheen, but less than a slick.

**Slick** — heavy concentration of oil with definite brown or black color, covering the surface of the water.

**Stringers** — shapes of oil that are longer than wide, frequently but not necessarily, sinuous in appearance.

**Light and dark** — used only to describe color of brown slicks.

## MGS JEWELRY AVAILABLE TO MEMBERS

Jewelry with an engraved Mississippi Geological Society emblem is available in both solid 10K gold or gold filled quality at the R. M. Hendrick Graduate Supply House in Jackson. Pins are priced at \$10.95 and \$6.95; cuff links at \$19.95 and \$14.95; and tie tacks are \$11.95 and \$8.95. For further information, contact either the dealer or MGS Treasurer Larry Walter.



## HAYNES SPEAKS TO SUPER MEETING I

A standing ovation following Mr. H. J. Haynes' address, "U.S. Oil - Choices and Challenges," provided a fitting climax to Super Meeting I, our joint meeting with landmen, engineers, and geophysicists. Mr. Dean Price Meador, Chairman of the Mississippi Oil and Gas Board, set the stage with a few, but very pertinent remarks regarding the State's posture on petroleum exploration and production. Mr. Armond Ricci then topped the evening off, after Mr. Haynes' speech, with presentation of a traditional "Natchez Watch." (A Natchez Watch is a dollar watch with about \$20 worth of engraving commemorating the occasion.)

Mr. Haynes' talk was timely and most appropriate and provided ample suggestions to help the oil man to help himself. Full text will be run in next month's issue of the Bulletin. It is significant that Mr. Haynes' principal business in Jackson was to speak to Mississippi Professional Oil Men, one of only three or four speeches he makes each year. He returned to San Francisco on Wednesday after having breakfast with Governor Williams.

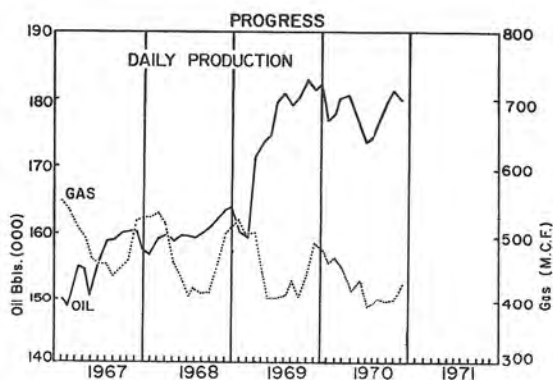
Super Meeting I was held at the Jackson Country Club and was attended by a capacity crowd of 306. Each person consumed \$5.10 worth of food and an average of \$2.70 worth of refreshments, for a total bill of \$2,426.00. Ticket sales of \$1,842.00 and a subsidy of \$250 from MGS, \$250 from MAPL, \$100 from AIME and \$50 from AIPG brought income of \$2,492.00. Committee members Bob Beu, Chairman, Skip Murrell, Herb Ferber, Jack Porter, Harold Karges, Bert Rosson, Charlie Pickett and Fred Larsen are to be commended for a job well done. Super Meeting II has a tough act to follow.



A typical cross-section of the group at the Jackson Country Club on Feb. 2: from left, Art Trowbridge, Shreveport Independent; Herman Bridges, Shell Oil Senior Landman; MGS member Charles Williams, Mid-Continent Oil and Gas Association; Wayne Traylor, Kentucky Standard in Jackson; and Bob Beu, Chevron Oil, and MGS Program Committee Chairman. Photo by Joe Mead.

## progress-

by Jim McMullin



<b>Daily Production</b>	<b>Nov., 1970</b>	<b>179,057 Bbls. Oil</b>
		<b>428,290 M.C.F. Gas</b>
	<b>Nov., 1969</b>	<b>181,723 Bbls Oil</b>
		<b>487,820 M.C.F. Gas</b>

<b>Box Score Discoveries</b>	<b>January - November, 1970</b>				
Eocene	U.K.	L.K.	C.V.	S.M.K.	Norphlet
4	1	4	0	5	1

<b>Box Score Discoveries</b>	<b>January - November, 1969</b>				
Eocene	U.K.	L.K.	C.V.	S.M.K.	Norphlet
10	0	3	0	8	0

**New Field Discoveries 1970**  
 Owen Creek - Callon Petroleum Company  
 No. 1 Oglesby - Vanghey  
 Sec. 33 - 6N - 2E - Franklin County  
 IP/P (6053 - 6065) McKilrick  
 83 BOPD + 2BWPD  
 8/64" ch TP 50#  
 Grav 30°



SOCAL president Bill Haynes (far right) swaps pleasantries with local society presidents: from left, Dave Lott of the Jackson Geophysical Society, Ed Jones of the Mississippi Association of Petroleum Landmen; John Lancaster of the Mississippi Geological Society. Jim Brickell, Chevron Division Landman, appears to be acting as interpreter for the group. Photo by Hyatt Ford.

## AAPG PUBLICATION ON GIANT FIELDS ANNOUNCED

The AAPG has recently published a 575 page volume entitled "Geology of Giant Petroleum Fields" which summarizes the geology and ultimately recoverable reserves of every giant oil and gas field in the world as of mid-1970. Edited by Michel Halbouty, the book contains such information as the geology and reserves of 528 worldwide fields, including previously unreported fields in Russia and Mainland China; twenty-six case histories of giant fields in the U.S., Canada, South America, France, Algeria, Libya, and Sicily; and comprehensive lists of references compiled from papers which have been published in nine languages. According to AAPG President William H. Curry, data from Russia and China were released directly to the AAPG and not through any U.S. government channel which is an indication of the considerable prestige the Association has abroad with all forms of government. The first authoritative book of its kind ever published, it should be an invaluable reference for governmental agencies as well as industry personnel.

## personal news-

by Jim Shaw

Amerada Hess Miss-Fla. has opened an office in Jackson at 1001 1st National Bank Building. Bud Norman, a familiar name to the oil industry, is Vice-President and General Manager. Norman's home is in Laurel, Mississippi but will be working out of the Jackson office occasionally. Sherrill Carlton is also a Vice-President of this newly formed company and is moving from Laurel to Jackson. Kelly Walker is manager of their land department.

Tom Wagner, Dresser-Atlas salesman, has been transferred to Jackson from Laurel, Mississippi. Tom is well known in the "Mississippi Oil Circle", having served as salesman in Natchez and Laurel. Welcome to Jackson, Tom.

Shell Oil Company has moved its offices in the Petroleum Building to the McGeehe Building on Interstate 55 North. Mailing address is still P. O. Box 1817, but the new phone number is 362-2506.

Rich Fortmann, with Chevron, has accepted a transfer to Chevron Overseas Petroleum, Inc. in San Francisco. He has a temporary assignment of about four months in The Hague before moving to San Francisco.

### OIL ACTIVITY NECESSARY — THEN AND NOW

Sometimes during the frequent hue and cry raised against the oil industry, one wishes for the good old days when things weren't so complicated. Back, say, fifty years ago when black gold, gusher, and oil discovery were exciting news to everyone. Reasons for drilling wells and getting the oil out of the ground were relatively simple and direct though often overdone in those days. It was, however, a rough and tumble business which sometimes became rather violent, physically, as proven by the following article printed in the Oil and Gas Journal's 50 Years Ago column. The last paragraph evokes a chuckle now but was probably written in all sincerity then.

February 20, 1920

With the resumption of field operations in Mexican oil districts, foreign oil companies are enabled to increase the volume of production by 68,000 b/d says a dispatch. Another telegram states that an Aguilla Oil Co. payroll of \$30,000 was stolen last week and the messengers who had the money in their possession in a street car were murdered by the robbers. Three other persons were wounded.

Mexican oil activity is necessary to keep the bandits supplied with cash and otherwise promote prosperity.

### EMPLOYMENT INTERVIEWS COMMITTEE AVAILABLE AT AAPG MEET IN MARCH

The National AAPG Meeting is being held in Houston, Texas, March 29-31, 1971. The Employment Interviews Committee will again be available at convention headquarters to arrange interviews between applicants and prospective employers. This service is for the experienced geologist as well as the student.

The Committee is striving to obtain a maximum number of employment opportunities this year. Prospective applicants can be assured that their applications will be processed efficiently and discreetly.

For further information contact:

Mr. Charles W. Cline  
Mobil Oil Corporation  
P. O. Box 1774  
Houston, Texas 77001

## "EXPLOSIONS" DUE AT HOUSTON MARCH 29 — 31

The headline doesn't refer to a bomb threat but instead to the theme of the 1971 AAPG-SEPM Annual Convention to be held March 29 - 31 at the Shamrock Hilton Hotel in Houston, Texas. To be more exact, convention officials have chosen the theme "Geologic Explosions In Oil Exploration" for the affair. According to advance billings, the title is in reference to new geologic exploration concepts and tools that have brought on an "explosion" of new worldwide discoveries. An impressive list of papers and authors has been assembled to discuss the new methods and the geology of new fields throughout the world.

