HGS SEPTEMBER CALENDAR

September 11, 1978 (Evening Meeting)
Galleria Plaza Hotel
Sr. Ing. Eduardo J. Guzmán
Technical Advisor—Instituto Mexicano del Petróleo
"Petroleum Geology of the Reforma Area, Southeastern Mexico"
Social Hour—5:30 PM, Dinner—6:30 PM
Reservations (telephone only, 223-9309) must be made or canceled by Friday, September 8, 1978.

September 27, 1978 (Noon Meeting)
Holiday Inn-Medical Center
Dr. John A. Adams
Professor of Geology, Rice University
"Atmospheric Carbon Dioxide and Fuel Options of the Future—Fossil Fuel Versus the Burning of Wood"
Social Period—11:20 AM, Luncheon and Meeting—12:00 Noon
Reservations (telephone only, 223-9309) must be made or canceled by Monday, September 25, 1978.
EXECUTIVE BOARD

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Hal H. Bybee, Continental Oil Company  
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Waffe W. Turbitt, Consultant  
Fred A. Eiland, Exxon Company USA  
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Secretary  
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Treasurer  
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662-8100

Executive Committee (4-30-80)  
Executive Committee (5-30-79)  
Executive Committee (6-30-79)  
Executive Committee (6-30-80)  
Past President  

COMMITTEE CHAIRMEN  

Academic Liaison  

Advertising  

Awards & Student Loan  

Ballot  

Boy Scout  

Bulletin  

Continuing Education  

Directory  

Entertainment  

Environmental  

Exhibits  

Field Studies  

Field Trip  

Finance  

Historical  

Library  

Membership  

Nonnative  

Nominating  

Personnel Placement  

Publications  

Publication Sales  

Public Relations  

Remembrances  

Research & Study Course  

Special Publications  

Technical Program  

Transportation  


SPECIAL REPRESENTATIVES  

Advisor, Museum of Natural Science  

AGAGS Representative  

AGAGS Alternate  

AAPG Delegate Chairman  

AAPG Group Insurance  


HOUSTON GEOLOGICAL AUXILIARY OFFICERS  

President  

President-Elect  

First Vice President (Social)  

Second Vice President (Membership)  

Third Vice President (HGS Representative)  

Secretary  

Treasurer  


HOUSTON GEOLOGICAL SOCIETY  
Suite B-1, 806 Main Street  
Houston, Texas 77002  
223-9309
PRESIDENT'S COMMENTS

The Houston Geological Society became 55 years old on August 8. We now have more than 3,000 members and are the largest local geological society in the world. It is with great pride and anticipation that we embark on what we hope will be another banner year for HGS.

Dr. Richard Hohlt, Second Vice President and Technical Program Chairman, is scheduling an excellent program beginning with a very timely paper for our first meeting in September. His programs this year will cover a wide range of geological topics. Please make every effort to increase your attendance at the meetings, as they offer you the opportunity to meet with your contemporaries in a relaxed atmosphere and afford you a chance to enhance your knowledge of the world around us.

1977-78 was an outstanding year for the HGS. Dean Grafton, as your President, led a team that worked hard to make your society an organization that you can be proud to be associated with. The Bulletin Editor, Chester A. Baird; Continuing Education Chairman, Stewart Chuber; Field Trip Chairman, William F. Bishop; Entertainment Chairman, Clyde Harrison; Directory Chairman, Clyde Beckwith; and many others, worked very hard to make it possible for you, the HGS members, to be able to enjoy your technical and social relationship with fellow members.

This year we plan to again publish a membership directory. The deadline for being included in this directory is November 15. Please pay your dues as soon as you receive your dues notice. Dues notices were to be mailed in August, and you should have received the notice by the time this Bulletin reaches you. Last year many of you did not pay your dues in time to be included in the directory. In April of 1979 Houston will host the AAPG Annual Meeting. Dr. Anthony Reso, Convention Chairman, has put together a hard-working team of men and women, and they need our assistance to make this meeting a success. Mark April 1-4, 1979, on your calendar and make plans to register and participate in the AAPG meeting.

JEFFERY V. MORRIS
President

ANNUAL DUES

Dues notices were mailed to all members in August. Please take care of this obligation promptly so that we will not have to send out second notices in October. If you did not receive a dues notice, please notify the HGS office. As stated in the Bylaws, members not paid by November 15 will be dropped from this membership roll. We plan to publish a Membership Directory this year so it will be to your advantage to make certain that all data on your membership file card are correct. Remember: last year many people were left out of the Bulletin because they did not pay their dues by November 15. Do not let this happen to you.

JOHN H. HEFNER
Treasurer

Hard to believe but true: the average Saudi Arabian oil well yields 12,000 barrels a day, compared to 17.5 in the United States. Even Venezuelan wells average only 250 barrels a day. (from The Oil Daily, June 9, 1978).

SOCIETY CALENDAR FOR OCTOBER

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>October 17</td>
<td>Shrimp Peel, Knights of Columbus Hall</td>
</tr>
<tr>
<td>October 25</td>
<td>Holiday Inn-Downtown Luncheon Meeting</td>
</tr>
</tbody>
</table>

APGS MEMBERSHIP DRIVE

The Texas Section of the Association of Professional Geological Scientists will conduct a statewide membership drive during the week of September 18-22. For information contact Chet Baird at 623-3260.

