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THE BULLETIN

THIS MONTH

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MEETING NOTICE

FOURTH REGULAR MEETING -- DECEMBER 9, 1963

The fourth regular monthly meeting will be held Monday evening, December 9, 1963, on the 10th floor of the Houston Club Building. The social hour will begin at 5:15 p.m., dinner at 6:00 p.m., and the program at 7:00 p.m.

The speaker will be Vernon Peppard, President of Geomap Company of Dallas, Inc. The title of his paper will be "The Smackover of East Texas."

Mr. Peppard was born in Alvin, Texas, and received a B.S. in Geology from the University of Arkansas in 1949, where he also attended graduate school in 1950. Mr. Peppard was junior geologist to the assistant regional geologist of Lion Oil Co. from 1950 to 1959, and from 1959 to the present has been consulting geologist and president of Geomap Company of Dallas, Inc.

The recent discovery of large gas-condensate reserves in the Smackover formation of East Texas has caused the industry to initiate a major exploratory effort in this area. Reserve values per well in excess of $12,000,000, and possibly as high as $50,000,000, have been the impetus for leasing, drilling and seismic activity to reach all-time highs in the search for new Jurassic reserves. There has been a relatively small amount of Smackover drilling and the most significant new finds have been downdip from the Mexia-Talco fault zone. The structures appear to be Jurassic in age, resulting from isostatic adjustment rather than salt tectonics. Smackover drilling in the Mexia-Talco fault zone has been disappointing due to the location of tests on Cretaceous age drag folds and the fact that the Jurassic throw of the faults has been sufficient to place the Smackover in juxtaposition with porous, downthrown Cotton Valley sands. A thorough examination of the drilling which has been done to date indicates the possibility of a large number of untested prospects in the fault zone as well as the area twenty-five to fifty miles downdip from it. Successful development of large new reserves seems assured although Jurassic structural geology is complex and demands close co-ordination of geology and geophysics.

(NOTE: If you plan to attend this meeting, PLEASE return the reservation card or call the Society office, FA 3-9309, before 10:00 AM on Monday, December 9. At the November meeting 30% more members showed up for the dinner than had made reservations. Under these conditions, it is almost impossible for the Houston Club to provide its usual excellent food and service.)

HELP NEEDED!

Anyone willing to operate the projector at our meetings, please contact Charlie Stuckey, RI-8-2076. This task falling on only two men can become a burden.
THE PRESIDENT'S CORNER

The question of our Houston Geological Society's relationship with the American Association of Petroleum Geologists seems to come up every day.

The membership in the two organizations is assumed by most of us to be the same, and the Houston Geological Society is often asked to perform local duties for the American Association of Petroleum Geologists.

The most recent occurrence was when a mailing was made along with our bulletin concerning an Insurance Program for our Houston members which has been in effect for several years. Some questions were raised in that perhaps we should abandon this program in favor of the Insurance Program sponsored by the American Association of Petroleum Geologists.

I felt it was time to clarify the question as to the relationship of the two organizations with the following results:

We have 1,197 active and associate members of the AAPG in our local Houston area and 1,300 paid-up members in the Houston Geological Society. This sounds fine - just about what it should be, with a few associate non-professional members in our local Society.

A further check reveals, however, that only 900 of the 1,197 AAPG members in this area belong to the Houston Geological Society. The study also reveals that only 900 of the 1,300 members of the Houston Geological Society are also members of the AAPG.

These facts are up to date and have been authenticated, so we know whereof we speak. These facts raise several questions, such as: Where are the 297 AAPG members who do not belong to the Houston Geological Society? We are a society of Geologists in the Houston area and we want and need these AAPG members in our Society. If you know anyone who falls in this category, try to get them to join with us.

Another question is: How can we, as a society, implement an Insurance Program sponsored by AAPG which could not be subscribed to by 400 of our 1,300 members or 31% of the membership?

The answer, as I see it, is for your Houston Geological Society to continue its program of being an unofficial clearing house for the AAPG and attempt to bring more of our local AAPG members into the Houston Geological Society.

...Orville G. Lundstrom
PETROLEUM ASSOCIATES has been organized by CHARLES F. ROSS and PAUL H. ALLEN, JR. to perform services in the field of geology and reservoir engineering. Petroleum Associates will offer services in all phases of exploration, geological evaluation, development and reserve studies on oil and gas properties. The offices are located at 705 Bankers Mortgage Building, telephone CApitol 7-6963.

