

November, 1976

BULLETIN

HOUSTON GEOLOGICAL SOCIETY

Volume 19

Number 3



EROSION OF ASPHALT ROAD BY TRANSGRESSIVE
GULF OF MEXICO

Courtesy Rufus LeBlanc

HGS NOVEMBER CALENDAR

November 8, 1976 (Evening Meeting)

Summit Club, First International Bank Building

Dr. Fred M. Bullard, University of Texas

"Volcanoes and the Environment"

Social hour—5:15 PM, Dinner—6:15 PM, Meeting—7:00 PM

Make or cancel reservations (223-9309) by Friday, November 5, 1976

November 24, 1976 (Noon Meeting)

Consort II Ballroom, Houston Oaks Hotel

Dr. Geoffrey S. Bayliss, GeoChem. Laboratories, Inc.

"Principles of Hydrocarbon Generation and Application
to Oil and Gas Exploration"

Reception—11:30 AM, Luncheon and Meeting—12 Noon

Make or cancel reservations (223-9309) by Monday, November 22

HOUSTON GEOLOGICAL SOCIETY

234 Esperson Building
Houston, Texas 77002
223-9309

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Consultant	J. M. Huber Corp.
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Advertising Prices Per Year

Professional Card	\$ 50.00
1/8 Page	\$120.00
1/4 Page	\$200.00
1/2 Page	\$360.00
Full Page	\$700.00

PRESIDENT'S COLUMN

Your Executive Board on suggestion of the Finance Committee at its September meeting voted to transfer the money, \$1,930.76, in the Memorial Fund to the Houston Geological Society Memorial Scholarship Fund. The Society is trustee of the Scholarship Fund (formerly Calvert Fund) which had in excess of \$10,000 prior to this transfer and soon should have the ability to grant a \$500 scholarship to a worthy, needy graduate student.

The society will now make donations to the Scholarship Fund in memory of deceased HGS members instead of the Memorial Fund which was not large enough to serve a workable purpose. The IRS has ruled that all donations to the HGS Scholarship Fund will be tax deductible as charitable contributions. Your personal donations to this fund will be appreciated and serve a very worthy cause.

If you want more information on the Scholarship Fund, please contact one of its board members: Robert J. Schrock (chairman), Sabin W. Marshall (treasurer), Carl E. Norman (secretary), Anthony Reso or Robert L. Linn. Mr. Warren L. Calvert is now advisor and financial counselor to the board and would also be most happy to discuss the Scholarship Fund with you.

HAL H. BYBEE, President
Houston Geological Society

SOCIETY CALENDAR FOR DECEMBER

December 15	Mr. W. J. Bowen, Houston
Rice Rittenhouse Hotel	"The Gas Industry in the Year 2000"

PROFESSIONAL NEWS

ROBERT ALLEN has joined the Hard Rock Minerals Department of General Crude Oil Company. As a senior geologist located in the corporate headquarters in Houston, Texas, he will be assigned to exploration and development of metals and high unit-value industrial minerals.

C. F. "BABE" DREYMALA has joined General Crude Oil Company as Director-Commercial Operations, Industrial Minerals. In this newly created position, Mr. Dreymla will be responsible for the exploration, development, and marketing of building material minerals.

ROBERT L. ALFORD, JR., formerly geologist with Getty Oil Company, has joined Ladd Petroleum Corporation as staff geologist in Ladd's recently opened Houston Division office located at 2000 S. Post Oak Road, Suite 1910.

CONTINUING EDUCATION



Tickets for Dr. Berg's Continuing Education lecture entitled "Exploration for Sandstone Stratigraphic Traps" may still be purchased from the Houston Geological Society, 234 Esperson Building, Houston, Texas, 77002, by letter or in person. The program will begin on the afternoon of November 17 and 18 at the Exxon Auditorium, starting at 1 p.m. Costs are \$20 for students, \$25 for pre-registration, and \$30

for door registration. A book of lecture notes will be provided and is included in the program fee. Following the course, if there are enough people who desire to take a field trip through the Brazos River Valley, Rufus LeBlanc of Shell Oil Co. will lead them on Saturday, November 20.