HGS ANNUAL SHRIMP PEEL!!

The HGS will hold its popular annual Shrimp Peel on Tuesday, October 17, 1978 at the Knights of Columbus Hall at 607 East Whitney. Arrangements have been made to move indoors in case of inclement weather.

Tickets will be $7.50 if purchased in advance or $8.50 at the door. Send your check for tickets with a stamped self-addressed envelope to the HGS office. Tickets will also be on sale at the September noon and night meetings.

NOTICE REGARDING OUR SEPTEMBER TECHNICAL PROGRAM

Monday, September 11, Evening Meeting—We are fortunate to have Sr. Ing. Eduardo J. Guzmán of the Instituto Mexicano del Petroleo as our first speaker for the 1978-79 year. His topic is most timely. Fragmentary reports in the trade journals and elsewhere credit the currently very active Reforma Area in southern Mexico with gigantic reserves of new oil. One report estimates 62 billion barrels.

Wednesday, September 27, Luncheon Meeting—We are likewise fortunate to have been able to schedule Dr. John A. S. Adams of Rice University to speak to the Society. His talk deals with the ever increasing carbon dioxide content in the atmosphere, and some of the postulated effects on mankind if this increase is sustained.

DR. RICHARD B. HOHLT
Program Chairman

PRICE SCHEDULE—HGS MEETINGS

<table>
<thead>
<tr>
<th>Location</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Galleria Plaza Hotel</td>
<td>$10.75</td>
</tr>
<tr>
<td>Holiday Inn-Medical Center</td>
<td>$6.50</td>
</tr>
</tbody>
</table>

RESERVATIONS—223-9309

Please make reservations for the Monday evening meeting by the preceding Friday; for the Wednesday noon meeting by the preceding Monday.
EVENING MEETING—SEPTEMBER 11, 1978
EDUARDO J. GUZMAN—Biographical Sketch

Ingeniero Eduardo J. Guzman is a native of Puebla, Mexico. He received his degree in geology from the Universidad Central de Venezuela in 1942. Following graduation, he was employed by the Gulf Oil Corp. in eastern Venezuela. After 15 months, he joined Petroleos Mexicanos and conducted both surface and subsurface geological studies. He was appointed Chief Geologist of Petroleos Mexicanos. In 1954 he was appointed Assistant Exploration Manager, a post which he held until 1967 when he was appointed to the position of Sub-director of the Instituto Mexicano del Petroleo in charge of exploration technology.

In 1956, Ing. Guzman served as General Secretary for the Mexican Organizing Committee, and of the 20th International Geological Congress. He served on the organizing committee of the 7th World Petroleum Congress which was held in Mexico in 1967, and is a member of the permanent council of the World Petroleum Congresses. He also toured the United States and Canada as a distinguished lecturer for the AAPG in 1967. He served as national Vice President of the AAPG in 1967-68 and received the AAPG Honorary Membership Award in 1972. He is a member of numerous geological and engineering societies. He is recently retired from the Instituto Mexicano del Petroleo but continues to serve as a consultant to that organization.

PETROLEUM GEOLOGY OF THE REFORMA AREA, SOUTHEASTERN MEXICO (Abstract)

Most of Mexico’s oil has come from Cretaceous and Jurassic carbonate rocks, although there was no production from these formations in southeastern Mexico until the significant 1972 Pemex discoveries. By the end of 1977, 15 to 20 onshore and 3 offshore Mesozoic producing sites had been drilled in the Reforma area and Campeche Gulf. Eight of these pools are producing and several can be recognized as giant fields. Conservatively, proved reserves exceed 5 billion bbl of liquid hydrocarbons and 7 tcf of gas. The additional potential in view of the extent and number of favorable structures is enormous.

Daily production in January 1978 was 810,000 bbl of oil and condensate, and about 900 mmcf of gas. Cumulative production at the end of 1977 was about 580 million bbl of oil, approximately 60 million bbl of condensate, and 840 bcf of gas. The number of wells drilled at the time was 249 (202 successful). Three of the wells drilled were offshore.

New reservoirs are mainly Cretaceous and Jurassic dolomites and microfractured limestones at an average depth of 12,500 ft (3,750 m). Trapping conditions are complexly faulted and, locally, overthrust anticlines covered by a thick Tertiary shale and sandstone sequence. Salt tectonics also are involved. Miocene sandstones have produced in the area since 1960, but Mesozoic discoveries were not made until the development of more sophisticated geophysical and drilling techniques.

CONGRESSIONAL ISSUES

The Houston Chronicle reports the following voting results on selected issues that have been before the Congress.

Senate

1. Endangered Species - Rejected 70-25 an amendment which would have limited exceptions to the endangered species act to cases in which substantial federal outlays had already been made.

2. Endangered Species - Defeated 69-23 an amendment to require four instead of five votes on review committee to allow exception to endangered species act.

House

1. Uranium for India - Rejected 227 to 181 a motion that would have disapproved export of uranium to India.

2. Coal Slurry - Defeated 246 to 161 a bill to grant eminent domain powers to private corporations for pipelines to move slurred coal from the West.

OIL SHALE WATER, A USEABLE RESOURCE?

Water from underground oil shale operations may prove to be a useable resource. The Department of Energy (DOE) said this possibility is based on findings of a research project conducted by the University of Colorado, Boulder, Colorado, for DOE’s Laramie (Wyoming) Energy Research Center.