C. E. "Gene" TROWBRIDGE has opened an office for Bobby Burns, Wichita Falls operator. The new office is located at 346-B Tennessee Gas Building and Gene’s new phone number is CA 7-2596.

The Texas Company has announced promotions for two geologists. C. K. "Connie" SEYFRIED has been promoted to District Geologist for the Upper Texas Gulf Coast District replacing MORRIS WYLIE who was elevated to the Division Staff.

CALVIN CHIMENE has resigned his position as Staff Geologist for Sohio and is now working for the American Natural Gas Production Company in the Adams Petroleum Center. Calvin’s new phone number is RI 8-1500.

D. H. ELLIOTT, consulting photogeologist, has moved recently to Mendoza, Argentina to participate in a United Nations project of locating minerals in the Andes. His address is Casilla 160, Mendoza, Argentina.

E. G. LEONARDON has opened an office at 2018 C & I Life Building. His new telephone number is CApitol 7-0761.

C. DONALD BEETH has moved his office to 6135 Sugar Hill, Houston, Texas 77027. His new phone number is HO 5-0206.

At the Thirteenth Annual Meeting of G.C.A.G.S. in Shreveport, Louisiana, RAYMOND E. FAIRCHILD, Trunkline Gas Co., was elected Vice President for 1964.
G.C.A.G.S. ANNUAL MEETING

The recent meeting of the Gulf Coast Association of Geological Societies which was held in Shreveport, Louisiana on October 30th through November 1st was a most successful one. The Shreveport Geological Society is to be congratulated for a fine effort as host. Several changes appeared for the first time in the format of the Transactions published for this Thirteenth Annual Meeting as follows: (1) Change of cover color from blue to red, (2) Change of cover emblem, and (3) Advertising was distributed throughout the Transactions rather than being placed in entirety at the rear.

An objection was raised concerning the last change listed above. However, since the advertising committee was already committed to such a course, no action was taken. Should there be sufficient objection to this style, the present or future Executive Committees of G.C.A.G.S. may discontinue the policy.

Officers of G.C.A.G.S. for 1964 are as follows:
President: Earl B. Knott, Tenneco Oil Co., Corpus Christi, Texas
Vice President: Raymond E. Fairchild, Trunkline Gas Co., Houston, Texas
Secretary: Floyd F. Foster, Jr., Standard Oil Co. of Texas, Corpus Christi
Treasurer: Daniel A. Pedrotti, Texaco, Inc., Corpus Christi, Texas

Corpus Christi is to be the site of the 1964 Annual Meeting (October 29-31) while our own H.G.S. will host the 1965 Meeting (October 27-30) with the Shamrock Hilton serving as Convention Headquarters. Prospective authors should keep in mind that the absolute deadline for abstracts will be June 1st; manuscripts must be submitted to the G.C.A.G.S. Editor no later than July 1st. It is possible that G.C.A.G.S. may subsidize certain expenses incurred by a group or individual in the preparation of a paper for presentation at the Annual Meeting; for further information, consult your Society’s G.C.A.G.S. Representative. All of you H.G.S. members who have interesting papers in mind are urged to get down to serious work on these now.

...A. D. Warren
G.C.A.G.S. Representative, 1963
REGIONAL MEETING

The West Texas Geological Society has announced that the annual meeting of the Southwestern Federation of Geological Societies and a Southwestern Regional Meeting of the AAPG will be held jointly in Midland, Texas, January 30 to February 1, 1964. The theme of the meeting will be "The Geology of Fluids."

Registration for the Convention will begin at 3:00 PM Wednesday, January 29, on the second floor of the Midland Mart Building. Requests for room reservations should be addressed to S. W. F. G. S. Housing Bureau, Chamber of Commerce, Midland, Texas.

THE A. A. P. G. ELECTION

The following joint letter, signed by the two nominees for the presidency of the AAPG, represents a praiseworthy effort to keep the election out of the realm of politics and maintain it as the thoughtful and dignified procedure which it ideally should be.

To: Presidents of Affiliated and Related A. A. P. G.
Societies, Sections & Organizations

We, as nominees for the presidency of the American Association of Petroleum Geologists, for 1964, respectfully request that all interested members, societies and organizations refrain from any mass mailings to the membership at large, to alumni groups, and so on, in our behalf.

The qualifications and achievements of all candidates will be published in the November, 1963, issue of the Bulletin for each member to examine and reach judgment in the matter of voting.

