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ASSOCIATION ACTIVITIES

LOS ANGELES LUNCHEON MEETING

"Tectonics of the Dead Sea Fault" was the subject of an enlightening and beautifully illustrated talk given by Mr. Anthony E. L. Morris, Manager of Exploration, Pauley Petroleum, Inc., at Rodger Young Auditorium, December 7th.

Abstract:

The Dead Sea Fault is a north-south trending flaw in the earth's crust traceable for over 1000 kilometers from the Red Sea to eastern Turkey. It traverses the country of Jordan wherein the greater part of the study was made.

Jordan has three distinct geographic and geomorphic provinces: (1) the Transjordan block, a largely desert area comprising the eastern three-quarters of the country, (2) the Dead Sea Depression, a long linear trough reflecting the prominent Dead Sea fault, and (3) the Judea Hills, a hilly anticlinorium probably resultant upon basement block faulting.

Jordan has been on a hinge line between the Arabian Shield and the Tethys Geosyncline throughout its known geologic history. About 850 meters of terrestrial sediments accumulated on the landward side, 2000 meters of mixed shallow marine, littoral and continental strata at the pivot line and more than 5000 meters of marine beds in the basin side of the hinge. The sediments range from Cambrian to Recent.

The present structural pattern of the country has developed since the Middle Mesozoic and commenced with relatively minor basement block faulting. There is no true geosynclinal folding in the area.

Movement, of two types, began on the Dead Sea fault in Oligocene time and is still active. There is substantial evidence to suggest left-lateral strike-slip movement up to 140 kilometers. Relatively minor contemporaneous vertical movement occurred and has given the present topographic configuration.

Ten points of evidence in ascending order of importance are listed to substantiate this proposition:

(1) The orientation of folds on both sides of the Dead Sea fault is consistent with interpretation as drag folds along a major shear.

(2) Recent fault scarps, showing left-lateral stream offset are visible in the Dead Sea Depression.

(3) A large Quaternary basalt flow in eastern Jordan and southern Syria terminates abruptly at the Dead Sea fault. Identical basalt is found 35 kilometers farther south on the west side of the fault. There are no vents on the west side.

(4) The granitic massif in southern Sinai is similar in petrology and elevation to a granitic massif bordering the northeast shore of the Dead Sea. The Sinai massif is about 140 kilometers south of the projection of the Arabian granitic outcrop.

(5) The straight northeast shoreline of the Red Sea is offset between Sinai and the Arabian block on the order of 140 kilometers.

(6) The thickest section of Upper Cretaceous-Eocene rocks east of the rift is just east of the Dead Sea. Across the fault a comparable section is found midway between the Dead Sea and the Gulf of Agaba. The loci of maximum thickness have an approximate horizontal offset of 120 kilometers.

(7) Maestrichtian bituminous chalk 100 meters thick is found in only one locality in northern Jordan east of the Dead Sea fault. West of the rift the greatest development of bituminous chalk (100 meters \pm) of identical age is some 112 kilometers south of the first occurrence.

(8) A 70 meter section of Cambrian limestone and shale is present at the southeast corner of the Dead Sea. West of the fault a section identical in thickness and lithology, and of correlative age, is present just north of Agaba. Both sections pinch out southward in identical fashion. The strand lines have 130 kilometers of offset.

(9) A large, basic porphyry dike occurs 45 kilometers south of the Dead Sea on the east side of the fault. It is bounded by faults and is within the Dead Sea fault zone. A similar dike is found 130 kilometers south of this locality on the west side of the fault zone. The two rocks have similar gross petrology and are the only occurrences of rocks of this type in the area.

(10) The Triassic, Upper and Lower Cretaceous all pinch out, east of the fault at or north of the latitude of the Dead Sea. The same strand lines, based on well data, are in southern Israel about 130 kilometers farther south.

LOS ANGELES GEOLOGICAL FORUM

On the evening of December 18th, at Mobil Auditorium, a large gathering of A.A.P.G. members were treated to a subject about which nearly all claim to have at least some first-hand knowledge--the San Andreas Fault. Dr. John C. Crowell, professor of Geology U.C.L.A., began with a most interesting and well illustrated talk on "The San Andreas Fault in Southern California".

Abstract:

Three segments of a former east-west trending belt of terrane in southern California are interpreted as displaced horizontally about 130 miles on the vertical San Andreas fault and 30 miles on its

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branch, the San Gabriel fault, since the earliest Miocene. The terranes displaced by the San Andreas are characterized by distinctive rocks which range in age from Precambrian (?) to Lower Miocene. Basement types include augen gneiss and blue-quartz gneiss of the amphibolite facies which have been intruded by a complex of gabbro, diorite, anorthosite, and syenite. These rocks were intruded later again by granitic types. Associated distinctive rocks on both sides of the fault include basic dikes and mafic bodies rich in ilmenite and apatite, blue-quartz granite, quartz-bearing syenite, granophyre, and pegmatite. Greenschist, marine Eocene strata, and Oligocene nonmarine beds and volcanics are also displaced. The San Gabriel fault separates similar rocks except for the anorthosite-syenite complex.

This combined displacement of 160 miles appears compatible with other studies along the San Andreas system. Younger and smaller displacements seem geometrically sound but greater displacements of older features rest on arguments of a different order of acceptability. Additional study of the geology along faults for many miles is needed with emphasis on geometric analysis of gross elements and on a search for linear features, such as basin-margin lines and facies-change lines, to establish slip. Separations of low dipping units require study and the possibility that such units have been displaced by trace slip needs more widespread recognition.

Robert Herron and Robert Paschall then presented "Ten Unanswered Questions Regarding the San Andreas Fault." Actually, Herron asked twelve specific questions, and suggested that these were only part of the problem that must be resolved before large-scale strike-slip movement can be considered proven.