Both the AAPG and SEPM have technical programs, research symposiums and field trips planned. Add to this the entertainment program, exhibits, alumni meetings, convention theatre, plus the party and sightseeing opportunities of the Houston area and all the ingredients for a successful convention are present. A full program summary is printed in the January issue of the AAPG Bulletin. So, in keeping with the convention theme, let's all go to Houston and get bombed.

### 1971 CARBONATE SEMINAR ANNOUNCED BY UNIVERSITY OF MIAMI

The University of Miami School of Marine and Atmospheric Sciences has announced its 1971 schedule for Seminars on Carbonate Facies. Because of the enthusiastic reception to the 1970 Seminar, two are being scheduled for 1971. The first will run from May 28 through June 5 and the second from September 17 through 25th. The fee is \$400 and all other expenses total \$550 for a total of \$950.

The seminar will headquarter at the Virginia Key Laboratory in Miami, with trips to the Florida Keys and the Bahama Banks. It will be conducted by Robert Ginsburg, of the University of Miami, and by Lloyd Pray of the University of Wisconsin.

The seminar will include comprehensive coverage of shallow-water carbonates, environments of deposition, early diagenesis, a comparison of recent and ancient examples of major carbonate facies, and a consideration of porosity evolution in carbonates.

We have heard this is an excellent seminar, in part because enrollment is limited to only 14 participants. If you are interested, the News Bulletin editors have more information, or contact: Robert Ginsburg, University of Miami, 10 Rickenbacker Causeway, Miami, Florida 33149. The phone number there is (305) 350-7211.

### COMMON MEMBERSHIP STUDY PROPOSED BY CURRY

AAPG NEWS RELEASE DATED 2-8-71.

ABILENE, TEX., - William H. Curry, president of the American Association of Petroleum Geologists, proposed today that AAPG and several allied geological organizations join in studying a plan for common membership.

Speaking before the Southwest Section of the AAPG at Abilene, Curry said that a common membership for closely related groups would eliminate duplication of membership requirements, certification, and fees, and could preserve to petroleum geologists a "strong voice in oil and gas industry councils in Washington and around the country."

Curry said that he has proposed a common membership to the Presidents of the Society of Exploration Geophysicists, the Society of Economic Paleontologists and Mineralogists, and the American Institute of Professional Geologists, and it is hoped that advisory groups will be formed by each of the organizations to study the merits of the proposal. In addition, he said, AAPG and the Society



of Independent Professional Earth Scientists are working on a certification reciprocity agreement in an effort to eliminate duplication of procedures.

Curry pointed out that the future problems of AAPG and of geologists in general will become more and more involved with federal and state authorities. "With the federal government heavily subsidizing large areas of geologic research and support, there is the added burden of speaking against so large an employer and financier," he said.

In calling for a stronger voice for geologists in industry and government affairs, Curry said, "Our needs must be clearly defined and clearly articulated by ourselves."

## THOUGHTS FOR THE DAY

Take a little time to think of what's beyond the stars and you will understand your place in the universe.

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Some can teach you to do and some can teach you to think. But you alone must decide after doing and thinking.

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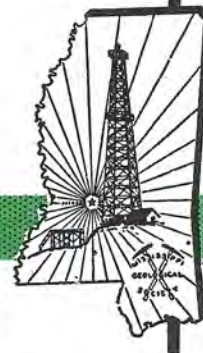
**MISSISSIPPI GEOLOGICAL SOCIETY**  
P. O. Box 422  
Jackson, Mississippi 39205



# NEWS

# BULLETIN

mississippi geological society



Vol. XVIII, No. 8, April, 1971

## DISTINGUISHED LECTURER MORGRIDGE TALKS ALASKA APRIL 13

### PRUDHOE BAY AREA SUBJECT FOR MGS MEET

Mr. Dean L. Morgridge, Alaska District Geologist for Humble's Western Division Exploration Department, will be the speaker at the next meeting of the Mississippi Geological Society on Tuesday, April 13, 1971. The meeting will be at the Kings Inn in Maywood Mart Shopping Center. The social hour begins at 5:30 p.m. and dinner will follow at 6:30 p.m.

Mr. Morgridge's paper is entitled "The Geology and Discovery of Prudhoe Bay Field, Eastern Arctic Slope, Alaska". It is one of the papers offered by the AAPG on its 1970-71 Distinguished Lecture Tour and should be of interest to all who are engaged in the search for oil and gas regardless of the geographical location.

A graduate of the University of Wisconsin, Mr. Morgridge received his B.S. and M.S. degrees in geology in 1953 and 1955. From 1954 - 1956, he was a Field Geologist with Humble in Eugene, Oregon, while studying for the M.S. degree. He was assigned to Alaska as a Field Geologist for Humble in 1956 and served in that capacity until 1962 when he was promoted to Alaska Zone Supervisor for Humble. After five years in this position, he became Alaska District Geologist for Humble's Western Division Exploration Department in Los Angeles, the assignment which he currently holds.

Mr. Morgridge is a member of the AAPG and the Geological Society of America. His paper represents the second AAPG Distinguished Lecture to be presented to the MGS this year and a hearty turnout is urged.



DEAN L. MORGRIDGE

### THE GEOLOGY AND DISCOVERY OF PRUDHOE BAY FIELD, EASTERN ARCTIC SLOPE, ALASKA

by  
Dean L. Morgridge

#### ABSTRACT

The Prudhoe Bay Field is recognized as one of the largest oil fields in North America with estimated reserves of five to ten billion barrels. Reconstruction of the geologic history suggests that the combination of geologic controls on the field will be difficult to find duplicated elsewhere.

Hydrocarbons are present in Jurassic and Permo-Triassic sandstone and Pennsylvanian-Mississippian carbonate reservoirs. These strata, locally folded into a westerly-plunging, faulted anticlinal nose, are truncated by a pre-Cretaceous unconformity resulting in the subcropping of progressively older reservoirs to the northeast. Most of the hydrocarbons are trapped below the unconformity and are contained in the Permo-Triassic Sadlerochit formation. This reservoir is present in the field area as a uniform wedge of alluvial-deltaic sandstone and conglomerate.

The pre-Cretaceous clastic reservoirs were derived from the ancient Beaufort Arch, north of the present coastline. In contrast, the unconformably overlying Cretaceous and Tertiary sandstone and marine shale were derived from uplifts on the steep south flank of the basin, near the present Brooks Range.

In 1944, during World War II, the U. S. Navy initiated the first extensive Arctic exploration program. This program was carried on for ten years at a cost of over \$55 million. Drilling was conducted principally in two areas, the Barrow High and the Arctic Foothills belt. The Umiat Field, located on a foothills anticline, was the largest oil discovery with estimated reserves of 20 to 100 million barrels in Cretaceous sandstones. The high finding costs experienced by the Navy tended to discourage industry exploration.

In 1963, several wells were drilled jointly by BP Exploration Company (Alaska) Inc. and Sinclair Oil and Gas Company, in an attempt to extend the Navy foothills Cretaceous play. BP-Sinclair and Union Oil Company of California each later drilled unsuccessful Paleozoic tests near the Arctic coast.

#### MISSISSIPPI GEOLOGICAL SOCIETY CALENDAR

APRIL 13 Morgridge Talk - King's Inn  
Social Hour 5:30 p.m. - Dinner 6:30 p.m.

FOR RESERVATIONS TO MEETING, CALL SKIP MURRELL  
AT 362-7758 BY NOON, APRIL 13.



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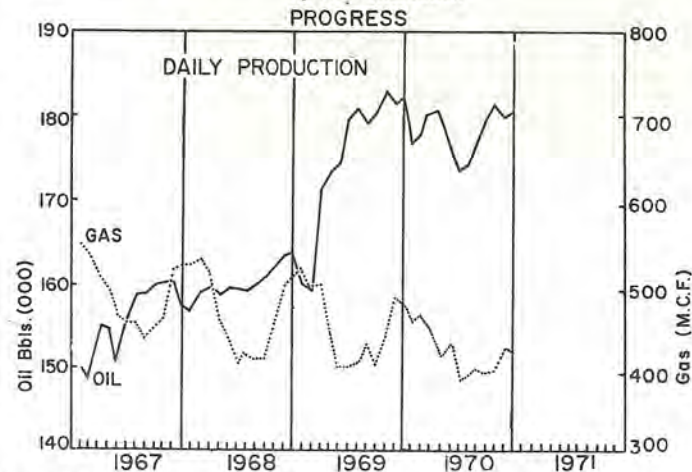
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**progress-**

by Jim McMullen



Daily Production	Dec., 1970	180,904 Bbls. Oil
		427,580 M.C.F. Gas
	Dec., 1969	182,338 Bbls Oil
		481,720 M.C.F. Gas

Box Score Discoveries	January - December, 1970				
Eocene	U.K.	L.K.	C.V.	S.M.K.	Norphlet
	7	1	4	0	6
Box Score Discoveries	January - December, 1969				
Eocene	U.K.	L.K.	C.V.	S.M.K.	Norphlet
	12	1	3	0	6

**NEW FIELD DISCOVERIES DECEMBER, 1970**

- East Carthage Point — Hughes & New No. 1 McKittrick Sec. 6N-3W, Adams Co. IP/F (4404½-05½) Stewart "B" 63 BOPD + 20 BWPD 1/8"ch TP 980 Grav 46°
- North Gardens — El Toro Oil Co. No. 1 Kaiser Sec. 12-7N-3W, Adams Co. IP/P (4396-97) Stewart "B" 75 BOPD + 125 BWPD - 10/64"ch TP 210 Grav. 44°
- South Stamps— Serio Expl Co. No. 1 Pritchart Sec. 16-2N-5W, Wilkinson Co. IP/F (8066-68) Jenkins 90 BOPD - 6/64"ch TP 1260 Grav. 50°
- Prairie Branch— Inexco Oil Co. No. 1 Masonite Sec. 15-1N-14E, Clarke Co. IP/F (13874-884) Smackover 2840 BOPD - 1"ch TP 320 Grav. 38.5° IP/F (14 684-694) Norphlet 1011 BOPD - 19/64"ch TP 1260 Grav. 35.9°



(U. S. OIL continued)

For better or for worse, the public has begun to recognize that our industry is a major factor in their lives, and the spotlight shining on us can only get brighter—and hotter.

