

PACIFIC PETROLEUM GEOLOGIST

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PACIFIC PETROLEUM GEOLOGIST

NEWS LETTER OF THE PACIFIC SECTION AMERICAN ASSOCIATION OF PETROLEUM GEOLOGISTS

Vol. 11

January 1957

No. 1

ASSOCIATION ACTIVITIES

LOS ANGELES LUNCHEON MEETING

On Thursday, December 6, the Los Angeles Luncheon Meeting, held at the Roger Young Auditorium, heard James B. Anderson present an excellent illustrated talk on "A Geologist in Jordan." Mr. Anderson spent four months of the summer of 1956 in the Hashemite Kingdom of Jordan doing geological work for Mr. E. W. Pauley.

Jordan, located in the heart of the Arab world, is bounded on the north by Syria, on the east by Saudi Arabia and Iraq, and on the west by Israel (or as the Arabs say, "By the Jewish-held territory of Palestine"). The total area of Jordan is 37,500 square miles. Most of the people are of Moslem faith. The population is estimated at over one and one-half million. Of this, over 600,000 are refugees of Palestine that were driven out by the creation of the State of Israel and the subsequent Arab-Israeli war. Amman, the capital, has a population of over 200,000. It is twenty-five miles northeast of the Dead Sea in the Jordanian Highlands at an elevation of about 2,800 feet above sea level.

The climate is similar to the interior valleys of Southern California. The lowest point in Jordan is the Dead Sea with a surface elevation of 1,296 feet below sea level. The highest point is in the Jordanian Highlands south of the south end of the Dead Sea where an elevation of 5,400 feet above sea level is reached. The Jordan River flows into the Dead Sea providing most of the water. The Jordan River depression and tributaries below sea level are hot in the summer and warm in the winter (similar to Imperial Valley). Crops in the Jordan Valley range from bananas to apples and grain, depending on elevation.

Agriculture, tourism and aid from the United States and Great Britain are the main sources of Jordan income. Jordan recently severed all connections with Great Britain, including aid. Arabic is the official language of the country, but many people speak English.

The rocks of Jordan range in age from Pre-Cambrian to Recent. The Pre-Cambrian is a complex of igneous and metamorphic rocks like our San Gabriel complex. Overlying this basement is a series of sediments of extreme latitude in both thickness and lithology. Southern Jordan, on the rather indefinite edge of the "Arabian Shield," has been a positive area throughout most of the post-Cambrian with the consequent accumulation of a thick section of aeolian sand and lake deposits. The strata thicken and gradually become more marine in a northwesterly direction. In Southern Jordan the sediments total 4,100 feet, of which 2,800 are non-marine. In central Jordan, which was apparently a hinge line between the foreland area of the "Shield" to the south and the Tethys Geosyncline to the northwest, the sediments total 6,100 feet with less

than 2,000 feet of non-marine sediments. In Northern Jordan and Southern Lebanon, the sediments are almost 17,000 feet thick. All are marine except for some thin beds in the lower Cretaceous. There are surface indications of oil in Jordan.

In general, the structures of Jordan are gentle folds and faults. These are formed by movement on a basement fault system having its inception in Pre-Cambrian time. The Dead Sea-Jordan Valley depression is an expression of one of these rifts. There appears to be little or no lateral movement along this rift.

SACRAMENTO GEOLOGICAL SOCIETY MEETING

The December meeting of the Sacramento Geological Society was held on Tuesday, December 11, 1956. Dr. Benjamin Burma of the California Exploration Company addressed the meeting on the subject of "Geology of the Western Interior Basin."

The area under discussion is limited by the Canadian border on the north, by the Rocky Mountains on the west, by the Mississippi River on the east and by Texas on the south.

Remarks

Dr. Burma, who is basically a paleontologist, has made correlations with electric logs over this extensive area, and has concluded that the Cretaceous formations based on gross lithology and on paleontology transect time lines in this area. The work was greatly facilitated by the presence of bentonite beds which could be identified over vast area with the electric logs. These made marvelous time markers.

Some of the errors in the literature which Dr. Burma feels his work has uncovered are as follows:

(1) In Western Kansas the Sharon Springs shale is present above the Rumford bentonite and in eastern Nebraska it occurs below the Rumford bentonite.

(2) The Graneros shale of the eastern Black Hills is the time equivalent of the Dakota sandstone in eastern Nebraska. It was pointed out that the major source of the Dakota sandstone is now considered to be from the east by most petroleum geologists. This is contrary to much of the older literature, which emphasizes a western source.

(3) The time top of the Lakota and Fall River sandstones in some areas was found to be much lower than the lithologic top.