They stressed that movement of a few miles was not in question, but they challenged the idea of movement of scores or hundreds of miles. They also stressed that they were now offering only questions, not answers--challenges, not solutions. Their unresolved problems were:

1-A buried granite-Franciscan contact, over 300 miles long, lies under the Great Valley of California. As this contact, if it is a fault, has not suffered movement since pre-Eocene time, must a similar contact along the San Andreas fault be explained by Tertiary strike-slip movement?

2-The Pelona-type schist is distributed over a wide area along both sides of the San Andreas and Garlock faults and in the Mojave Desert. Does its wide distribution permit employing it as a field criterion for large strike-slip movement?

3-Nine years ago the uniqueness of the San Gabriel Mountains anorthosite occurrence was cited, in offering it as the only possible source for certain conglomerates. Since then, anorthosite-complex rocks have been found in three additional localities. Does this relative ubiquity perhaps invalidate the earlier conclusions drawn concerning the anorthosite? More recently, occurrences of anorthosite on either side of the San Andreas have been employed as criteria for movement on that fault. But do we know about all anorthosite occurrences? And how does one reconcile the fact that one occurrence lies five miles south of the fault, and another eight miles north? "Unfaulting" the San Andreas to the extent of 130 miles would still leave these elements 13 miles apart.

4-Basement rock types have been recorded in the San Bernardino Mountains, apparently similar to those in the Soledad and Orocochia regions. Have the basement rocks of the San Bernardino been fully considered, relative to the suggested offset of the Soledad and Orocochia areas?

5-The line drawn at the easternmost extent of Upper Cretaceous rocks in California approaches the San Andreas fault from either side, with an area of no information only about 10 miles long. This is, furthermore, a true "line" in the area near the fault on either side, i.e., the eastern Cretaceous limit is marked by an overlap of Eocene sediments onto basement. Can this be reconciled with an earlier suggestion of a Cretaceous offset, which was based in part on an erosional "east" Cretaceous boundary lying west of the San Andreas fault?

6-The Mount Pinos-Frazier Mountain area appears to be, basically, a giant uplift straddling the San Andreas fault. On either side a sequence of Eocene marine, Oligocene nonmarine, Miocene volcanics dips away from the uplift. Has the concept of a dominantly vertical geologic history been fully considered in this area, and is it safe to reject this concept in favor of large strike-slip movement?

7-The above-mentioned sequence of Eocene-Oligocene-Miocene is also found in the Caliente Range, Santa Ynez Mountains, Santa Monica Mountains, Simi Valley, Santa Ana Mountains, and the Soledad and Orocochia areas. This suggests the presence of several areas with similar environment, perhaps analogous with that in the Rocky Mountains basins. Is it, therefore, safe to employ the Soledad and Orocochia sequences as evidence for large movement on the San Andreas?

8-Miocene volcanics in Southern California are confined to two irregular areas adjacent to one another across the San Andreas fault. Has this juxtaposition

tation been resolved with the idea of large-scale Miocene strike-slip movement?

9-An easternmost limit of Upper Miocene beds with *Ostrea titan* and *Pecten raymondi* lies in both the western Antelope Valley and in the Castaic district. These are directly opposite one another across the San Andreas fault, with a Plio-Pleistocene basement uplift intervening. Are these eastern limits of marine Upper Miocene rocks consonant with large-scale strike-slip faulting since their deposition?

10-Moody and Hill proposed, in their article on "Wrench-fault Tectonics", that the San Andreas and Garlock-Big Pine faults formed an excellent example of a shear pattern that might be produced by a north-south compressive stress. The San Andreas fulfills their role of a primary shear, and the Garlock-Big Pine faults a secondary shear offset by the primary. The offset is about six miles. Now if Moody's and Hill's suggestion is accepted, and the concept of large movement on the San Andreas is accepted, the Garlock-Big Pine system must have had its inception no earlier than the Pleistocene. Any earlier origin would necessitate correspondingly greater offset. The question here, then, is whether the wrench-fault concept is acceptable, and if so, are age data on the Garlock-Big Pine in agreement with the observable offset?

11-The San Andreas fault passes through the Transverse Ranges at Cajon Pass. It is possible to realign the San Gabriel and San Bernardino Mountains in a manner that yields 12-15 miles of right-lateral movement on the fault. Is it possible, however, to accord much greater movement to the San Andreas, and still account for the presence of the San Bernardino Mountains in alignment with the 200-mile long Transverse Range?

12-Clarence Allen's published map indicates that the San Andreas fault is cut off by the east-west Banning thrust fault, in the area north of San Geronio Pass. There is, in any event, considerable disagreement on the course taken by the San Andreas here. This is so critical, relative both to the Transverse Range offset and the nature of the San Andreas (?) fault east of the Salton Sea, that the problem needs resolution before large movement is ascribed to the San Andreas in the San Geronio Pass area.

A lively discussion followed the Herron-Paschall "Unanswered Questions", with several well-known students of California tectonics voicing their observations and opinions. It is hoped that with the interest aroused by this discussion that more pertinent information will be brought forth and more detailed studies be made to bring us closer to a solution of the character of California's most unusual structural feature.

SAN JOAQUIN GEOLOGICAL SOCIETY

The following abstracts are taken from a two-part series on Late Mesozoic stratigraphy given before the Society on December 12, 1961. Part I was presented by Stewart Chuber and Part II by William F. Edmondson.

Abstracts:

Part I:

The late Mesozoic stratigraphy and geologic history of the Sacramento Valley is discussed in

two parts: 1) Pre-Mesozoic history, basin inception, late Jurassic and Cretaceous deposition up to the end of G-1 time (by Chuber) and 2) F-zone through the end of Late Cretaceous (C-zone) time (by Edmondson). Methods of study include a literature review, field work and subsurface investigation by electric logs.

