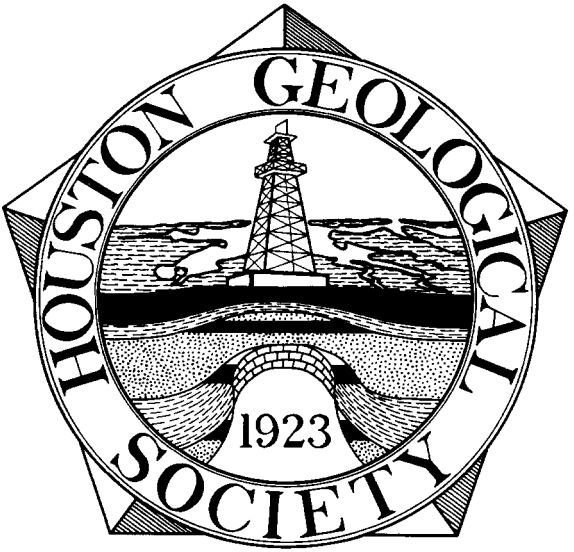
V. 2, No. 3

HOUSTON GEOLOGICAL SOCIETY



BULLETIN
1959 - 1960
HOUSTON, TEXAS

James A. Wheeler
1514 Esperson Bldg.
Houston 2, Texas

Houston Geological Society

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Volume 2, No. 5 January

FIFTH REGULAR MEETING - JANUARY 11

The first meeting of the New Year will be held Monday evening, January 11, 1960, on the 10th floor of the Houston Club. The social hour will begin at 5:15 p.m., dinner at 6:00 p.m.

DR. ERLING DORF, Professor of Geology, Princeton University, will present "The Earth's Changing Climate."

NOON MEETING - JANUARY 28

Plans have been completed for a joint meeting of the Houston Geological Society and the Geophysical Society of Houston to be held at noon Thursday, January 28, 1960, in the Crystal Room of the Rice Hotel. The luncheon tickets will be $2.00, including gratuity.

S.E.G. distinguished lecturer MR. WILLARD BASCOM will speak on "The Problems in Drilling to the Moho Layer." Mr. Bascom is Technical Director of the National Academy of Sciences whose AMSOC Committee is preparing to drill a hole completely through the crust of the earth. Surveys indicate that in several places the Mohorovic discontinuity beneath the oceanic crust comes within 31,000 feet of the sea surface, and continuous coring of the crust is planned. Preparations are being made, with a target date for preliminary drilling set in the summer of 1960.

SCHEDULE OF FUTURE MEETINGS

The next regular meeting will be held on February 8, 1960. Other regular meetings will be held on the following dates:

March 14
April 11
May 9
June 13

Abstracts of technical papers presented by Gilman A. Hill and Peter T. Flawn appear under Geoscience Notes elsewhere in the Bulletin.

PRESIDENT'S PAGE

A VISIT WITH WALTER OSTERHOUDT

Ten years ago the Houston Geological Society sponsored a contest for the best devised emblem. It was thought that this Society needed some sort of identifying crest for stationery and covers of publications. A number of entries were received, but the judging committee decided upon one drawn by Walter Osterhoudt.

Mr. Osterhoudt, a consulting geologist and geophysicist, has lived in Durango, Colorado, for the past eight years. His scientific endeavors are divided between surface work in the Paradox Basin of southeast Utah and consulting geophysical work for a client in south Louisiana. Other interests are a ranch near Chromo, Colorado, and a farm just north of Durango where he lives. As could be expected, both places are on anticlines and it is very possible that an oil field exists under the Chromo property. Walter drilled a shallow well on the place during the Korean war and logged some promising oil shows.

There are still a number of people in Houston who have fond memories of Walter. He worked nineteen years for Gulf in Houston. He was the first president of the Geophysical Society of Houston, and he later managed an office in Houston for a geophysical contracting firm. His two sons are now in college - one is a Ph.D. candidate at the University of Wisconsin and the other a senior at Colorado State.

Walter Osterhoudt's reward for the winning Society emblem contest was a ten year free membership. That privilege expires this year, and it was opportune for me to visit with him recently while in southwestern Colorado. My wife and I were graciously received by Walter and Gretchen, his charming wife, in their "home-with-a-view" overlooking the trout-filled Animas River and nestled in the center of the Durango anticline. Certainly - they are living proof that a dream can be lived.

...Edd R. Turner, Jr.