Unfortunately, the light has been shining for the most part on our alleged faults or errors, and all to infrequently on the contributions we have made—and are making—and will be making—to make America a better place to live. We're going to have to do a great deal of work to correct that; and I'll have something to say about that a little later on.

Talks are always supposed to have titles, so I've entitled this one "U.S. Oil: Choices and Challenges". First off tonight, I'd like to discuss those challenges, which are the most demanding ever to confront the petroleum industry.

We stand today on the threshold of the greatest opportunities ever to confront any industry—and also, the greatest obligations.

You and I, and our associates throughout the oil industry, are confronted with the truly monumental task of supplying Americans, over the next ten years, with as much oil as our country consumed from the time of the Drake well until 1960.

By the year 2000, the U.S. will be consuming THREE TIMES as much energy as it does today; and the petroleum industry—which provides three-quarters of U.S. energy requirements—will obviously have to meet this demand, from both domestic and foreign sources.

(continued on page 3)

(ABSTRACT continued from page 1)

In 1964 Humble Oil and Refining Company joined Richfield Oil Corporation (now Atlantic Richfield) in evaluation of Federal acreage south of Prudhoe Bay. Regional seismic data and Federal leasing policy in existence at that time caused Humble to shift the exploration effort from the Federal acreage to the eastern Arctic coastal area. The major portion of the Prudhoe Bay structure was leased jointly by Humble and Richfield, and by BP. at the State of Alaska Sale in July 1965. The ARCO-Humble Prudhoe Bay No. 1 State was completed as the discovery well in June, 1968.

**Jackson geophysical society news**

**MAXIPULSE SYSTEM AND DIGITAL MIGRATION TOPICS FOR APRIL 19 MEETING**

The Jackson Geophysical Society will meet Monday, April 19, at the King's Inn in Maywood Mart Shopping Center to hear two papers presented by Mr. J. M. Hornsby, one concerning the Maxipulse System and another on Digital Migration. Social hour begins at 5:30 p.m. and dinner at 6:30 p.m.

Mr. Hornsby is Vice President, Data Processing, for Western Geophysical Company. He received an M.A. degree in Mathematics from the University of Colorado in 1951. After working eleven years as a geophysicist for Chevron, he joined the staff of Tulane Computer Lab at Tulane University where he was responsible for computer systems development and instructed computer science and statistics. In 1966, he joined Western as Manager of the Houston Digital Center and was promoted to his present position in 1969.

**U. S. OIL: CHOICES AND CHALLENGES**

Following is the text of remarks by Mr. H. J. Haynes, President, Standard Oil Company of California, to a joint meeting of the Mississippi Geological Society, A.P.I., A.I.M.E., Mississippi Association of Landmen, and Jackson Geophysical Society, on February 2, at the Jackson Country Club:

It's always a pleasure to get together with some of my fellow engineers, and with geologists and landmen, to talk about our industry—and I hardly need tell you, we've got PLENTY to talk about these days.

I think you'll agree that never in history has our industry been such a popular topic of conversation; and I don't foresee much of a change for years to come.

(continued next column)



None of us needs to be told that this is a TREMENDOUS challenge, and that its impact will be felt, throughout our industry, and by EVERYONE of us who earns his living in this business.

Those of us concerned with the discovery and production of new petroleum reserves certainly have our jobs cut out for us. We're going to have to do those jobs better than ever before.

Those of us in the processing and distribution end of the business assuredly will have to develop better, more efficient, more economical ways of getting petroleum products to the consumer. No matter HOW well we've done it in the past—we're right back at the starting post.

Those of us involved in the finances of the industry also have a tremendous challenge ahead. The estimates are that over the next ten years the Free World's oil industry will have to invest as much as \$300 billion, in exploration and in new facilities, just to KEEP UP with demand.

Generating that capital is going to keep a lot of us awake at night, figuring how to squeeze more money out of a sales dollar, so we'll have something left over to re-invest.

The name of our game—more than ever before—is going to be COMPETITION: competition among companies within our industry, competition between our industry and other industries for the energy markets of the future. Only the fittest—the most efficient, the most imaginative, the most venturesome—will survive.

We will be challenged too, in the years ahead, to take a more active and decisive part in the solution of social problems. Calvin Coolidge, noted as a businessman-president, made the classic remark in 1925 that "the business of America is business."

This no longer is the case.

The business of America has changed. We still must continue to earn profits to expand our economy, and to improve our standard of living. But we MUST accomplish this in a manner consistent with America's drive for a better life, a better social environment, for all of its people.

This means that we of industry must also concern ourselves with the problems of PEOPLE; and of course it means we must concern ourselves with the problems of the environment, which are SO much in the news these days.

There is no BIGGER challenge ahead of us than to get on with the business of finding, producing and distributing petroleum energy, within this new climate of sharply increased environmental concern.

In this connection, it is vitally important that we foster rational legislation governing oil industry operations, and vigorously oppose the irrational.

As Otto Miller, the chairman of our company, said at the API Annual Meeting last year:

"It should not be necessary—and it is not necessary—to choose between clean water, clean air, and the preservation of wildlife areas on the one hand—and the progress of the economy on the other.

"It IS necessary to exercise balanced judgment and common sense in setting up the rules and the timetables by which Americans preserve their environment.

"Few of us will have much opportunity to enjoy a clean environment, if the price is to lock up natural resources and handcuff industrial development."

Most assuredly, we will be challenged to accommodate to change—kinds of change that we can't even anticipate—across the whole spectrum of human endeavor.

On the National Archives Building in Washington is an inscription familiar to most of us—"What Is Past Is Prologue." Shakespeare wrote that around the 16th century, and thereby became one of the first forecasters to underestimate the rate of human progress.

What he should have written is something like "What Is Past Is Only A Fraction Of What's In Store."

If there's anything we can be sure of—it is that future change will be even more extreme, even more radical, than we can possibly imagine today.

If there is anything else we can be sure of—it is that the challenges we foresee today will probably be ever greater than we anticipate.

Along with these challenges, we are confronted by a number of basic choices—choices that will determine whether we will cope successfully with our changing society and economy.

Keep in mind that the most cherished, the most seemingly permanent human institutions—indeed, societies themselves—survive only as long as they adapt to change, and keep up with progress. Don't for a moment think that OUR industry is immune from that same course of history.

We have, in fact, NO choice, but to stay flexible; to initiate—rather than merely respond to—change; to lead the way to further progress—not merely to trail along, and hope to keep up.

I don't believe, either, that we have much choice about accepting greater SOCIAL responsibilities. By now it should be apparent to us—from all of the turmoil that has occurred on the campuses, and in the ghettos—that our economic and social system is on trial.

Among young people, particularly, there is great doubt that our brand of free enterprise economy is capable of solving the kinds of problems which plague our society—such as unemployment, inflation, pollution, housing and health care. WE MUST PROVE OTHERWISE.

At the same time, I don't believe we need to apologize for what our generation has accomplished. A story told by Governor Reagan of my state aptly illustrates this point:

A group of young college students stopped by to visit his office, and most of their talk was about the problems that the older generation had laid at the doorsteps of the young.

"When you were young," one student complained, "your world was simple. You didn't have TV, or jet travel, or computers, or space travel."

"That's right," the Governor smiled, "all my generation did was to invent them."

By action and by deed, we MUST prove to the young that our brand of economy is, indeed, the best mechanism for attaining social goals. But we must also keep in mind a lesson our industry has recently been learning the hard way—that actions DO NOT always speak louder than words.

If anyone doubts that statement, let him consider the rather tarnished reputation which our industry has developed in the last decade or so, despite all of its constructive contributions to the national welfare.

If anyone doubts that statement, let him contemplate why the symbol of our industry, in all too many circles today, is the oil spill—while it is virtually unknown to the public that we spend a million and a half dollars a day to control air and water pollution—or that we began spending millions for this purpose—years ago—long before the average citizen ever heard of the word "ecology."