The Sacramento Valley is the north half of the Great Valley, arbitrarily divided by the Stockton Arch (French Camp or Manteca fault area) from the San Joaquin Valley. It includes roughly five million acres and is geographically bordered by the Southern Cascades and Klamath mountains on the north, by the Sierra Nevadas on the east, and by the Coast Ranges on the west.

A complex pre-Upper Jurassic history is recorded by thick late Paleozoic and Early Mesozoic metasediments exposed in northern California. These rocks are 22,000 and 28,000 feet thick in the Redding and Tavlorsville areas. The Late Jurassic was closed with profound compression, folding, crushing and thrusting of the rocks. Regional metamorphism affected the strata, and synorogenic as well as postorogenic batholithic intrusion took place. This event is called the Nevadan orogeny and plutonic rocks associated with it have been dated between 134 and 143 million years by potassium-argon age determinations (Curtis et al, 1958). Most of the Late Jurassic intrusions were emplaced in the Klamath Mountains and northern Sierras, west of the Melones fault zone (Clark, 1960). These areas became land masses at this time. Simultaneously the Sacramento Basin was formed to the southwest and marine deposits began to accumulate in it.

The accompanying chart (Fig. 1) shows the stratigraphic nomenclature used in this report. It includes the common formation names and their equivalent time-rock and time terms.

More than 60,000 feet of marine sediments accumulated in the Sacramento Basin during the Late Jurassic and Cretaceous. For the most part, the beds are dark gray mudstones with interbedded gray and brown sandstones and conglomerates which are laterally discontinuous. They include \pm 20,000 feet of "Knoxville", \pm 20,000 feet of "Shasta", \pm 10,000 feet of basal Upper Cretaceous rocks, 6,000 feet of G-zone strata, and 7,000 feet of F-zone beds. Most of the sediments were deposited continuously in a deep marine geosynclinal environment. The litho- and bio-facies of basal Lower Cretaceous (Valanginian) and Basal Upper Cretaceous (Cenomanian) beds reflect a shallowing of the basin. Widespread uplift and erosion initiated Venado deposition and may be synchronous with batholithic emplacement in the High Sierras. The granitic intrusions occurred in early Upper Cretaceous time, 77 to 95 million years ago, during the Santa Lucian orogeny of Curtis, et al. Eastward transgression accompanied Venado deposition and continued until the end of G-zone time, when local uplift and regional regression ended the early marine cycle.

Based on the uniform organic carbon content and relative volatility of the entire late Mesozoic section, the hydrocarbon potential of strata older than the Forbes Formation (F-zone) is as good as those presently producing beds provided adequate reservoir rocks can be located.

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| STRATIGRAPHIC TERMINOLOGY OF THE LATE MESOZOIC IN THE SACRAMENTO VALLEY | | | | |
|---|---------------------------------|--------------------|-----------------|------------------|
| TIME UNITS | ABSOLUTE TIME (m.y.) * | TIME-ROCK UNITS | | ROCK UNITS |
| | | EUROPEAN STAGES | FORAM. ZONES | |
| UPPER CRETACEOUS | 63 | MAASTRICHTIAN | C & D-1 ZONE | STARKEY SAND |
| | 72 | | D-2 ZONE | WINTERS FM. |
| | | | E-1 ZONE | SACRAMENTO SHALE |
| | | | E' ZONE | KIONE FM. |
| | | CAMPANIAN | F-1 ZONE | FORBES FM. |
| | | | F-2 ZONE | |
| | | | | |
| | | | | |
| | 84 | SANTONIAN | G-1 ZONE | DOBBINS SHALE |
| | | CONIACIAN | | GUINDA FM. |
| LOWER CRETACEOUS | | | | FUNKS FM. |
| | | | | SITES FM. |
| | | TURONIAN | G-2 ZONE | YOLO FM. |
| | | | | VENADO FM. |
| | 90 | CENOMANIAN | H-ZONE | BALD HILLS FM. |
| | 110 | ALBIAN | | ONO FM. |
| UPPER JURASSIC | 120 | APTIAN | | RECTOR FM. |
| | | NEOCOMIAN | NOT | "SHASTA" |
| | 135 | PORTLANDIAN | SUBDIVIDED | "KNOXVILLE" |

* AFTER KULP, 1961

Part II:

Downwarping along the east flank of the northern Sacramento Valley Cretaceous basin and some westward tilting brought a halt to deposition of the Dobbins shale (= G shale) and localized deposition of first F zone sediments to at least 25-30 miles west of the limits of Dobbins shale deposition. More than 7000 feet of F zone section were deposited with progressive eastward onlap onto the Dobbins shale. The unconformity between the F zone and the Dobbins shale shows little erosion and it can be concluded that the sea remained over the previously deposited Dobbins shale during deposition of the F zone.

The F zone, as the term is used in this paper, includes the Forbes shale and the Kione sand which has the fauna of Goudkoff's E' zone and is a shallow water facies of the Forbes shale. The original designation of this fauna as E' was erroneous as it can now be demonstrated to be a facies of the F fauna.

Three fauna are found in the F zone of the Sacramento Valley: namely, Goudkoff's E', F'-1, and F-2 zones. These are facies fauna and all three existed simultaneously in environmentally different areas of the basin during much of F zone time. Different environmental conditions producing these

fauna were largely due to a southern tilting of the basin which, combined with a continual regression of the sea to the south, produced a rapid crossing of time lines by the faunal contacts.