The project has demonstrated that a widely-used industrial chemical—ammonium bicarbonate—can be removed from oil shale water and sold for a price that might make it worthwhile. The oil/water is produced in roughly equal amounts chiefly from combustion, using an in situ process. In the process, the shale deposits are left in place.

Industry uses large amounts of ammonium bicarbonate in such products as baking powder, plastics, ceramics, dyes, textiles and cosmetics. Preliminary estimates indicate that the ammonium bicarbonate could yield about $2 per barrel, minus capital and operating costs. Ammonia alone could be produced instead, DOE said, but would probably be less valuable.

America’s industrial productivity increased at an average annual rate of 3.3 percent in the two decades following World War II. But since 1973 (a critical watershed in our economic history) productivity has dropped at an average rate of 1.3 percent. (From The Oil Daily, July 7, 1978).
NOON MEETING—SEPTEMBER 27, 1978
JOHN A. S. ADAMS—Biographical Sketch

Dr. John A. S. Adams received his geological education at the University of Chicago. He earned his PhD in 1951 following two years of study in Norway under T. F. W. Barth. He was a member of the Norsk Polarinstitutt expedition to Spitsbergen in 1950. From 1951-1954 he served in the Department of Chemistry at the University of Wisconsin as Project Associate and lecturer in geochemistry. In 1954 he was appointed Assistant Professor of Geology at Rice University. He served as a distinguished lecturer for the AAPG in 1955. He was elected to the Council of the Geochemical Society for 1957-59. He became acting and then full Chairman of the Department of Geology, Rice University for the years 1960-1971. He served as an editor for Geochemica et Cosmoehimica Acta for 1960-66. In 1971 he was appointed Principal Investigator on Lunar Samples. During 1972-73 he served as President of the Houston Philosophical Society. He was elected Vice President in 1975-76 and President in 1976-77 of the South-Central Section of the Geological Society of America. He is currently a full Professor of Geology at Rice University. He is also a Visiting and Adjunct Professor, Public Health, Environmental Health, The University of Texas Health Science Center in Houston.

ATMOSPHERIC CARBON DIOXIDE AND FUEL OPTIONS OF THE FUTURE - FOSSIL FUEL VERSUS THE BURNING OF WOOD (Abstract)

For the past 40 years it has been recognized that the carbon dioxide content of the atmosphere is increasing and has increased at least 10% since 1900. The combustion of fossil fuels produced more than enough carbon dioxide to cause this observed increase. The Office of Carbon Dioxide Effects Research and Assessment of the Department of Energy estimates [sic] an annual budget of between 2 to 16 million dollars to gain some understanding of the problems involved. Proponents of nuclear energy have suggested that the effects of atmospheric carbon dioxide build-up from increased coal combustion are less understood and potentially more dangerous to mankind than the waste product and by-product problems of nuclear energy. The carbon dioxide content of the atmosphere is rapidly increasing (from a trace constituent) toward a point where major climatic changes may be postulated to occur. An overall increase in temperature at the surface of the earth will probably enlarge the arid regions of the earth and reduce, worldwide, the areas available for agriculture. The complexities and uncertainties in the carbon dioxide cycle allow a wide range of hypotheses: as well as hypothesis piled upon hypothesis to make a scenario.

Among many possible scenarios, it cannot be disproved that:
1) wood combustion has been more important than fossil fuel combustion because most of the people in the world burn wood for cooking and process heat at the rate of over one metric ton per capita per year. Large scale forest clearing for agricultural purposes contributes even more to the depletion of the cellulose reservoir of the earth. 2) the atmospheric carbon dioxide content is primarily controlled by the total amount of photosynthesis, which has fallen behind in cellulose formation as compared to cellulose combustion 3) the most prudent and feasible public policy for environmental and aesthetical reasons is to initiate an orderly but massive reforestation program worldwide.

SHELL PRESIDENT ANNOUNCES THAT E&P OUTLAYS WILL RISE DURING 1978

John F. Bookout, President of Shell Oil Co., announced that Shell's outlays for E&P capital items and for exploration are expected to climb to $1.3 billion during 1978. "This is 10 percent higher than 1977, and a threefold increase over levels of expenditures in the several years before the 1973 embargo," he said. The program will maintain Shell's oil and gas efforts at home and abroad, and will provide continuing growth in alternative energy sources, particularly coal, tar sands, uranium and geothermal.

Domestically, Bookout said, Shell is increasing its oil and gas activities onshore, while retaining its relatively strong position offshore. Seventy-five percent of the 1978 exploration and production budget will be directed to the domestic onshore where Shell expects to be active in 30 separate plays. Among the more significant are the Williston Basin of North Dakota and Montana, the Woodbine-Tuscaloosa trend of Louisiana and Texas, the Mesozoic trend of Mississippi and Louisiana, the Paradox Basin of Utah and Colorado, and the Anadarko Basin of Oklahoma.

Bookout remarked that Shell is particularly interested in the Williston Basin. "Six successive wildcard discoveries have encouraged us to expand our exploratory program in the area for 1978," he stated.