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ITEMS FROM THE EDITOR'S DESK

ATLANTIC CITY FORTY-FIFTH ANNUAL MEETING

The Houston Geological Society has chartered a non-stop Eastern Air Lines flight from Houston to Atlantic City, New Jersey, for the Forty-fifth Annual Meeting of A.A.P.G. and S.E.P.M. The flight will leave Houston Sunday, April 24, 1960, at 8:00 A.M. and will arrive in Atlantic City in time for most Committee Meetings scheduled for that afternoon.

The returning plane will leave Atlantic City Thursday, April 28th, at 5:00 P.M. for Houston.

Company managements are urged to notify their personnel as soon as possible of their selection, so that the individuals may make early reservations for the charter flight. The chartered plane has a limit of eighty-eight reservations. Approximately one-half of the plane capacity has already been reserved.

Mail requests for transportation to Carleton D. Speed, Jr., 711 Houston Club Building, Houston 2, Texas.

WERE YOU THERE?

If you were among the convivial trippers-on-the-light-fantastic who attended, you know what an excellent party the Christmas Dance was. We extend thanks to Karl Schneidau and his entertainment committee for an enjoyable night-out at the Shamrock. Too much credit cannot be given the ladies for their part in ensuring everyone of a memorable evening, and in this the hand of Nan Vittrup, Mrs. Georgia Grafton, Mrs. Robert Field and their committees was everywhere evident.

FIFTEEN HUNDRED

1500 members - that's the goal of the Society's Membership Committee. To date there are 1392 members of record; this includes 116 new memberships processed and approved in the current year.

To supplement the 1958 photo directory and the Directory Supplement of 1959 the Bulletin will continue to carry a listing of new members as the names are received and as space arrangement will permit.

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PERNIE BAILEY, DRILLING CONTRACTOR

INTERNATIONAL GEOLOGICAL CONGRESS
Copenhagen, Denmark - August 14-25, 1960

The plans for the Houston Geological Society's Special DC-8 Jet plane trip to Amsterdam are rapidly taking shape. A large part of the Economy Class space has already been reserved for the early applicants.

Present plans call for some entertainment after arrival in Amsterdam, including dinner at the 400-year old, world famous Five Flies Restaurant, and sightseeing. The Shell Oil Company has graciously expressed a willingness to show a limited number of geologists, geophysicists and paleontologists through its Exploration and Production Laboratory at Delft.

At the request of several members who wish to combine with their Geological Congress visit a short yet economical tour for themselves, their wives, and in some cases their children, a 16-day conducted motor coach and rail trip has been arranged. This tour will include two days in Amsterdam, one day in Brussels, three days and four nights in Paris, two days in the Swiss Alps, one day in Innsbruck, Austria, two nights and one day in Oberammergau, Germany for those wishing to visit the Passion Play, and two nights and one day in Munich, Germany.

The schedule calls for departure from Houston on Friday afternoon, July 22nd. The 16-day conducted tour will end at Munich on Sunday, August 7th. This will allow seven days prior to the opening of the Geological Congress, permitting individual members to spend an additional seven days in any desired part of Europe.

Past experience in handling this group to Conventions indicates that the return trip plans should be left to individual members to insure maximum flexibility. The round trip Economy Class air fare permits visits to six designated cities in Europe at no extra charge. American Express Company has blocked and reserved hotel accommodations in two new hotels in the center of Copenhagen for those making the trip. Arrangements for transportation, hotel and other reservations required while in Europe will be quickly made by the Houston office of American Express Company.

All inquiries for travel folders, costs and other information should be addressed to American Express Company, 1314 Main Street, Hous-

ton, Texas, Attention Mr. Klaus Siebert.

The 16-day conducted tour of Europe is priced at $409.00 per person, and includes specially selected accommodations of double rooms (with twin beds and private bath where available) based on two persons occupying a room. Two "table d'hote" meals - Continental breakfast and dinner - are provided each day, except in Paris, where only breakfast is provided. The above price includes first class railway transportation in France, Switzerland and Austria, motor coaches with English-speaking guide, gratuities, entrance fees to places of interest, and a night club tour in Paris, including tickets to The Folies Bergeres and a visit to the "Lido" to see a complete floor show. Many famous cathedrals, monuments, palaces, tombs, museums, Government buildings and other places of interest will be visited. Members leaving Houston earlier, or later than the scheduled July 22nd departure date may, if desired, arrange through American Express Company to join the conducted tour in Europe.