(4) Ammonites of this region have long been considered reliable guide fossils, but Dr. Burma indicated that they are really facies fauna and as age indicators are headed for the "junk pile".

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NEXT DEADLINE JANUARY 29

Notes on Structure

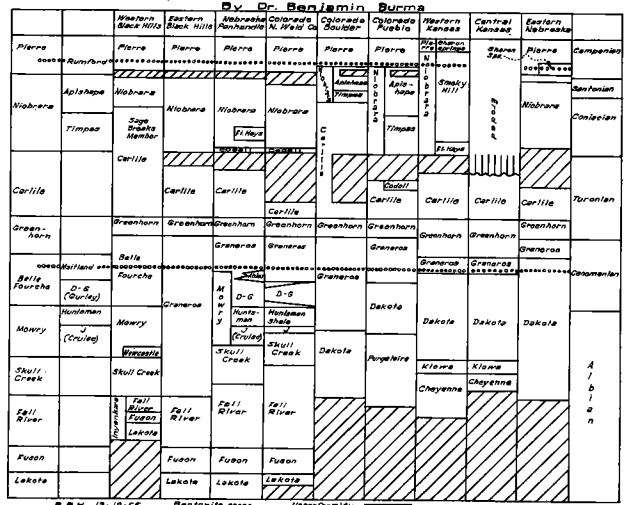
Much of the region contains gentle folds with 50' to 60' of closure, some of which are as long as 25 miles. In places, the wells have cut normal faults with dips as low as 25° in the Niobrara formation. These range from nearly zero up to 150' of stratigraphic throw. Many faults above and below the Niobrara are bedding plane faults. The Laramide Revolution is believed to be post Pierre and much of the faulting is considered to have occurred at this time and much of the folding occurred during Cretaceous time.

Lithology

In general, Cretaceous continental sediments grade upward into Cretaceous marine shales containing some sand and with chalk and thin limestone layers near the top. Most of the region was one of uniform sedimentation during much of Cretaceous time. A brief description of the major Cretaceous lithologic units is given below with the youngest at the top.

- Pierre; Mostly shale with a thin sand at top that grades upward into Paleocene.
- Niobrara; Shale and chalk, marine.
- Carlile; Shale, marine.
- Greenhorn; Shale and some limestone, marine, locally limestone is predominant. Contains abundant Inoceramus, deposited under especially uniform conditions over a wide area.
- Bellefourche; Shale and some sand, marine, includes the oil bearing Gurley (D-G).
- Mowry; Shale with some sand, marine, siliceous, includes the oil bearing Cruise (J).
- Scull Creek; Shale, marine, gray to black.
- Fall River; Sandstone, continental with marine at top.
- Fuson; Clayshale, continental.
- Lakota; Sand, continental.

Correlation Chart of the Western Interior Basin



Notes on Petroleum

Much of the oil production is from the Gurley (D-G) and Cruise (J) sands which were probably deposited in as little as 50' of water. It was pointed out that whereas most of the production of this region comes from highs, Harrisburg, the largest oil field in Nebraska, produces from a shallow syncline, on a homocline.

A.A.P.G. FORUM

On November 19th, 1956, the Los Angeles Forum held its monthly meeting at the General Petroleum Auditorium. Mr. Frank Parker was one of the featured speakers and delivered a talk entitled "Timing of Some Oil Accumulation in Southern California".

The geologic age of the reservoir is one positive method of limiting the earliest time at which that particular accumulation took place. It can be said that in any single pool, accumulation can be no earlier than the age of the reservoir rock in which it occurs. Even this is theoretically uncertain, as we can conceive of an open asphalt lake buried by drifting sand, then sealed by later sediments, then we would have an accumulation earlier than its reservoir rock. Another criterion is the age of first tilting, assuming this also is the age at which first migration could occur. This has some validity, but at least for California we can hardly envisage deposition in our basins without appreciable initial dip. So this criterion is little more definitive to us than that of "age of reservoir rock."

To all appearances, the evidence given by the time at which the trap became effective offers the most promise. To use the age of the trap to date an accumulation, we must be able to prove, for one thing, that what we now see is not merely a fragment or localization of an earlier larger trap. This is something not commonly susceptible of rigorous proof, particularly with fault traps.

The data needed to prove the earliest effective date of a trap is the presence of beds younger than blanket sand reservoir beds, conformable with them and taking equal part in the folding or faulting, the whole having been a simple unbroken monocline until construction of the trap. Where such data are available and can be proved, they will determine that accumulation

took place subsequent at least to the deposition of the youngest conformable beds.