Sincerely,

/s/ Grover E. Murray   /s/ Warren B. Weeks

GEOLoGY COURSES AT UNIVERSITY OF HOUSTON

Evening courses carrying graduate credit which are scheduled for the Spring Semester 1964 include: Earth Physics, Applied Geophysics Laboratory, Optical Mineralogy, Applied Geochemistry, Sedimentation, and Advanced Invertebrate Paleontology. In addition, Dr. Anthony Reso, of Tenneco Oil Company, will lead a graduate Seminar on the Nature of the Geologic Time Scale. This will carry one semester-hour credit for those who choose to enroll, but other interested geologists are invited to attend as guests of the Department. For details, call CA 4-1681, Extension 540.
OIL EXPLORATION REVEALS TURKISH PHOSPHATE DEPOSITS

At the annual convention of the AAPG here in Houston, an award was given for a paper on the Geology of Turkey. It is worth adding to American geological record of achievement in that country their mapping of valuable deposits of phosphate.

Turkey has realized the need for supplying fertilizer to its worn-out lands, and has built several plants, which it was considered would have to run on imported ore.


Sure enough, a kick was recorded and checked with cuttings. The limestone was correlated to surface outcrops, which are now in development. Follow-up revealed the beds with phosphate also outcrop nearby in Syria, so two countries will be self-sufficient in an important mineral not previously known to them, and not too far from the seacoast, at the ports of Iskenderun and Antioch.

Producing age is Cenomanian, in which phosphate has also been found in Egypt.

...Paul Weaver

Dr. L. Richard Louden and Walter Sadlick
Join University of Houston Geology Department

Mr. Walter Sadlick has joined the faculty at the University of Houston to teach in the areas of Paleontology and Stratigraphy. He is a native of northern New Jersey who received most of his geologic education at the University of Utah, from which he expects to receive the PhD within the year. Among other activities he has been an instructor at the University of Nebraska and Idaho State College, and done special work for the A.E.C., Nebraska Geological Survey, Geological Map of Utah Project; and for the Sinclair, Sohio, Gulf, and Standard Oil of California Companies. He is the author of numerous publications which deal principally with Carboniferous geology and paleontology. The September, 1963 issue of the Journal of Paleontology contains an article by M. F. Nielsen and Sadlick on some Mississippian gastropods. This fall Mr. Sadlick is teaching Principles of Stratigraphy and Historical Geology.

Dr. L. R. Louden is an organic geochemist who received the degree of Doctoris De Rerum Natura Doctrinae Gradum at Julius-Maximilian-University-Wurzburg, at Wurzburg, Germany. Although born in the state of Washington, Dr. Louden was reared right here in Texas. He has recently coauthored several publications with Dr. A. Prashnowsky on the organic spectra in petrolierous rocks of northern Germany. This fall Dr. Louden is teaching half time in the Department of Geology and working with Dr. John F. Oro of the Chemistry Department on the latter's study of organic compounds in chondritic meteorites.
RECENT PUBLICATIONS

Reference Volume 5

The Shreveport Geological Society has announced the publication of Volume 5 of the Society's reference series on oil and gas fields entitled "Report on Selected North Louisiana and South Arkansas Oil and Gas Fields and Regional Geology." This volume contains five regional papers and eighteen field papers with 202 pages (no advertising) and 87 illustrations.

This volume should be a valuable addition to the library of anyone working in the Ark-La-Tex area. The regional papers cover a wide spectrum including an up-to-date list of all oil and gas fields in North Louisiana with discovery date and producing horizons together with a map showing field locations, a correlation chart of the Cotton Valley sands in North Louisiana, a subsurface study of the Pine Island formation in North Louisiana, a regional paper on the stratigraphy and structure of the Sabine Uplift, and a paper on the Tokio formation in Caddo Parish. The field papers include five Wilcox fields, one Upper Cretaceous chalk field, four Paluxy fields, one Rodessa field, four Sligo (Pettet) and Hosston fields, two Cotton Valley fields and one Smackover field.

This volume may be ordered from the Shreveport Geological Society at P.O. Box 750, Shreveport, La., at a cost of $7.00 including handling and mailing.

Mississippi Society Publication

The Mississippi Geological Society announces the forthcoming publication of "Mesozoic-Paleozoic Producing Areas of Mississippi and Alabama - Vol. II." This publication consists of field maps, type logs, brief discussion, and listing of reservoir data for approximately fifty-five (55) oil and/or gas fields. Vol. II is similar to the highly-regarded Vol. I, published in 1957, and includes those fields discovered since 1957, as well as some of the older fields which have experienced considerable development since that time.