This is a reminder to those who plan to go, but have not yet made reservations, that the plane capacity of approximately 110 persons is filling rapidly, and the individual or couple should act now to secure the desired priority for space on this, the first special plane to the International Geological Congress.

Members desiring space priority should immediately make their requests in writing. A complete record is being kept, and reservations are being confirmed on a "first come, first served" basis.

Please mail space reservation request to: Carleton D. Speed, Jr., Chairman, Transportation Committee, Houston Geological Society.

NOW WE'RE LISTED

The H.G.S. has attained a position of sorts in the community - it now carries a directory listing in the phone book. Unfortunately too late to make the new book, inquiries through Information will, however, direct the caller to our new phone number: FAirfax 3-9309.

Beginning the week of January 11 the Society will be on display in space provided in the lobby of the Mellie Esperson Building. We are allotted the space for only one week; drop by when you are in the neighborhood.

HOUSTON NATURAL GAS CORPORATION
HUMBLE OIL & REFINING CO.
JOHN W. MECOM, INDEPENDENT

COMMITTEE REPORTS

FOREIGN PAPERS COMMITTEE

Chairman R. B. Hohlt reports that progress has been made on the proposed Foreign Papers Volume to the extent of gathering considerable material to be translated for the volume, and that several papers on European sedimentary basins have been translated.

For the most part the volume will contain papers dealing with the Western Hemisphere. Through the efforts of the T. U. L. M. Corporation the Committee is being provided with an English translation of the basic paper on Venezuela which was presented at the International Geological Congress in Mexico, revised and updated. The basic paper on the petroleum provinces of Mexico is being readied, and a paper on the Parana Basin will be translated.

Persons interested in helping on this project please contact Dick Hohlt, CA 5-0517, or Stewart Folk, CA 3-4441.

PERSONNEL PLACEMENT COMMITTEE

Your Committee has on file applications from a rather large group currently seeking employment. You are invited to call or to drop in and examine the Committee files.

For information that you might need, please contact any one of the Committee members:

Earl H. Bescher, Chairman
Humble Oil & Refining Co.
Room 800, Humble Building
CA-5-4411, Ext. 2019

John H. Clements, Vice-Chairman
General Geophysical Company
Room 750, Houston Club Building
CA-2-6325

A. G. Starr
Humble Oil & Refining Co.
Room 800, Humble Building
CA-5-4411, Ext. 606

Wendell L. Lewis
Highland Oil Company
1201 San Jacinto Building
CA-3-4901

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BOY SCOUT COMMITTEE

From the monthly letter of the Houston Area Boy Scout Council comes this area-wide announcement of a truly worthwhile H.G.S. activity:

Geology Merit Badge Instruction

"The Scouting Committee of the Houston Geological Society, under the leadership of George Dickinson, will provide practical instruction in geology at four locations in Houston. Instruction will prepare Scouts and Explorers for the Geology Merit Badge, but they must meet with and be reviewed by a certified merit badge counselor to obtain the badge.

This instruction is for all Explorers and Boy Scouts of at least First Class rank. Satisfactory attendance at the instruction sessions will make the Scout or Explorer eligible for the geology field trip to be conducted in the spring to the Llano area of Texas. Dr. Greenwood, Professor of Geology, University of Houston, will be the leader of the field trip.

Parents and leaders who transport boys to the meetings are welcome to attend the sessions, also.

Locations and dates of instruction are below. All sessions run from 7:30 p.m. to 8:45 p.m.

(1) Buffalo Lodge, Hudson Scout Training Center, 11655 Memorial Drive - Thursdays: Jan. 7, Jan. 21, Feb. 4, Feb. 18, Mar. 3

(2) First Floor Lecture Room, Schlumberger Well Surveying Corporation, 5000 Gulf Freeway - Thursdays: Jan. 14, Jan. 28, Feb. 4, Feb. 11, Feb. 18, Feb. 25

(3) Scout Hut, St. Matthew's Methodist Church, 43rd and North Shepherd - Tuesdays: Jan. 12, Jan. 26, Feb. 9, Feb. 23, Mar. 8

(4) Blanton Memorial, 3410 W. Alabama - Thursdays: Jan. 28, Feb. 4, Feb. 11, Feb. 18, Feb. 25

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George Dickinson, prime-mover behind this project of which the Society may be justly proud, announced the make-up of his instructing teams:

Buffalo Lodge	
W. Vineyard, Chairman)	
Otto Buis)	
Paul Brooks)	Texaco
John Worley)	
J. H. Pound)	
St. Matthew's Church Scout Hut	
Pete Rose, Chairman)	
T. J. Zimmerman)	
G. B. Adams)	Shell
John Hainer)	
W. L. Wilgus)	
Schlumberger Lecture Room	
Z. W. Falcone, Chairman	Independent
Henry Guest	Schlumberger
Edd Turner	Tidewater
R. A. Campbell	Union
Blanton Memorial	
W. E. Todd-Brown, Chairman	Texas Gas
Clyde Beckwith	Continental
J. A. Baird	Cities Service
John Cagle	Continental
J. E. Tyson	Consultant
J. W. Chappell	Tidewater
Ed Marx	Union

The field trip is tentatively arranged for April 1-3 with Dr. Greenwood as leader. Any others interested in participating in the work of this Committee are invited to contact George Dickinson, Shell Research.

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GENERAL GEOPHYSICAL COMPANY

FIELD STUDY GROUP

In anticipation of the publication of the volume on typical fields of the Upper Texas Gulf Coast (R.R. Comm. District 3), the Field Study Group is busy working out further details of this undertaking. Anxious to move forward with the project, a committee meeting is planned for January to continue the refinement of the mechanics and procedures involved.

Those people who have agreed to work up papers for publication in this volume will be contacted in the near future. Although commitments have been received on many fields, there is still need of a few more representative salt dome studies. Any person wishing to publish such a paper in this important project should contact Claude M. Watts, Texaco Inc., CA 4-9811, as soon as possible.

Claude is the new chairman of the Field Study Group, and the Committee consists of Leroy Woolett, Gulf Oil Corp.; George Sealy, Humble Oil & Refining Co.; Elmer Musselman, Shell Oil Co.; Jim Pound, Texaco Inc.; and Charles W. Barnes, Pan American. The Group would like to have one or two additional workers to serve on this Committee, and anyone interested should contact the Committee Chairman, or one of the officers of the Society.

NEWS OF MEMBERS

CHARLIE PENCE, Scout for Humble, was named Area Representative to the International Oil Scouts Association Board of Directors.

PETE W. CAWTHON, JR., First City National Bank, was elected 1960 Chairman of the Gulf Coast Section of AIME's Society of Petroleum Engineers.

DON F. CARLOS leaves his position as Southern Division Exploitation Geologist to become executive assistant to the manager of Tidewater's home office exploration department in Los Angeles.

TOM HALL, General Geophysical, is the new president of the Society of Exploration Geophysicists. Elected editor was NELSON C. STEENLAND, Geophysical Associates.

Newly with Commonwealth Oil Company is BUDDY DAURA, formerly geologist in Atlantic's Southeast Texas District.

GEOPHYSICAL ASSOCIATES INTERNATIONAL
GEOPHYSICAL SERVICE, INC.
HALLIBURTON OIL WELL CEMENTING

A recent change with Atlantic is BILL ESTES' assignment to duties as Offshore District Geophysicist. Bill was formerly District Geophysicist for the South Oklahoma District.

ALBERT ELLIS, Pan Am, is vice-president of the Gulf Coast Section of the S.E.P.M. Also named in recent election was H. A. CHUN, Texas Producing Company, to Treasurer with the organization of paleontologists and mineralogists.

WALTER McMAHAN was back in Houston but only in the process of transferring from Jackson to new duties for Mobil in the Victoria office.

A recent addition to the membership rolls is J. E. WILSON, executive assistant to the vice-president of Shell's Houston Area. Previously director of exploration research for Shell Development Company in Houston, Wilson was recently nominated to succeed E. D. Cumming, vice-president, when Cumming retires at the end of the year. A native Texan, Cumming is an A&M graduate with his degree in geological engineering; he is a veteran of 36 years with Shell.

NEWS OF OTHER SOCIETIES

HOUSTON GEOPHYSICAL CLUB

At a recent meeting of the Board of Directors and Officers the by-laws were changed to admit members of certain other professional societies in the Houston area; therefore, members of the Houston Geological Society are being invited to join the Houston Geophysical Club. H.G.S. members are welcome to visit and inspect the Club's facilities at 4189 Bellaire Boulevard.

For application forms please call MAdison 3-0593.

