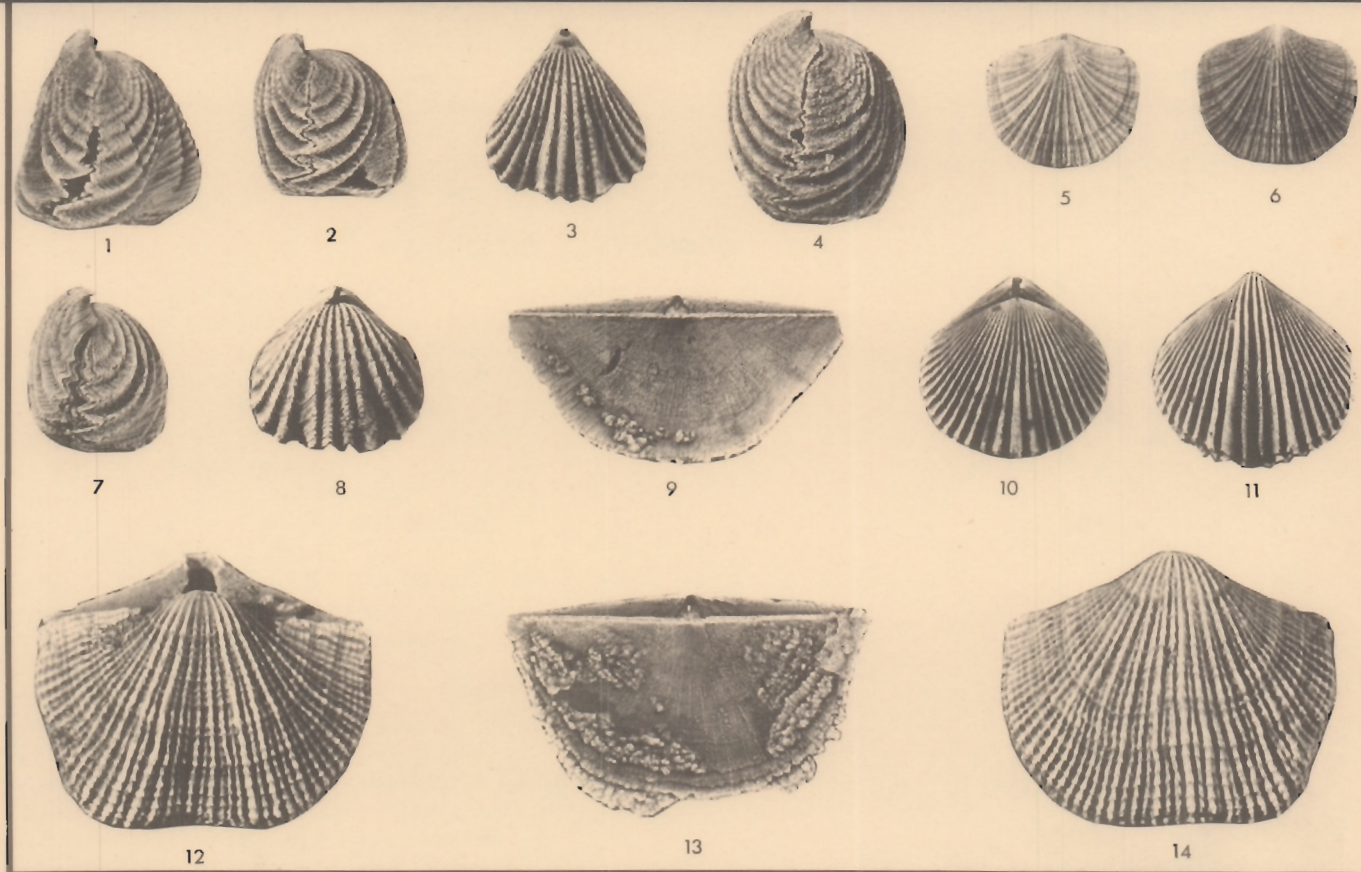
June 1978

BULLETIN

HOUSTON GEOLOGICAL SOCIETY

Volume 20

Number 10



HGS JUNE CALENDAR

June 12, 1978 (Evening Meeting—Guest Night)
Galleria I & II Rooms, Galleria Plaza Hotel
Reginald B. Cherry, M.D., Houston
"Aerobic Exercise and Preventive Medicine"
Social Hour—6:00 pm, Dinner—7:00 pm, Meeting—8:00 pm
Admission by prepaid ticket only ($11.00). No tickets sold at door. No sales or refunds after Friday, June 9, 1978. Send check and stamped, self-addressed envelope with your order to: HGS, Suite B-1, 806 Main Street, Houston, TX 77002.

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

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PRESIDENT'S COMMENTS

As we come to the end of another administrative year, it is time to review briefly the state of the Houston Geological Society. My fellow Executive Board members, all committee chairmen, and many individual members contributed to another good year for the Society. I extend my most sincere thanks to all, and especially to the Executive Board for their support and encouragement. I hope that my successor enjoys the same spirit of cooperation from his fellow officers that I did.

Membership stands at 2926, which includes 15 Honorary Life and 2911 Active and Associate members. This represents a net gain of 70 members since July 1, 1977.

The financial health of the Society is good. The Chairman of the Finance Committee advises me that the Operating Fund is in good condition and that the incoming Executive Board will inherit a substantial treasury balance, fully adequate to carry on Society activities until 1978-79 dues income is received.

There is a balance in the Academic Fund adequate to finance the several publications scheduled for completion next year. One of these is *Geology of the Greater Houston Area*, under the aegis of the Research and Study Course Committee. Another is a small book on basic exploration geology, as yet untitled, prepared as a public-service project and aimed at the junior high level. The first draft of this book has been written under the direction of the Special Publications Committee, and it is currently in the hands of the illustrators. Four field-trip guidebooks are scheduled to be published in conjunction with the 1979 AAPG-SEPM Annual Meeting. A special committee was authorized in April to investigate the preparation of a Field-Studies volume, as there is a definite need for a modern field-studies compendium. Publication sales continued at a brisk pace throughout the year, but a substantial inventory remains. Based on the number of order forms picked up from the HGS booth at the AAPG-SEPM convention in Oklahoma City, we should receive a substantial number of orders this spring and summer. "Nedra" Publishers, Moscow, USSR, is proceeding with the translation into Russian of 14 papers from *Deltas, Models for Exploration*.

Assets of the Memorial Scholarship Fund have grown to the point that the annual income from investments will permit the Scholarship Board to award the first scholarship for the 1978-79 academic year. The stipend for this first scholarship will be $1000.

Several committees are deserving of special mention for their significant contributions this year. The Directory Committee computerized the membership roll and published a free directory. The Awards and Student Loan Committee instituted a new system of judging eligible papers to determine the winner of the Best Paper Award, judged entries in the earth-science category at the Science and Engineering Fair of Houston, and worked with the five area universities in selecting outstanding geology students for the HGS Outstanding Student Awards. The Continuing Education Committee sponsored six programs plus several free movies, and this committee is already planning next year's schedule. The Field Trip Committee ran three field trips and each was quickly subscribed, indicating the need for this service. The Library Committee reviewed the entire geological collection in the Houston Public Library for the purpose of evaluating and organizing this wealth of geological material. A report on this project should be available next fall. The Entertainment Committee provided the popular Shrimp Peel in October, the golf and tennis tournaments in April, the barbecue in May, and provided a small subsidy for the annual Guest Night meeting. The Publication Sales and Membership Committees jointly manned a table at every meeting, displaying HGS publications and membership-application forms. The Publication Sales Committee monitored the sale of publications and kept the Executive Board advised on a monthly basis. The Membership Committee processed and forwarded to the Executive Board 347 applications for membership through May as well as conducting the delinquent member campaign. The Advertising Committee increased the number of advertisers in the *Bulletin* with a corresponding increase in advertising revenue. Last, but certainly not least, the Bulletin Committee deserves a special note of commendation for their efforts in publishing an interesting and informative series of HGS Bulletins.

Serving as your 54th president has been a very rewarding experience for me. I have made many new friends as a result of this service, and I trust that I kept my old friends. No one can accept a job of this magnitude without the wholehearted support and backing of both his wife and employer, and I would like to publicly thank my wife, Georgia, and my employer, Cities Service Company, for their support and forbearance throughout the year.

DEAN GRAFTON

IMPORTANT NOTICE JUNE 12, 1978, EVENING MEETING

The June evening meeting is traditionally the annual Guest Night (or Spouse's Night), and we are continuing the custom this year. Admission will be by advance ticket sale only; **there will be no tickets sold at the door**. Dinner tickets are priced at $11 each. They may be purchased at the HGS office, Suite B-1, 806 Main Street, from 9 AM to 4 PM Monday through Friday; or you may order by mail if you enclose a self-addressed, stamped envelope with your order. Make check payable to Houston Geological Society and mail your order to Houston Geological Society, Suite B-1, 806 Main Street, Houston, Texas 77002. For your convenience, tickets will also be available at the noon meeting, Wednesday, May 24. There can be no refunds after 4 PM, Friday, June 9, 1978.

PRICE SCHEDULE—HGS MEETING

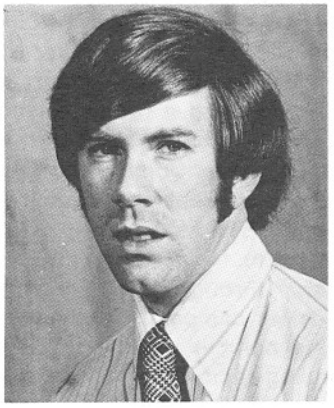
Galleria Plaza Hotel
Guest Night Dinner $11.00

GCAGS SHORT COURSE: STRATIGRAPHIC CONCEPTS IN HYDROCARBON EXPLORATION

Registration fee for this one-day short course to be given October 11 has not been set at this time, but it will be approximately $30. If you are interested, contact Ram S. Saxena, The Superior Oil Co., 1340 Poydras St., Suite 2100, New Orleans, Louisiana 70112.

EVENING MEETING—JUNE 12, 1978

REGINALD B. CHERRY—Biographical Sketch



Dr. Cherry, born in Fort Smith, Arkansas, attended pre-med school at Baylor University. While attending The University of Texas Medical School at San Antonio, Dr. Cherry was an American Cancer Society Research Fellow. After graduation, he began his post-graduate training in internal medicine and radiology at the Methodist Hospital of Dallas, Texas.