Most of the gas production from the Forbes shale is due to stratigraphic and fault stratigraphic entrapment and is derived from sands which generally comprise less than 20 per cent of the formation. Two primary current vectors were responsible for sand distribution in the Forbes shale, one being the southerly along-shore current in the east portion of the basin, the other being westerly currents induced by rivers to the east feeding sediments onto the west sloping basin floor. Velocity changes in these currents were responsible for the pattern of sand distribution and localization of sand accumulation. The pattern of sand distribution, the distance from zero line of deposition, and depth of deposition are major factors in localizing areas of most rapid facies changes and best gas accumulation.

Deposition of the F zone closed with a transgression of the sea and a return to environmental conditions so similar to those under which the Dobbins shale was deposited that locally some faunal elements of the Dobbins shale recur in the Sacramento shale which normally has the fauna of Goudkoff's E zone. The Sacramento shale is only 200 to 400 feet thick and conformably overlies the F zone.

Conformably overlying the Sacramento Shale is the Winters formation. During deposition of the Winters formation there was a continual regression of the sea and a consequent reduction in the size of the basin. A minor amount of erosion accompanied this regression and the near shore facies of the Winters was probably removed shortly after deposition. Massive sand development is characteristic of this formation in the central portion of the basin. The Winters formation has the fauna of Goudkoff's D-2 and E zones. In the Sacramento Valley the first E fauna is commonly found below the sand development and in the Northern San Joaquin Valley the first E fauna is found above the sand development. This higher position of the E fauna in the San Joaquin Valley is the result of difference in depositional environments which is also evidenced by a difference in sand development. A western land mass existed during deposition of this formation. It either emerged at this time or else represents a more easterly advance of land area that may have existed during deposition of the F zone. A connecting channel to the open sea may have existed southwest of Rio Vista and this may account for the different environments. A gas discovery, probably of major proportions, has been made from sands in this formation at Lathrop.

A rapid transgression of the sea initiated deposition of the Starkey formation. This formation had seven cycles of transgression and regression which form "carrot" type sands on the E-log. The bottom three regressive sands correlate with the Tracy sand, the next three are in that portion of the section occupied by the Blewett and Azeveda sands, and the top regressive sand correlates with the Garzas sand.

In the central part of the basin these sands (except the top one) are missing. A gross reduction of section is believed to accompany this loss.

The Starkey formation has the fauna of Goudkoff's C, D-1, and D-2 zones but exact zonation is difficult except in the San Joaquin Valley. Highest known occurrence of Cretaceous fauna is found in the H & T shale immediately below the top regressive sand. The lithologic change at the top of the highest sand is taken as the Paleocene-Cretaceous contact. In most areas the two appear conformable but along the west side the Paleocene erodes the Cretaceous.

DOHLEN, HOWARD G.
Cal. Pan Am Well Logging Co.
12322 Greene Ave.
Los Angeles 66, Calif.

DORRANCE, J. R.
American Overseas Pet., Ltd.
Box 693
Tripoli, Libya

DUNWOODY, JOSEPH A.
120 Bernard St.
Bakersfield, Calif.

ELLSWORTH, THEODORE P.
1136 Bank of the SW Bldg.
Houston 2, Texas

EMERSON, WILLIAM D.
Humble Oil & Refining Co.
P. O. Box 7033
Long Beach 7, Calif.

FOLSOM, TOM E.
1765 Burton Way
Bakersfield, Calif.

FORAKER, W. A.
P. O. Box 707
Chico, Calif.

FRETZ, WILLIAM D.
14392 Morton Street
Tustin, Calif.

GENTRY, ALBERT W.
Humble Oil & Refining Co.
612 So. Flower St.
Los Angeles 17, Calif.

GERE, WILLARD C.
U. S. Geological Survey
231 E. 4th St. South
Salt Lake City 11, Utah

GILLILAND, JOHN A.
Gilliland Oil Company
P. O. Box 242
Santa Maria, Calif.

GOTH, WILLIAM C.
2203 Carver Drive
Roswell, New Mexico

GRIFFITHS, JOHN R.
1055 Dexter-Horton Bldg.
Seattle 4, Washington

GRIVETTI, REX M.
4510 Varsity Street
Ventura, Calif.

HALL, EDWARD A.
856 Lynhaven Lane
La Canada, Calif.

HARDING, TOD P.
Humble Oil & Refining Co.
P. O. Box 788
Bakersfield, Calif.

HARKNESS, DOROTHY V.
254 S. Harvard Blvd.
Los Angeles 4, Calif.

HARRINGTON, HORACE E.
Libya Superior Oil Co.
P. O. Box 941
Tripoli, Libya

HARRIS, W. S.
Texaco, Inc.
3350 Wilshire Blvd.
Los Angeles 5, Calif.

HARTMAN, DONALD C.
6551 Orange Avenue
Long Beach 5, Calif.

HECK, RONALD G.
Pauley Petroleum, Inc.
10000 Santa Monica Blvd.
Los Angeles 25, Calif.

HERRON, ROBERT F.
Signal Oil & Gas Co.
P. O. Box 17126, Foy Station
Los Angeles 17, Calif.

HIGGINS, JAMES W.
5611 90th Avenue S.E.
Mercer Island, Washington

HOLMAN, WILLIAM H.
15203 Valley Vista Blvd.
Sherman Oaks, Calif.

HOOTS, HAROLD W.
Room 702
816 W. Fifth Street
Los Angeles 17, Calif.

HOOVER, HERBERT, Jr.
Suite 1230
900 Wilshire Blvd.
Los Angeles 17, Calif.

HORTON, H. M.
Box 1027
Truckee, Calif.

HUDSON, JOE B.
Room 643
550 S. Flower St.
Los Angeles 17, Calif.