Dr. Berg gives a pragmatic approach to his two afternoon lecture series by showing how to both measure and predict (1) size and shape of the reservoir body, (2) nature of the trapping facies, (3) effectiveness of the trap facies as a barrier to oil migration, and (4) influence of hydrodynamic flow on the possible oil accumulation. His experience includes subsurface work from 1951-58, for the California Co. and Cosden Petroleum Corp. in the Rocky Mountains, and as a Denver consultant from 1959-66. In 1967 Dr. Berg came to Texas A&M University where he was first Professor and then Head of the Department of Geology, and since 1972 Director of the Office of University Research. He has become well known for his papers on environmental interpretation from subsurface and small core data, grain size analysis, and oil column calculations. Dr. Berg has directed a number of master's and doctor's theses in these fields of investigation and he will draw on this entire background for the benefit of this special Continuing Education lecture.

The Continuing Education Committee is pleased to announce the second program of the 76-77 year is to be given by Dr. George de Vries Klein entitled "Exploration for Turbidites and Other Deep-Water Sandstones." This course was chosen to expose some concepts of clastic deposition not frequently used in Gulf Coast exploration. The two day, six-hour lecture series will be given on January 19 and 20, 1977.

STEWART CHUBER, Chairman
Continuing Education Committee

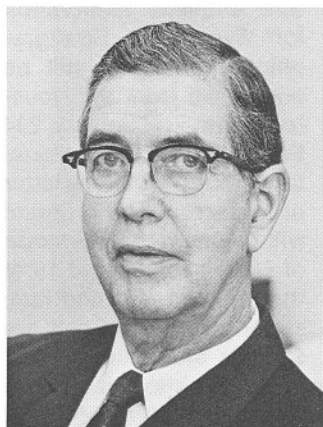
H.G.S. MEMORIAL SCHOLARSHIP FUND

The Scholarship Board acknowledges with sincere appreciation the following contribution to the Memorial Scholarship Fund:

George P. Mitchell, Houston, Texas DONOR

EVENING MEETING NOV. 8, 1976

FRED M. BULLARD—Biographical Sketch



Dr. Fred M. Bullard is Professor Emeritus of Geology at the University of Texas at Austin where he has been a member of the faculty since 1924. From 1929-1937, he was Chairman of the Department of Geology. In 1945 and again in 1954, he was a Distinguished Lecturer for AAPG and he was in the Visiting Scientist program of the American Geophysical Union in the spring of 1966 and in 1968-69. He is a

Fellow, Geological Society of America and Mineralogical Society of America and a member of AAPG, Phi Beta Kappa, Sigma Xi, and Sigma Gamma Epsilon. While on a U.S. Geological Survey expedition to Alaska in 1929 Dr. Bullard saw, for the first time, an active volcano and became interested. Since that time, he has studied volcanoes in many areas of the world and is a recognized authority on volcanoes. He has published numerous scientific papers and bulletins. In 1962, he authored a book entitled *Volcanoes, in Theory, in History, in Eruption*. A revision and enlargement of this book, under the title *Volcanoes of the Earth*, published by the Univ. of Texas Press, is scheduled for release in November 1976.

VOLCANOES AND THE ENVIRONMENT (Abstract)

by: Fred M. Bullard

The environmental impact of volcanoes is far reaching and while the destructive effects are the ones commonly associated with volcanoes, the overall impact is certainly beneficial. The destructive effects of volcanic eruptions, such as lava flows, ash falls, hot avalanches, and mudflows are briefly reviewed. The most dangerous and least predictable are mudflows, such as the one that destroyed Herculaneum in the 79 A.D. eruption of Vesuvius. Mt. Rainer and other volcanoes of the Cascades are potential sites for destructive mudflows. The possible extent of such flows, based on past history, is considered.