After completion of his post-graduate training, Dr. Cherry, an avid long-distance runner, joined the Cooper Aerobic Center in Dallas as a staff physician. During the same period of time, he worked at the Institute for Aerobics Research in Dallas, Texas, as a Research Associate. Upon moving to Houston, Dr. Cherry established the Woodlands Clinic, which emphasized the importance of proper diet and exercise in the prevention of coronary heart disease.

In January, 1978, Dr. Cherry joined The Houstonian Inc. as Director of the Houstonian Preventive Medicine Center. He is also currently serving as Consultant at The University of Houston and the Houston area YMCA's.

PREVENTIVE MEDICINE: THE EMERGING MEDICAL SPECIALTY

Traditionally, physicians in this country have been trained in the primary role of the recognition and treatment of specific diseases after patients present with certain symptoms. This has produced a very technically competent system of medical diagnosis and treatment. We are increasingly recognizing, however, the fact that certain diseases throughout the course of medical history have not responded as we would desire to this traditional approach. Many infectious diseases such as smallpox were very difficult if not impossible to deal with if a person waited until the disease became manifest before going to a physician. Thus the early art of preventive medicine was developed and was heralded by the advent of vaccines.

It is the increasing feeling of many physicians in this country that we are presently dealing with an equally devastating disease that does not respond optimally to our current treatment if a patient delays seeing a physician until symptoms appear. This disease is coronary heart disease. The statistics indicate a death rate perhaps greater than 25-30% within the first 5 to 10 minutes following the *first* onset of pain due to coronary artery disease. The Houstonian Preventive Medicine Center is directly addressing this problem and has developed an entirely new practice of medicine that addresses itself to primary prevention, chiefly of coronary disease but also to the prevention of cancer. The techniques developed emphasize the highly sophisticated use of nutrition and exercise practices and rather extensive diagnostic testing, including stress testing, which in its present refined form often enables us to predict coronary disease 5 to 10 years before a patient is aware of symptoms. In addition, a rather startling and unique method of predicting disease has been discovered through the use of a "Coronary Risk Profile," which has been developed by the physicians at the Houstonian Preventive Medicine Center. New ideas of exercise and nutrition are currently being used in diagnostic evaluations of patients at the Center. Use of the Coronary Risk Profile has heralded a new dimension in preventive medicine.

NOTICE

Newly elected H.G.S. officers and executive committee members for the 1978-1979 fiscal year are:

President	Jeffery V. Morris	Transcontinental Gas Pipeline Comp.
First Vice President	William A. Fowler	Phillips Petroleum Co.
Second Vice President	Dr. Richard B. Hohlt	Consultant
Secretary	James A. Ragsdale	Watson Oil Corp.
Treasurer	John H. Hefner	Exxon Company, U.S.A.
Executive Committeemen for two-year term 7-1-78 - 7-1-79	Donald H. Cummings	Getty Oil
	Gene Trowbridge	Consultant

D. J. BONVILLAIN
Chairman, Ballot Committee

FIRE DRILL!

The DOE, 19 member countries of the International Energy Agency, 31 international oil companies, and 70% of the nation's domestic refiners are currently participating in the first large-scale international-domestic test involving a hypothetical sudden interruption in international oil supplies. The simulated emergency will assess the impact on the member countries of the IEA in their response to a significant loss of oil imports. The test will examine various key aspects involving data collection and processing and will run from 6 to 9 weeks. The object is to highlight areas of the emergency system that may need improvements.

Test parameters giving both source and magnitude of the hypothetical supply interruption were issued from the IEA headquarters in Paris, France. Concurrently with the international exercise, the DOE will conduct a simulation of its proposed domestic Emergency Standby Crude Oil and Refinery Yield Programs.

Under the proposed standby crude-oil allocation program, each refiner would estimate its available crude oil supply on a monthly basis. A national utilization rate for the month would be calculated. Refiners estimating crude oil supplies above the national utilization rate would be required to sell a portion of their crude oil to refiners whose estimates were not enough to run at the national utilization rate. In this manner, all U. S. refiners would be entitled to run at the same percentage of the monthly base period.

HONORARY LIFE MEMBERSHIP

The Executive Board of the Houston Geological Society takes pleasure in announcing that Almer F. Childers has been elected an Honorary Life Member. Honorary Life Membership is bestowed upon persons who have distinguished themselves in the science of geology, or who have contributed outstanding service to the success and welfare of this organization. The citation and plaque will be presented at the June 12, 1978, meeting.

A. F. CHILDERS

A. F. (Chili) Childers, a native Houstonian, left before completing his senior year of high school in order to help support his family. In 1928 he went to work for the Gulf Oil Corporation. He was promoted from the Accounting Department to the Geological Department. The head of the Geological Department, Marcus A. Hanna, strongly encouraged him to go to college. As a result, he worked full time while attending The University of Houston at night. He received a BS degree in geology in 1953 and taught reservoir geology at the University in 1952 and 1953.

Chili was employed by Gulf Oil in the Gulf Coast area from 1928 to 1951. His work there was primarily concerned with subsurface geology, well-site geology, and scouting.

He became associated with a consulting group, Cecil Hagen and Associates, in 1952. The firm's work was primarily directed toward evaluation efforts and development of drilling prospects. There were assignments in the Gulf Coast area as well as South Texas and Venezuela. An evaluation project of all of Sinclair Oil Corporation's properties evolved from this work; the task took 8 months of intensive work. In the spring of 1955, the firm was doing work for the Murchison interests of Dallas. Studies of Toklan Oil Corporation (Tulsa) as well as the Venezuela Syndicate, Inc., were undertaken. As a result, control of both companies was eventually purchased by the Murchison interests. Mr. Childers moved to Tulsa in the spring of 1955, and in November of that year was elected President of Toklan Oil Corporation. He lived in Tulsa until January, 1957, and then returned to Houston. He became a consultant and was retained by National Associated Petroleum Company of Tulsa during the year 1958.

From 1959 to 1963, he was manager of a drilling syndicate composed of 10 individuals. Cecil Hagen was one, and the other syndicate members were former Superior Oil Company officials. His work with this group resulted in the discovery of Jones Creek Field in Wharton County, Texas. Chili did consulting work and managed producing properties in South Texas from 1963 until May of 1967. He has been with Mitchell Energy Corporation since then. As Division Operations Geologist, he works mainly in the Fort Worth Basin and west-central Texas.

In 1953, the AAPG Convention was held in Houston and Childers was asked to be Chairman of the Exhibits Committee. Space for enough exhibits to fill the Annex to the Houston Coliseum (where the papers were given) was sold. Over $50,000 resulted, and, after expenses were paid, the Houston Geological Society had a fair nest egg to use for study groups, publications, student awards, and the like.

Mr. Childers has held various other chairmanships in the Houston Geological Society. Additionally, he was Secretary in 1946 and Vice President in 1947. He was elected President of the Houston Geological Society for the 1948-49 administrative year.

In 1939, Chili married Nell Barron. The Childers have 3 children—2 daughters who live in Houston and a son who lives in Corpus Christi. There are 2 grandchildren.

Mr. Childers is a meticulous geologist with a keen insight into what makes a reservoir produce and how to improve its performance. My experience with him, both from professional and personal standpoints, has been first rate. The honor being accorded him is deserved.

ROBERT A. HARRIS

DISTINGUISHED SERVICE AWARD

The 1977-78 Executive Board of the Houston Geological Society established a Distinguished Service Award. This award is presented to a member who has rendered long-term and valuable service to HGS. The Executive Board is pleased to announce that James O. Lewis is the first recipient of this award. The citation and plaque will be presented at the June 12, 1978, meeting.

JAMES O. LEWIS

James O. Lewis received a BS Degree in mechanical engineering from the University of Kentucky. He then enrolled in graduate school and was awarded a MS Degree in geology from Kentucky in 1949.

Upon graduation Jim was employed by Magnolia Petroleum Company. In 1950 he joined Pat Rutherford, Independent Producer. In 1955 Jim opened his offices as an Independent.

Jim has served the Houston Geological Society in many capacities. He was President of the Society in 1968-69, after having served as both First Vice President and Treasurer. He has served on numerous Society committees and is currently Chairman of the Environmental Committee.

Jim has published several papers on geology of the Gulf Coast. He has lectured to the Houston Geological Society and various other Gulf Coast societies. Jim presented his paper "Stratigraphy and Entrapment of Hydrocarbons in the San Miguel Sands of Southwest Texas" to the Houston Geological Society in September, 1977. He also presented this paper at the 1977 GCAGS Convention and was awarded second place for Best-Paper Awards.

AAPG DELEGATES CONVENE IN OKLAHOMA CITY

The House of Delegates convened Sunday, April 9, 1978, at 9:00 AM in Oklahoma City at the Skirvin Plaza Hotel. House of Delegates Chairman Harry A. Miller reported he had attended numerous regional meetings during the past year. AAPG President Edd R. Turner reported that he had made a multitude of speeches and press releases pointing out problems of the industry created by government controls and intervention. Edd has been a very visible president of AAPG, and has acted as a one-man "truth squad" when meeting the public and elected representatives, pointing out what geologists and the industry have done and could do if we had less government interference. President-elect Robert D. Gunn reported he was going to continue Edd's fine work.

Fred Dix, Executive Director of AAPG, says our membership is now 20,001. Interestingly enough, one third of the members of AAPG are Texans. Mr. Dix said additional information on the upcoming Circum-Pacific Conference can be acquired from AAPG Headquarters in Tulsa. Both the Geological Society of Trinidad and Tobago and the Petroleum Exploration Society of Australia were admitted as international affiliates to AAPG.

The most pressing business at the delegates' meeting was to discuss a reapportionment plan to allow a maximum of 12 delegates from any area. Sam Udden of the Houston Delegation gave an excellent dissertation, clearly pointing out that, although fair and equitable reapportionment is needed, limiting Houston, New Orleans, and the Rocky Mountain divisions to 12 delegates would severely handicap their ability to administer effectively all the business of AAPG. The Houston Delegation's position in opposing this limitation of delegates was supported by delegations from Corpus Christi, the Rocky Mountains, New Orleans, Dallas, and New Mexico. The question will be referred to the Executive Committee and submitted to the House of Delegates for vote at the convention next year in Houston. Houston's current delegate representation is 23, and if the amended reapportionment is passed next year where there will be a 1 vote for 1 delegate ratio, Houston should have approximately 30 votes in the House of Delegates.

Thomas A. Fitzgerald submitted the by-law amendments which were sent to AAPG members February 7, 1978, for approval, and all of the proposed by-law changes were accepted by the delegates.