One of the basic definitions of good public relations is "doing right and getting credit for it." It seems all too clear—from our recent experiences—that we have been getting far too little credit for the great deal we do right, and far too much criticism for the relatively little that we do wrong.

It may be an exaggeration to say that current attitudes toward our industry are getting so negative that they're tying one of our hands behind our backs. But there certainly seems to be a trend in that direction—and quite a few people around—in and out of government—would like to provide the rope.

How can we correct this situation? How can we turn public and official suspicion into understanding—and how can we convert indifference into support?

(continued on page 4)



Some of the best minds in our industry have been struggling with that problem for months. They haven't been able to come up with any panaceas—the fact is there AREN'T any panaceas. The fact is the only solution that makes any sense at all is simply to start building a better public opinion for our industry FROM THE GROUND UP.

That's not a very revolutionary answer, I admit; and it's going to take a long time to show results. But we're in something of the same position of the gambler who kept playing the crooked roulette wheel, because it was the only game in town. WE don't have much choice either.

But we DO have an honest chance to win, and I believe we CAN win, if we take the necessary steps to re-establish wholehearted public support for what we're doing. The alternative choice—to do LESS than what MUST be done—is unthinkable, and would result in our falling by the wayside, no longer to be America's prime energy industry.

Most thoughtful oilmen now agree that the way to our goal is through CONVINCING communications with the public—and with their elected representatives—but most strongly with the public.

If we succeed with the public, official government understanding and support should follow not far behind—for most people in government have a reasonably good ear for public opinion.

In fact, I believe they can truly hear it miles away.

But let's move now from the general to the somewhat more specific. How do we go about generating a favorable climate of public opinion? How IS opinion about our industry—or any industry—formed?

To paraphrase an expression that was popularized some years ago—"a journey of a thousand miles begins with a single step"—that's how public opinion is formed:

#### ONE MAN'S OPINION AT A TIME.

Of course, we can accelerate this process—and I'll get to that in a moment. But if you're wondering what you—as an individual—can do, to foster the kind of opinion climate needed by our industry, the answer is not complicated:

The answer is to make an INDIVIDUAL effort to inform, to persuade, to change the mind, if necessary, of any other individual who comes within your circle of business, social or family acquaintances.

There are about a million people in the U.S. petroleum industry. Each of them—like you and I—has a strong personal stake in our industry's well-being. If all of us make a united effort to better the climate of opinion for our operations, the results could well be dramatic.

Through this approach, I believe we can also begin to reach the mass media of communications—the newspapers, the radio, the television—which have had such a tremendous—and sometimes disastrous—influence on public thinking about our industry.

The news media, after all, are not inanimate, computer-managed apparatuses that mindlessly crank out news—whether good or bad. The content of the media reflects a cross-section of the knowledge, the experience, the opinions of the ordinary people who collect, and write, and report the news.

If we expect the news media to mold a favorable public opinion for our industry, we must first inform and convince their editors and reporters and writers that our industry is DESERVING of such support. We must convince them that to further the objectives of our industry is to further the public interest as well.

I hardly need remark we haven't been doing too well at this assignment. Examples of our problems with the press come readily to hand:

Reporting of the now historic oil spill at Santa Barbara—perhaps more than anything else—polarized sizable segments of public opinion against offshore oil development.

When our company had a similar accident in the Gulf last year, the

oil slick held the center of the news stage for weeks on end, and few media have since reported that the accident had no lasting ecological effects.

The recent sale of Federal offshore leases in the Gulf brought forth similar reaction. Not untypical was the comment of a New York Times editorial writer who accused the Federal Government of playing "Texas Roulette" with the nation's marine resources.

A notable exception to this pattern was the performance of the San Francisco Bay Area press, in covering the tanker collision and oil spill that occurred there last month. Their coverage was essentially factual, and gave proper recognition to the dedicated efforts our people made to clean up the spill. In fact, at times the coverage was downright sympathetic.

Nevertheless, I still find it astonishing that the press continues to devote so much attention to the dark predictions of the environmentalists, and so little to the crying need for enlarging our domestic energy supplies.

But astonishing or not, it points up our industry's failure to communicate effectively with the people of the media, who shape so much of the public's thinking.

The solution to our problem of press coverage is not to wring our hands, and complain among ourselves, about what some of us may consider irresponsibility on the part of the press.

One solution IS clear—we have to unblock the channels of communication to press people, at every level, and we have to keep those people properly informed. Only when they ARE properly informed can we expect them to cover oil industry stories accurately and in proper perspective.

In this connection, let me emphasize:

There was a time, perhaps, when our industry could afford to do its job, quietly and efficiently, and modestly let its performance speak for itself. There was even a time when some in our industry could coldly ignore the news media and get away with it, on grounds that our business was nobody's business but our own.

That time is long gone; that kind of attitude is as obsolete as cable-tool drilling. The media are too influential, too intelligent, too efficient in communicating news of our industry to be ignored.

Any cub reporter will tell you that if he can't get all the facts for a story, he has to go with what he has. It's one of our important choices to decide whether the reporter writes his story with half-truths—or with no truth at all—or whether WE give him the information he needs, when he needs it.

If—even when we try hard to cooperate—the results are discouraging, we can't afford to quit trying. We've GOT to continue to try to inform, to persuade, to convince.

Let's consider now the KINDS of facts, or ideas, or concepts that we ought to be communicating to everyone. They needn't be tremendously complex or technical—we have a relatively straightforward story to tell. Most importantly, our story should be told in terms that arouse attention and personally motivate—that means simply answering the question: "What's in it for me?"

"What's in it" for the average American is his whole way of life; his income, his health, his leisure time, his total well-being—all of which trace, inevitably and directly, to the ready availability of inexpensive energy.

We must tell the American citizen—and prove it to him—that his well-being IS UNDENIABLY linked with his energy consumption—and we must remind him that WE of the petroleum industry are providing three-fourths of his energy.

We must point out to him that the U.S. accounts for nearly half of the Free World's petroleum consumption—yet has less than 12% of the Free World's reserves.

We must also remind him that his ancestors, only a century ago, worked 16 hours a day; that farmers worked from before dawn until



well after dark; all to achieve a standard of living that nowhere rivals what we now enjoy.

And we must remind him that the key to this progress has been energy.

We must make it clear to him that his future energy needs cannot—and quite possibly WILL NOT—be met, unless there's a vigorous, aggressive, prosperous petroleum industry to go out and find the oil and gas he needs.

And lastly we must point out to him, again and again, that all of this costs money. Nineteen-fifty's prices for oil and gas will not attract the capital, and the business activity, that's needed to fulfill petroleum requirements in the 1980's. We're already dangerously close to the point where prices won't even do the job for the 1970's.

To Government people at the local, state and Federal levels, we must communicate that the men and women of our industry are just as deeply concerned—just as dedicated—as anyone in public service, to the task of meeting the public's needs—to the goal of making America a better place in which to live.

That is a fact, no matter what some of our critics may have to say on the subject.

Furthermore, we must assist Government people, at all levels, to reconcile their often conflicting policies on oil, which frequently place our industry in the position of that played by the rope at a tug-of-war match.

We find it frustrating, to say the least, when one branch of Government says to us "go out and find more oil," and another one says "don't raise your prices." The last time I looked it up, the cost of drilling had risen 73 cents a foot in just one year. It's hard to figure how we're supposed to pay today's drilling costs out of yesterday's incomes, and still stay in business.

If that isn't perplexing enough, which way do we turn when one Government agency counsels us to conserve domestic oil supplies with utmost caution, and another Government body denounces proration as a form of selfish price-fixing?

The prime example—with which we're all too familiar—has been the continued control by Government of natural gas prices, in the face of industry warnings of declining reserves. I don't take even a LITTLE comfort from being able to say "We told you so."

What all of this underscores is an absolutely essential need for Government agencies to shape their policies on Oil not as if they were conceived and executed in a vacuum, but in the larger context of broad national interests.

I don't think this is asking too much. I don't believe it's asking the impossible to insist that Government administrators and elected officials make their decisions on Oil NOT on the basis of current, short-term considerations, but with prior thought to the long-range consequences.

These consequences, I need not remind you, affect not only the comfort and economic security of the American citizen—but his NATIONAL security as well.

America cannot have it both ways. It cannot insist on cheap energy today, and still expect its petroleum industry to risk capital to meet future needs. America cannot insist on maintaining its independence from foreign energy resources, without providing the incentives that are necessary to keep the domestic industry in a vigorous economic condition.

I think most of us in the oil business recognize that there are legitimate differences of opinion, in and out of government, as to what policies will best foster a thriving domestic petroleum industry, and best serve the interests of the public.

If some of the policies that have prevailed in the past haven't always been in our best interests, there's a good chance the reason has been our own failure to communicate effectively with government.

And it would be tragic indeed if the wrong policies prevailed in the

future, because when crucial decisions were being made, we remained silent or unheard.

To sum up, we in the petroleum industry have our problems, to be sure. But the ONE THING that is much greater is the tremendous opportunity that lies ahead.