Some less direct methods have been proposed and tried elsewhere, with some apparent success. Levorsen has used the gas content in the Oklahoma City pool to prove that accumulation took place until the field reached its present depth of burial. The theory in essence is that if a reservoir is full to the spill point with gas, or with oil below a gas cap, or with oil saturated with gas to the bubble point under present conditions, that accumulation took place under present or greater hydrostatic head and consequently at present depth of burial or greater. This approach would seem to be of little use in California, as our under-saturated crudes are usually in shallow pools and so many other factors complicate the situation that this line of evidence would appear inconclusive.

Now let's see what can be done about California oil. The absence of pre-Miocene source rocks through most of the Los Angeles Basin implies that the oil here is of Miocene or younger age in origin and accumulation. The greater abundance of oil in the Pliocene suggests that Pliocene rocks were the source of the Pliocene oil. We can show the gross structure in nearly all southern California fields is primarily Pleistocene. Our data, however, is not sufficiently precise to determine Pleistocene as the earliest age of the effective traps because lower Pleistocene, while commonly appearing conformable on upper Pliocene, is locally unconformable and local unconformities are also recognized within the Pliocene. Also, we know of no trapping faults which actually can be dated as having originated in the Pleistocene.

So far, we can then say oil was accumulating after Middle Pico in the L. A. Basin.

We can add that faults which have equal throw in Repetto as in Upper Miocene have formed separate traps for some Miocene oil off of the crest of Santa Fe Springs, as shown by Al Woodward's paper at the convention, so Miocene oil did migrate in post-Repetto (probably post-Pico) time. In the Newhall-Del Valle area, we have oil in folds which involve late Saugus beds to such a high degree that only rudimentary structures very unlike those of today could have existed in Miocene and Pliocene time. Furthermore, the Castaic Junction field occupies a position which appears to be near the local deep of the late Saugus basin and could hardly have been the site of a major dome in late Pliocene time.

Oil has accumulated in Miocene in a westward pinchout at Castaic and an eastward pinchout at Newhall-Potrero. The accumulation of the Ramona field (Miocene) is to a large extent controlled by faulting of great movement after late Saugus. These imply, if not prove, accumulation in Miocene beds took place after late Saugus.

Perhaps Wasco is the most convincing case. The age of folding is Pleistocene Tulare and later and it is apparent, due to westward thickening in Pliocene that Wasco is the deep expression of the shallow Semitropic field. Certainly if we restore the tilt to that of San Joaquin Clay time there could scarcely be reversal even of the present fold at Wasco.

Thus we have accumulation of Eocene oil in a trap not existing until Pleistocene. The important point of this is "sufficient oil was still left in Eocene source rocks to fill a structure not formed until Pleistocene."

Approaching the problem from the other direction, i.e. - trying to prove an accumulation that has originated early and persisted until today, is even more difficult. The absence of oil from normally productive beds in a few

closed structures is taken by some to mean all migration and accumulation possible in those beds had taken place before the trap became effective. This may well be true, but does not appear to be susceptible to proof with our present knowledge. It might be expected in areas of strong and repeated deformation or deformation along different trends than previous folds that old accumulations would be breached or otherwise destroyed without trace. This possibly explains the scarcity of oil in Middle Miocene and older rocks in the Los Angeles Basin, or in the Cretaceous rocks elsewhere in California. It also may be that the related source rocks were wrung dry prior to the Pleistocene deformation leaving no newly squeezed out oil for these new traps. Wasco and other valley fields may have their Eocene and Miocene oil because that area had no strong deformation intervening between Eocene and Pleistocene - just more or less continuing subsidence.

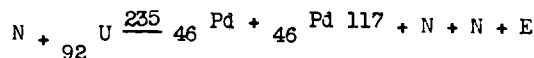
The study of migration and time of accumulation, while it has been of little economic value so far, may be developed into a useful tool, possibly for finding oil, but primarily for avoiding barren structures.

COAST GEOLOGICAL SOCIETY

Dr. Hobart E. Stocking of the U.S. Atomic Energy Commission addressed the Coastal Geological Society at Santa Barbara on Uranium, its Geology & Geographic Location.

Dr. Stocking gave a brief account of the early history of Uranium. He stated that in meteorites, the uranium content is low and that in the earth's siliceous crust there are 3 to 4 parts per 1,000,000 in the average rock. Commercially, uranium is found in veins and in shale deposits. Areas of greatest production are in the Williston Basin, Colorado Plateau, Black Hills, New Mexico, Arizona, Colorado; particularly in the Shinarump, Moenkopi and Morrison formations of continental type deposition. All sedimentary type deposits are epigenetic and all the uranium is younger than the host rock. Often the uranium is concentrated in ancient trees, twigs and mudstone pellets. Sixteen percent of the total U.S. production comes from the Shinarump and 40 percent from the Morrison. The predominant method of mining is by open pit.