An election was held for a new slate of officers to head up the AAPG House of Delegates from July 1, 1978, to June 30, 1979. J. Miller Goodger, Windfohr Oil in Ft. Worth, was elected Chairman, and Louis C. Bortz, Amoco Production in Denver, is the new Vice Chairman. The new recording secretary is George D. Springer with Union Oil of Canada in Calgary.

J. D. McCLELLAND

ALUMNI FUNCTIONS GCAGS CONVENTION

Contact R. J. (Bob) Ingram for alumni group reservations at 504/521-6433, or write him %Chevron USA, Inc., 1111 Tulane Ave., New Orleans, Louisiana 70112.

GUEST COLUMN

LIVING FOR TODAY

by Fred L. Smith, Jr.

We are indeed fortunate to be living in such a great country and in such a wonderful period in the long history of the earth. The scientific and technological advances which have occurred within my lifetime have been truly remarkable. It literally staggers the imagination to think of all the advances and achievements that have taken place in such a relatively short span. With mankind's eternal curiosity, genius, and the great amount of research of every conceivable kind that is taking place, who is to say what wonders lie ahead.

As a result of progress that has been possible because our freedom was provided for us at great personal sacrifice, our standard of living is the envy of the world. However, there are some questions that have troubled me for a long time. Do we really appreciate the great heritage that is ours? Do we really have any concern for the future, for those that we will leave behind? There seems to be little concern for anything except for today.

Our country contains large amounts of various natural resources, yet we are using many of these exhaustible resources with reckless abandon with only a token effort to save and recycle those that can and should be recycled to prolong the supply. For a long time we have been completely dependent on imported cobalt, chromium, manganese and tin. To maintain the standard of living we have come to expect, we must exploit not only our own natural resources but those of many other countries. For the moment this is fine, but what about the future? What are we to do and what are those other countries to do when these supplies run out? Since this is not likely to occur within our lifetime, we are prone to be apathetic, leaving this for others to cope with.

Our national debt, which our federal government continues to compound and which most economists agree is both potentially dangerous and the cause of our runaway inflation, seems to be of little or no concern to the average citizen. Also viewed with little or no concern is the eventual problem of stabilizing world population in some manner acceptable to all and at a level the earth can reasonably tolerate.

I am confident that with mankind's ingenuity scarcely anything is impossible. We can and we should strive to reach a point where we can live in harmony with our environment and not at the total expense of it. The sooner we recognize this fact and we do what we can to implement this, the sooner we will reach the time that future generations will inherit from us a life-style equal to and even better than we now enjoy.

We have all heard and possibly used the expression, "You can't take it with you." That is true, at least with respect to our material possessions, but this does not relieve us of our responsibility of good Christian stewardship. Everything we have is in reality a gift from God which we are entrusted to use during our lifetime for the benefit of all mankind in grateful acknowledgment of Christ's redeeming love. I hope each of you will join me in trying as best we can, each in our own way, to leave this old world a little better than we found it.

IN MEMORIAM

L. T. BARROW (1895-1978)

Leonidas Theodore Barrow, who died March 4, 1978, was known as "Slim" throughout his career. He was a man who had contributed greatly to his company and to his profession.

Born on June 16, 1895, at Manor in Central Texas, he moved to Austin with his family when very young and grew up there. He was educated in the Public Schools of Austin, where he played center on the Austin High School football team. There he picked up his nickname, since he was 6 feet and 3 inches in height and slender. Following graduation from Austin High School, he entered The University of Texas, but soon left to go into the Signal Corps of the United States Army, where he served for approximately a year until March 1919. He returned to The University of Texas upon his discharge and received a Bachelor of Arts degree in geology in 1921. He played on the Longhorn football team and also played as substitute on the varsity basketball team.

As an indication of his fine scholarship, he was awarded the key of Sigma Xi. Following graduation, Slim became an instructor in geology at the University and continued his studies. In 1923 he was awarded his Master's degree.

The next year, 1924, he went to work for Humble Oil & Refining Company as a geologist in the San Antonio Division. In those days, surface geology was very much in vogue, and Slim distinguished himself in Caldwell and Guadalupe Counties, where the company discovered the Salt Flat and Darst Creek Fields.

In 1929, when the position of Chief Geologist became available, Slim was given the job. He was occupying that place when he was elected to the Board of Directors of Humble Oil & Refining Company on February 8, 1937. He became Vice President in 1938 and Chairman of the Board in 1948, retiring in 1955.

Those who worked closely with L. T. Barrow, including the writer, remember him as a quiet, studious, meticulous man who was not only an able scientist in his chosen profession but an outstanding businessman and administrator as well. In my opinion, his judgment as to the potential value of an oil property was extraordinarily accurate. One of his outstanding achievements while with the company was the acquisition of the West Ranch in Harris County, following the discovery of the Webster (Friendswood) Field. He was the sole negotiator with Mr. West, Sr., and worked out a trade with him which turned out to be an excellent deal for the company and, at the same time, for the West family.

Slim Barrow had the reputation of being an eminently fair man with employees, independents, and the outside world in general. He was intensely loyal to his company and to those in the company who had helped him as he climbed the ladder to executive levels. Wallace E. Pratt, a one-time Chief Geologist and Board Member of Humble and later a Vice President of Standard Oil Company of New Jersey in New York, was one of those people to whom Mr. Barrow was most loyal throughout his life. The same can be said of Harry Weiss, one-time Chief Executive and one of the founders of Humble Oil & Refining Company.

In addition to loyalty to friends and business associates, Slim Barrow had a tremendous amount of loyalty for his University and the professors there who had helped and encouraged him. At great personal expense, he set up the Hal P. Bybee Fund in the Geological Foundation at The University of Texas at Austin in honor of one of his favorite professors. This fund has been one of the mainstays of the Department of Geological Sciences at The University of Texas, as it provides funds for sabbatical leaves, trips to technical meetings, and other fringe benefits for the faculty of the Department.

He was instrumental in setting up the Geological Foundation in the 1950s, and has been the prime mover in establishing three or four of the endowed professorships in the Department. He and Mrs. Barrow have made very large contributions to the Geological Foundation and the different funds in it over a period of many years. Mrs. Barrow (nee Laura Thomson) was a cousin of the famous Clara Driscoll who built the Driscoll Hotel in Corpus Christi and who has been called "the savior of the Alamo" because her influence and financial help prevented the sale of the Alamo in San Antonio at one point. Mr. and Mrs. Barrow have one son, Thomas D. Barrow, Senior Vice President and Director of Exxon Corporation.

The Department of Geological Sciences at The University of Texas at Austin has made enormous strides in the past 25 years, and the Barrow contributions, influence and encouragement have, in the opinion of the writer, been one of the major causes for this fine progress.

MORGAN J. DAVIS

PUBLICATIONS

USGS Bulletins

B 1435-A. Changes in stratigraphic nomenclature by the USGS, 1976, by N. F. Sohl and W. B. Wright. 1977 (1978). 151 p. $2.75. (Contributions to stratigraphy.) Available from Branch of Distribution, USGS, 1200 South Eads Street, Arlington, Virginia 22202.

USGS Open-File Reports

77-663. Land use and land cover and associated maps for Beeville, Texas. This data set consists of four maps keyed to the USGS topographic map "Beeville, 1:250,000." These maps are coded for statistical data development. The maps are (1) land use and land cover, (2) political units, (3) hydrologic units, and (4) census county subdivisions. Also included is one positive of the cultural base for Beeville at the same scale. Available from USGS, Rocky Mountain Mapping Center, (NCIC-R), Box 25046, Federal Center, Bldg. 25, Denver, Colorado 80225.

77-837. Graphical aids for estimating general scour in long channel contractions, by C. F. Nordin, 12 p., 6 figs.

77-70-D. Basic data for the geochemical evaluation of National Petroleum Reserve, Alaska, by P. K. Theobald

and H. N. Barton. 102 p., 2 pls., 2 figs. Microfiche $4.50; paper copy $22.25.

78-83. Sediment yields for selected streams in Texas, by C. T. Welborn and R. B. Bezant, 47 p., 3 figs., 3 tables.

78-98. Water-quality records for the Hubbard Creek watershed, Texas, October 1974-September 1976, by H. J. Davidson. 51 p., 2 figs., 10 tables.

78-100. Hydrologic data for Little Elm Creek, Trinity River basin, Texas, 1976, by R. M. Slade, Jr., T. H. Hays, and C. T. Schoultz. 82 p., 2 figs., 4 tables.

78-123. Atlantic margin coring project, 1976 preliminary report on the shipboard geotechnical data, by A. F. Richards. 166 p., 28 figs. Microfiche $3.50; paper copy $24.75.

78-124. Triaxial and consolidation testing of cores from the 1976 Atlantic margin coring project of the USGS, by P. G. Swanson, R. E. Brown, J. C. Hathaway, and Dwight Sangrey. 149 p., 1 fig. Microfiche $3.50; paper copy $22.

78-132. An oil-spill risk analysis for the eastern Gulf of Mexico (proposed sale 65) Outer Continental Shelf lease area, by Timothy Wyant and J. R. Slack. 72 p., 44 figs., 11 tables.

78-145. Geological and operational summary, Atlantic Richfield Lower Cook Inlet, Alaska, COST Well No. 1, by J. C. Wills, J. G. Bolm, G. H. Stewart, R. F. Turner, M. B. Lynch, G. W. Petering, John Parker, and Brian Schoof. 48 p., 2 pls., 3 figs. Microfiche $4.50; paper copy $8.50.

78-149. A bibliography on the effects of off-road vehicles on the environment, by R. H. Webb and H. G. Wilshire. 15 p. Microfiche $3.50; paper copy $2.

78-188. Natural gas—a perspective on resource availability, by C. D. Masters. 18 p., 9 figs. Microfiche $3.50; paper copy $2.50.

Unless otherwise noted, the above USGS Open-File Reports are available through the Open-File Services Section, Branch of Distribution, USGS, Box 25425, Federal Center, Denver, Colorado 80225 (303/234-5888).

Miscellaneous Field-Studies Maps

MF-914. Magnetic and gravity anomalies in the northern Mississippi embayment and their spacial relationship to seismicity, by T. G. Hildenbrand, M. F. Kane, and W. Stauder, S. J. 1977 (1978). Two sheets. Scale 1:1,000,000. $1.50 per set.

MF-915. Map showing Mesozoic magnetic anomalies, western North Atlantic, by Hans Schouten and K. D. Klitgord. 1977. Scale 1:2,000,000. $0.75.

These are available from the Branch of Distribution, USGS, 1200 South Eads Street, Arlington, Virginia 22202.