The major environmental impact of volcanoes is in their effect on climate and soils. The huge quantity of ash ejected into the atmosphere in a major eruption results in a decrease in the solar radiation and a lowering of the temperature. The unusually cold weather throughout the world in 1816, commonly known as the "year without a summer", coincided with the eruption of Tambora Volcano in Indonesia. The eruption of Krakatoa in 1883 had a noticeable effect on the climate. Measurements of solar radiation being conducted at the time of the 1912 eruption of Katmai Volcano proved the effectiveness of volcanic ash to lower the temperature.

Beginning in the 1880s, a world-wide warming trend set in, which reached a climax in the 1940s, and since that time has reversed. The role of volcanic dust was examined in an effort to account for these world-wide temperature changes, and it was concluded that major volcanic eruptions were responsible for lowering global temperature. The study was expanded to include pollution of the atmosphere by carbon dioxide, smoke, dust particles, etc., largely derived from the combustion of fossil fuels, petroleum and gas. The results showed that pollution by human activities was minor compared to the contribution by volcanoes and that volcanic dust is an important factor in world-wide temperature changes.

Periodic ash falls from volcanic eruptions maintains the fertility of the soil. A study in Indonesia shows a direct relationship between soil fertility, density of population, and the location of active volcanoes.

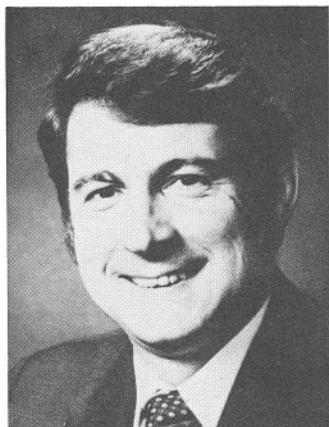
PRICE SCHEDULE-HGS MEETINGS (Subject to Change)

Summit Club	
Dinner	\$6.75
Cocktail	1.25
Beer	.75
Soft Drink	.50
Rice Rittenhouse	
Luncheon	\$6.00
Houston Oaks Hotel	
Luncheon	7.00
Cocktail	1.50

MEETINGS CALENDAR

Nov. 8-11	Geological Society of America, ann. mtg, with associated societies in Denver. (Fred Handy, GSA headquarters, 3300 Penrose Place, Boulder, Colo. 80301)
Dec. 6-10	American Geophysical Union, fall natl mtg, San Francisco. (AGU headquarters, 1909 K St. NW, Washington, D.C., 20006)
Jan. 3-14	Exploration geology for geophysicists, short course at University of Houston. (Carl E. Norman, Department of Geology, University of Houston, 77004).
Jan. 17-28	AAPG-SEExG petroleum exploration school, New Orleans. (Judy Golanski, American Association of Petroleum Geologists, Box 979, Tulsa, 74101. Phone: 918-584-2555).

GEOFFREY S. BAYLISS—Biographical Sketch



Dr. Geoffrey S. Bayliss was born in Bolton, Lancashire, England and became a United States Citizen January 1, 1970. He was educated in England and received his Ph.D. in Organic Chemistry from the University of Sheffield. In 1963 he was a Post-doctoral Research Fellow at Stanford University. His professional career began in England with Laporte Chemicals Limited. In 1964, he joined Jersey Production Research Co. in Tulsa, Oklahoma and in 1965 he came to Houston with Esso Production Research Co. After leaving Esso in 1971, he was a co-founder of GeoChem. Laboratories, Inc. in Houston and Geochem. Laboratories (UK) Ltd., Chester, England. He is currently President of GeoChem. in Houston and Chairman of the Board of Directors of GeoChem. in Chester. Dr. Bayliss is a member of AAPG, API, Geochemical Society, and World Petroleum Congress. For 1976-77, he is an AAPG Distinguished Lecturer.