In the Gulf of Mexico, Shell has added 300 million cu ft per day of net natural gas production from new fields in 1977. "Our 1978 development program calls for drilling over 100 wells, commitment of six platforms or well jackets, and eleven production facilities," Bookout said. The most active fields will be South Marsh Island Block 130, South Pass Block 61, Bay Marchand Block 2, South Marsh Island Block 132, High Island Block 179, and East Cameron Block 96. Bookout commented that additional wells were also planned for nine additional fields. "So far as the outlook for 1978 is concerned," Bookout observed, "improved prices for oil and gas should more than offset higher exploration and production costs."

* * * * *

Crude oil and natural gas production and regulation, motor fuel, and well-serving taxes contributed $1.2 billion to Texas coffers in fiscal 1976—a gain of 300% in 11 years, the Governor's Energy Advisory Council reported. (The Oil Daily, January 10, 1978)
The Board submits, to those who have supported the Scholarship Fund, that the above individual is an outstanding student worthy of our award. We congratulate this young man, and give him our best wishes for a productive school year.

As of June 9, 1978 the financial status of the Fund was as follows:

- Corporate Bonds: $19,000
- Savings Certificates: 5,432
- Savings Account: 710
- Total: $25,142

The annual fund income from investments is slightly in excess of $2,000, which permits a $1,000 scholarship award, and it is hoped that those who have not elected to support the Fund will join those listed below in our effort to offer meaningful scholarships that will attract other outstanding individuals like Mr. Liner.

**HGS MEMORIAL SCHOLARSHIP FUND**

The HGS Memorial Scholarship Board is pleased to announce that a $1,000 scholarship has been awarded to Mr. Robert T. Liner, a graduate student at the University of Arkansas. Robert was born February 25, 1955 in El Paso, Texas. He attended high school at Will Rogers HS in Tulsa, Oklahoma before graduating from Fayetteville HS in 1973. He received his BS Degree at the University of Arkansas in 1977 after carrying a 3.9/4.0 GPA in Geology, and a 3.5/4.0 GPA overall.

Mr. Liner is working this summer for Gulf Exploration and Minerals Company USA where he hopes "to gain some practical geological experience," and expects to receive his MS Degree in May, 1979. The scholarship funds will be used "to allow expansion of my thesis investigations into north-central Arkansas; . . . to supplement my assistantship so that I will only have to teach quarter time and I can devote the remaining time to thesis research; . . . and to pay for reproduction and binding of the thesis manuscript." He also intends "to enter the petroleum industry as an exploration geologist."

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CONTINUING EDUCATION—STEWART CHUBER

Compared to previous years, the 1977-78 program contained more offerings, a wider selection of subjects, and was attended by more members than ever before. Six programs were offered with a total attendance of 731. The average attendance at each program was 121. It is clear that the membership wants “bread and butter” programs which relate directly to Gulf Coast geology. Therefore, the committee recommends that we attempt to generate discussions about Gulf Coast structure, stratigraphy, geochemistry, migration, and trapping. Several members have already indicated a desire to help in this area.

DIRECTORY—CLYDE G. BECKWITH

The Society published a free membership directory which was mailed to all members whose dues were paid by December 15, 1977. The total cost of the directory was $6,616.12. An analysis reveals that the cost per directory was $2.15 (printing 95¢, mailing 24¢, computer 96¢). This was the first year for the computerization of the membership roll and the major problem was found to be editing and maintenance. However, the system works, it is reasonably inexpensive, and it can produce a printed directory within two months of the delinquent dues deadline.

FIELD TRIP—WILLIAM F. BISHOP

Response of the membership to the field trips offered was enthusiastic. The first two were oversubscribed by large margins and 15 stoodbys were accommodated on the third. This, together with the number of favorable comments, indicates that a substantial demand exists for such excursions and that these should be an integral part of the services offered to the members.


MEMBERSHIP—FRED A. EALAND

The Membership Committee processed and submitted for approval to the Executive Board 372 applications, 349 for Active membership and 23 for Associate membership. Membership on June 30, 1978 was 2988 which includes 14 Honorary Life Members. A telephone campaign was conducted to contact delinquent members. Some 400 telephone calls were made from which approximately 70 delinquent members (17%) indicated they would pay 1977-78 dues. It was determined that many of the delinquent members had moved from Houston.

PUBLICATION SALES—MILTON E. JOHNSON

The principal objectives of this committee are the sale promotion of HGS publications and reporting of the sale results on a monthly basis to the Executive Board. Tabulated below are sales figures for 1977-78 and the remaining inventory.

<table>
<thead>
<tr>
<th>Title</th>
<th>No. Sold</th>
<th>Inventory</th>
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</thead>
<tbody>
<tr>
<td>Alternate Energy Resources</td>
<td>633</td>
<td>340</td>
</tr>
<tr>
<td>Deltas - Models for Exploration</td>
<td>144</td>
<td>320</td>
</tr>
<tr>
<td>Abnormal Subsurface Pressure</td>
<td>69</td>
<td>1193</td>
</tr>
<tr>
<td>Holecene Geology - Galveston Bay</td>
<td>18</td>
<td>19</td>
</tr>
<tr>
<td>Yucatan Field Trip Guidebook</td>
<td>17</td>
<td>1</td>
</tr>
<tr>
<td>1971 HGS-GSH Photo Directory</td>
<td>16</td>
<td>0</td>
</tr>
<tr>
<td>1975 HGS-GSH Directory</td>
<td>106</td>
<td>885</td>
</tr>
<tr>
<td>1978 HGS Directory</td>
<td>52</td>
<td>290</td>
</tr>
</tbody>
</table>

*HGS share of this directory will be destroyed. GSH has taken possession of its share.