Western North America: Devonian, edited by Michael A. Murphy, William B. N. Berry, and Charles A. Sandberg. Riverside Campus Museum Contribution 4, University of California (1977). 248 p. $12.50. Available from Campus Museum Associates, Dept. of Earth Sciences, University of California, Riverside, California 92507. This volume was assembled to accompany the papers given at the 1977 annual meeting of the Paleontological Society on the Devonian of western North America. Other contributions are also included.

Bureau of Economic Geology—1977 Annual Report, W. L. Fisher, Director. Available from the Bureau in their administrative offices in the Geology Building, Main Campus, University Station, Box X, Austin, Texas 78712.

EXCERPTS FROM "A SUMMING UP"—AAPG PRESIDENTIAL ADDRESS

by Edd Turner*

As your president these past nine months I have attempted in various speeches and media releases to cover issues confronting the petroleum industry and a resolution of the energy crisis.

I explained how deregulation of the oil and gas market would work to price energy closer to its replacement cost, resulting in a reduction of consumer waste. There was general acceptance of my short article "The Windfall Myth," which received wide distribution and even elicited queries from Congressional staff members in Washington.

However, one of the sharpest queries came from a group of students at Syracuse University who asked, in effect, "What's so unique about the oil industry?" The answer is, of course, its capital intensity. For example, an oil company makes a per-capita investment of $100,000 to $200,000 per employee as compared to, say, a textile company, which makes an investment of a mere $10,000 per employee. Furthermore, the oil industry is central to the U.S. economy, supplying 74% of the nation's energy and accounting for $45 billion of U.S. trade deficits abroad because of our dependence on foreign oil imports.

In talks given early this year, I pleaded the case for a return to basic exploration, a consideration of the entire process of oil formation and discovery—from source rock to entrapment—with emphatic reliance on today's research and technology as a possible solution to bolstering reserves.

What a contrast exists between industry and government, however, in the matter of securing qualified professional administrators and regulators. Industry, prompted by obligations to its investors, tries to hire the best geologists, engineers, toolpushers, drilling superintendents it can afford. Government, on the other hand, lacking any sense of obligation to the salaried and propertied classes that pay its upkeep, awards sensitive positions in administration and regulation to someone who has never had any connection with the regulated industry. Actually, in some instances, it seems that appointees are chosen because they have been previously engaged in opposition to industry.

The underlying guidelines for this federal attitude are paragraphs 208 (A) and (B) of the United States Code, 18. Paragraph 208 (A) says, in so many words, "Whoever participates as a government employee in a decision, recommendation or renders advice in a proceeding, contract, controversy or other particular matter in which he, his spouse or minor child has a financial interest shall be fined not more than $10,000 or imprisoned not more than two years, or both."

Paragraph 208 (B) states that, "The employee may make decisions, recommendations or render advice if he advises his appointor, makes full disclosure, and receives written determination that his financial interest is not substantial, or is too inconsequential."

If that were all that was involved in accepting appointment to sensitive governmental offices, there might be many qualified people available and willing to take such positions. However, it is the use of further bureaucratic

interpretations and agency-implemented questionnaires that operates to disqualify qualified people. As a result . . ., in general it is only the people who have nothing to report who are judged acceptable for appointment. This has led, in effect, to the choice of personnel who can best be described as "good listeners," but who, in actuality, probably listen not at all!

Governmental procedure along these lines has evolved to the point that only those in academic pursuits, public office, or citizen activist organizations can present "clean" questionnaires. In effect, the rules as written and administered regard industry-based applicants as dishonest until proved otherwise. My resentment of this and several other governmental abuses prompted the widely quoted release on "Counterproductive Government."

Finally, another subject to which I addressed a major portion of speeches and media releases is the spectre of federal-land withdrawals. The fact that land withdrawals are even under consideration at this time of deteriorating domestic reserves and deficit foreign trade balances—a time when the Federal Government should be doing everything in its power to alleviate the situation—is beyond rational cognizance. Compare our own land-withdrawal proposals to West Germany's governmental policy whereby whole villages are being relocated to allow coal mining essential to that country's economy. Such a government-sponsored program would never be allowed here where a few trees—or a species of endangered tree frogs, for that matter—are deemed more valuable than the well-being of thousands of citizens.

In a recent national magazine article lauding the Secretary of Interior, this statement was attributed to him:

"The public lands belong to the backpackers and the ghetto dwellers as well as the ranchers and miners." That is an all-inclusive statement—not to be disputed since we are all said to own a part of our federal lands. But how do you and I and the ghetto dwellers derive any benefit from federally protected lands that are so distant, so remote, and so inaccessible that few of us will ever in our lifetimes even see them? The one way that we and the "dwellers" can benefit from our "ownership" is for those lands to be *used* to supplement our human needs—currently estimated in excess of 20 tons of mineral production per U.S. citizen per year.

Grazing land should be grazed—under prescribed programs; trees should be harvested—under accepted efficient forestry methods; mineralized lands should be mined by responsible miners; and oil and gas prospects should be explored, developed, and brought into production by dependable, qualified operators.

The bounty of the land is not to be realized if it is put in cold storage. The ghetto dweller in New York City is not substantially benefitted when a forestry-service ranger restricts use of land in Utah! If the aesthetic sensibilities and social conscience of the backpacker and the ghetto dwellers are offended by an aerial photo of a drilling rig on Alaskan tundra, I recommend that a far more realistic reaction is for them to counter this "outrage to their proprietary rights" by launching an all-out cleanup of the squalor, filth, and defilement of this nation's urban areas. This country needs programs by which all are benefitted! This can best be accomplished by the receipt and recycling of the products of the land through the free-enterprise system—not through welfare checks, food stamps, and nonproductive federal employment.

*Presented at Oklahoma City, April 10, 1978.

TEXAS' FIRST GEOTHERMAL WELL SITE SELECTED

More than 3 years of research into the feasibility of producing geothermal energy from the geopressured zone along the Texas Gulf Coast has been conducted by a team of Bureau of Economic Geology scientists. This study has resulted in the selection of a geothermal test-well site in Brazoria County. Located along Chocolate Bayou, the test well, the ERDA and General Crude No. 1 Martin's Ranch, has been scheduled to be drilled by General Crude Oil Company starting in early 1978. The University of Texas at Austin has been granted funds from the U.S. Department of Energy to coordinate drilling and completion of the test well, and to proceed with subsequent research on data obtained during drilling. This program is co-directed by Don G. Bebout (Bureau of Economic Geology) and Myron L. Dorfman (Department of Petroleum Engineering, Center for Energy Studies).

The prospective reservoir is in the lower Frio Formation (*Anomalina bilateralis* zone) between 13,500 and 16,500 ft deep. The test well is expected to penetrate more than 800 ft of sandstone with fluid temperatures in excess of 300°F. At least 250 ft of this sandstone should have permeabilities greater than 20 md. If a drainage area of 4 sq mi is assumed, the reservoirs penetrated by the test well should contain at least 10 billion bbl of water. If the water contains 40 cu ft of methane per barrel, then the total natural gas resource should be 426 billion cu ft in place. A complete description of the conditions expected in the test-well area is included in the Bureau of Economic Geology Report of Investigations No. 91, *Frio Sandstone Reservoirs in the Deep Subsurface Along the Texas Gulf Coast*.

(From 1977 Annual Report—Bureau of Economic Geology. Reprinted with permission.)

AAPG DELEGATE ELECTION RESULTS

AAPG has informed us of the results of the election for Delegates and Alternates to the AAPG House of Delegates for the term July 1, 1978, through June 30, 1981. The 11 newly-elected delegates will join 12 holdover delegates to make up Houston's 23-member delegation. The Houston Geological Society would like to thank each of the Delegates and Alternates for offering to serve.

Delegates	Alternates
Chester A. Baird	Kenneth N. Durham
Clyde G. Beckwith, Jr.	Donald W. Lane
Thomas M. Burke	Donald W. Love
Ralph A. Davis	Gene B. Martin
William F. Howell	Stephen H. Ogier
James R. Jackson, Jr.	B. Cochran Phillips
Robert L. Musselwhite	Theresa F. F. Schwarzer
Merton M. Osborne	Walter C. Sullivan
James A. Ragsdale	Don G. Tobin
Anthony Reso	Kenneth W. Toedter
James A. Wheeler	Warren M. Trimm

TEXAS GULF COASTAL PLAIN OIL AND GAS FIELDS: CASE HISTORIES AND TREND SUMMARIES

As the search for oil and gas continues during these times of dwindling reserves, it is important that geologists leave no stones unturned in looking for new accumulations. We need to know as much as possible about the conditions of entrapment of producing fields. Data pertaining to the known occurrences need to be readily available to explorationists. Such information leads to the application of old ideas and testing of new concepts. Data relative to known occurrences should be systematically compiled and recorded so that they may be conveniently accessible.

To assist in meeting the needs for case studies concerning oil and gas accumulations in East, South, and Southeast Texas (Railroad Commission Districts 1, 2, 3, 4, 5 and 6), the Houston Geological Society is forming a committee to compile and publish studies of various fields.

Plans are to establish a committee to solicit field studies from a number of individuals. These studies will be published under the authors' names in a symposium volume. In addition to papers on both new and old fields, we are soliciting trend summaries.

The success of this project will depend upon the enthusiasm of the HGS members who will staff the committee and the cooperation of the petroleum geologists, operators, and companies involved.

We need committee members, field papers, and trend summary papers. We also need your ideas and suggestions.

Please step forward and volunteer. Arthur Troell of the Houston Geological Society will serve as Chairman of the committee.

CONTACT: Arthur Troell
Millican Oil Company
908 Town & Country Blvd.
Suite 400
Houston, Texas 77024
461-4904 (office)
371-3623 (residence)

TOPOGRAPHIC MAPPING

The USGS announces that Georgia has become the 14th state for which the USGS has completed once-over map coverage at the 1:24,000 scale (1 in. equals 2,000 ft), the basic map series of the National Mapping Program. A total of 1,015 of the 7.5-minute quadrangle maps, either whole or in part, is required for complete coverage of Georgia. Of this total, 900 have been published with publication of 115 pending next year. Georgia is the first state completed for a new series of coastal "topobathy" maps which show, in addition to the topography, the bathmetry as charted by the National Ocean Survey. Aerial photos are also available for most of the state at 1:24,000 scale. Other states for which 7.5-minute topographic coverage has been completed are Connecticut, Delaware, Florida, Indiana, Kentucky, Maryland, Massachusetts, New Jersey, Ohio, Pennsylvania, Rhode Island, Virginia, and West Virginia.