The Club announces a dinner meeting program of interest to all earth scientists in this area. Dr. Earl Ingerson, Professor of Geology at the University of Texas, will give a talk on "Exploration Work in the U.S.S.R." Thursday evening, January 21. Dinner at 6:15 will be preceded by a social hour beginning at 5:15.

The talk will cover the broad aspects of the use of earth sciences in exploration work in Russia. The speaker knows this subject both through visits and wide experience in editing translations of Russian

papers. Professor Ingerson was the first President of the American Geochemical Society and formerly Chief of the Geochemistry and Petrology Branch of the U.S.G.C.

Reservations can be made by calling the Houston Geophysical Club, 4189 Bellaire Boulevard, MAdison 3-0593 (after 10:00 a.m.)

ROCKY MOUNTAIN TENTH

The Billings, Montana, Geological Society has extended invitations to the Tenth Annual Meeting of the Rocky Mountain Section of the AAPG which will be held in Billings, February 7-10, 1960. Convention headquarters are to be the Northern Hotel; technical sessions will be held in the Fox Theatre two blocks from headquarters.

Another fine program is assured if the tentative schedule of technical papers is an indicator. Among the titles, which include papers on every Rocky Mountain state and Canada, are "Pennsylvanian Gas Accumulations" (Four Corners), "Uinta Basin" (Utah), "Oil - Past, Present, and Future" (South Dakota), and, under general headings, "Geomorphology and Oil Exploration," "Status of Geologic Fundamentals" - among others.

Entertainment, and a series of social gatherings for the ladies, is assured.

Contact Housing Committee Chairman R. A. Saunders, Box 1731, Billings, Montana, for additional information.

GULF COAST ASSOCIATION (G.C.A.G.S.)

Outgoing president, George Hardin, has released the names of the new officers for 1960 of the Gulf Coast Association of Geological Societies. Named to succeed Hardin was M. F. Kirby, Gulf Oil, Jackson, Mississippi. Others elected at Executive Committee meeting on December 11th were Vice President - Dodd N. Osburn, Union Producing, New Orleans; Secretary - William W. Woolfolk, Ohio Oil, San Antonio; Treasurer - E. G. Jeffreys, Consultant, Jackson.

The 1960 Convention will be held at Biloxi, Mississippi, October 19-21, 1960. Scheduled ahead are:

1961 - San Antonio	October 25-27
1962 - New Orleans	October 31 - November 3
1963 - Hot Springs (Ark.)	November 13-16

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FA 3-1356
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JAMES A. WHEELER
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1514 Esperson Bldg.
Houston 2, Texas

HERBERT E. WILLIAMS
Geologist – Oil Producer

1001 San Jacinto Bldg.
Houston 2, Texas

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GEOSCIENCE NOTES

A Comment on Depletion

On November 16th the Ways and Means Committee of U.S. House of Representatives in Washington opened hearings on tax matters including tax on oil and gas sold from a producing lease property. A news writer reports that two men, William F. Hellmuth, Jr., of Oberlin College and Joseph W. Pechman, economist for National Association of Manufacturers are charging that Government is being deprived of tax revenues amounting to five billion dollars this year by reason of legal deductions including depletion and development cost of the producing leases before operators have computed taxable income.

It is time that geologists and landmen, engineers, accountants and attorneys wake up to the powerfulness of adversaries who advocate liquidation of Capital Assets in guise of taxable income. We know, if and when Management is short of Capital for exploration, the geologist and landman are first in line to be liquidated.

A recent 15,000-air mile lecture tour of the United States and Canada to speak before 25 local geological societies and 10 universities on the subject of Depletion of Producing Lease Properties and Economics of Producing Oil and Gas from the Standpoint of the Geologist has made apparent that many persons in the industry do not grasp the fact that Depletion is a reduction in Capital Assets equal to the value of the oil and gas at the reservoir level in the lease property. Competent authorities among attorneys, accountants, geologists, engineers, and operators, can express what this value is in terms of stock tank barrels and cubic feet of gas at orifice meter when sold into the pipeline. Actually there is a considerable range in value due to economic conditions peculiar to each producing lease property, such as its geographic location relative to supply and demand within the region and the gravity of the crude sold from each property. We know that according to gravity schedule price of crude in the United States ranges from $1.76 to $3.05 per barrel. And we know that the crude at the reservoir level sells for 60 cents to $1.50 per barrel when title to a lease property changes in ownership. In this comparison of value of reservoir oil and gas to the

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POPE GEOPHYSICAL COMPANY

price of oil and gas sold into the pipeline it is apparent the ratio is 1:3 or as much as 1:2; expressed in percentage we would figure 33 1/3 to 50 percent, and this is what the accountant does in keeping books on producing leases.