In support of its main objective to promote sales, the committee arranged a display of HGS publications at all but one regular meeting. The publications table is recognized as a convenient place to display other information at society meetings and the committee cooperated in exhibiting a number of brochures and pamphlets. In particular, there was close coordination with the Membership Committee in displaying applications for HGS and AAPG membership.

TECHNICAL PROGRAM—WILLIAM A. FOWLER, JR.

The committee made arrangements for 18 programs; 16 regular meetings plus 2 joint meetings, 1 with the Geophysical Society of Houston and 1 with the Houston Association of Petroleum Landmen. Programs were presented by 10 Houston area geologists, 5 AAPG Distinguished Lecturers, 2 out-of-town geologists, and 1 medical doctor (Guest Night). Evening meetings were held at the Summit Club, Stouffer’s, Houston Oaks, and Galleria Plaza. Noon meetings were held at the Holiday Inn - Medical Center, Shamrock Hilton, and Houston Oaks. Catering costs continued to climb. Luncheon and dinner prices have increased 76% over the past 5 years. Ultimately, the balance struck between price and accommodations is determined by the wishes of the membership as perceived by the Technical Program Committee and the Executive Board. Attendance at the noon meetings showed a slight increase from an average of 277 in 1976-77 to 285 in 1977-78. Evening meeting attendance showed a rather severe decline from an average of 213 in 1976-77 to 155 in 1977-78. The chairman would like to publicly thank Floyd Adcock, G. A. Cooley, Craig Moore, and Chuck Overton who were present and helpful at the meetings.

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The USGS reports that during FY 1977 it acquired offshore geophysical and geological data from nearly 100,000 miles of tracking in the Atlantic, Pacific, offshore Alaska, and the Gulf of Mexico in direct support of the Outer Continental Shelf oil and gas evaluation program. Since 1968, the Survey has acquired about 385,000 mi of CDP seismic data; 237,000 mi of high-resolution seismic data; 93,000 mi of gravity data; and 169,000 mi of magnetic data on OCS lands in direct support of tract-selection, tract-evaluation, and geologic-hazards analysis programs. These data are acquired either through competitive procurement procedures or are submitted as a condition of the OCS Exploration Permit in accordance with regulations concerning geological and geophysical exploration of the OCS. A small amount of the data is acquired by the Survey.
SCENES FROM GUEST NIGHT
MEETING, JUNE 12, 1978

Dean Grafton, President 1977-78, and wife Georgia

1977-78 Honorees
(L to R) W. H. Roberts III, Best Paper Award; James O. Lewis, Distinguished Service Award; Almer P. Childers, Honorary Life Membership

1977-78 Bulletin Staff
(L to R) C. A. Baird, Peggy Rice, Chris P. Cunningham

Honorary Life Members
(L to R) Fred L. Smith, Jr., J. Ben Carsey, Charles H. Sample, Martin M. Sheets
AAPG Officers and Wives
(L to R) Camille Amoruso; John J. Amoruso, Secretary 1977-79; Virginia Barber; Thomas D. Barber, Vice President 1978-79; Mary Turner; Edd R. Turner, President 1977-78

Hal H. Bybee (L), Past President, presenting plaque to Jeffery V. Morris, First Vice President 1977-78 and President 1978-79

Co-Chairmen, Visitors and Spouses Entertainment, 1979 AAPG Convention
(L to R) Shirley Gordon and Sally Bybee

The Old and the New
(L to R) Robert J. Schrock; Midge Schrock, HGS Auxiliary President 1978-79; Dean Grafton, HGS President 1977-78; Georgia Grafton; Sylvia Morris; Jeffery V. Morris, HGS President 1978-79; Pauline Inkster, HGS Auxiliary President 1977-78; John W. Inkster
BEST PAPER AWARD

The Executive Board of the Houston Geological Society takes pleasure in announcing that W. H. Roberts III won the Best Paper Award for 1977-78. His paper entitled "The Design and Function of Oil and Gas Traps" was presented at the February 22, 1978 meeting. The Best Paper Award is an appropriate plaque and a check for $150 and these were presented to Mr. Roberts at the June 12, 1978 meeting. The criteria for judging papers are geologic merit and pertinence as well as presentation. Judging of the papers is the responsibility of the Awards and Student Loan Committee.

W. H. ROBERTS III

W. H. (Bill) Roberts III is with the Houston Technical Services Center of Gulf Research and Development Company. A native of New Jersey, he attended Amherst College, Wyoming University, and Colorado School of Mines where he received a degree in geological engineering. Bill spent 12 years in the Rocky Mountain area and 8 years in Gulf's research center in Pittsburgh. He has been in Houston 12 years.

Bill's interest in basinal hydrology and the fluid mechanics of oil and gas deposits has been sharpened by field observations in many parts of the world. He believes that it is most important to understand how traps work—that there are vital common denominators of entrapment which are easily observed but commonly overlooked. He looks for the resurrection of seepology, creekology, and surface geology.

THE DESIGN AND FUNCTION OF OIL AND GAS TRAPS (Abstract)

It is in traps that oil and gas are found, and thus traps should yield the most positive information. If we can understand well what is going on in the traps, that should enable us to look back along the migration trail with special insight as to what has been happening. That insight could even extend all the way back to the "source."