THE ADDRESS? SORRY ABOUT THAT

It has been brought to our attention—several times—that an address to which to mail your early housing forms for the GCAGS convention to be held in New Orleans this coming October was inadvertently left out of the notice and the accompanying form. It is:

GCAGS/SEPM Housing Bureau
334 Royal Street
New Orleans, Louisiana 70130

Not all is lost, however. As a result of the communication which resulted, the officers of the New Orleans Geological Society are now aware of just how widespread the circulation of our *Bulletin* is. They report that they have received forms from every part of the country—almost 200 of them. In planning your itinerary, note that the Golf and Tennis Tournament, a Short Course, and the opening cocktail party will all take place on Wednesday, October 11; the Technical Sessions will be on Thursday and Friday, October 12, and 13.

The schedule for future GCAGS conventions is as follows:

1978 New Orleans
1979 San Antonio
1980 Lafayette
1981 Corpus Christi
1982 Houston

ALABAMA MAPS

The USGS announces the completion for the State of Alabama of a series of land-use and land-cover maps to aid land, water, energy, and other resource planners and administrators. The Survey has completed the same type of mapping program for Louisiana, Arkansas, Florida, Kansas, Pennsylvania, West Virginia, Delaware, and Missouri.

The maps delineate different categories of land use such as agricultural, industrial, and residential, and different kinds of land cover such as forests and water.

The new mapping system, adopted by the USGS in 1976, divides land use and land cover into nine basic "Level I" categories: urban or built-up land, agricultural land, rangeland, forest land, water, wetland, barren land, tundra, and perennial snow and ice. These nine basic classes are further divided into 37 more detailed Level II categories. For instance, the Level I category of forest land is divided into the Level II classes of deciduous forest land, evergreen forest land, and mixed forest land.

All the data on the land-use and land-cover maps and the associated maps are available in digital form for use in computers and automatic map plotters. As part of the standard products for the national land-use mapping program, the USGS prepared a series of 14 land-use and land-cover maps and associated overlays at a scale of 1:250,000 to show all parts of Alabama. Then, for Alabama, the USGS also prepared a series of 1:126,720-scale maps to match the state's county highway maps.

Paper diazo copies of each map or each overlay sell for $2, film diazo copies for $5.50, and stable-base film-positive copies for $22 each. They are available from the USGS, NCIC-East, 536 USGS National Center, Room 2B200, 12201 Sunrise Valley Dr., Reston, Virginia 22092.

RARE II: INTELLIGENT DECISIONS ON RESOURCE TRADEOFFS, OR "DARTBOARD DIPLOMACY"?

By Paul K. Driessen, Rocky Mountain Oil & Gas Association, Public Lands Assistant

The Forest Services Roadless Area Review and Evaluation, more commonly referred to as RARE II, is aimed at assessing the nation's existing wilderness areas and filling in the gaps in the National Wilderness Preservation System by designating some more areas as wilderness. It is a follow-up and expansion of the first RARE program completed in 1973.

Nationwide, 65.7 million acres have been designated as roadless and are currently undergoing an evaluation of surface and, to some extent, subsurface resources. Wilderness attributes (natural integrity, ecosystem type, apparent naturalness, opportunities for solitude, species indigenous to wilderness areas, and primitive recreational opportunities) have already been evaluated.

The next step concerns an evaluation of the social and economic attributes of these RARE II lands—timber potential, grazing values, hard-rock minerals, oil and gas resources, and so on. It is this second step that is drawing criticism.

This phase is supposed to make the overall RARE II evaluation a rigorous, systematic and, above all, balanced study of all the resources the land might contain, so that the final decision will be based upon a careful consideration of all the tradeoffs that will be involved. However, there is a widespread feeling that there are a number of issues and resources which are being ignored, or at least given insufficient attention, and that the Forest Service's surface-protection philosophies and lack of experience with minerals and minerals industries are interfering with these goals.

Perhaps the thorniest issue concerns the conflict between the need to protect the surface values of the tracts being studied, and the need to obtain complete and accurate data on all the subsurface resources of each individual tract, before any final decisions are made.

Many Forest Service decision-makers apparently believe that their primary responsibility is to protect surface values, "so that the wilderness option will not be foreclosed on any area," and that other considerations are only secondary. Their general policy has thus been to prohibit most drilling operations until their evaluation of a tract has been completed—unless the drilling rigs can be brought in by helicopter (an economic . . . impossibility).

Because the only way to evaluate potential oil and gas reserves is by drilling, and because drilling necessarily means building roads (which the Forest Service will not let the industry do), the net result of this policy will mean that decisions on designating RARE II tracts as wilderness will be made without any real consideration of the petroleum resources underlying those lands.

To date, the only input the petroleum industry has been able to give the RARE II evaluation is an analysis of estimated "undiscovered recoverable hydrocarbon resources." This was an important first step, because it means that oil and gas will receive at least some attention. RMOGA has prepared an industry analysis of oil and gas potential in the RARE II areas. The 165 RARE II tracts studied by RMOGA, which represent perhaps 10% of the Overthrust belt, show that as much as 9.7 billion bbl of oil and 61 Tcf of gas could be recovered from those 165 areas. However, the figures are only preliminary resource estimates—based on extrapolations from known producing fields to structures and formations found by geological and geophysical methods. They are not proved-reserves data, which are critical to this Forest Service evaluation; only drilling can provide these data.

The Forest Service's present evaluation process is akin to throwing darts at numbers which correspond to RMOGA's preliminary estimates of oil and gas resources in RARE II areas. If the Forest Service persists in making its wilderness decisions in the absence of drilling data, it may well be throwing away many of the nation's most critical resources in a game of darts.

The evaluation currently being conducted seems to be stressing one vital national need (wilderness) over another, equally important national need (energy and other minerals). It does not appear to be balanced, systematic, or even-handed.

And most importantly, it is highly doubtful that RARE II can possibly result in intelligent decisions about resource tradeoffs, because it prevents us from knowing with any degree of certainty what resources we are actually giving up when we designate a particular tract as wilderness.

Probably very few of us in the geological sciences are against wilderness, but we tend to view the wilderness issue less as a highly emotional issue and more as a question of balancing one set of values against another.

An important fact which people (particularly our governors, mayors, legislators, and educators) must grasp is that, in order to have wilderness, we must sometimes give something else up; and, in order to make intelligent choices about whether we want to give up one resource so that we can have another, we must first know what resources we are talking about.

Another basic fact is that our socio-political-economic system is much like any natural ecosystem: every part is in some way related to every other part. Every impact reverberates throughout the system. We cannot afford to make a decision (about wilderness or wilderness study policies, for example) without first analyzing the impacts that decision is likely to have on other parts of the system.

Oil and gas operations will have certain unavoidable impacts on surface values. However, these impacts will be only temporary and can be minimized; the land can be reclaimed and later designated as wilderness. Drilling does not permanently foreclose the wilderness option. Designation as wilderness, on the other hand, especially if it is done without proper evaluation of mineral resources, *will* permanently foreclose other important resource options.

Certain officials in the Forest Service seem intent on pursuing their present "no surface occupancy" policies. Perhaps the only way to revise their thinking and make RARE II a truly balanced study is to educate the public and get the public to let the Forest Service know it does not want wilderness "at any price."

RMAG is uniquely qualified to help make RARE II the balanced, even-handed process which the Forest Service

is attempting to conduct. Its members are very knowledgable about minerals and mineral extraction and could do much to educate people to the subtle issues and tradeoffs involved in RARE II (see *Oil & Gas Journal*, March 13, 1978, p. 21-27).

Editor's Note: The above article was recently printed in the Rocky Mountain Association of Geologists (RMAG) Newsletter and is reprinted with their permission. It is the first in a series of Monthly Contributions to Awareness by that Society as part of their recently formed Public Affairs Action Council.

WASTE-STORAGE POTENTIAL ATLANTIC COASTAL PLAIN

The USGS has released a report entitled "Evaluation of the Geologic and Hydrologic Factors Related to the Waste-Storage Potential of Mesozoic Aquifers in the Southern Part of the Atlantic Coastal Plain, South Carolina and Georgia," by P. M. Brown, D. L. Brown, M. S. Reid, and O. B. Loyd, Jr. The Open-File Report (78-292) covers the distribution of permeable and impermeable beds that might hold and confine liquid wastes. These were determined by studying cores, cuttings, and geophysical logs from about 400 deep wells drilled by and for private industry over many years. The investigation was designed to aid waste managers and regulators and also to provide useful background information on geologic conditions for oil and gas exploration both onshore and on the submerged part of the coastal plain.

South Carolina currently has a policy that deep-well injection of waste will not be permitted, and Georgia has denied all applications for proposed injection wells that have been submitted.

A paper copy of the 103-page report is available for $121, or microfiche for $25.50. It will be published as a Professional Paper, eventually.

HGS ANNUAL TENNIS TOURNAMENT

The Tennis Tournament was held at the Pine Forest Country Club.

The Tournament Committee consisted of Bill Howell and Bill Hintze, who arranged for the beautiful trophies. Charles Mosely, of The Analysts, furnished the tennis balls, and special thanks go to Bill Sherman, who made the arrangements with the Pine Forest Country Club.

	"A" Flight
Winners	Cecil Craft
	Steve Allen
Runners-up	Bill Hintze
	Don Sherer
Consolation	Rick Eland
	John Ruggles
Runners-up	Ed Burton
	Larry Gordon
	"B" Flight
Winners	John Burger
	Harry Max
Runners-up	George Karabatsos
	Bill McMoran
Consolation	David Todd
	Ray Morris
Runners-up	Elwin Peacock
	Bob Schrock

XXVI IGC

The XXVI International Geological Congress will meet in Paris from July 7 to 17, 1980. The scientific program will include 20 sessions on as many fields of geology, and colloquia on Mineral Resources, Energy Resources, Geology of Continental Margins, Geology of the Oceans, Geology of Alpine Chains Descended from the Thetis, Geology of Europe: from the Precambrian to the Post-Hercynian Sedimentary Basins, and Geology of France. Geological excursions covering practically all of Europe will be held before and after the Congress.

The First Circular was distributed early this year. It includes a summary of the subjects of the sectional meetings and the colloquia and the itineraries of the excursions. It also includes a registration form which should be filled out by all those interested in receiving additional information on the Congress. Only those having replied to the First Circular will receive the Second Circular.

A limited number of copies of the First Circular are available from Muriel Kessler, 656-3812.