We have, moreover, unmatched resources of talented people—the best possible asset any industry can have for success.

Making the most of our opportunities, of course, will not be an automatic process. It will take energy and ingenuity on the part of all of us.

It will take intensified efforts to attract and recruit the kinds of able people needed to carry on our industry's work.

And it will take, as I have said, industry-wide attention and effort to the task of rebuilding a favorable public opinion.

To facilitate this task, every oil company has the obligation to provide its people with adequate, persuasive, thoroughly researched, and thoroughly documented information about our industry. All of us, as individuals, in turn have the obligation to use this information effectively—to communicate it at every personal level.

It will take aggressive development—by you and by me and by all of us—of better news media relations. And it will take marked improvement in our communications with all levels of Government.

Already, as you may know, the API has undertaken a program with these objectives. But the worst mistake we could make would be to leave this matter to the API, and to go on about our affairs, indifferent to our individual obligation to participate in this effort.

The consequences would be tragic indeed if we were all to go home tonight—imbued with temporary enthusiasm for this task—and then, tomorrow, forget the whole thing.

I urge you, ladies and gentlemen, to make your personal contribution to this effort, no matter how small or how insignificant it might appear.

Thank you; it's been a real pleasure to be with you.

## **BOWEN TO SPEAK AT OFFSHORE CONFERENCE**

The following is the abstract of a paper which Dr. Richard L. Bowen, Chairman of the Geology Department at the University of Southern Mississippi, will present to the Third Annual Offshore Technology Conference in Houston on April 18-21.

## **OCEANIC ISLANDS OFFER PETROLEUM POTENTIALITIES**

by  
Richard L. Bowen  
**ABSTRACT**

Hydrographic surveys show that many oceanic islands, isolated or in archipelagoes, have shelves surrounding them which are ten to hundreds of times greater in areal extent than the islands themselves. Under these conditions, such island-shelf regions must be considered to have important petroleum potentialities.

Sub-bottom surveys, as around Guam, often indicate faulting in the shelf areas. Many islands, which now are low, generated deltaic complexes in their earlier history, and these now are buried. Others have had porous reefs buried and sealed beneath later deposits or volcanic flows. These conditions and others favor the development of potential hydrocarbon traps beneath the island shelves and under the adjacent slopes composed of island-derived detritus. Indeed, seeps are known, as in the Samoas.

Transportation and demand conditions as well as relatively favorable costs for geological and geophysical investigations also are factors which combine with the geological conditions to indicate that many island areas, formerly neglected from consideration as potentially favorable for hydrocarbon accumulations, should be evaluated utilizing modern exploration techniques and ideas.



# GEOLOGY AND MINERALOGY

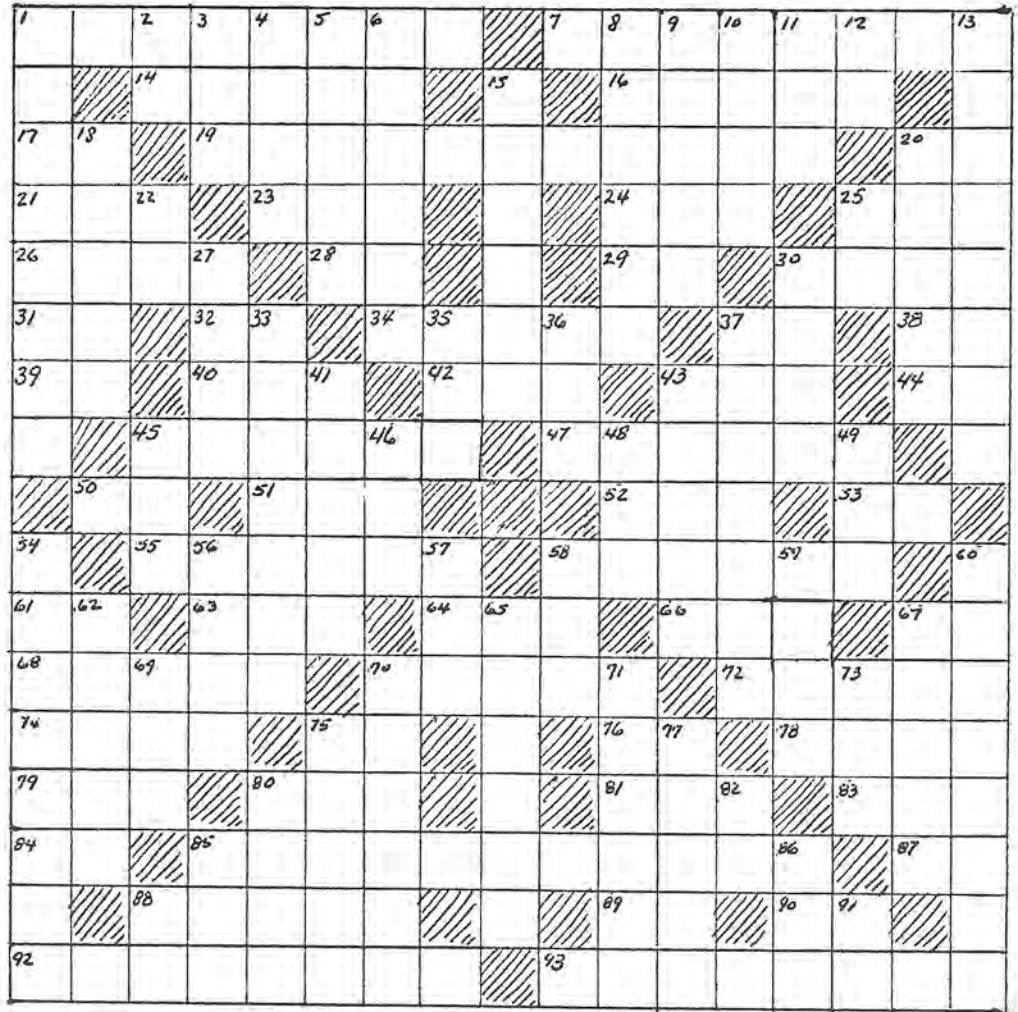
by Wilbur H. Knight

Last month we received a letter from MGS member Wilbur Knight in which he enclosed the crossword puzzle shown below. We will print the correct answer next month.

If you can work it, send the solution to Wilbur, at 1020 First National Bank Building, in Jackson.

Following is the text of Wilbur's letter:

Attached hereto are a couple of copies of a crossword puzzle which I recently dreamed up. I haven't the vaguest idea how many members of the Mississippi Geological Society are puzzle fans but I thought maybe this might prove some fun if it was published in our monthly Newsletter. I will be happy to contribute to the Newsletter fund the sum of one dollar for each correct solution that is returned to me. Naturally I must limit this contribution to ten dollars because it is quite possible that the solution is so simple the entire membership will find it with little trouble. If you do use it I will be glad to furnish the solution for later publication in the Newsletter if you want it.



## DOWN

1. Transparent calcium sulfate
2. Love or Sullivan
3. A dropout's pig
4. Suffix of 1/3 the crystal systems
5. Quieted
6. What  $H_2F_6$  does to a silicate fused with soda and lime
8. He cometh no more
9. Robert \_\_\_\_\_ deceased movie actor
10. Little whirlpool
11. Girl's name
12. French pronoun
13. Green Beryls
15. The earth is an \_\_\_\_\_ spheroid
18. To make amends
20. To fasten nautically
22. Rough lava
25. Westward \_\_\_\_\_
27. A mountain peak resulting from the erosion of several cirques
30. A Rolls Royce trunk
33. As always in association with Orpiment
35. No matter which
36. Japanese statesman
37. A rock composed mostly of potash feldspar and quartz in easily visible grains
41. Freshwater sunfish

43. Occasionally wives and dogs do this
45. Said the gnat to the \_\_\_\_\_, I love you too!
46. Used for long range geological surveys
48. A Spanish laugh
49. To increase or enlarge
54.  $As_2S_3$ , yellow color, often deposited in hot springs
56. 1000 times this is the metric pound
57. This outfit grades motor oil
58. Computer talk
59. Some geologists can't find one
60. A type of felsite very abundant in Yellowstone National Park
62. A geologist's sometimes home away from home
65. The D.A.R. will love you
67. Pooped (two words)
69. Allow
70. Jackson isn't but 17 across is
71. In touch with the gods
73. Spoil
75. Banded chalcidony
77. Kingdom
80. A certain kind of a sot
82. Rupees, abbrev.
85. He wrote "The Raven"
86. Erode
88. Lets hope your unmarried secretary isn't
91. Third note of diatonic scale

## ACROSS

1. A rock for study
2. Iron carbonate
14. An edible torus
16. Pertaining to codes
17. Site of a recent crustal disturbance
19. Marie found a new element in this
20. Beryllium
21. A pilot's calculated guess
23. Deceased Chief Justice (initials)
24. Post April
25. Pronoun
26. He build a boat 300 cubits long
28. Prefix meaning separation
29. Near
30. South American lasso substitute
31. Preposition
32. Conjunction
34. Calcium sulfate in silky fibers (first word only)
37. Start
38. Beasley or Capone
39. Tellurium
40. Archie is one
42. WMAA belongs to it
43. Often found at the World Series
44. .9144 meter
45. Knotty
47. Showy