The new publication will be in three-ring, loose-leaf binders. The reason for this is that in the immediate future the Mississippi Geological Society plans to publish and sell at low cost addenda to Vol. II. These addenda, which will be issued periodically, will consist of one or two sheets and will be of three types: (a) new fields as they are developed, (b) maps on deeper horizons of fields that have only shallow maps in Vols. I and II, and (c) revised maps of fields which undergo considerable new development.

Vol. I is still available at $7.50, Vol. II will be priced at $10, or both volumes may be had as a package deal for $15. They may be ordered from the Mississippi Geological Society, Box 1490, Jackson, Mississippi.

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125 miles SSE of Galveston, and in the same latitude as Aransas Pass, are two tropical West Indian coral reefs. These reefs have been known for half a century as Flower Garden Banks to the snapper fishermen because of the colorful specimens they occasionally brought up when their lines snagged the bottom. The tops of these banks come to within 60 feet of the surface, and the boxes are at a depth of 300 feet near the edge of the continental shelf. Each bank is slightly elongate with the long axis parallel to the shoreline and the length at the base approximately 2 miles. The area enclosed within the 100 foot depth contour is approximately 3/4 mile long and 1/2 mile wide.

The upper part of each bank has recently been explored by SCUBA divers and found to consist of massive living specimens of corals of the same species that occur at similar depths throughout the West Indies. Associated with the corals are the fishes, mollusks, echinoderms, and other marine organisms common in the tropical waters of the Western Atlantic. No exposed rock was found by the divers, although they had been expressly instructed to look for it.

Some 30 miles nearer shore than the Flower Garden Banks is a submarine prominence known to the snapper fishermen as the 10-1/2 fathom lump and to Oceanographers as Stetson Bank. It rises from a bottom depth of 185 feet to within 60 feet of the surface, but it is much smaller than either of the Flower Garden Banks. This Bank was investigated by SCUBA divers in May 1963 and found to consist of massive rock formations with almost no reef building coral attached. The rocks of Stetson Bank are described by the divers as bedded layers of alternately harder and softer materials and, in some places at least, these layers have been tilted to a dip of near 90° with the strike running parallel to the coast. In other places the rocks have apparently been tumbled, and in no place are they found in normal horizontal stratification. The rocks have been
Trigger fishes file past brain coral heads on the Flower Gardens.
described as calcareous siltstones with varying percentages of fine sand and calcareous material present.

All three of these Banks pose zoological and geological problems. All are thought to be associated with salt domes, although in the case of the Flower Garden Banks, perhaps only a portion of each Bank is related to the dome. Zoologically, the Flower Garden Banks represent outpost populations of west Indian coral reef associations that are 700 miles away from the nearest similar associations in the Tortugas Islands of the Florida Keys and at Cabo Rojo, south of Tampico, Mexico. A crucial problem is the explanation of the thriving coral growth on the Flower Garden Banks and its absence on Stetson Bank.

It is well known that reef building corals require oxygenated, high salinity sea water at depths of less than 150 feet and in regions where the water temperature never falls much below 68-70° F. It does not seem likely that Stetson Bank and the Flower Gardens could differ significantly in any of these requirements except temperature. As the cold northers of winter blow across the Gulf, the shallow water near shore is often chilled nearly to the freezing point. The air is warmed in the process, however, and as this air continues to move offshore it gets progressively warmer. In moving offshore, the warming air passes over deeper water which is more resistant to chilling. The resulting water temperature distribution is one in which the isotherms are essentially vertical lines, with cold water near shore and progressively warmer columns of water out across the shelf. The critical isotherms of 68-70° F. must spawn somewhere between Stetson Bank and the Flower Gardens.

A SCUBA diver inspects the near vertical rock wall of Stetson Bank.
Tumbled rock formation on Sescom Bank

Left rock layer on Sescom Bank showing circular pits made by sea urchins
If this is the correct explanation for the faunal differences on these Banks, then there are some additional interesting implications. If there must be 100 miles or more of open ocean between the shore and the coral reefs in order to ameliorate the temperature sufficiently, then there can be no other coral reefs in the northern Gulf, for there are no other places 100 miles offshore where the depth is less than 150 feet. Of course it might be possible that less than 100 miles of open ocean would be sufficient to the South, but the continental shelf narrows so rapidly in this direction that it does not seem likely that coral reefs could occur North of Tampico.