This study concludes that traps are the most logical places for hydrocarbon (HC) mixtures to be put together as distinct oil and gas fluids. It follows that traps are not just passive receivers or containers of HC mixtures put together elsewhere. Effective oil and gas traps of different well-known styles have a very important feature in common: structurally and stratigraphically, they are designed to discharge waters from depth. Thus they function as active focal mechanisms to gather and process feedstock waters carrying HCs and other organics. It is a forced-draft system. The concept adds an exciting new dimension to the anticlinal theory. It honors all factual observations around oil and gas deposits.

Very simply, the most important function of a trap is to leak water while retaining HCs. The water can leak because the enclosing membranes and cover are water-soaked, like a wick. The HCs and other organics are separated from the waters as they pass through the trap. The separation is caused by abrupt changes in pressure, temperature, and possibly salinity; these are related to the basic change in direction of feedstock (water) movement from lateral to upward. Coalescence of HCs makes bubbles or globules which cannot move easily like water. The ultimate composition of a trapped HC mixture depends on the residence times of the various components, which in turn depend on (1) what the water carries, (2) what the trap retains, and (3) the pore-volume exchange rate.

NEW MEMBERS

MAY 24 AND JUNE 22, 1978

BAKER, BEN A.
Geologist
Diamond Shamrock
Ranger Insurance Bldg.
5333 Westheimer, Suite 1000
Houston, Tx. 77005
960-1331

BARLOW, PATRICIA M.
Geologist
Trunkline Gas Co.
3000 Eisonville
Houston, Tx. 77005
664-3401 Ext. 460

BEACH, STEVE
Geologist
Columbia Gas Development Corp.
Box 1360
Houston, Tx. 77001
326-8990 Ext. 340

BENNETTS, KIM R. W.
Geologist
Conoco
Box 2197
Houston, Tx. 77001
966-2216

BOWEN, BURTON C.
Vice President - Exploration
PelTex Oil Co.
1100 Milam Bldg., Suite 3332
Houston, Tx. 77002
658-6284

BURRACH, STUART P.
Geologist
Mobil Oil Corp.
3 Greenway Plaza East, Suite 800
Houston, Tx. 77046
626-8900

CAGE, SUSAN K.
Senior Staff Geologist
Gulf Exploration & Production Co.
P. O. Box 1635
Houston, Tx. 77001
623-0030

CAIRNS, JOHN DALE
Geologist
Columbia Gas Development Corp.
Box 1350
Houston, Tx. 77001
326-5690

CLEAVER, JOHN DALE
Geologist
United Gas Pipeline
700 Milam
Box 1478
Houston, Tx. 77001
237-4630

CONNOLLY, F. T.
Senior Staff Geologist
Shell Oil Co.
908 Town & Country Bldg.
Houston, Tx. 77024
241-4270

COULTHARD, DALE E.
Geologist
Pel-Tex Oil
1100 Milam, Suite 3333
Houston, Tx. 77002
658-6294

CRAFT, CECIL I.
President
Data Computing Corporation
7281 N. Broadway, Suite 200
Oklahoma City, Ok. 73116
405-843-9949

CRAFT, J. MILTON
District Manager
Core Laboratories, Inc.
Box 16307
9616 Gulf Freeway
Houston, Tx. 77036
225-4183