## 50. Preposition

51. He whistled Dixie
52. James Bond's Daddy
53. The 10 count
55. Leslie \_\_\_\_\_
58. Sp.gr. 4.5, pulverized for mud additive
61. Some are positive, others negative
63. Papa sheep
64. Your pal in Paris
66. Written message, abbrev.
67. What the Dr. says say
68. Certain bears and axes
69. NATO's other half
72. Certain birds
74. Newspaper bit
75. Morning
76. Railpax belongs
78. A game for the horsey set
79. A form of meet
80. Time gone by
81. Prefix for air-minded things
83. \_\_\_\_\_ the cows come home
84. New York tore theirs down
85. A kind of feldspar with striations
87. White metallic element
88. Keats, Browning et al
89. Greenish yellow gas
90. Part of to be
92. A kind of golden quartz
93. Lots of this in Lake Superior region



## NOMINATIONS FOR NEXT YEARS OFFICERS

The Nominating Committee is preparing a slate of candidates for next years officers. Included in the slate will be nominations for one AAPG delegate and two alternates to the AAPG House of Delegates whose terms of office are to begin July 1, 1971. Nominations of the committee will be announced at the April 13 meeting. Other nominations can be made from the floor at that time.

## THOUGHTS FOR THE DAY

*Honesty is still the best policy, but too many  
people want second best.*

\* \* \* \* \*

*The largest room in the world is the room for  
self improvement.*

\* \* \* \* \*

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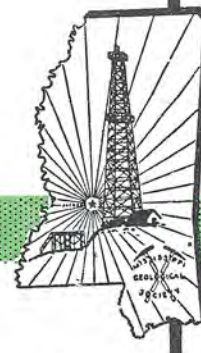
**MISSISSIPPI GEOLOGICAL SOCIETY**  
P. O. Box 422  
Jackson, Mississippi 39205



# NEWS

## BULLETIN

mississippi geological society



Vol. XVIII, No. 9, May, 1971

### FIELD TRIP-ELECTION-BARBECUE-MAY 4

#### TOUR OF WATERWAYS STATION SET

A field trip to the Waterways Experiment Station at Vicksburg is scheduled for the afternoon of Tuesday May 4 preceding the annual spring barbecue and election of officers. Interested members should plan to furnish their own transportation and to be at the Station at 1:30 p.m. for the tour which will last about two hours. Charlie Kolb will be host for the visit and will have demonstrations on river models, wave action, sedimentation, and other phases of engineering geology. Bill Moore, Mississippi Geological Survey, is coordinating the trip. If you plan to go, call Bill at 354-6228 by May 3, so that he will know how many will attend. Out of town members are particularly invited to make the trip and then go on to the barbecue and election later. A deeper appreciation for the refreshments at the barbecue will undoubtedly result after walking about the station on a warm Mississippi afternoon.

#### ELECTION-BEER-BARBECUE AT FOWLER LODGE

Election of 1971-72 officers for the Mississippi Geological Society will be held in conjunction with the annual spring barbecue at the Fowler Buick Lodge on the Ross Barnett Reservoir, Tuesday, May 4. Members unable to attend the barbecue can obtain absentee ballots from Secretary Larry Walter. The Nominating Committee consisting of Chairman Paul Day, Al West, Clem Dazet, Les Franz, and Ed Minihan has selected an excellent slate of candidates as presented in this issue of the Bulletin. The lodge will open at 4:30 p.m., and beer will be available until closing. The barbecue will be served at about 6:30 p.m. There is no charge for the affair but reservations are necessary and everyone should call Skip Murrell at 362-7758 by Monday noon, May 3. Co-sponsors with the MGS are Exploration Surveys and Dresser-Magcobar.

#### President

The duties of the President shall be to preside at all meetings, maintain order, call special meetings subject to the approval of the Board of Directors, appoint all committees, and shall delegate members to represent the Society. He may at his option serve on any committee. He shall, together with the Treasurer, sign all checks, drafts, contracts, and all other obligations of the Society. In the temporary absence of any other officer of the Society, he shall have the power to appoint a member to assume the duties pro tempore.



LARRY BOLAND

Education: Univ. of Kentucky, 1940 graduate work, Univ. of Kentucky, 1945-46  
Employment: USGS, 1946-47; Amerada, 1947-70; Harkins 1970-present  
Societies: AAPG, MGS; 1st V.P., 1970



JOHN MYERS

Education: Miss. State Univ., B.S. 1951; M.S. 1956  
Employment: Phillips Petroleum, 1956-68, Consultant 1968-70, Placid Oil 1970 to present.  
Societies: AAPG, MGS, GCAGS: Best Paper Award, Convention, 1968.



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PRINTED IN JACKSON, MISSISSIPPI

**geophysical society news**

by Harry Fritz

**PICNIC AND GOLF  
TOURNEY ANNOUNCED**

The Jackson Geophysical Society's annual golf tournament and picnic will be held at the Brookwood Country Club on Forest Hill Road, south of Jackson on Friday, May 21, 1971. MGS members are reminded to keep an open date for this gala affair. Golf registration will be from 10:30 A.M. until 1:30 P.M., and the family picnic will begin at 4:00 P.M. Mr. M. A. Peevey, of Delta Exploration, Chairman of this year's event, has another fine program outlined. Ticket sales are to be handled by Mr. Carl Winnings of Delta Exploration, Phone 355-2390. Adult tickets are \$2.75 and children's tickets are \$1.50.

Golfers are requested to make up their own foursome and call them in to Mr. H. E. Harris, phone 354-5221. As golf chairman he will be glad to assist in completing foursomes and dispensing other information on the tournament.

**CROSSWORD PUZZLE SOLUTION**

Probably a lot of you didn't realize there is a different way to spell "oracle." Our resident philologist, Wilbur Knight, showed us how it can be done, as illustrated in the solution to his crossword puzzle. Actually, almost everyone we heard from, and there was quite a response, did it as Wilbur's solution shows - that is, correctly - or, is it incorrectly? Anyway, as Wilbur promised, he has sent a check for \$10 to the "News Bulletin Fund."

We want to thank Mr. Knight for his contributions. He did a good job with the puzzle, and he certainly stimulated a good volume of response - favorable - to that issue of the News Bulletin. We appreciate it, Wilbur.

1	S	2	P	3	E	4	C	5	I	6	M	7	E	8	N	9	S	10	I	11	D	12	E	13	R	14	I	15	T	E	
16	E	17	D	18	O	19	N	20	U	21	T	22	O	23	C	24	O	25	D	26	A	27	L	28	M						
29	L	30	A	31	P	32	I	33	T	34	C	35	H	36	B	37	L	38	E	39	N	40	D	41	E	42	43	44	45	46	
47	E	48	T	49	A	50	C	51	E	52	H	53	L	54	M	55	A	56	57	58	59	60	61	62	63	64	65	66	67	68	
69	N	70	O	71	A	72	H	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	
96	I	97	N	98	99	100	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	
125	T	126	E	127	R	128	E	129	B	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150	
151	E	152	G	153	N	154	A	155	R	156	157	158	159	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	
177	178	179	180	181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207	208
209	O	210	U	211	G	212	G	213	A	214	M	215	216	217	218	219	220	221	222	223	224	225	226	227	228	229	230	231	232	233	
234	R	235	H	236	237	238	239	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255	256	257	258	259	260	261	262	
263	P	264	O	265	L	266	A	267	R	268	269	270	271	272	273	274	275	276	277	278	279	280	281	282	283	284	285	286	287	288	
289	I	290	T	291	E	292	M	293	294	295	296	297	298	299	300	301	302	303	304	305	306	307	308	309	310	311	312	313	314	315	
316	M	317	E	318	T	319	320	321	322	323	324	325	326	327	328	329	330	331	332	333	334	335	336	337	338	339	340	341	342	343	
344	E	345	L	346	347	348	349	350	351	352	353	354	355	356	357	358	359	360	361	362	363	364	365	366	367	368	369	370	371	372	
373	N	374	375	376	377	378	379	380	381	382	383	384	385	386	387	388	389	390	391	392	393	394	395	396	397	398	399	400	401	402	
403	T	404	405	406	407	408	409	410	411	412	413	414	415	416	417	418	419	420	421	422	423	424	425	426	427	428	429	430	431	432	

**WGA ELECTION-BOAT TRIP MAY 13**

The Women's Geological Auxiliary will hold its annual election of officers at the Barnett Reservoir on May 13. A boat trip on the reservoir will follow the election. Chairman for the event, which begins at 9:30 a.m., is Mrs. Benton Vernon.