HGS GOLF TOURNAMENT

The largest HGS Golf Tournament, with 232 golfers, was held at the Tejas Golf Club on April 27, 1978. Thanks to all the contributors for making this event as great as it was. Special thanks go to The Analysts for use of their computer, Data Log for the open bar, and Petroleum Information for the beer.

TOURNAMENT LOW GROSS—L. A. "Sonny" Gravel (76)

FLIGHT 1	
Low Net	Dean Hoffman
Second Net	Jack Keplinger
Third Net	Bob Berryman
FLIGHT 2	
Low Gross	Gary McCreary
Low Net	Andy Bacho
Second Net	Sam Evans
Third Net	Bill Cunningham
FLIGHT 3	
Low Gross	Jeff Morris
Low Net	Bill McBee
Second Net	Pete Wickland
Third Net	Walter Troegel
FLIGHT 4	
Low Gross	Ed Hardcastle
Low Net	Bud Holzman
Second Net	Cecil Rhodes
Third Net	Bob McClelland
SPECIAL AWARDS	
Longest Drive	Bill Rieniets
Closest to Hole	Don Regan
Longest Putt	George Gordon
High Gross	Otis Bentley (127 and counting)

Sorry to say that no one won the 1978 T-bird for the hole-in-one.

John Pate, Chairman, thanks the other committee members: Jeff Morris, Larry Smith, Kim Fitzpatrick, Al Boatman, and Dusty Rhodes.

CONGRESSIONAL ISSUES

The Houston Chronicle reports the following issues as having been voted on since the last *Bulletin*.

SENATE

1. Panama Canal Treaty—Tabled 58 to 37 an amendment stating that the treaty would not be effective until Congress has disposed of all U.S. property in the Canal Zone.

2. Canal Treaty—Tabled 56 to 36 an amendment permitting U.S. citizens employed by the Panama Canal Co. to hold their jobs until they retire or are discharged for cause.

3. Canal Treaty—Tabled 54 to 33 an amendment to leave in effect a provision of the 1936 treaty allowing the U.S. and Panama to defend the canal in case of war or threat of agression.

4. Farm aid—Agreed 49 to 41 to the conference report on the Emergency Agricultural Act offering higher subsidy payments to grain and cotton farmers who leave up to one-third of their land fallow.

5. Canal Treaty—Tabled 52 to 42 an amendment reducing from $10 million to $5 million the amount the U.S. will pay Panama each year for certain public services.

6. Canal Treaty—Tabled 54 to 40 an amendment calling for guarantee by Panama of the civil rights of U.S. citizens in the Canal Zone.

7. Canal Treaty—Voted 68 to 32 to turn the Panama Canal over to Panama by the year 2000.

8. Treaty amendment—Agreed 73 to 27 to a reservation disavowing any intention by the U.S. to interfere in the internal affairs of Panama.

9. Airline deregulation—Voted 83 to 9 to reduce federal regulation in the airline industry, opening it up for the first time to unrestricted price competition.

10. Bugging—Voted 95 to 1 to end the use of electronic surveillance in national security cases without a court order from one of seven selected federal judges.

	1	2	3	4	5	6	7	8	9	10
Tower, R.	N	N	N	N	N	Y	N	N	Y	Y
Bentsen, D.	A	A	Y	Y	Y	Y	Y	Y	Y	Y

HOUSE

1. White House staff—Rejected 207 to 188 legislation to fix the size of the White House staff at 354 and almost double the number of aides at the top salary levels. The bill would have replaced a 1939 law setting up a total staff of 14.

2. Postal Service—Voted 384 to 11 to increase political power over the Postal Service by making the postmaster general again a presidential appointee and giving Congress veto power over postal policy changes.

3. Foreign banks—Voted 367 to 2 to put foreign banks that operate in the U.S. under control of the Federal Reserve Board rather than under the present system of state control.

4. Farm aid—Rejected 268 to 150 the conference report on the Emergency Agricultural Act.

5. White House staff—Agreed 265 to 134 to give the president authority to increase his staff and almost double the number of executive and supergrade positions paying from $42,500 to $57,500.

6. Energy conference—Voted 371 to 6 against closed meetings of the House and Senate conferees on natural gas pricing.

7. Lobbying—Agreed 245 to 161 to an amendment to widen the lobbying disclosure bill to cover grassroots lobbying by requiring registered groups to report written solicitations made through paid advertisements.

8. Lobbying—Voted 251 to 135 for an amendment requiring lobbyists to report the name and address of organizations contributing $2,000 or more. The bill was later taken off the floor but is scheduled to come up again in two weeks.

9. Sea Grant—Voted 341 to 23 to authorize $63 million for an expanded Sea Grant program of marine research.

10. Humphrey Institute—Voted 267 to 127 to authorize funds for the Hubert Humphrey Institute of Public Affairs and the Everett Dirksen Congressional Leadership Research Center.

	1	2	3	4	5	6	7	8	9	10
Archer, R.	N	A	Y	N	N	N	N	Y	Y	N
Eckhardt, D.	Y	Y	Y	A	Y	N	Y	Y	Y	Y
Gammage, D.	N	Y	A	Y	X	A	Y	Y	A	A
Jordan, D.	Y	Y	Y	N	Y	N	N	N	Y	Y

A-Absent or did not vote
X-Paired No

MOO!

The Department of Energy has awarded the University of Maryland a 1-year contract to assess the energy use in conventional milk processing and to investigate the energy-saving possibilities of using sterilized fluid milk. What would you think of going to the grocery store and buying fluid milk off an unrefrigerated grocery shelf? If it had been sitting there a month? And if it still tasted like fresh milk?

Sterilized fluid milk is used widely in Europe, but its flavor has been a major obstacle to consumer acceptance in this country. Most sterilized methods produce a flavor similar to that of evaporated milk. A process developed and patented by DASI Industries, Inc., of Chevy Chase, Maryland, does this: Milk is preheated to 150°F and then is fed into tubes at the top of the sterilizing chamber. Each tube has a very thin slit. Milk falls through each slit in a very thin film. As this thin film falls through the sterilizing chamber, it comes into contact with very hot steam. The milk absorbs the steam's heat and much of its moisture. Before it falls to the bottom of the chamber, the milk is heated to 280°F. When it reaches the bottom of the sterilizing chamber, the milk goes into a holding tube and then to a vacuum unit where it vaporizes, releasing the steam it has absorbed. The sterilized milk leaves the system at about 156°F. It would then be packaged in an aseptic packaging unit.

The product would have a shelf life of several months. Many people have been drinking the sterilized milk over the past year. Students living in University of Maryland dormitories have had it with their meals, as have patients in a hospital near Baltimore. It is reported that most people cannot tell the difference between sterilized and fresh milk.

MATSON AWARD JUDGES

William D. Rose, Chairman, and Dean Grafton, Co-chairman of the 1978 Matson Award Committee, thank the following HGS members who served as Matson Award judges at the 1978 Annual Meeting in Oklahoma City:

O. Lyle Austin
C. A. Baird
Marilyn T. Crane
Samuel B. Frazier
Richard G. Guerrero
Robert A. Harris
Robert H. Mayse
J. Don McClelland
John K. Rabenold
Claude C. Rust
Royce E. Schneider
William H. Spencer
Earl R. Swett, Jr.
James E. Werner
Sam M. Udden

URANIUM EXPLORATION UP!!

The DOE reports that exploration and development drilling for uranium by industry in 1977 was approximately 41 million feet, an increase of 7 million feet over 1976. Exploration drilling increased to 26 million feet in 1977 (a 37% increase over 1976), whereas development drilling of 15 million feet was the same as in 1976. The 93,500 surface holes completed in 1977 were drilled by 140 companies using an estimated 400 drill rigs.

The search was directed toward relatively shallow, low-grade material by-passed in earlier years, and for ore bodies susceptible to either conventional or in-place solution mining methods. Wyoming led all states with 15 million feet of hole drilled; New Mexico followed with 9 million feet and then Texas with 6 million feet.

PROFESSIONAL NOTES

Sam M. Udden has joined Hydrocarbon Exploration Company, Inc. (961-3054), as regional exploration geologist. Sam elected to take early retirement after 27 years with Conoco.

Robert W. Magee has joined McCormick Oil & Gas Corp. as an exploration geologist with responsibilities in the ArkLaTex area. (658-8031)

Victor Lahti has joined Mitchell Energy Corp. as a geologist in the company's Central Division, and will be involved in geological activities in the ArkLaTex area. (224-4522)

James V. Richards, consultant, will represent Weeks Petroleum Corp. in a newly-established office at 2193 Two Shell Plaza, Houston, Texas 77002. (225-5522)

M. R. French and **Holly D. Grissom** have opened a new office for Apache Corporation in the Houston Natural Gas Bldg., Suite 1940. (759-9525)

Robert L. Hunt joined Ranger Oil Company as District Geologist, South Louisiana Area, with offices at 710 The Main Building (658-1971).

William H. Blakewood, Jr. has joined Denex, Inc., as Exploration Manager at Lafayette, Louisiana. Address is 203 Oil Center Drive, P. O. Box 52032 Lafayette, Louisiana 70501 (318/235-3710, 318/237-0221).

RECENT DEATH

F. Marion Setzer, 66, died March 13, 1978, in Houston. He was a retiree of Amoco Production Company.

NEW MEMBERS.