A brief summary of nuclear physics was given which included the formula for nuclear fission.



!!!1957 DUES ARE DUE !!!

If you are one of the unlucky ones not to attend our fall convention and would still like to receive the Pacific Petroleum Geologist, local announcements, etc., for 1957, you should pay your dues as soon as possible. Billings have been sent out to all members and subscribers who paid their 1956 dues and should be in your hands now. If dues are not received by February 1, 1957, it will be necessary to remove your name from all mailing lists. Make checks payable to the A.A.P.G., Pacific Section, and send to Mr. W. E. Kennett, Room 301, 1054 Wilshire Boulevard, Los Angeles 17, California.

SUPPORT YOUR A.A.P.G.

II CUBAN PETROLEUM CONGRESS - ADVANCE NOTICE

The II Cuban Petroleum Congress will be held in Havana May 5-11, 1957. It will include an industry exhibit open to the public and technical and scientific sessions open to registrants exclusively.

- Work Sections shall be six: Section I - Geology, Geophysics and Geochemistry
Section II - Drilling and Production
Section III - Processing, Distribution and Utilization
Section IV - Research, Development and Testing
Section V - Education and Training of Personnel
Section VI - Management, Economics and Law

Papers may be in Spanish, English or the native tongue of the author's country of residence. Spanish and English shall be official languages. Manuscripts should be on hand by March 1, 1957. Title of papers, author's name and a resume of the subject matter should be submitted as early as possible to permit preparing a preliminary program to circulate abroad in ample time.

Additional details may be obtained addressing
 II CUBAN PETROLEUM CONGRESS
 Edificio Habana 800
 Havana, Cuba

NORTHWEST GEOLOGICAL SOCIETY

The Northwest Geological Society monthly dinner meeting was held at the Poodle Dog Cafe in Tacoma on December 3. After an excellent steak dinner the sixty in attendance enjoyed a paper on "Groundwater and Well Construction in the Pacific Northwest." The speaker was John W. Robinson of Robinson and Roberts, Groundwater Geologists of Tacoma.

Problems and techniques of water-well drilling were discussed. The talk was supplemented by colored movies showing drilling operations. Of particular interest to the group was the drilling rig which employed reverse circulation. This equipment is particularly effective in drilling through gravels and cobbles.

SACRAMENTO GEOLOGICAL SOCIETY
FIELD TRIP OF DECEMBER 15, 1956.

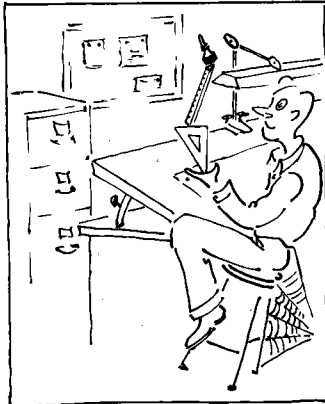
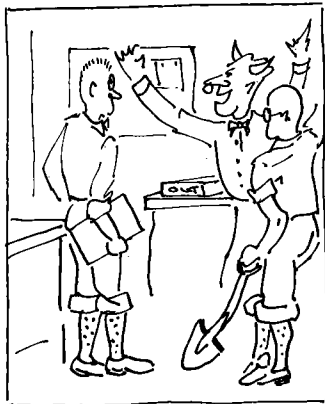
The members of the Sacramento Geological Society visited Humbles' Mary Tippetts #1, 15-12N/3W M.D.M. on December 15, 1956. The location is on Rumsey Hills on the west side of the Sacramento Valley. Humble has built a 8 1/2 mile gravel road and a 3" welded water line to their location at a cost of \$100,000. A new road cut into the Pliocene Tehama formation was inspected enroute to the drilling site. The rig has a full view mast capable of supporting 1,000,000 lbs. Its capacity is a 17,000' hole with 4 1/2" drill pipe. It is equipped with 3 General Motors Series 71 Quad Diesel Engines and the mud system is equipped with a centrifuge to separate salt water from drilling fluid.

OUR HERO

Mr. Office-bound Geologist

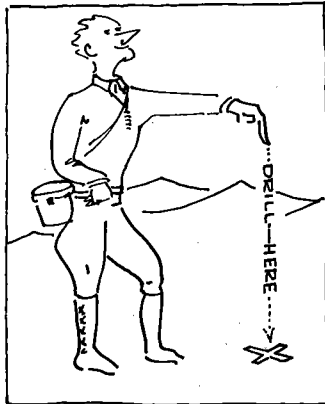
As his coworkers see him

As the Boss sees him



As his wife sees him

As he sees himself



PERSONAL ITEMS

Jack Nair resigned from Superior Oil Company to join Phillips Petroleum Corporation as an offshore geologist.