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PRINCIPLES OF HYDROCARBON GENERATION AND APPLICATION
TO OIL AND GAS EXPLORATION (Abstract)

by: Geoffrey S. Bayliss

Petroleum generation in the subsurface involves primarily the geothermal (time-temperature) conversion of organic matter into hydrocarbons. The type of organic matter, its abundance, and the geothermal history of the sediments largely determines the quantity and the type of petroleum hydrocarbons generated in a specific source facies.

Many physical methods have been used to measure the geothermal history of a sedimentary sequence but by far the most informative, with respect to oil-gas generation, are the geochemical changes in hydrocarbon type and composition concomitant with increasing diagenesis. The chemical parameters reflecting diagenesis are well documented and, when applied to the exploration process, commonly are used to evaluate the hydrocarbon potential of sedimentary sections in frontier areas prior to extensive exploration drilling.

In a complete basin assessment, a comprehensive geochemical program provides pertinent, basic information necessary to delineate organic facies, hydrocarbon source facies, and the types of oil and/or gas which can be expected within prospective reservoir facies.

ANSWER TO OCTOBER GEOPUZZLE



RECENT DEATHS

Glen Petrick, 66, Independent Geologist formerly with Crown Central Petroleum Company died September 28, 1976.



"It's not that I don't believe the data, I just find my prejudices much more appealing!"

(Courtesy of D. Sparring)