The Supreme Court in 1917 (274 U.S. 295, 47 S. Ct. 608) decided that the oil and gas in a producing lease at the reservoir level are Capital Assets. Therefore depletion is a Capital Loss to the producer, both the Working Interest and Royalty Interest owners. However, in 1926 the Act on income tax and capital gain and loss schedule was amended with provisions that producers could classify as Capital Loss whichever is lesser, either 27.5 percent of the total sales receipts for oil and gas sold from a lease property during a taxable year, or 50 percent of net amount computed by difference taken between the total sales receipts and total cost of operating the lease property during the taxable year. As geologists we should determine whether the provisions are true in properly classifying the Capital Loss due to depletion of the producing lease property.

In 1955 the U.S. Bureau of Mines reports that total domestic crude in the United States sold at average price of $2.77 per barrel. According to the value of crude at the reservoir level we found as aforementioned an amount of not less than 33 1/3 percent, in 1955 equal to 92.3 cents per barrel. However, the Bureau found Working Interest owners' 50 percent of net per property was equal to 63.7 cents per barrel which they had to use as Capital Loss because it was less than 27.5 percent of total sales receipts equalling 76 cents per barrel sold. Evidently the Working Interest owner was shorted an amount equal to 28.6 cents per barrel. The Bureau reports Working Interest owners total sales in 1955 amounted to $6,720,799,000; the total shortage in Capital Loss suffered by the owners in 1955 was approximately $694,455,690. This error in properly classifying Capital Loss for producing lease properties has been in existence since 1926. At that time daily domestic production was approximately 2 million barrels and today it is almost 7 million barrels, consequently the error is magnified 3½ times in the 33 year period.

The Royalty Interest owner has no operating cost on his producing

lease property so his 50 percent of net amount equals $1.385 cents per barrel for 1955 and 27.5 percent of total sales equals 76 cents which he uses as his Capital Loss. However he suffers a shortage also (92.3-76) of 16.3 cents per barrel. Total shortage suffered by Royalty Interest owners in 1955 was approximately $56,005,158. Geologists and landmen should so inform all the Land Owners who are Royalty Owners in the United States, that their private property in the form of Capital Assets is being confiscated by Government in guise of taxable income.

In acting during the Congressional hearings, geologists and landmen will be discharging a civil responsibility as citizens which is just as incombent upon them as their obligation to bear arms in defense of our homeland.

...Thomas C. Hiestand
Denver, Colorado

Abstract:
Trap Barriers--Hydrodynamic, Stratigraphic, Wettability, by Gilman A. Hill*

The field mapping of formation-water pressures and salinities, together with theoretical and experimental research, has demonstrated that strong hydrodynamic gradients can be caused by differences in (a) water salinity, (b) oxidation-reduction potential, (c) temperature, and (d) topographic elevation. Significant differences in one or more of parameters occur in almost every geologic province. Regional hydrodynamic maps constructed from accurate bottom-hole pressure data must be prepared in each area to determine if significant hydrodynamic or nearly hydrostatic conditions exist. Many areas having an essentially flat topography are found to have very strong hydrodymanic gradients.

The ability of a trap barrier to hold a substantial oil column is often primarily dependent upon the hydrodynamic pressure gradient.

*Paper presented before the Society, November, 1959

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Reservoir pinchouts or terminations by facies change, cementation, unconformity, or faulting often have the capacity to trap, under hydrostatic conditions, only 5 to 50 feet of oil column before the capillary pressure exceeds the barrier entry pressure and causes oil to leak through the barrier. Under hydrodynamic conditions, this oil-holding capacity of a trap barrier may be (1) decreased almost to zero if the water flow is updip, or (2) increased to several hundred or a few thousand feet of oil column if the water flow is downdip.

For example, every 10-psi drop in pressure across the stratigraphic oil accumulation can increase (or decrease) the oil-holding capacity of the barrier by about 100 feet for a medium-gravity oil in brackish formation water. The velocity of water flow through typical stratigraphic-trap pinchouts necessary to cause this hydrodynamic control of stratigraphic oil entrapment is only about 1.0 to 0.01 inch per year. Fluid-flow models projected on the screen are used to demonstrate these hydrostatic and hydrodynamic-trapping capacities for stratigraphic-, unconformity-, and fault-trap barriers.