Bill Castle, Richfield Ojai scout, is setting the style these days. He was observed at the California Scout and Landman's Christmas party at Bakersfield wearing two (2) ties - one a bow!

Louis Taylor resigned as Senior Engineer for Baroid at Ventura to join Tidewater as Ventura District Scout.

George Thomas, Humble, transferred from Eugene to the Production Geology Division at Chico.

New officers installed at the December 20th Coastal Geological Society meeting are as follows:

1. President - Gordon Bell, Western Gulf Oil Company.
2. Vice President - Howard Stark, Richfield Oil Company.
3. Secretary - Dan Flynn, General Petroleum Corporation.
4. Treasurer - John Wilson, Standard Oil Company.

Eric Phillips, Western Gulf, is Christmas vacationing in the San Francisco area.

George Brown, M. A. graduate from UCLA, began working December 17 in the Los Angeles office for Ohio.

Bill Hubbard, geologist in Ohio's Los Angeles office, recently transferred to overseas operations in Guatemala.

Upon completion of his arduous duties as A.A.P.G. President, Mase Hill felt compelled to take his first official vacation in several years.

Chet Baker has recently been transferred from Continental's Houston headquarters to Los Angeles and will work on offshore activities. Chet was formerly a paleontologist with Richfield in Bakersfield. Since that time, however, he has spent two years with Aramco in Arabia and two years with Sahara Petroleum in Egypt. Good to see you back Chet!

Mandy Touring, Humble's District Geologist in Eugene, Oregon, is on leave to finish field work for his Doctorate.

Mort Klien left Humble to go consulting. His phone is RYan 1-2287.

Dick Noble, geophysicist, Humble, resigned to study at UCLA for a Masters in Geography.

The Humble office in Bakersfield is now located at 218 Bernard Street.

Rufus Cook, currently of Standard Oil in Bakersfield, will, in the near future, join the Iranian Exploration and Producing Company in Iran as a Survey and Exploitation Geologist.

Willard J. Libby, recent graduate from Northwestern University, will work for Standard Oil in Bakersfield.

W. F. Blaze, formerly with Gulf in Denver, is now with Standard in Bakersfield.

The new officers of the Northern California Geological Society are:

1. President - Kenneth L. Edwards
2. Vice President - Ben H. Burma
3. Secretary-Treasurer - J. Tom Llewellyn .

Jim Bigelow, Western Gulf of Bakersfield, is doing temporary duty in the Ventura office.

Gordon Bell, new President of the Coastal Geological Society, is living it up by taking a short local vacation.

Leon Williams and Don Duncan are both to be transferred from Sacramento. Leon is going to Fullerton in February and Don to Coalinga in January. Their replacements have not been announced as yet.

George Thomas, Humble - production geologist, has recently been transferred to Chico, California, from Eugene, Oregon.

Wally Taylor, with Standard Oil Company, was transferred from Sacramento to Salt Lake City on December 17, 1956.

Bob Lindblom, with Standard Oil Co. in Sacramento, is vacationing at home in Minnesota. It is understood he negotiated a "hot deal" to buy a new Thunderbird while in the East.

The Sacramento Scouts' Party was held at Scheidel's Barvarian Restaurant on Tuesday, December 18. A large crowd was present and a good time was had by all.

Bill Gealey, formerly with Standard in Bakersfield, has transferred to San Francisco with the California Exploration Company. Word has it that Bill will be working on African and Middle East geology.

Ken Jensen, of Tidewater, is back in Bakersfield after a short tour in Sacramento.

Buz Ivanhoe was in Guatemala on vacation and, short of funds, met Dick Hester down there. Dick is home in Bakersfield for the holidays - only comment about Guatemala was "_____ wet."

Ernie Hoskins, Shell Oil in Bakersfield, is in Los Angeles for several month's training.

The Shell office in Bakersfield is currently understaffed due to numerous vacations.

Don Sorgenfrei, seismologist with Superior from Midland, Texas, is now in Bakersfield.

The Petroleum Club of Bakersfield was formally opened November 8, 1956, using the redecorated Normandy and Tower Rooms of the Bakersfield Inn. Present officers are:

President - Tom Fitzgerald
Vice President - Jack Beach
Secretary - Tex Rickard

The Club held an "open house" for wives and guests on December 27, 1956.

Tom E. Folsom, Honolulu Oil Corp., has been elected for a two-year term as a Director-at-Large of the California School Boards' Assn. Tom is presently serving as President of the Board of Education of Whittier Union High School District.