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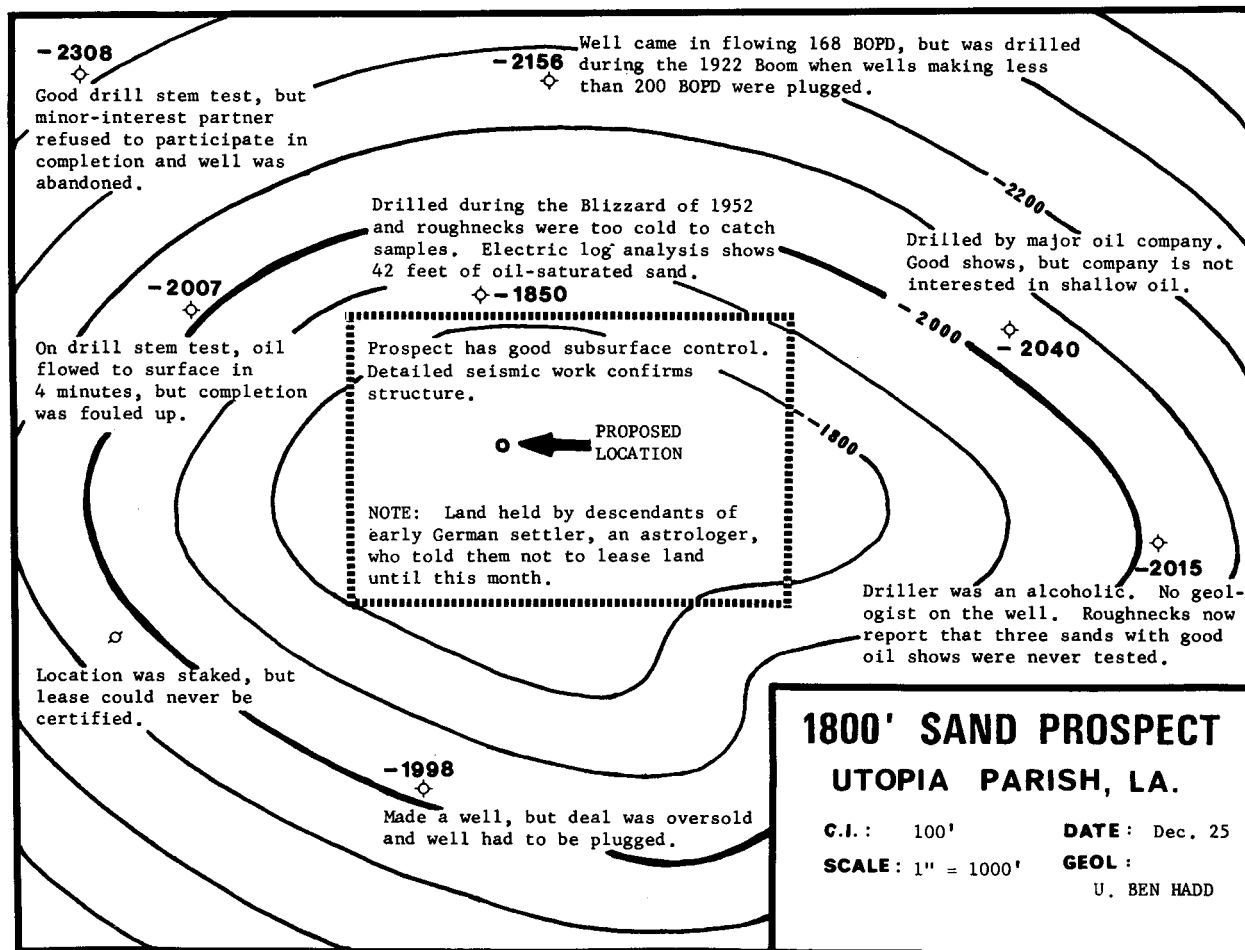
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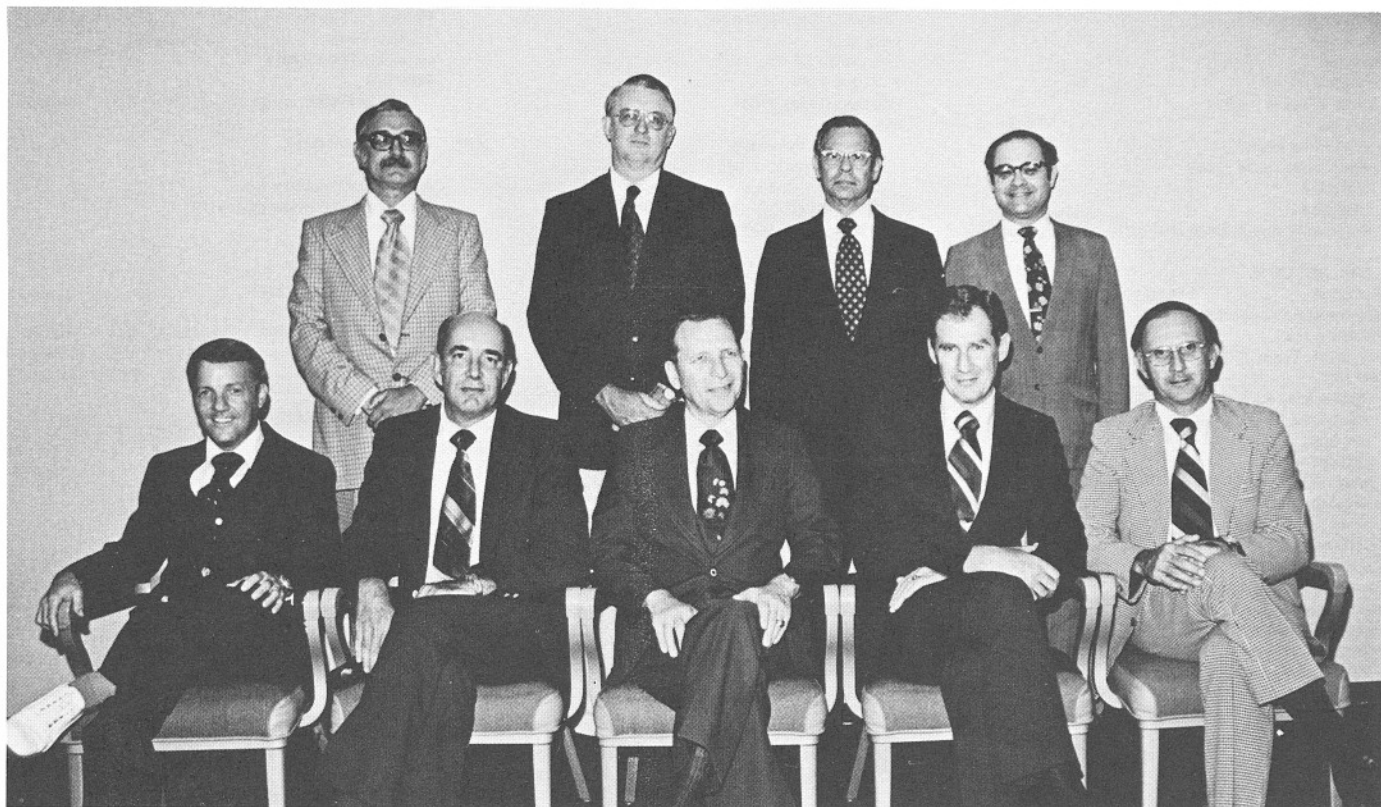
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HOUSTON GEOLOGICAL SOCIETY EXECUTIVE BOARD 1976-77