ALLEN, TRAVIS JOHN
Research Engineer
Dresser Atlas
P. O. Box 1407
Houston, Tx 77001
784-6473

BASSETT, WILLIAM H., JR.
Senior Exploration Geophysicist
Exxon Co.
P. O. Box 2180
Houston, Tx 77001
656-3865

BRINK, ANTONI H.
Geologist
Getty Oil Company
6750 West Loop South, Suite 400
Bellaire, Tx 77401
668-8400

CONNORS, HARRY E., III
Geologist
Texaco, Inc.
4800 Fournace
Bellaire, Tx 77401
666-8000

DAVIS, L. C., (CHARLIE)
District Geologist
Houston Oil & Minerals
1212 Main, Suite 300
Houston, Tx 77002
651-3800

EALAND, RICK
Geologist
ADA Resources
906 C & I
1006 Main St.
Houston, Tx 77002
659-3506

ELLIOTT, J. PAUL
Geological Assistant
Inexco Oil Co.
1100 Milam Bldg.
Houston, Tx 77002
651-3484

ENGSTROM, JAMES CHARLES
District Geologist
Tiger Oil Company
5 Greenway Plaza East, Suite 1500
Houston, Tx 77046
629-9550

GRAHAM, JON EDWARD
Geologist
Texaco, Inc.
P. O. Box 430
Bellaire, Tx 77401
666-8000 Ext. 2656

GRICE, CHARLES RICHMOND, (DICK)
Geologist
Pennzoil Company
Box 2967
Houston, Tx 77001
236-7360

GRIES, RUTH R. (ROBBIE)
Geologist
Reserve Oil, Inc.
1860 Lincoln
Denver, Colorado 80217
831-7989

GROVES, CLAUDE B.
Div. Expl. Mgr.
Diamond Shamrock
5333 Westheimer, Suite 1000
Houston, Tx 77056
960-1351

HARAHAP, DAUD
Geologist
Roy M. Huffingnton, Inc.
1100 Milam Bldg., Suite 3600
Houston, Tx 77002
651-1600

HAYNES, CYNTHIA L.
Geologist
Amoco Production Co.
P. O. Box 3092
500 Jefferson Bldg.
Houston, Tx 77001
652-4536

HODGIN, JOHN E.
Geologist
Ryder Scott
1100 Milam Bldg. Suite 3232
Houston, Tx 77002
651-9191

HUENI, CAMILLE D.
Geologist
Texaco, Inc.
E608, P. O. Box 430
Bellaire, Tx 77401
666-8000 Ext. 2627

HUXOHL, CARLISLE G.
Explorationist
Superior Oil
Box 1521
Houston, Tx 77001
751-4737

INDEST, STANLEY J., JR.
Geologist
Getty Oil Company
6750 West Loop South
Bellaire, Tx 77401
668-8400 Ext. 267

JOLLY, JAMES G.
Geologist
Texaco, Inc.
P. O. Box 430
Bellaire, Tx 77401
666-8000 Ext. 2656

LETTENEY, COLE D.
Senior Geologist
American Petrofina
One Houston Center
Suite 1200
Houston, Tx 77002
652-5926

LIGHTNER, JAMES D., II
Geologist
Amoco Production Company
P. O. Box 3092
Houston, Tx 77001
652-4535

LOCKWOOD, STEVEN R.
Geology Assistant
Pend Oreille Oil & Gas Co.
1203 Capital Natl. Bank Bldg.
1300 Main
Houston, Tx 77002

LUCAS, CURTIS R.
Sr. Geophysicist
Natomas, North America
5251 Westheimer, Suite 700
Houston, Tx 77056
627-9505

MALOUTA, DEAN NICHOLAS
Geologist
Shell Oil
1200 Milam Box 527
Houston, Tx 77001
241-6938

MARTIN, BETHEA ALLEN
International Petroleum Consultant
Independent
11729 Joan of Arc
Houston, Tx 77024
468-7334

McMURREY, JIM
Geophysical Assistant
James M. Wilson & Assoc.
808 Main Bldg.
Houston, Tx 77007
658-8346

METZGER, FREDERICK W.
Geologist
The Carter Oil Co.
P. O. Box 2180
Houston, Tx 77001
656-5762

MUERY, WARREN E.
Chief Geologist
Galaxy Oil Company
918 Lamar St.
Wichita Falls, Tx 76301
817-766-0193

MURK, RONALD C.
Sr. Staff Geologist
Gulf Exploration & Prod. Co.
P. O. Box 1653
Houston, Tx 77001
226-1387

NEALE, REGINALD N.
Geophysical Research, Manager
Tenneco Oil Company
P. O. Box 2511
Houston, Tx 77001
757-3743

NEWCOMB, JOHN H.
Senior Geologist
Michigan-Wisconsin Pipeline
5075 Westheimer, Suite 1100
Galleria Towers East
Houston, Tx 77056
623-0300

PLANT, WALTER S.
Explorer
Self Employed
711 Polk, Suite 718
Houston, Tx 77002
759-9147

PRESSLER, RONALD RALPH
Assist. Geologist
Ashland Oil
Two Houston Center
P. O. Box 1503
Houston, Tx 77001
654-3521

RAPP, DAVID W.
Consulting Geologist
974 Campbell Rd. #104
Houston, Tx 77024

REID, JOHN W. (BILL)
Geologist
Getty Oil
6750 West Loop South #400
Houston, Tx 77401
668-8400

REIJENSTEIN, CARLOS E.
Geophysicist
Aminoil USA, Inc.
2800 North Loop West
Houston, Tx 77092
686-9261

ROUSH, THOMAS L.
Geologist
Peppard-Souders & Assoc.
3801 Kirby, Suite 600
Houston, Tx
526-8899

SAWYER, ROBERT FRANK
Geophysicist
Exxon Co., USA
Exxon Building
Houston, Tx
656-1744

SCHMIDT, VICTOR A.
Geologist
Getty Oil Company
6750 W. Loop South Suite 500
Bellaire, Tx 77401
668-8400

SCHNEIDER, RICHARD C.
Geologist
Tiger Oil Co.
Five Greenway Plaza East, Suite 1500
Houston, Tx 77046
629-9550

SIMMONS, FRED E., JR.
Consulting Geologist and
Petroleum Engineer
Independent
1400 Hermann Drive
Houston, Tx 77004
529-9485

STEINHOFF, RAYMOND O.
Professor & Head, Dept. of Geology
Stephen F. Austin State University
SFA Box 3011
Nacogdoches, TX 75961
569-3701

STUBENRAUCH, ALAN L.
Assoc. Geophysicist
Marathon Oil Co.
P. O. Box 3128
Houston, Tx 77001
629-6600

SWENSON, DAVID R.
Geologist
Texaco
4800 Fournace Pl.
Bellaire, Tx 77401
666-8000 Ext. 2613

THIBODEAUX, TERRY L.
Geologist
Cities Service Oil Co.
5100 Southwest Fwy.
Houston, Tc 77056
629-9700

THORNTON, JACK D.
Chief Geologist
Coastal States Gas Corporation
5 Greenway Plaza East
Houston, Tx 77046
627-3700

TODD, RAYMOND C.
Geophysicist
Gulf Oil
Box 1635
Houston, Tx 77001
226-3228

TOMPKINS, CARL WAYNE
Geologist
Pennzoil
P. O. Box 2967
Houston, Tx 77001

WALLACE, ROBERT C.
Geologist
The Carter Oil Co.
P. O. Box 2180
1576 Dresser Tower
Houston, Tx 77001
656-5757

WARN, JOHN M.
Geologist
Shell Oil Co.
P. O. Box 831
Houston, Tx 77001
241-4806

WHITEHURST, FRANCES PLANTS
Geologist
Texaco, Inc.
4800 Fournace Pl.
Bellaire, Tx 77401
666-8000 Ext. 2619

WILLIAMS, J. RICHARD
Geologist
Cabot Corp.
2190 North Loop West, Suite 300
Houston, Tx 77018
861-9141

WILSON, JOHN N.
Geological Associate
Cities Service Co.
Box 642
Houston, Tx 77001
869-6521

WILSON, JOHN THOMAS
Geologist
Shell Oil Company
P. O. Box 831
Houston, Tx 77001

ASSOCIATE MEMBERS

LANGELOH, ARTHUR W.
Ld., Lse., & Exp.
Sandefer Andress, Inc.
1775 St. James Place, Suite 130
Houston, Tx 77056
629-1442

MEGSON, JOHN E.
Marketing Manager
G. O. Wireline
1212 Main, Suite 1331
Houston, Tx 77002
759-1830

MURRELL, G. B.
Div. Exploration Mgr.
Natomas North American, Inc.
5251 Westheimer, Suite 700
Houston, Tx 77056
627-9505

WICKLAND, W. W.
Operations Manager
Central Region
Baroid Logging Services
NL Baroid Petroleum Services
300 Southwest Tower
Houston, Tx 77002
527-1494

GUNS ALONG THE POTOMAC

The Economic Regulatory Administration of the DOE announced that it has changed the procedures it uses in enforcement cases. The purpose of the changes is to separate authority for the final decision from the responsibility for development of the cases.

The new procedures place the authority for issuance of final Remedial Orders in enforcement cases with ERA's Office of Administrative Review. The Office of the Special Counsel for Compliance and ERA's Office of Enforcement will still develop suspected violations of DOE regulations. The Special Counsel handles cases involving 34 major oil companies and the Office of Enforcement handles all other cases. The Special Counsel and the Office of Enforcement will issue Notices of Probable Violation, and, as before, the alleged violator will have 10 days to answer the charge. If the answer is unsatisfactory, the office which began the case will issue a Proposed Remedial Order and refer the case to the Office of Administrative Review.

The new procedure will not only provide a more complete review of cases before the agency takes final action, but will provide broader separation of the prosecutorial and adjudicatory functions of the agency. The enforcement offices will be considered parties to the case with the office of Administrative Review.
(Thought you would like to know-Ed.)

WHAT DO WE DO WITH THAT STUFF?

New Jersey, a state with a high concentration of chemical processors, has a problem—or rather the chemical processors have a problem. The state closed down its last legal land disposal site for chemical wastes 2 years ago. Since then, the cost of disposing of chemicals, some toxic, some radioactive or cancer-causing, has soared. Disposal sites that incinerate or specially treat chemical waste can cost up to a dollar or more per gallon of waste, as compared to the land disposal cost of 5 to 10 cents per gallon. This is obviously a scene where American ingenuity rises to the top. In several instances it has. In one case an entire tank truck with all its contents was buried in a huge ditch in the Meadowlands across from New York City. Another case finds a trucking firm being charged with illegal dumping just because a patrolman found them pouring their waste, all 8000 gal of it, down a Newark sewer. How did he know it was chemical waste? His shoes began disintegrating as soon as he stepped in it and they are part of the evidence—what's left of them. (Reprinted with permission from The Ground Water Newsletter.)

★★★★★

Water Conservation—Perhaps the first step in cutting down on water use is to become aware of just how much water is required for simple household chores. For example, flushing a toilet takes 3 to 6 gallons. Is one facial tissue worth 6 gallons?

COVER

INDEX BRACHIOPODS FROM THE MONTOYA GROUP (ORDOVICIAN) OF TRANS-PECOS TEXAS*

In the petroliferous Permian Basin of West Texas the widely distributed Montoya Group forms a prominent part of the Paleozoic sequence. Outcrops in the Baylor, Franklin, and Hueco mountains yield a well-preserved and abundant brachiopod fauna. A comprehensive stratigraphic analysis of the Montoya Group and detailed descriptions of sections are given in Howe (1959). The Montoya Group consists, in ascending order, of the Cable Canyon Sandstone, Upham Limestone, Aleman Limestone, and Cutter Dolomite. These formations are conformable with the possible exception of the Upham-Aleman contact, and range in age from Trentonian at the base to Richmondian at the top. The rich brachiopod fauna is described in a series of papers by Howe (1965a, 1965b, 1966, and 1967).