JACKSON, JAMES G.
700 S. Shore Drive
Seal Beach, Calif.

JOHNSON, RAYMOND L.
116 Oxsee Avenue
Whittier, Calif.

KIMBLE, JAMES C.
State Exploration Co.
Room 922
649 So. Olive Street
Los Angeles 14, Calif.

KIRKPATRICK, DARREL L.
1601 "H" Street
No. 260
Bakersfield, Calif.

KOTICK, OTTMAR F.
761 Woodstock Lane
Los Altos, Calif.

LEITH, C. J.
Dept. of Mineral Industries
North Carolina State College
Raleigh, North Carolina

MALLOY, RICHARD J.
112 Northway Drive
Greenbelt, Maryland

MANLOVE, CHARLES F.
1601 "H" Street
No. 230
Bakersfield, Calif.

MARIER, E. L.
Rte. 1, Box 197-X
Bakersfield, Calif.

MARSHALL, THOMAS R.
1569 Birchwood Street
Anchorage, Alaska

MARTIN, DAVID R.
2101 Mark Court
Bakersfield, Calif.

MASTERMAN, DAVID S.
Humble Oil & Refining Co.
P. O. Box 788
Bakersfield, Calif.

McCONVILLE, ROBERT J.
Signal Oil & Gas of Venezuela
Apartado 539
Maracaibo, Venezuela, S. A.

McFALL, C. Carew
1321 Winona Drive
San Jose 25, Calif.

McLEAN, T. C.
Pacific Lighting Gas Supply Co
112 N. Emily Street
Anaheim, Calif.

McMillan, John R.
Monterey Gas Trans. Co.
550 So. Flower St.
Los Angeles 17, Calif.

MILLER, CLARENCE J.
3418 Purdue Drive
Bakersfield, Calif.

MINCH, BERNARD A.
2700 "F" Street
Bakersfield, Calif.

MOORE, QUENTIN M.
1825 19th Street
Bakersfield, Calif.

MURRAY, D. KEITH
Clark Oil & Refining Corp.
8010 W. 25th Place
Denver 15, Colorado

MYRON, KENNETH E.
Texaco, Inc.
3350 Wilshire Blvd.
Los Angeles 5, Calif.

NELSON, L. J.
The Ohio Oil Company
P. O. Box 1306 O.C.S.
Lafayette, Louisiana

NEWTON, RALPH J.
12708 So. Groveside Ave.
La Mirada, Calif.

O'BRIEN, JEROME J.
Room 5512, Interior Bldg
Washington 25, D. C.

OGLE, BURDETTE A.
Route 2
Evergreen, Colorado

OHRENSCHALL, ROBERT D.
Farmer's Loop Road
Fairbanks, Alaska

OSBORN, B. C.
P. O. Box 785
Anchorage, Alaska

PALLEN, FRANK S.
205 La Colina Drive
Bakersfield, Calif.

PARSONS, JESSE H.
864 Milton
Ventura, Calif.

PFEIFFER, D. H.
Standard Oil Company
Room 1268
P. O. Box 3495
Rincon Annex
San Francisco 20, Calif.

PRICE, MAURICE C.
Shell Oil Company
1055 Dexter-Horton Bldg.
Seattle 4, Washington

PYLE, HOWARD C.
Room 605
550 So. Flower St.
Los Angeles 17, Calif.

RAYDON, GERALD T.
c/o William Paul Blair
650 S. Grand Ave.
Los Angeles 17, Calif.

REDWINE, LOWELL E.
2907 Truxton Ave.
Bakersfield, Calif.

RENNIE, ERNEST W., Jr.
120 Bernard Street
Bakersfield, Calif.

RICHARDS, ARTHUR J.
2813 Cornell St.
Bakersfield, Calif.

RIVEROLL, DAVID D.
Continental Oil Co.
1137 Wilshire Blvd.
Los Angeles 17, Calif.

ROGERS, DONALD A.
Box 7033
Long Beach 7, Calif.

ROTH, PAUL E.
State Exploration Co.
649 So. Olive St.
Room 922
Los Angeles 14, Calif.

ROWLAND, RICHARD E.
3536 Las Palmas Avenue
Glendale 8, Calif.

RUDKIN, GEORGE H.
P. O. Box 6036
Sacramento 21, Calif.

SANSONE, JOHN B.
2448 Riverside Drive
Santa Ana, Calif.

SHERMAN, ROBERT P.
P. O. Box 292
Tracy, Calif.

SISK, THOMAS H.
Humble Oil & Refining Co.
P. O. Box 788
Bakersfield, Calif.

SISSON, HARRY
Humble Oil & Refining Co.
1000 Oil & Gas Bldg.
New Orleans 12, Louisiana

SMITH, JOHN W.
Humble Oil & Refining Co.
P. O. Box 788
Bakersfield, Calif.

SORGE, BART W.
1310 Oaklawn Road
Arcadia, California

SPALDING, ROBERT W.
2801 St. Mary's Street
Bakersfield, Calif.

STARKE, GEORGE W.
200 Bush Street, Room #919
San Francisco 20, Calif.

STEINY, THOMAS R.
Route 2, Box 687
Carmel, Calif.

STONE, DONALD S.
6178 S. Lakeview
Littleton, Colorado

STUCKER, WALTER R.
Turkish Gulf Oil Co.
Kadar Sokak 20/1
Gazi Osman Pasa
Ankara, Turkey

TAYLOR, D. E.
8811 N. Coast Hwy.
Laguna Beach, Calif.

TERPENING, J. M.
Mobil Oil Co.
Box 2122, Term. Annex
Los Angeles 54, Calif.

THOMAS, WILLIAM H.
Shell Oil Company
805 Municipal Drive
P. O. Box 1200
Farmington, New Mexico

THOMSON, JOHN N.
3809 Brae Burn Drive
Bakersfield, Calif.