DOUGHERTY, MARIBLUE
Geological Assistant
Michigan-Wisconsin Pipe Line Co.
5075 Westheimer, Suite 1100W
Houston, Tx. 77006
623-9300
<table>
<thead>
<tr>
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<th>Title</th>
<th>Company</th>
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<tr>
<td>Enquist, Bruce ERVing</td>
<td>Coordinator, Gas &amp; Oil Exploration</td>
<td>Nicor Exploration</td>
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<td>312-355-6000</td>
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<td>Junior Geologist</td>
<td>American Petroleum, Inc</td>
<td>One Houston Center, Suite 1200</td>
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<td>Geologist</td>
<td>Shell Oil Development</td>
<td>Entex Bldg, Houston, TX</td>
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<td>Tetra Tech, Inc</td>
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<td>Petroleum Engineer</td>
<td>Trunkline Gas Co</td>
<td>3000 Bissonnet, Houston, TX</td>
<td>664-3401 Ex 473</td>
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<tr>
<td>Harding, Shere C</td>
<td>Geologist</td>
<td>Shell Oil Company</td>
<td>1170 Two Shell Plaza, Houston</td>
<td>214-5844</td>
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<td>Peppard-Souders &amp; Associates</td>
<td>3801 Kirby, Houston, TX</td>
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<td>Husier, Frank</td>
<td>Geologist</td>
<td>Cities Service Company</td>
<td>Box 22062, 5100 Southwest Freeway, Houston, TX</td>
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<td>Huff, James F.</td>
<td>Senior Geophysicist</td>
<td>Marathon Oil Company</td>
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<td>Pet-Tex Oil Co</td>
<td>1100 Milam Bldg, #3333, Houston, TX</td>
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<td>Exploration Geologist</td>
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<td>King, James R.</td>
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<td>Exxon</td>
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<td>ARCO</td>
<td>1900 St. James Pl, Houston, TX</td>
<td>960-6069</td>
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<td>Martin, Lavon M.</td>
<td>Geological Technician</td>
<td>Getty Oil Co.</td>
<td>6700 West Loop South, Belleria, TX</td>
<td>668-8400</td>
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<td>McDonald, Tom J.</td>
<td>President</td>
<td>The Crockett Corp.</td>
<td>2500 Tanglewood, Suite 120</td>
<td>781-2600</td>
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<tr>
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<td>Geologist III</td>
<td>Getty Oil Co.</td>
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<td>Newton, Kenneth</td>
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<td>5750 Westheimer, Suite 1100</td>
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<td>Southern Natural Gas Co.</td>
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<td>Sabine Production Co.</td>
<td>2050 Houston Natural Gas Bldg, Houston, TX</td>
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<td>Cameron Exploration Co.</td>
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<td>Randall, Steven B.</td>
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<td>Geophysicist - Geologist</td>
<td>Tiger Oil Co.</td>
<td>Five Greenway Plaza East, Suite 1500, Houston, TX</td>
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<tr>
<td>Rouxel, Ronald Albert</td>
<td>Area Geologist</td>
<td>Elf Aquitaine Oil and Gas</td>
<td>950 Threadneedie, Suite 200, Houston, TX</td>
<td>496-1080</td>
</tr>
<tr>
<td>Russell, Kenneth L.</td>
<td>Geologist</td>
<td>Cities Service Box 462</td>
<td>Houston, TX</td>
<td>869-6521</td>
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<td>Rutherford, Frank</td>
<td>Geologist</td>
<td>Transco</td>
<td>2700 S. Post Oak, Houston, TX</td>
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<td>Smith, Larry J.</td>
<td>Marketing &amp; Sales</td>
<td>GEOMAP/Peppard-Souders</td>
<td>2801 Kirby, Suite 600, Houston, TX</td>
<td>526-8899</td>
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<tr>
<td>Springman, Robert J.</td>
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<td>Michigan-Wisconsin Pipeline Co</td>
<td>5075 Westheimer, Suite 1100W</td>
<td>623-0300</td>
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<tr>
<td>Sroczynski, Michael Anthony</td>
<td>Geophysical Analyst</td>
<td>Western Geophysical</td>
<td>10011 Richmond Ave, Houston, TX</td>
<td>789-9600 Ex 2147</td>
</tr>
<tr>
<td>Talbot, Cynthia G.</td>
<td>Geotech</td>
<td>Terra Resources</td>
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<td>Geologist</td>
<td>Gulf Oil Exploration, &amp; Production Co.</td>
<td>Box 1635, Houston, TX</td>
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<td>Assistant Division Manager</td>
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<td>P.O. Box 430, Bellaire, TX</td>
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<tr>
<td>Webb, Arthur P. Jr.</td>
<td>Geologist</td>
<td>United Gas Pipe Line</td>
<td>700 Milam, Box 1478</td>
<td>237-4669</td>
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**ASSOCIATE MEMBERS**

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  713-527-1717
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  713-527-1717
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  Division Engineer, Construction, 3801 Kirby, Suite 456, Houston, TX 77025  
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CHRIS P. CUNNINGHAM, GeoChem Laboratories, Inc., 1143-C Brittmore Road, Houston, Texas 77043, Ph. 467-7011

ASSOCIATE EDITOR
KIM DOUD, Cities Service Oil Co., 5100 Southwest Freeway, Houston, Texas 77056, Ph. 629-9700

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GREG BURNS, Cities Service Oil Co., 5100 Southwest Freeway, Houston, Texas 77056, Ph. 629-9700

JOAN CARLSON, Transocean Oil, Inc., 1111 Fannin #1700, Houston, Texas 77002, Ph. 654-2100

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South Brazos Block A-76 producing platform 48 miles southeast of Port O'Connor, Texas in 168 feet of water. Operated by Cities Service Company for the CSG group (Cities, Sun, Getty). Lease was acquired in the May 21, 1968 Federal Lease Sale and it has the only significant production found out of 110 leases awarded in this sale. The No. 1 well found production in early 1969. The structure is a faulted anticline with gas production from the Middle Miocene between 9300' and 9400'. Platform was installed in late 1970. First gas was delivered to Transcontinental Gas Pipeline Corp. on June 16, 1972. (Photo courtesy of Cities Service Company).
R. P. AKKERMAN  
Geologist EXPLORATION Engineer  
Review of Subsurface Data  
3425 Bradford Place 668-4327  
Houston, Texas 77025

HARRIS H. ALLEN  
Oil and Gas Consultant  
933 San Jacinto Bldg. 228-9329  
Houston, Texas 77002

PAUL H. ALLEN, JR.  
Consulting Geologist  
1418 C & I Building  
Houston, Texas 77002  
(713) 659-6011

GUS B. BAKER  
Energetics, Inc.  
Gulf Coast Exploration  
614 SOUTHWEST TOWER  
At 707 MacKinney  
Houston, Texas 77002  
Ph. (713) 759-0306

JOHN D. BREMSTELLER  
AAPG-SEG Group Insurance Plan  
HGS - Group Cancer Insurance Plan  
Phones:  
Business: 668-0610 1206 C & I Building  
Business: 751-0259 Houston, Texas  
Residence: 774-3188 77002

WILLIAM J. BURKHEAD  
Consulting Geologist  
713 Rocky River  
Houston, Texas 77056  
Ph. 713/621-3077