Shell's Olympia and Seattle offices joined forces and had a Christmas party at the Troubador Inn in Tacoma on December 14.

Wayne Marrs, geologist, Continental Oil Company, Billings, Montana, spent the holidays with his mother in Olympia.

Ivor McCray, scout, Shell Oil Co., Olympia, flew to Los Angeles to spend Christmas with his family.

Oleta Jones, paleontologist, Shell Oil Co., Olympia, is visiting her family in Fresno. Come back, Oleta - we have other paleontologists, but not female!

After Bob Rist, Monterey, New Orleans, had barely regained his health from visits of Jim O'Flynn and Ralph Brodek, Ross and Willi Phillips appeared on the scene on their way home from their stint in Turkey. As if things weren't bad enough already, Barney Barnard winged into town! With a small assist from Bob, it is reported that Barney saw more of New Orleans in thirty-six hours than the Phillips had all week.

Ed (The Moose) Parker, Standard, recently transferred from Seattle back to Bakersfield.

Ross Nichols, Cal Tex Oil Company, Sumatra, is vacationing in Southern California after seeing the Olympics in Australia.

Jim Benzley's daughter, Sherrill, was elected "Miss San Gabriel" for the 1956-57 season. She designed the San Gabriel float and reigned as Queen of the float at the Rose Bowl Parade. Where have you been hiding this talented young lady, Jim?

NURSERY NEWS

R. J. Malloy and his wife Marilyn had their fourth boy, James Peter Malloy, eight pounds, December 15, 1956. The Malloy's also have one girl.

Mr. and Mrs. Don Rogers announce the birth of a new daughter, Mallorie, November 3, 1956, who weighed in at 5 pounds 1 ounce.

John and Marian Terpening, General Petroleum, Bakersfield, are still following precedent with the addition of a third son, Craig William, November 21, 1956, weighing 8 lbs. 10 oz.

Howard and Nancy Kinzey, Shell Oil Company, Olympia, announce the arrival of Brian Marvin, their second offspring. He arrived December 26 and weighed 9 lbs. 2 oz.

Mahlon and Dorothy Kirk, Shell Oil Company, Seattle, are the proud parents of their fourth child, Wendy Ann, born December 12.

Mr. and Mrs. Paul Westrup have a new baby girl named Ann Louise who topped the scales at 8 lbs. 7 oz.

Mark and Verne White, Standard Oil Co., Los Angeles, announce the birth of a daughter, Julie Sue, 7 lbs. 4-1/2 oz. on December 17, 1956. The new arrival is their sixth child - four girls and two boys.

Al and Mary Johnston are the proud parents of a baby boy, Daniel Hamilton, 7 lbs. 11 oz., born December 21, 1956.

Jan. 17, 1957: Thurs., 7:30 P.M., A.I.M.E. Los Angeles Basin Jr. Petroleum Group, Turf Club, Anaheim Telegraph Road and Lakewood Blvd., One block North of Santa Ana Freeway, Rivera. "Profitability" by Folkert Brons, Area Reservoir Engineer, Shell Oil Company and Milan Arthur, Chief Evaluation Engineer, Union Oil Company. Members \$3.50, non-members \$3.75, incl. tax, tip and parking.

Jan. 22, 1957: Tues., 7:00 P.M., A.A.P.G. Forum, General Petroleum Auditorium, Los Angeles. "Tertiary Stratigraphy of Blairsden Quadrangle" (in Northeastern California) by Cordell Durrell, Professor of Geology, U.C.L.A. Illustrated with Kodachrome slides.

Jan. 28, 1957: Mon., 12:00 Noon, A.I.M.E. Petroleum Forum, Rodger Young Auditorium, 936 West Washington Boulevard, Los Angeles. "Progress in Secondary Recovery Operations, Union Oil Co. \$2.25 (tax, tip and parking included).

Feb. 4, 1957: Mon., 7:30-9:30 P.M., Biostratigraphy Seminar, Bakersfield College, Room 56, Science & Engineering Building. "Recent Studies in Foraminiferal Biology" by Dr. Zach Arnold, University of California, Berkeley.

Feb. 7, 1957: Thurs. 12:00 Noon, A.A.P.G. Los Angeles Luncheon Meeting, Rodger Young Auditorium, 936 West Washington Blvd., Los Angeles. Speaker to be announced. \$2.00 including tax, tip and parking.

Feb. 15, 1957: Tues., 7:30 P.M., Sacramento Geological Society, Board Room of Public Works Building, 1120 N. Street, Sacramento. "Feather River Project" by Lawrence James, Chief Geologist of the Department of Water Resources.