HOLIDAY DINNER DANCE

The Annual Holiday Dinner Dance, sponsored jointly by the Pacific Section of the A.A.P.G., S.E.G., and S.E.P.M. was held December 16, 1961, in the Ballroom of the Huntington-Sheraton Hotel in Pasadena. In attendance were 186 persons who enjoyed dinner and dancing to the music of Ivan Scott and his orchestra, and especially the cocktail party preceding, which was sponsored by the following service companies:

| | |
|---------------------------------|--|
| United Geophysical Schlumberger | Western Geophysical Fairchild Aerial Surveys |
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| Exploration Logging | Welex |
| Robert H. Ray | Borst & Giddens |
| Western Offshore Drlg. | Baroid |
| W. W. Murphy | Geologic Engr. Service |
| Economy Blue Print | McCullough Tool |
| Rapid Blue Print | Read & Co. |
| Cook Testing | Munger |
| Geophysical Service Inc. | |

The Dance Committee wishes to thank everyone attending and the service companies for their help in making the dance a successful affair.

COAST GEOLOGICAL SOCIETY

At the December 13, 1961 dinner meeting at Wagon Wheel Junction, J. J. Williams of Ohio Oil Co., presented a summary of his Alaskan field experience. His slide presentation of Northern Alaska was a splendid aid in visualizing this remote area.

Abstract:Northeast Arctic Slope

In the summer of 1959 a Union-Ohio field party, composed of Gene Borax, Dick Lyon and Jerry Williams, mapped 5000 square miles in Northeast Alaska. Adverse weather conditions, including a 10 day blizzard, limited activity as to area covered on ground but the entire region was reconnoitered from the air.

This portion of Alaska is bounded by Arctic Ocean on the North, and mountains of the Brooks range to the south, Canning River on the west to the Canadian Border to the east. The area is at present closed to leasing as it has been designated a wild life refuge. Sedimentary rocks ranging in age from Mississippian to Tertiary are present. Formations generally become younger progressing from the mountains towards the sea. Mountains are asymmetric anticlines with steep to overturned north flanks. Rocks forming the mountains are commonly the Mississippian Lisburne limestone. The flat tundra-covered arctic slope in this region is 50 miles wide, and outcrops are found there in occasional streams that run from mountains toward the coast

PACIFIC SECTION DUES

Dues for the Pacific Section, A.A.P.G. for 1962 are now overdue. Those who have not paid, and who desire to continue to receive the PPG, should send \$3.50 to Richard Hester, Treasurer, c/o Pauley, Petroleum, Inc., 10,000 Santa Monica Blvd., Los Angeles 25, California.

CHANGE OF ADDRESS

Listed below are changes of address for those members listed in the latest Directory.

| | |
|---|---|
| ADEMT, WILLIAM A. Room 903 926 "J" Building Sacramento 14, Calif. | BROOKS, TENNANT J. 174 Pasatiempo Drive Bakersfield, Calif. |
| ALEXANDER, ROGER G., Jr. Standard Oil Co. of Calif. P. O. Box 3317 Ventura, Calif. | BROWN, WILLIS R. Buttes Gas & Oil Co. 2150 Franklin St. Oakland 12, Calif. |
| ALFORS, JOHN T. 2126 Steiner St. Apt. 8 San Francisco 15, Calif. | BRUCE, DONALD D. State of Alaska Div. of Mines & Minerals P. O. Box 148 Anchorage, Alaska |
| AMUNDSON, BURTON 567 Miranda St. Oakland 9, Calif. | BRUER, WESLEY G. 300 Pine St. Bakersfield, Calif. |
| ARLETH, KARL H. c/o The Ohio Oil Co. Oil Center Station Lafayette, Louisiana | BURNS, RUSSELL W. 1126 Premier Way Calgary, Alberta, Canada |
| AYRES, M. G. P. O. Box 5278 Oildale, Calif. | CALLAWAY, DAVID C. 1601 - H Street 230 Civic Center Bldg. Bakersfield, Calif. |
| BADGER, ROBYN L. Pauley Pan American Pet. Co. 1017 N. 4th St. McAllen, Texas | CAMPBELL, HARRY D. Box 1176 3132 - 18th St. Bakersfield, Calif. |
| BAILEY, JAMES P. American Overseas Petro. Co. 485 Lexington Avenue New York 17, New York | CEBULL, STANLEY E. Texas Petroleum Co. Apartado 516 Maracaibo, Venezuela |
| BAIN, ROLAND J. 5418 Fort Sutter Way Sacramento 21, Calif. | CONGER, FRANKLIN B. 2861 Inverness Drive Los Alamitos, Calif. |
| BALDWIN, JOAN 2907 W. 141st Place Apt. 2 Gardena, Calif. | CONRAD, STANLEY D. Richfield Oil Corp. P. O. Box 1049 Salt Lake City 10, Utah |
| BALDWIN, THOMAS A. Humble Oil & Refining Co. 612 S. Flower St. Los Angeles 17, Calif. | CORDOVA, SIMON 4017 Palmwood Drive Apt. 1 Los Angeles 8, Calif. |
| BALLANTYNE, RICHARD S. 3460 Grayburn Road Pasadena, Calif. | COX, MARGARET M. Pauley Petroleum, Inc. 10000 Santa Monica Blvd. Los Angeles 25, Calif. |
| BEALL, JOHN M. Shell Oil Co. 561 Lexington Ave. Astoria, Oregon | COZZENS, W. L. 912 E. Palm St. Altadena, Calif. |
| BICKEL, ROBERT S. 14705 E. Palm St. La Puente, Calif. | DANEHY, EDWARD A. 2060 Harrison Avenue San Mateo, Calif. |
| BIGELOW, JAMES S. 39055 W. 11th St. Palmdale, Calif. | DAVIS, DONALD M. 5204 Greenbrier Bakersfield, Calif. |
| BIRD, CYRIL V. c/o Humble Oil & Refining Co. P. O. Box 788 Bakersfield, Calif. | DEJARNETT, PRESLEY L. Oasis Oil Co. of Libya P. O. Box 395 Tripoli, Libya, North Africa |
| BISHOP, W. C. Richfield Oil Corp. P. O. Box 360 Anchorage, Alaska | DE LAPP, RICHARD E. 6379 W. 79th Street Los Angeles 45, Calif. |
| BLACK, ROBERT J. 1716 Frankfort New Orleans, Louisiana | deLAUZAGA, MIQUEL 945 Fairway Drive Bakersfield, Calif. |
| BRAISLIN, DANA B. Union Oil Co. 120 E. Union Ave. Olympia, Wash. | DOBLER, IDA M. P. O. Box 5278 Bakersfield, Calif. |