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Missing from picture: executive committeeman, W. L. TIDWELL, Houston Oil & Minerals.

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1974 — STRUCTURE, STRATIGRAPHY & PETROLEUM POTENTIAL of the	
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R. P. AKKERMAN

Geologist EXPLORATION Engineer

Review of Subsurface Data

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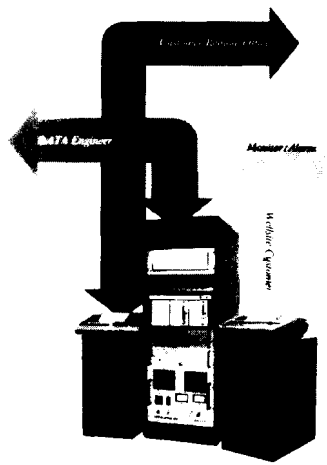
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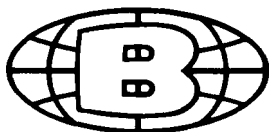
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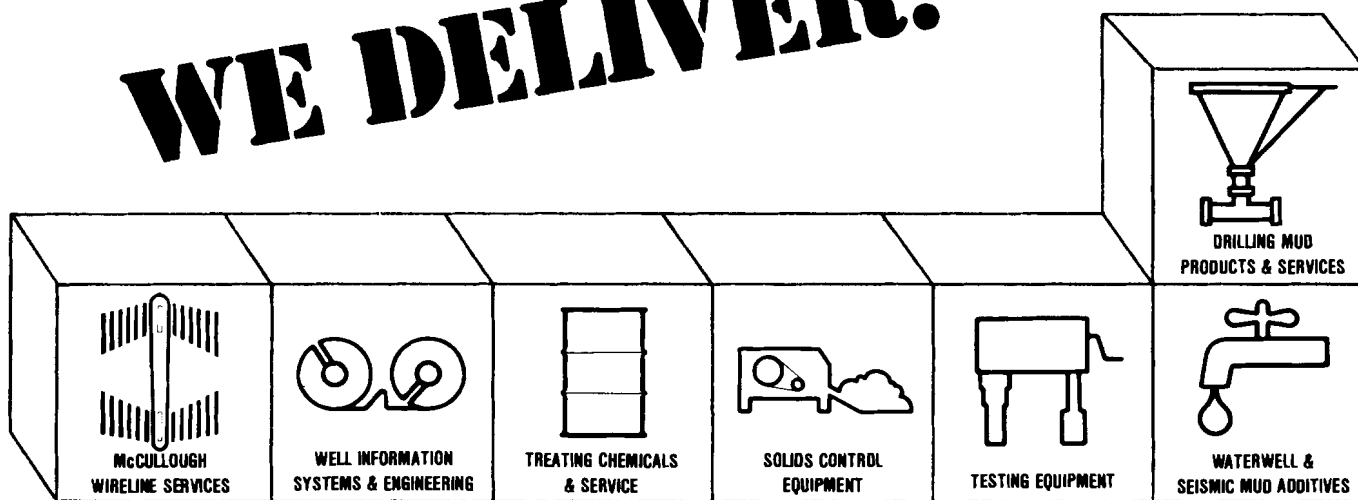
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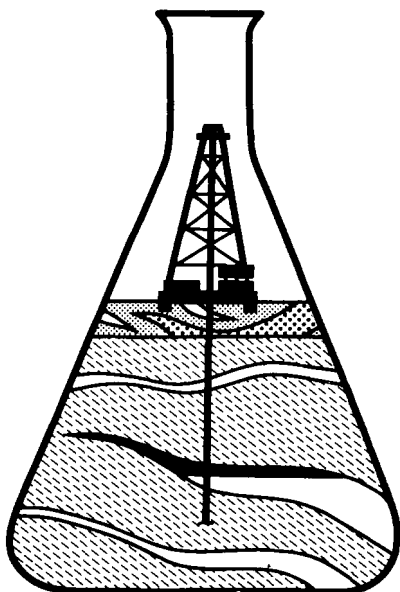