**president's notes**

by John Lancaster

At this time last year, I found myself in a very apprehensive position and wondered just what it was that I was going to do with the job bestowed upon me. Today, as I look back, I have mixed emotions concerning the accomplishments of our Society. We have had excellent programs, good attendance, and excellent response to the tasks set before us. Some of our goals have been fulfilled; others were only partially fulfilled. Still some have not been touched. Regardless of the successes accomplished or the failures endured, the one thing that pleases me most is this—we constructed a team that work harmoniously together with a minimum of effort. I am indebted to you, the Society, for providing this team with which to work. From the first project of teaching Boy Scouts the fundamentals of geology to the first joint meeting of professional producers and explorationists, those requested to help served cheerfully and well. If there is but one reward to the job of President, my choice would be the pleasure I've had from the cooperative spirit encountered from the membership.

Some of our committees don't receive the acclaim that others do because they do the day to day work without anyone seeing them. To those committees chaired by John Paxton, Julius Ridgway, Bill Moore, Harold Prouince, Alan Jackson and Dave Lott, I express my thanks; for you removed the stones in the path that would have been mountains to climb without you. To Joe Morgan, John Lukert, Harry Fritz, and Verne Culbertson, I owe thanks for serving with the GCAGS.

While some committees do the background work, others have to show their product for all to examine. Our excellent programs are a real credit to the efforts of Bob Beu, assisted by Jack Porter. The headaches of the Entertainment Committee are known only by Skip Murrell who experienced the frustrations of near chaos several times. The MGS-News Bulletin has received wide acclaim throughout the Gulf Coast, mainly as a result of the efforts and compositions of John Ryall and Dave Cate and the advertising management of Graham Hughes.

The members of the Board of Directors are to be commended for their devotion to duty. Geologists the world over have the reputation of being independent thinkers and doers. Have you ever seen the records kept by such a group? Larry Walter spent many thankless days keeping up with such data. Charlie Barton who operates our revenue making machine, the publications, started the first day by straightening my records and planning new ways of keeping us out of bankruptcy. Buddy Twiner is well on his way to creating the first budget plan for us to use in effectively investing our funds. And Larry Boland, who joined the Board at mid-year, has conscientiously attended all our meetings, adding support and guidance to all our endeavors.

As I pass into the happy hunting ground of used fire horses, I commend our nominating committee for their ability to produce a slate of capable and enthusiastic candidates to carry on the good works for another year.



### First Vice President

Shall assume the office of the President in case of a vacancy from any cause in that office, and shall assume the duties of the President in case of the absence or disability of the latter. He shall be at the disposal of the President for any duty necessary to the proper functioning of the Society.



**CHARLES A. BARTON**

Education: Millsaps College, B. S. 1949; Univ. of Illinois, M. S. 1952  
Employment: Continental Oil, 1951-53. Skelly Oil 1953-59, Am. SW. Corp. 1959-present  
Societies: Miss. Geol. Soc., 2nd V.P., 1970, past editor MGS News Bull.; Chmn. GCAGS Golf Tourn. 1968



**ROBERT D. BEU**

Education: Univ. of Kansas, B. S. 1950 Univ. of Kansas, M. S. 1952  
Employment: Chevron Oil-Calco 1952-present  
Societies: AAPG, Jackson Geoph. Soc., Miss. Geol. Soc. Publicity Chmn. 1969, Editor News Bull. 1969, Program Comm. Chmn. 1970, Haynes Meeting Chmn., 1970 GCAGS, Program Comm. 1968.



**MICHAEL L. WOOD**

Education: Univ. of Tulsa, B. S. 1963 Texas Christian Univ., M. S. 1965  
Employment: Union Oil of California 1965- to present  
Societies: AAPG, MGS, GCAGS, Advertising Comm. Chmn., 1969; Continuing Education Comm. Chmn. 1969

### Second Vice President

Shall be responsible for the maintenance and supervision of the various publications of the Society, and he shall organize the necessary committees to properly administer the care, maintenance and revision of the publications necessary to providing current information on various subjects of geologic interest and the keeping of records.



**MAX NEWSOM**



**BUDDY TWINER**

**MAX NEWSOM**  
Education: Texas A & M, B.S. 1949  
Employment: Gulf Oil, 1949-present  
Societies: AAPG, MGS, Jackson Geophysical, New Orleans Geological

**BUDDY TWINER**  
Education: Miss. State Univ. B. S. 1960  
Employment: Chevron Oil 1963-68; Skelly Oil 1968-present  
Societies: MGS; Projectionist 1969, News Bulletin Staff 1969, Treasurer 1970

### personal news-

**JIM SHAW** has been transferred to Schlumberger's Magnolia, Arkansas, office. Jim has been Schlumberger's sales representative in Jackson the past nine months during which time he served as the News Bulletin's Personal News reporter. We thank Jim for his time and effort on the Bulletin staff and wish him well in his new location. His replacement is **JIM SKEEN** who is moving to Jackson from New Orleans.

(continued next column)

**ROY WORREL** Gulf's District Exploration Geologist in Jackson, was transferred to Houston April 1 where he will be Exploration Advisor for Gulf's Domestic Operations.

### GEOREX AND GEOMAP CO-SPONSOR APRIL 13 SOCIAL HOUR

The MGS is grateful for the support of Georex and Geomap in providing refreshments for the social hour preceding the April 13 meeting.



## Treasurer

Shall assume the duties of the President in case of the temporary absence of both the President and First Vice President. He, together with the President, shall have charge of the financial affairs of the Society. He shall submit an annual report and inventory at the last meeting before the summer recess, and any other special reports upon the request of the President. He shall receive and disburse all monies; however, expenditures in excess of one hundred dollars shall be made only with the approval of the Board of Directors. During the month of August, the Treasurer shall send statements or notices of dues to all members, except honorary members.



**DALE REESE**

Education: Univ. of Illinois B. S. 1956;  
Univ. of Kansas M. S. 1959  
Employment: Arabian Am. Oil 1959-61;  
Pan Am. 1961-65;  
Consulting geologist  
1965-70; SE. Exploration  
Ltd. 1970-present  
Societies: AAPG, Sigma XI, MGS



**CHARLES SOMMERS**

Education: Millsaps, B. S. 1953,  
graduate work Miss. State  
Univ. 1954  
Employment: Gulf Oil 1954-present  
Societies: SPWLA, Jackson  
Geophysical MGS; Boy  
Scout Committee, 1970



**LARRY WALTER**

Education: Univ. of Kansas, B. S.  
1958, M. S. 1959  
Employment: Pan Am. 1960-68; Skelly  
Oil 1968-70, Consultant  
1968-present  
Societies: AAPG, Jackson  
Geophysical, Petroleum  
Council; Speakers Bureau,  
API Comm. on Public  
Affairs; Silver Award 1965  
MGS; Secretary 1970

## Secretary

Shall assume the duties of the President in case of the temporary absence of all the other officers, except the Second Vice President. It shall be the duty of the Secretary to fully and permanently record the minutes of all the meetings of the Society and all meetings of the Board of Directors. He shall prepare and distribute by mail not later than October 15 a membership list and a list of committee assignments. It shall be his duty to prepare and keep in his possession at every meeting a copy of the Bylaws with all amendments thereto. He shall be responsible for all secretarial duties connected with affairs of the Society. He shall prepare all ballots and papers necessary to any Society election.



**DEAN KEBERT**



**JOE MORGAN**

**DEAN KEBERT**  
Education: Univ. of Missouri, B. A. 1954, M. S. 1956  
Employment: Chevron-Calco, 1956-1969; Southwest Gas  
1969-present  
Societies: AAPG, Jackson Geophysical, MGS; Entertainment  
Comm. 1970, News Bulletin Staff 1970

**JOE MORGAN**  
Education: Univ. of Illinois, B. S. 1950 Univ. of Wyoming, M. S.  
1951  
Employment: Skelly Oil, 1951-present  
Societies: AAPG, MGS, Jackson Geophysical, MAPL, AAPL,  
GCAGS Representative 1970, Mid-Con. Oil & Gas  
Assoc. (Miss.-Ala.) 1971



## AAPG DELEGATE ELECTION MAY 4

Besides the election of MGS officers at the May 4 barbecue, AAPG members of the Society will be asked to vote for one delegate and one alternate for the term 1971-73 for the AAPG House of Delegates. In addition, one alternate must be elected to fill the position vacated by Roy Worrell (see personal news) to complete the term 1971-72. Nominees are listed below.

Some of the duties of the AAPG delegate are: (1) represent the Society to the Association; (2) process requests from the association concerning application for membership and certification; (3) actively solicit membership in the Association; (4) attend annual meeting of House of Delegates.