Plate Description

1- *Hypsiptycha neenah* (Whitfield), side view, from Cutter Limestone (Dolomite), Franklin Mountains, locality 6, 60 ft above base of formation; X2.

2- *Hypsiptycha argenturbicum* (White), side view, from Aleman Limestone, Franklin Mountains, locality *ibid*; X2.

3- *Hypsiptycha argenturbicum*, brachial view, from Aleman Limestone, Franklin Mountains, 112-125 ft above base of formation, locality 6; X2.

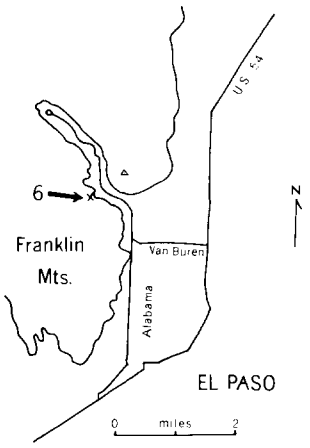
4- *Lepidocyclus laddi* Wang, side view, from Aleman Limestone, Baylor Mountains, locality B-1; X1.5.

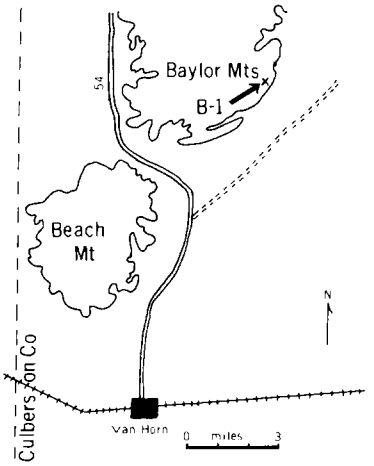
5-6- *Onniella quadrata variata* Howe, holotype, brachial and pedicle views, respectively, from Aleman Limestone, Hueco Mountains, locality H-2, bed 4; X2.

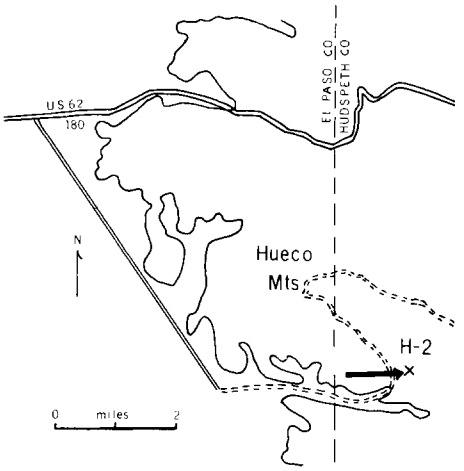
7-8- *Lepidocyclus capax* (Conrad), side and brachial views, respectively, from Aleman Limestone, Baylor Mountains, locality B-1, bed 4; X1.

9- *Thaerodonta mucronata* Howe, brachial view, holotype, from Aleman Limestone, Hueco Mountains, locality H-2, bed 9; X2.

10-11- *Zygospira resupinata multicostata* Howe, holotype, brachial and pedicle views, respectively, from Aleman Limestone, Hueco Mountains, locality H-2, bed 4; X3







Maps Showing Collecting Localities

6. Franklin Mountains (McKelligon Canyon section of Howe, 1959): small ridge 0.7 mi S 55°W of Sugarloaf Mountain, El Paso County, Texas (long 106°28'35"W, lat 31°49'19" N).

B-1. Baylor Mountains: east-facing escarpment, 1.6 mi N50°W of Watson Ranch house, Culberson County, Texas (long 104°46'05" W, lat 31°12'08" N).

H-2. Hueco Mountains (Helms West Well section of Howe, 1959): west-facing escarpment, 3 mi east of Helms West Well, Hudspeth County, Texas (long 105°58'35" W, lat 31°46'23" N).

REFERENCES

Howe, H. J. 1959, Montoya Group stratigraphy (Ordovician) of Trans-Pecos Texas: AAPG Bull., v. 43, p. 2285-2332.

———1965a, Dalmanellidae from the Montoya Group (Ordovician) of Trans-Pecos Texas: Jour. Paleontology, v. 39, p. 235-247.

———1965b, Plectambonitacea, Strophomenacea, and Atrypacea from the Montoya Group (Ordovician) of Trans-Pecos Texas: Jour. Paleontology, v. 39, p. 647-656.

———1966, Orthacea from the Montoya Group (Ordovician) of Trans-Pecos Texas: Jour. Paleontology, v. 40, p. 241-257.

———1967, Rhynchonellacea from the Montoya Group (Ordovician) of Trans-Pecos Texas: Jour. Paleontology, v. 41, p. 845-860.

*Photos and description courtesy of Dr. Herbert J. Howe, Purdue University, West Lafayette, Indiana.

SATELLITE RELAY—USGS WATER DATA

The USGS will begin a 6-month demonstration using a commercial communication satellite to relay water data from 11 stream-monitoring stations. The USGS already experimentally uses NASA and NOAA satellites to relay data from more than 100 of its approximately 9000 stream-flow, water-level, and water-quality monitoring stations in the U.S. The demonstration will test the feasibility and cost of using commercial as opposed to government satel-

lites. The USGS currently retrieves data tapes manually from battery-powered monitoring stations every 4 to 6 weeks. The stations continuously monitor stream flow and levels but record the data only once every 15 to 30 minutes. Battery-powered radios then telemeter the data in digital form to the satellite, which is stationary above the equator almost directly south of Carlsbad, New Mexico.

PHD'S IN ENERGY

Nearly 21,000 doctoral scientists and engineers in the U.S. were involved in energy-related activities in 1975. The Middle Atlantic region had the largest number (4000), but California alone had 3000. A lot more interesting data on them can be yours if you order a DOE report entitled "Energy-Related Doctoral Scientists and Engineers in the United States, 1975." Single copies of the report can be obtained from the Division of Manpower Assessment; Office of Education, Business, and Labor Affairs; Department of Energy, Washington, D.C. 20545. It is also identified as document 061-000-00012-7, available from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402. Price: $2.50.

BULLETIN
HOUSTON GEOLOGICAL SOCIETY

EDITOR

C. A. BAIRD, Oil & Gas Division, Dow Chemical, P.O. Box 22468, Houston 77027, Ph. 623-3260

ASSOCIATE EDITOR

PEGGY RICE, Continental Oil Co., P.O. Box 2197, Houston 77001, Ph. 965-2923

ASSISTANT EDITOR

CHRIS P. CUNNINGHAM, GeoChem Laboratories, Inc., 1143-C Brittmore Road, Houston 77043, Ph. 467-7011

ADVERTISING

MATTHEW W. DAURA, Transcontinental Gas Pipeline Corp. P.O. Box 1396, Houston 77001, Ph. 626-8100, Ext. 494

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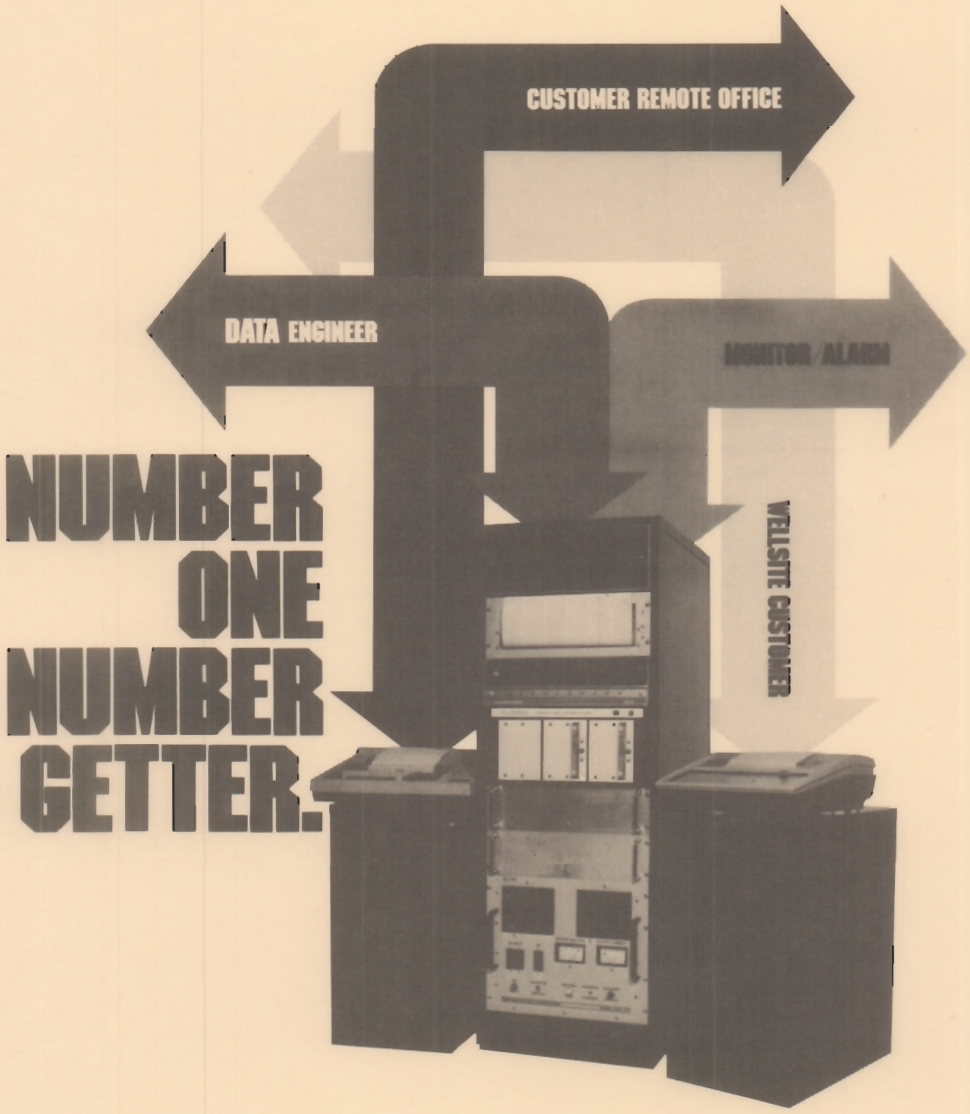

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Houston Geological Society
SUITE B-1, 806 MAIN STREET
HOUSTON, TEXAS 77002

MR. J. D. BARTELL
CONSULTANT
1612 ESPERSON BLDG.
HOUSTON, TEXAS 77002