Most shales and other fine-grained sediments are normally water wet, and consequently any oil or gas from the adjacent reservoir rocks will not enter until the capillary pressure exceeds the entry pressure of these sediments. Some shales, however, are found to be preferentially oil wettable and will imbibe oil from adjacent reservoirs until either (a) the shales are nearly oil saturated, or (b) the reservoirs are barren of oil. Some gas provinces devoid of liquid hydrocarbons and other oil-lean areas may be the result of preferentially oil-wettable shales. Some research suggests that the clay-mineral exchangeable cations, which are in equilibrium with the formation waters, may substantially affect this wettability relationship. Calcium-magnesium-dominant waters would tend to make a shale oil wettable, and sodium-dominant waters would tend to make it water wet. The preferential wettability may vary throughout geologic history and thereby substantially affect the migration, accumulation, and preservation of oil.

The practical applications of these hydrodynamic and wettability factors to guide oil-exploration programs and to evaluate specific prospects are emphasized.

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Abstract:
The Subsurface Ouachita Structural Belt in Texas, by Peter T. Flawn*

The Ouachita structural belt in Texas, buried for about 850 miles of its 900-mile course, is composed of:

(1) A frontal zone of essentially unmetamorphosed folded and thrust-faulted rocks which are mostly shale and sandstone of Mississippian-Pennsylvanian age and Ouachita facies (Stanley-Tesnus); pre-Mississippian Ouachita facies rocks are present in the subcrop along the course of the front, and in places Ouachita facies rocks are thrust over foreland facies rocks (Grayson, Collin, Bell, Kendall, and Brewster counties, and probably also in McLennan, Ellis, Bandera, and Terrell counties); a belt of very weakly metamorphosed dark fine-grained clastic rock occurs in the interior part of the frontal zone.

(2) An interior zone of highly sheared phyllite, slate, very fine-grained schist, metaquartzite, and marble.

The tectonic boundary demarking the western and northern margin of the highly sheared rocks is possibly analogous to the Blue Ridge front in the Appalachian belt. In the western part of the belt in Trans-Pecos Texas, the frontal zone is broadly developed in the Marathon salient, but eastward in Val Verde and Kinney counties metamorphic rocks of the interior zone are tectonically juxtaposed with foreland basin sedimentary rocks, and the frontal zone of the belt is missing in the subcrop. Possibly in this area, rocks of the interior zone have overriden frontal zone rocks on the south side of the Devils River uplift. Rocks of the interior zone are exposed in the Sierra del Carmen south of the Rio Grande near Boquillas, Coahuila.

*Paper presented before the Society, December, 1959

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Saline Deposition in the Great Basin - A Preliminary Literature Summary; by Paul F. Kerr, assisted by Michelle Marder and Karen E. Klink, Department of Geology, Columbia University, New York 27, New York; 1959

Recently Professor Paul F. Kerr of Columbia University, with financial assistance from Shell Development Company, directed a literature search on saline deposits of the Great Basin area in the eastern United States. Professor Kerr defines the Great Basin as the region between the Wasatch Mountains on the east and the Sierra Nevada-Cascade Mountains on the west, which would cover essentially the Basin-Range Province. The study of saline basins included examination of the geography of the region by air and land reconnaissance. Following this, the report was prepared describing and illustrating some of the principal saline occurrences. To this report, Professor Kerr has again brought his unusually fine talents for describing and sketching geological phenomena. The report is the first of a series planned to cover investigations of the mineralogy of selected saline deposits.

Among the well known saline basins reviewed are ancient Bonneville and its modern counterpart, Great Salt Lake; Pliestocene Lake Lahanton, and modern Pyramid Lake; Searles Lake; and Salton Sea. Many less-known salines are included. In addition to the descriptions, maps, and charts, the report includes a number of detailed chemical analyses that have been gleaned from the literature. To any one interested in the subject of salines and of the deposition of evaporites this report provides enlightening reading and also affords the student an up to date bibliography.

...Reviewed by Ralph E. Taylor
Humble Oil & Refining Company

Adventures with Fossils, Robert H. Shaver, Indiana Department of Conservation, Geological Survey, Information Circular No. 6, 1959. 49 pages, numerous text figures, illustrated time scale and Indiana rock chart, annotated bibliography of books about life of the past.