THRAILKILL, JOHN V.
Dept. of Geology
Princeton University
Princeton, N. J.

TOMKO, HENRY J.
Shell Oil Company
1055 Dexter-Horton Bldg.
Seattle 4, Washington

TOURING, R. M.
Humble Oil & Refining Co.
612 So. Flower Street
Los Angeles 17, Calif.

TRAPESONIAN, MICHAEL
15340 Cohasset Street
Van Nuys, Calif.

TUTTLE, HELEN FOWLER
730 S. San Rafael
Pasadena, Calif.

VALENTINE, G. M.
Shell Oil Company
1055 Dexter-Horton Bldg.
Seattle 4, Washington

VALLAT, E. H.
No. 4
534 6th Ave., S. W.
Calgary, Alberta, Canada

VANDIVER, VINCENT W.
441 Orange Grove
Circle - A
Pasadena, Calif.

VERNON, JAMES W.
6241 Kenton Avenue
Van Nuys, Calif.

WADSWORTH, F. LOWRY
Mobil Oil Company
P. O. Box 2122
Los Angeles 54, Calif.

WATERMAN, DOUGLAS R.
P. O. Box 7839
Anchorage, Alaska

WEDDLE, HERMAN W.
207 Nevada Street
Bakersfield, Calif.

WHITEAKER, MILTON T.
Mobil Oil Company
Box 2122, Term. Annex
Los Angeles 54, Calif.

WOSK, L. DAVID
P. O. Box 49896
Los Angeles 49, Calif.

WRIGHT, LAUREN A.
Dept. of Geology
Pennsylvania State Univ.
Univ. Park, Pennsylvania

WRIGHT, THOMAS L.
Standard Oil Co.
P. O. Box 606
La Habra, Calif.

YOUNG, UMBERTO
1420 W. Floral Avenue
Whittier, Calif.

FRITZLER, MATHILDA
Standard Oil Company
P. O. Box 606
La Habra 1, Calif.

ERSKINE, KENNETH
7747 Detroit St.
Sacramento 32, Calif.

ESPENSCHIED, ERNEST K.
Standard Oil Co. of Calif.
P. O. Box 606
La Habra, Calif.

PERSONAL ITEMS

When Bruce Coltman "cut out" of Sunray in Bakersfield during "the last thirty" to find a new "pad", Buzz Welsh "cut in" as District Exploitation Geologist and is finding the job a "blast".

Rod Nahama, hot pilot for Sunray in Bakersfield, sought to test his LPFVD (Light Plane Fog Visability Device) over the very foggy Christmas weekend with a trip to San Francisco. However, it was Tuesday noon before Rod, acknowledging defeat, returned, emerging from the mist on a Greyhound bus. Back to the drawing board!

Rumor has it that the scouts of Union, Superior, and Standard were all assigned a VERY "hush-hush" mission in the Northwest; BUT unfortunately found they had reservations on the same planes all the way up.

Gerald Fawcett, youthful retired Union Oil geologist from Bakersfield, was married in Las Vegas to a Wasco school teacher over the holidays. Congratulations, Gerry!

We've all heard of birdies under the hood of a car, but Tom Roy, Ohio geologist at Bakersfield, has come up with a bird up the exhaust pipe. Trying to get a new company car, Tom?

Bob Johnston (Gulf Oil-Bakersfield) spent a week in November on one of his numerous trips south of the border. My informant, Mick Lachenbruch, stated that Bob is extremely fond of deep Mexico. Wild times in wild country, Bob?

It is rumored that John Wagner, another retired Union Oil Geologist from Bakersfield, is looking over a lot in Kern City with an eye to his future.

Jerry Williams, Ohio Oil Co., Ventura, expects an early call for his assignment in Libya. Reports are that panic has hit the bachelor-girl population of coastal cities, and their going away parties are rumored to be of a welcome-home nature.

Jack Durrie is joining Tidewater in Ventura, having come from Core Lab in Bakersfield.

Don Collins, Shell, Sacramento, won the battle of delays four days before Christmas, and moved into his new home approximately four months after it had been promised.

Sarge Reynolds, Consultant, Woodland, recently raised the roof in his neighborhood by adding a second story to his home.

Will Griffin, Mobil, Taft, long a fixture in the Willows area, Sacramento Valley, returned to olde haunts to do a little well sitting.

Jack Kearns, Gulf, Sacramento, finally returned to the Sacramento Valley after temporary duty in Bakersfield. Jack couldn't get over the wonderful climate that prevailed in Bakersfield during his stay.

Schlumberger, Sacramento, has a new engineer, Lennia McCollum, from Midland, Texas.