CALENDAR

Jan. 10, 1957: Thurs., 7:30 P.M., A.A.P.G. Coastal Geological Society, University Club, Santa Barbara. "Paleotectonic Mapping" by Edwin D. McKee, U.S. Geological Survey.

Jan. 10, 1957: Thurs., 12:00 Noon, S.E.G. Luncheon Meeting, Rodger Young Auditorium, 936 West Washington Blvd., Los Angeles. "The Varian Magnetometer" by Dr. J. I. Gimlette of Hycon Aerial Surveys. A movie, "Portrait of the Earth" will also be shown. \$2.50 including tax, tip and parking.

Jan. 11, 1957: Fri., 7:30 P.M., San Joaquin Geological Society Dinner Meeting. Cocktails 6:30 P.M. Dinner 7:30 P.M. - Spanish Ballroom, Hotel El Tejon, Bakersfield. "Paleotectonic Mapping" by A.A.P.G. Distinguished Lecturer Edwin D. McKee, Chief of Paleotectonic Map Project, U. S. Geological Survey, Denver.

Jan. 15, 1957: Tues., 7:30 P.M., A.P.I. Los Angeles Basin Chapter, Shell Recreation Hall, Hill and Obispo Streets, Long Beach. Program to be announced.

BIBLIOGRAPHY
OF RECENT PUBLICATIONSSCIENTIFIC PUBLICATIONS - JOURNALS & BULLETINSUnited States Geological Survey

Professional Paper 281 "General Geology of Central Cochise County, Arizona" by James Gilluly.

Professional Paper 305-A "Core Tests and Test Wells, Oumalik Area, Alaska" by F. M. Robinson; "Paleontology of Test Wells and Core Tests of the Oumalik Area, Alaska, Part 5, Subsurface Geology and Engineering Data."

Bulletin 1028-F "Geology and Petrology of Pribilof Islands, Alaska" by T. F. W. Barth.

Bulletin 1030-J "Stratigraphy of the Morrison Formation in part of Northwestern New Mexico" by V. L. Freeman and L. S. Hilpert.

Bulletin 1042-C "Geology of the Virginia City Quadrangle, Nevada" by G. A. Thompson.

Circular 391 "Index of Surface Water Records to September 30, 1955, Part II - Pacific Slope Basins in California" by J. S. Gatewood.

Water Supply Paper 1330-C "Water Requirements of the Aluminum Industry" by H. I. Conklin.

Water Supply Paper 1360-D "Water Resources of the Bill Williams River Valley near Alamo, Arizona" by H. N. Wolcott, H. E. Skibitske, and L. C. Halpenny.

Miscellaneous Geological Investigations Map I-197 "Preliminary Map and Structure Sections in Lower Yukon River Area, Alaska" by W. W. Patton, Jr. and R. S. Bickel.

Miscellaneous Geological Investigations Map I-230 "Map of the Salt Chuck Area, Prince of Wales Island, Alaska, Showing Linear Features as Seen on Aerial Photograph" by C. L. Pillmore and Kathleen McQueen.

Open File Reports (cannot be purchased - must be inspected).

- (1) "Geology of Southeastern Ventura Basin, Los Angeles County, California" by E. L. Winterer.

- (2) "Preliminary Geologic Reconnaissance Map of Part of the Southeastern Mojave Desert, California" by D. H. Kupfer and A. M. Bassett. (Released December 26, 1956.)

- (3) "Geologic Map of Alvord Mountain Quadrangle, California" by F. M. Byers, Jr.

- (4) "Annotated List of Plants Occurring on the Arctic Slope of Alaska" by L. A. Spetzman.

New Composite Topographic Maps (On sale in January)

- (1) Los Angeles and Vicinity East
- (2) Los Angeles and Vicinity West
- (3) Long Beach and Vicinity

California State Division of Mines

Bulletin 174 "Pumice, Pumicite and Volcanic Cinders in California" by C. W. Chesterman, and "Technology of Pumice, Pumicite and Volcanic Cinders in California" by F. Summer Schmidt. (Price - \$2.50)

California Journal of Mines and Geology - October 1956 "Mines and Mineral Resources of El Dorado County", "Recommendations for a National Minerals Policy", "Annual Report of the State Mineralogist."

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Mr. F. R. Neumann
381 E. 4th St.
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ASSOCIATION ACTIVITIES

MOODY TO HEAD A.A.P.G.