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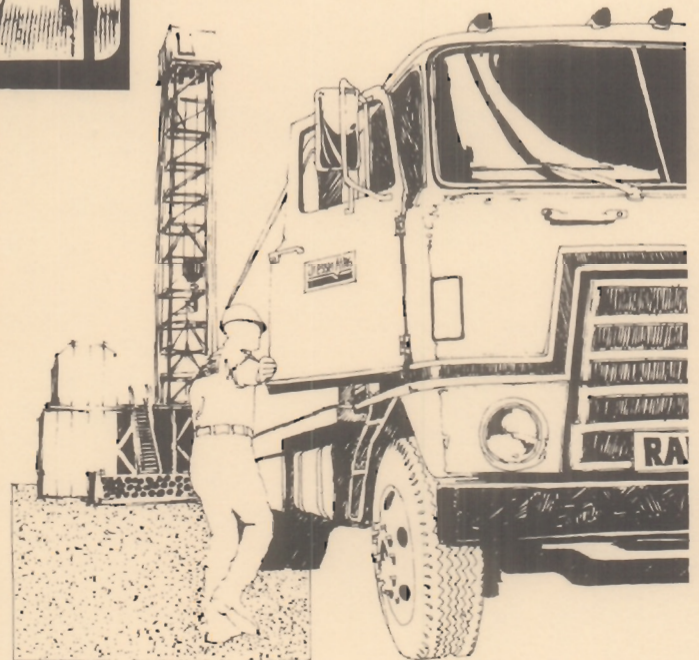
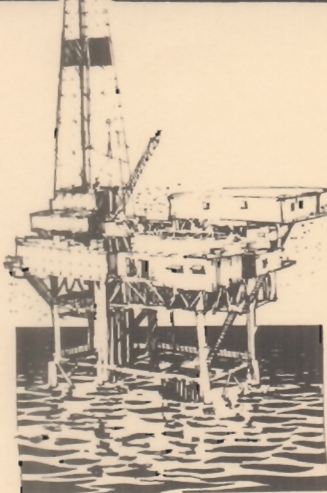
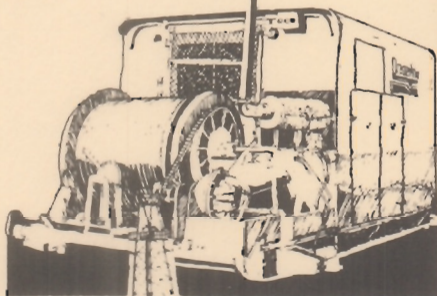
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