A further implication of the 100 mile open ocean requirement is that the corals now growing on the Flower Gardens could not have become established there until about 5000 years ago. During the lowered stand of the sea due to glacial advances, these Banks would have been islands near a coast that was receiving large amounts of cold, fresh, muddy water, and it is certain that corals could not have been living there at that time. Melting glaciers caused the sea to rise, and only when it reached its present level about 5000 years ago would the Banks be far enough offshore to be warm enough for corals.

Population of the Banks must then have been relatively rapid, and the corals, which require both warm water and shallow depths, must have come directly from reefs at least 700 miles away. There is no established current pattern in the Gulf to explain this rapid dispersal, but the evidence implies that the pelagic...
larval stage of the coral animal can remain in the plankton sufficiently long to be carried at least 700 miles by feeble or poorly directed currents. It is most important to bear in mind that this does not represent a single “happy accident” in which one species is carried far beyond its normal range. It is a case in which an entire ecological assemblage, including every characteristic species, has been transported a considerable distance and in a short period of time.

During the lowered stand of the sea, when the Flower Gardens were offshore islands, Stetson Bank stood as an inland hill fully exposed to subaerial erosion. Since its submergence the softer layers have been exposed to incessant attack by boring clams and the picking action of sea urchins. A thin layer of very fine sediment derived from the soft layers is present in every depression on Stetson Bank, although wave action from storm winds may periodically sweep it clean. Evidence from the sharp relief of Stetson Bank and the severity of the erosive forces at work on it indicates that the underlying soft sediment is still actively giving.

Fossils are uncommon in the rocks of Stetson Bank, but micropaleontological examination has revealed Foraminifera that are regarded as being Mid-Miocene in age. Not far from Stetson Bank an exploratory well encountered the Mid-Miocene at 18,000 feet, but if the present rocks of Stetson Bank have been thrust up through the thickness of overburden, all trace of the displaced burden has now been removed.

Scanty as the evidence is concerning Stetson Bank and the Flower Gardens, enough is now known to make them of great interest both to geologists and zoologists. Certainly the paleoecologists should be aware of the speed with which modern marine animals can be dispersed over great distances as well as the significant faunal differences that can occur between banks only 30 miles apart.

The three exploratory expeditions on which this report is based were sponsored by the Houston Museum of Natural Science but were made possible by the generous cooperation of the U. S. Navy and the Skin-Diving Clubs of Texas. Each trip was made on the USS WREN, a Naval Reserve training ship based in Galveston. Special thanks are due to Commander C. F. Simonet who was Captain of the WREN on the first two trips and to Commander Fred Wallis who was the ship’s Captain on the most recent trip. Without the skillful services of these men, and the host of volunteer divers, we would still be unaware of this bit of the tropics at Texas’ doorstep.
Divers survey huge coral heads on the Flower Gardens

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As the accompanying photo indicates, Houston is well on its way toward possessing the most advanced planetarium in the country, as well as important additional exhibit space for the Houston Museum of Natural Science. Construction has reached a stage (Nov. 19) where the planetarium dome is clearly evident. Its outer surface eventually will be of bronze colored mosaic glass tile, imported from Italy. Completion is scheduled for March of 1964.

A tour of the project under the guidance of Dr. T. E. Pulley, Director at the Museum, brought forth a number of interesting facts.

Most important is the fact that the mechanism of this planetarium represents a long step in advance of any previously built.

Any planetarium is a fascinating device to watch as it makes the stars, moon and planets parade across the "sky" of the interior of the dome, as they would appear from any point on the earth's surface, and for any point in time—past, present or future. But according to Dr. Pulley, all previous planetarium mechanisms had to rely upon gear trains to maintain the correct relative movements of the various heavenly bodies. Consequently it was a time consuming process to run forward or back for any long period of time. For example, it required about 15 hours to run from the present back to depict the sky over Bethlehem at the time of the birth of Christ, whereas the new Houston mechanism, by means of a number of computer controlled electric drives, will be able to make the same adjustment in about 15 minutes.

Similarly, the older outfits have been able to set up only one axis of rotation, namely that parallel to the earth's axis, whereas the new machine will be capable of setting up an axis anywhere in the celestial sphere. (Looks as if this probably will be the only economical means of lunar, or interplanetary travel in the foreseeable future!)

The construction presently in progress will provide the Museum with some 21,000 sq. ft. of exhibit space as compared with its present 3,000; and subsequent additions contemplated by the present plans will bring the total up to 80,000 sq. ft.

Obviously the project will represent a major addition to Houston's educational and cultural facilities.

Stuart Clark