GRAHAM B. MOODY, Consulting Geologist, Berkeley, California, will become the 41st President of the American Association of Petroleum Geologists on April 4, THEODORE A. LINK, President of the Association announced today. Serving with Moody on the 1957-58 Executive Committee of this international geological organization will be THEO. A. LINK, President, Cree Oil of Canada, Limited, Calgary, Alberta, and Toronto, Ontario, as past president, and three other newly elected officers: Vice-President BYRON W. BEEBE, Vice President and Director of Production, Keating Drilling Company, Oklahoma City, Oklahoma; Secretary-Treasurer, WILLIAM J. HILSEWECK, partner, Blackwood & Nichols, Dallas, Texas; and, as Editor of the A.A.P.G. monthly Bulletin of Petroleum Geology, SHERMAN A. WENGERD, Associate Professor of Geology, University of New Mexico, Albuquerque.

The new A.A.P.G. officers will assume the responsibility of directing this 13,500-member organization at the close of the 42nd annual meeting of the Association being held in Kiel Auditorium in St. Louis, Missouri, April 1-4.

President-elect Moody was born in Denver, Colorado, November 15, 1889. After receiving a B.S. degree in geology and chemistry from the University of California in 1912 he did part-time graduate work at U.C. until 1914. During 1917-18 he was Production Geologist for the Fuel Oil Department, South Pacific Company. He joined California Petroleum in 1918 in the capacity of Administrative Geologist, remaining there until 1920. At that time he joined Standard Oil Company of California. Mr. Moody remained with Standard Oil until 1954, and during that time became Chief Reserves Engineer.

Retiring from Standard in 1954, Moody became a Consulting Geologist with offices in San Francisco and Berkeley.

Mr. Moody became a member of the American Association of Petroleum Geologists in 1927. He was secretary of the Pacific Section in 1935, a member of the Research Committee (1945-46) and served on the Committee for Statistics on Exploratory Drilling (1945-56); he also was General Chairman of the St. Louis Convention (1954), and Vice President of the Association in 1954.

A. A. P. G. LUNCHEON

The AAPG luncheon on January 3, 1957, was held at Rodger Young Auditorium as customary. After business of the meeting was concluded, Paul H. Dudley gave an illustrated talk on "Highlights of the Philippines". He returned this Fall from the Islands where he has been on a consulting job for Philippine Oil Development Company.

The Philippine Archipelago, made up of 7300 islands, extends from Latitude 5° N., to Latitude 20° N., a distance of nearly 1100 miles. The geologic section is mostly Tertiary and, from the standpoint of lithology and microfaunas, is related to the section in Indonesia. Sediments overlie basement that usually is made up of acid or basic volcanics or acid or basic plutonics. The age of basement is not clear to date. It is certainly pre-Tertiary, but may be possibly pre-Mesozoic. In one of the islands, for instance, small amounts of strata, bearing Mesozoic fossils and lying unconformably below Tertiary, have been mapped as basement.

There are oil seeps in some of the southern islands and exploration was started as early as 1896 when a number of shallow wells were drilled on Cebu. These produced uncommercial amounts of oil and were abandoned. Richmond Petroleum Corporation, a subsidiary of Standard of California, drilled several wells in the southern part of Luzon in 1921-22. These encountered oil and gas showings, but were abandoned. The most recent test, Philippine Oil Development Company's well drilled in the Cagayan Valley, was abandoned at 10,414 feet. This is the deepest well, to date, in the islands.

A series of map slides showed: (1) where exploration had been carried out in the islands; (2) Northern Luzon, the Cagayan Valley and its size relative to the San Joaquin Valley, the location of the recent well in the first valley, and a generalized geologic section; (3) Southern Luzon, the Central Plains, Manila, Corregidor and Bataan, Pagsanjan Falls and Lake Taal; and (4) the outline of the Old Walled City of Manila in 1670. With these as guides at appropriate intervals, those present were shown a series of colored slides depicting views of Cagayan Valley, a trip into the rice-terrace country of the Mountain Province, an expedition down the west coast of Luzon, highlights of Baguio, the Central Plains, Manila, Pagsanjan Gorge, and Lake Taal. In the course of showing the pictures the talk brought out some of the more interesting facts about the history of the islands and the races therein.

NORTHWEST GEOLOGICAL SOCIETY

On January 17, the monthly dinner meeting of the Northwest Geological Society was held at the Poodle Dog Cafe in Tacoma. Guest speaker for the evening was Charles E. Kirschner of Standard Oil Company of California, Seattle, who gave a very interesting illustrated talk on "Reconnaissance Observations on the Geology of the Trinity Islands, Alaska".

The Trinity Islands, Tugidak on the west and Sitkinak on the east, form the southwesterly extent of the Kodiak Islands group. Each island is approximately 5 miles wide and 20 miles long. The surface