T. WAYNE CAMPBELL  
PALEO-DATA, INC.  
CONSULTING PALEONTOLOGIST AND GEOLOGIST  
6619 FLEUR De LIS DRIVE  
NEW ORLEANS, LOUISIANA 70124  
(504) 488-3711

STEWART CHUBER  
Consulting Geologist  
Res. 713-465-3360 711 Polk St., Suite 802  
Office - 713-658-8395 Houston, Texas 77002

GEORGE H. CLARK  
Petroleum Geologist  
201 Gordon Dr.  
Crockett, Texas 75835  
Ph. 544-8257

VIRGINIA LEE BICK  
Member of American Association Petroleum Geologists  
2506 Yorktown  
Houston, Texas 77056  
(713) 961-0406
<table>
<thead>
<tr>
<th>Name</th>
<th>Title and Contact Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>GENEOS PETE COKINOS</td>
<td>Petroleum and Geological Engineering Consultant</td>
</tr>
<tr>
<td></td>
<td>947 Hazel Street, 832-0368, 835-4501, 892-8733</td>
</tr>
<tr>
<td>Jack Colle &amp; Assoc.</td>
<td>Consulting Geologists &amp; Paleontologists</td>
</tr>
<tr>
<td></td>
<td>708 C&amp;I Building—Houston, Texas 77002 (713) 652-4997</td>
</tr>
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<td>Consultant</td>
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<tr>
<td></td>
<td>10719 Valley Forge, 713/780-8555</td>
</tr>
<tr>
<td>EVARD P. ELLISON</td>
<td>GEOLOGIST</td>
</tr>
<tr>
<td></td>
<td>556 THE MAIN BUILDING</td>
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<tr>
<td></td>
<td>1212 MAIN STREET, HOUSTON, TEXAS 77002</td>
</tr>
<tr>
<td>PAUL FARREN</td>
<td>Geophysical Consultant</td>
</tr>
<tr>
<td></td>
<td>Geodata Building, 667-3317</td>
</tr>
<tr>
<td></td>
<td>5603 S. Rice Ave. (77081)</td>
</tr>
<tr>
<td>STEWART H. FOLK</td>
<td>Certified Professional Geologist</td>
</tr>
<tr>
<td></td>
<td>Coal, Petroleum, &amp; Geothermal Resources</td>
</tr>
<tr>
<td></td>
<td>700 Post Oak Bank Building, 713/622-9700</td>
</tr>
<tr>
<td></td>
<td>Houston, Texas 77056</td>
</tr>
<tr>
<td>FORNEY &amp; COMPANY</td>
<td>Oil &amp; Gas Properties</td>
</tr>
<tr>
<td>CHARLES M. FORNEY</td>
<td>Petroleum Geologist</td>
</tr>
<tr>
<td></td>
<td>P. O. Box 2602, Corpus Christi, Texas 78401</td>
</tr>
<tr>
<td></td>
<td>10th Floor - The 600 Building, 512/884-7721</td>
</tr>
</tbody>
</table>
GEORGE N. MAY
GEORGE N. MAY and ASSOCIATES
Consulting Geologists and Paleontologists
P. O. Box 51858 Oil Center Station
Lafayette, Louisiana 70505
(318) 234-3379

ROBERT H. MAYSE
Houston Pipe Line Company
Vice President - Energy Resources
1121 Americana Building
Houston, Texas 77002 713/654-6684

W. B. McCARTER
C. E. McCARTER
Independents
2522 Hazard
523-5733
Houston, Texas 77019

FRANK S. MILLARD
CONSULTANT
Well Log Interpretations—Seminars
10211 Holly Springs, Houston, Texas 77042
Tele. (713) 782-8033

R. B. MITCHELL
Geologist
652-2192
2301 First City National Bank Bldg.
Houston, Texas 77002

EVELYN WILIE MOODY
CONSULTING GEOLOGIST
OIL AND GAS EXPLORATION
SUBSURFACE STUDIES
TECHNICAL PAPERS
856 THE MAIN BLDG.
1212 MAIN ST.
HOUSTON, TEXAS 77002
OFF. 713-654-0072
RES. 713-528-0917
CERTIFIED # 3540

I. K. NICHOLS
Petroleum Geologist
C. E. NICHOLS
Geophysicist
41 Still Forest Drive
Houston, Texas 77024
Phone: 782-4970

ELWIN M. PEACOCK
CONSULTING GEOPHYSICIST
910 C I BUILDING
HOUSTON, TEXAS 77002

HENRY H. PHILLIPS
Paleontological Consultant
PALEONTOLOGICAL, BIOSTRATIGRAPHIC AND
GEOLOGIC INTERPRETATIONS
7507 Linden
(713) 645-1109
Houston, Texas 77012

RICHARD L. PORTER
Petroleum Geologist & Exploration Consultant
2120 Fountain View No. 65
Ph. 713-781-5357
Houston, Texas 77057
<table>
<thead>
<tr>
<th>Name</th>
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</tr>
</thead>
<tbody>
<tr>
<td>LEO PUGH</td>
<td>Gulf Coast Geo Data Corp. Seismic — Gravity Data</td>
<td>1109 AMERICANA BLDG., Houston, Texas 77002 (713) 652-3879</td>
</tr>
<tr>
<td>JOSEPH G. PUTMAN III</td>
<td>Oil &amp; Gas Interests</td>
<td>1514 Pine Gap, 444-3546 Houston, Texas 77090 658-0601</td>
</tr>
<tr>
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