(continued)



**Sherman Anderson**

Education: Texas A&M B. S. 1955;  
 Employment: Shamrock Oil & Gas 1955-1965; Lone Star Producing Co. 1965-present  
 Societies: AAPG, MGS

**Kevin Cahill**

Education: Univ. of Iowa B. S. 1955, M. S. 1962  
 Employment: Texaco, 1962-66; Placid 1966-70; Southeastern Exploration, 1970-present  
 Societies: AAPG, AIPG, AAAS, MGS, president 1969

**Lowell Ellis**

Education: Texas A&M B. S. 1952  
 Employment: Gulf Oil Corp. 1952-present  
 Societies: AAPG, MGS, Jackson Geophysical

**Emil Monsour**

Education: LSU B. S. 1935, M. S. 1936  
 Employment: Sun Oil Co. 1936-70 An-Son Oil Co. 1970-present  
 Societies: AAPG, MGS (past pres.), MAPL

**Howard Samsel**

Education: UCLA M. S. 1951  
 Employment: Union Oil of Calif. 1951-present  
 Societies: AAPG, Certified Prof. Pet. Geol., MGS, Jackson Geophysical

<b>BIGLANE OPERATING COMPANY</b> Natchez, Mississippi	
<b>R. A. CAMPBELL CO.</b> P. O. Box 246—Vidalia, La. 71373 (318)336-5251	
<b>CENTURY GEOPHYSICAL CORPORATION</b> Daniel E. Herlihy, Representative 510 Woodland Hills Bldg. Jackson, Miss. 601-336-7734	
<b>HALLIBURTON SERVICES</b> 1244 Petroleum Bldg. 948-4128 T. C. Rader, Reg. Pet. Eng.	
<b>DELTA EXPLORATION CO., INC</b> A Seismic Computing Corp. Subsidiary P. O. Box 2669 (601)355-9636 Jackson, Miss. 39207 Cable:DELTEX	
<b>AMERICA SOUTHWEST CORP.</b> Box 936 - Jackson, Miss. 354-2513 Gulf Coast Drilling & Exploration	
<b>PENROD DRILLING COMPANY</b> 3333 First National Bank Bldg. (214) 747-1507 Dallas, Texas 75202	
<b>DRESSER - ATLAS</b> Jackson, Mississippi 948-5591	
<b>DON F. HUGUS</b> 902 First National Bank Bldg. Jackson, Miss. 39201	
<b>WADE FORTENBERY</b> Geologist P. O. Box 1183-Natchez, Miss. Bus. 442-6011 Office: Hwy. 61 South Res. 442-3250	
<b>WELLCORE COMPANY</b> Laurel, Mississippi J. B. (Tommy) Tomlinson Owner and Operator Registered Professional Engineer (601) 428-1466	
<b>DONALD C. GIFFORD</b> Petroleum Geologist 436 Meadows Bldg. - Dallas, Texas 369-8494	
<b>JOHNSON-DANIEL DRILLING CO., INC.</b> 213 So. Lamar - Jackson, Mississippi P. O. Box 864 Brookhaven, Miss.	
<b>SOUTHEASTERN EXPLORATION CO.</b> 558 First National Bank Building Jackson, Mississippi 355-4705	

<b>FORTENBERY DRILLING COMPANY, INC.</b> Drilling Contractor P. O. Box 430 - Natchez, Miss. 445-5568	
<b>HUGHES &amp; NEW DRILLING COMPANY, INC.</b> P. O. Box 1487, Natchez, Miss. (601)442-1607	
<b>SOUTHWESTERN PIPE, INC.</b> "Explosive Division" Laurel, Miss. (601) 428-5014 Cliff Quimby Gifford Flynt	
<b>DRESSER-MAGCOBAR</b> Jackson, Mississippi 948-5511	
<b>TOBIN RESEARCH, INC.</b> Jack Coughran 525-3679 1803 Bnk. of N. O. Bldg. New Orleans, La.	
<b>FERGUSON &amp; LOPEZ</b> Consulting Petroleum Geologist Box 721 445-8022 403 Jefferson, Natchez, Miss. 445-4494	
<b>L. WICK CARY</b> Consulting Geophysicist Room 932 Box 50391 Nat'l. Bank of Commerce Bldg. New Orleans, La.	
<b>LOUISIANA LAND AND EXPLORATION CO.</b> William E. Linn 5725 Ridgewood Road 956-1804	
<b>AN-SON CORPORATION</b> 1401 First National Bank Bldg. Emil T. Monsour P. O. Box 62 - Jackson, Miss. 353-6323	
<b>WOOLF &amp; MAGEE, INC.</b> J. W. Arnold, Pres. A. W. Woolf, V-Pres. Box 635, Tyler, Texas Box 594, Natchez, Miss. (214) 592-0892 (601) 445-4570	
<b>L. E. WALTER, JR.</b> Consulting Geologist 708 Standard Life Bldg. Office 948-5169 Jackson, Miss. 39201 Res. 982-4293	
<b>MORTON M. PHILLIPS</b> Petroleum Geologist 902-G Milner Bldg.-Jackson, Miss. 355-3364	
<b>SOUTHERN MUD LOGGING, INC.</b> Monroe, Louisiana (318) 325-3393 Shreveport, Louisiana (318) 861-1278 Carthage, Texas (214) 693-6179	
<b>SEISMOGRAPH SERVICE CORP.</b> A Subsidiary of Raytheon Corp. R. E. Lee, Manager 2715 N. State St.	



<b>SECAN OIL COMPANY</b>		
Natchez, Miss. 445-5634 P. O. Box 1246 — Natchez, Mississippi	New Orleans, La. 529-1255	Vidalia, La. 366-5846
<b>PRUET &amp; HUGHES COMPANY</b>		
390 Petroleum Building — Jackson, Miss.		
<b>JAMES H. STEWART, JR.</b>		
P. O. Box 405 - 236 Building - Jackson, Miss. 39205		
<b>NEELY BLUEPRINT &amp; SUPPLY CO.</b>		
519 E. Pearl Street — Jackson, Miss.		354-3523
<b>RIDGWAYS</b>		
103 E. Pearl Street — Jackson, Miss.		355-4751
<b>SOUTHERN NATURAL GAS CO.</b>		
P. O. Box 1513 Donald R. Scherer, Dist. Geologist		Houston, Texas 622-7270
<b>MISS-TEX OIL PRODUCERS</b>		
225 Petroleum Building		Jackson, Miss.
<b>BISON OIL COMPANY</b>		
Marvin L. Oxley 213 S. Lamar — Jackson, Miss. 39201		355-1841
<b>KING RESOURCES</b>		
Sam Hendrix Bailey & Bailey Plaza - 4915 Highway 55 N.		Rudy Ewing Jackson, Miss.
<b>DAVID K. BROOKS</b>		
660 Milner Building		Jackson, Miss.
<b>CALLON PETROLEUM COMPANY</b>		
Natchez, Mississippi		
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<b>CAPITOL PRINTING &amp; REPRODUCTION CO.</b>		
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<b>R. K. PUNCHES</b>		
Petroleum Geologist		Natchez, Mississippi
<b>CHAMPLIN PETROLEUM COMPANY</b>		
Suite 212 New Orleans, Louisiana		225 Baronne St. 581-3660
<b>BAROID DIVISION</b>		
National Lead Company		
P. O. Box 8846		Jackson, Miss. 39204
<b>GERMANY INVESTMENT CO.</b>		
Norman G. Germany Dallas, Texas		E. Wilson Germany Natchez, Mississippi
<b>TRIAD OIL &amp; GAS CO., INC.</b>		
Oil Property Management		
1290 Petroleum Bldg., Jackson, Miss.		355-9693

<b>SCHLUMBERGER WELL SERVICES</b>	
Jackson, Mississippi	352-8580
<b>XAVIER M. FRASCOGNA</b>	
Consulting Geologist	
Box 10653 1407 Standard Life Building	355-2956 Jackson, Miss. 39209
<b>G. W. GULMON &amp; ASSOCIATES</b>	
Petroleum Geologists Natchez, Mississippi	
H. E. Hansen, Dallas	A. T. Ricci, Jr., Natchez
<b>DANIEL E. HERLIHY</b>	
Consulting Geophysicist	
510 Woodland Hills Bldg. - Jackson, Miss.	366-7734
<b>PATRICK PETROLEUM CO.</b>	
Jackson, Michigan X. M. (Frank) Frascogna	Exploration - Acquisitions Gulf Coast Representative
1405-7 Standard Life Bldg.	Jackson, Miss. (601) 355-2956
<b>H. E. KARGES</b>	
Consulting Geologist	
Box 1635 236 E. Capitol Street	352-0972 Jackson, Miss. 39205
<b>WILBUR H. KNIGHT</b>	
Consulting Geologist	
517 First National Bank Bldg.-Jackson, Miss.	355-1528
<b>HILTON L. LADNER</b>	
Petroleum Geologist	
903 FNB Bldg. — Jackson, Miss.	354-3616
<b>W. BALDWIN LLOYD</b>	
903 First Nat'l. Bank Bldg. — Jackson, Miss.	948-3666
<b>LOCATION SAMPLE SERVICE, INC.</b>	
Hycalog Franchise Operator	
Laurel, Mississippi Jackson, Mississippi	426-9711 982-2766
<b>OIL WELL LOGGING, INC.</b>	
P. O. Box 16039 — Jackson, Mississippi	354-3642
<b>A &amp; N PRODUCING SERVICES, INC.</b>	
709 Standard Life Bldg. Jackson, Mississippi 39205	P. O. Box 1669
<b>GUARDIAN OIL COMPANY</b>	
L. Graham Hughes, General Partner Jackson, Mississippi	

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