The author of this fascinating booklet is a young geologist who has been a teacher at the University of Mississippi and who is now Head of the Stratigraphic Section of the Indiana Geological Survey. Dr. Shaver is enthusiastic about fossils and he is willing to share his enthusiasm with people who are interested in life through the ages. He also is a very capable writer as the following excerpt from his introduction will indicate: "This circular is written for all of them (people who write to the Indiana Geological Survey for information about fossils) but especially for those of school age. It is for school teachers, scoutmasters, parents, and other counselors of children. It is a beginner's guide to fossils, most useful to collectors in Indiana. It is for the curious everywhere who do not write to me, but who seek a hobby, avocation, or beginning knowledge to a profession. It is for all who are interested and seek, through fossils, one means to the Truth."

The circular is naturally of greatest interest to Hoosiers. But geologists everywhere who are called on to tell people about fossils will benefit from reading Shaver's beautifully illustrated "Adventures with Fossils." Some of the chapter headings will give an idea of the scope of the report:

How fossils are made
Rocks, fossils, and time
What fossils mean to us
New look at old fossils
  The immortality of Endothyra baileyi
  Shades of a Pennsylvanian forest
How you can find fossils
  Kinds of rock exposures
  Let's take a trip
  Indiana fossil trails
  A favorite trail for 100 years.

This publication can be obtained from the Publications Section of the Survey; price 35 cents (add 10¢ for packaging and mailing).

...Reviewed by E. H. Rainwater
Shell Development Co.

ON THE DISTAFF SIDE

Now that we have finished with a Merry Christmas and, I hope, celebrating the New Year, we can get down to thinking of exciting things to do in 1960. There are still three Auxiliary parties to take place but let's talk about the first one of the year. Pace Moore (Mrs. Homer G.) is Chairman. She and her Committee have plans in the making for a wonderful Anniversary Party. It is to be the night of February 4th at The Houston Club. We are looking forward to having our husbands celebrate with us.

I would like to give a little history to the members who have joined the past few years, so they will feel up to date for the party. The original name was "The Houston Society for Geologists Wives" organized with 353 Charter members. The first Officers and Board of Directors were elected May 23, 1950. Our first President, Kathryne Marr (Mrs. John D.), accepted with a deep sense of responsibility for the trust placed in her hands. She, her officers and Board of Directors, did a great job in taking the first steps for the new organization. The Houston Society for Geologists Wives had two purposes in mind when they formed this organization:

1. To encourage social relations among its members.

2. To assit the Houston Geological Society in any manner it requested.

Toward the achievement of these purposes the first President, Officers, and Board members kept in mind three basic ideas:

(1) They wanted ideas contributed by as many members as possible.

(2) No member knew everyone, but by working together they would know more members.

(3) To achieve the first two they would have as many members as possible working on committees.

In 1951-52 the name was changed from "The Houston Society of Geologists Wives" to "The Houston Geological Auxiliary." The seal of The Houston Geological Auxiliary, designed by Dorothy Igau (Mrs. Hubert), was adopted. It is the seal used on the cover of our year books and official stationery.

The Auxiliary has assisted in entertaining for three conventions: The A.A.P.G. in 1953, and the G.C.A.G.S. in 1955 and 1959.

Your present group of Officers and Board members is very thankful for the good work and planning of the past nine Presidents, their Officers and Board members. We feel most grateful for the sound organization that we have inherited. We must never forget that we are still living by the two purposes for which the organization was formed and applying the three basic ideas.

To all the new members of The Houston Geological Auxiliary: do not forget that we have the Geo-Wives - Newcomers Club. Contact Betty Brenner (Mrs. Robert C.), Membership Chairman, for additional information. This is a very active group. On November 18 a luncheon was held at the Briar Club; and their dance, November 28th, held at Glen Haven Country Club, was a huge success. A Brunch and Book Review is scheduled at the Briar Club on February 17th at 10:00 A.M.

Now that I have given you a little of our Auxiliary history, I want you to get the baby sitter lined up, mark your calendar and join us at The Houston Club the night of February 4th to celebrate the 10th Birthday Anniversary. Your invitation will be in the mail soon; be sure your reservation gets back to Maxine Fry (Mrs. Earl E.) before the deadline.

...Nan Vittrup

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