Lowell E. Garrison has joined Signal Oil & Gas Company as Geologist in the Sacramento Valley. He will be located at Signal's Sacramento office, 2222 Watt Avenue. Mr. Garrison graduated from Stanford University in 1954, majoring in Geology and Paleontology. Since that time he has been with Gulf Oil at various locations most recently in Sacramento.

Listed below are changes of address for those members not listed in the latest directory.

ANDERSON, A. TAYLOR
Continental Oil Co.
P. O. Box 1758
Bakersfield, Calif.

BLAZE, W. F.
Room 903
926 "J" Building
Sacramento 14, Calif.

BOVEY, LEROY V.
66 Jewell St.
San Rafael, Calif.

BROWN, ROBERT H.
Cameron Oil Company
P. O. Box 4776
Sacramento 25, Calif.

COX, JAMES R.
2524 Dracena
Bakersfield, Calif.

CALIFORNIA STATE LIBRARY
P. O. Box 2037
Sacramento 9, Calif.

DIECKMAN, JOHN J.
120 Bernard St.
Bakersfield, Calif.

D'OLIER, WILLIAM L.
Reserve Oil & Gas Co.
64 Pine Street
San Francisco 11, Calif.

DOYLE, C. L.
10 W. Crossway
Old Greenwich, Connecticut

FIELDER, R. RICHARD
1514 Constanso Way
San Jose, Calif.

FISH, JOHN L.
136 N. San Marino
San Gabriel, Calif.

GUSSOW, WILLIAM C.
Union Oil Co. of Calif.
P. O. Box 76
Brea, Calif.

KINSEY, HOWARD G.
1419 N. Poplar Ave.
Fresno 4, Calif.

RYAN, BEN
Richfield Oil Corp.
P. O. Box 360
Anchorage, Alaska

SEARS, D. H.
3 Varsity Court
Ventura, Calif.

ZAJIC, WILLIAM E.
6150 Dover Street
Arvada, Colorado

NURSERY NEWS

Congratulations to Joe and Earlene Rossi, Union, Sacramento, on the arrival of Joseph Fredrick, 7 lbs, 10 oz., December 9th.

Congratulations to Doug and Vicki Manske, Texaco, Sacramento, who welcomed Monte Charles, 9 lbs, 1 oz., into the family, December 8th.

Congratulations to Pete and Sonya Oran, Texaco, Sacramento, whose recent addition, A'jalyyn Marie, 6 lbs., 6 oz., was born November 21st.

Oscar and Elsa Weser, Standard Oil Co., Ventura, added a 6 lb. 13 oz. boy, Kurt Koehler to their family on December 21, 1961.

ANDY CLINE

by Sullwald



CALENDAR

January 9, 1962: Tuesday, Geological Society of Sacramento, 7:45 PM, California Public Works Building 1120 "N" Street. Speaker: Dr. Vincent Gianella, University of Nevada, Subject to be announced.

January 15, 1962: Earth Sciences - Key to future energy resources, by Gage Lund, Director and Vice-President, Standard Oil Company of California, San Francisco. Room 320 Geology Building, Stanford University, 4:00 PM.

January 17, 1962: Wednesday, Sacramento Petroleum Association, Installation of Officers Dinner, Scheidel's Bavaria, 2764 Fulton Avenue, Sacramento; 6:00 PM, Cocktail hour, 7:00 PM Prime Rib Dinner, \$3.50 per person. Speaker to be announced.

January 22, 1962: Concentrations of Manganese, Sources and genesis, by Dr. D. F. Hewett, Staff Geologist, U.S.G.S., Stanford University, Room 320 Geology Building, 4:00 PM.

January 29, 1962: Electrical methods of mining exploration, by Dr. Arthur A. Brant, Newmont Exploration Limited, Danbury Connecticut. Room 320 Geology Building, Stanford University, 4:00 PM

January 31, 1962: Wednesday, Room 104, Geology "A" University of Southern California at 7:00 PM. "The Earliest Life on Earth", Speaker: Dr. Martin F. Glaessner, Professor of Geology at the University of Adelaide, Australia.

February 5, 1962: The Canadian Rockies - Orientation time and space, by Dr. E. W. Shaw, Exploration Manager, Imperial Oil Limited, Calgary, Alberta. Stanford University, Room 320, Geology Building at 4:00 PM.

February 5, 1962: Petroliferous Reefs in Western Canada, by George de Mille, Assistant to Regional Exploration Manager, Imperial Oil Limited, Calgary, Alberta. Stanford University, Room 320 Geology Building, 8:00 PM.

February 5, 1962: Monday evening, 7:30-9:30 PM, Room 36, Science and Engineering Building, Bakersfield College. Biostratigraphy seminar, "Interpretation of the La Jolla Submarine Fan", F. P. Shepard (Scripps).

February 12, 1962: Delta influence on Cretaceous sedimentation and petroleum accumulation in the Rocky Mountain area, by Dr. Robert J. Weimer, Associate Professor of Geology, Colorado School of Mines, Golden Colorado. Room 320 Geology Building, Stanford University at 4:00 PM.

February 13, 1962: Tuesday, Geological Society of Sacramento, 7:45 PM, California Public Works Building 1120 "N" Street, Speaker: Dr. Cordell Durell, University of California at Los Angeles, "Lovejoy Formation".

February 13, 1962: Tuesday Evening, Hotel El Tejon, Bakersfield, cocktails 6:30 PM., dinner 7:30 PM. Dr. John C. Ludlum, A.A.P.G. distinguished lecturer, will speak on "Prospects and Structural Problems of Exploration for Natural Gas in the Appalachian Area".

March 26-29, 1962: A.A.P.G. - S.E.P.M. Annual meetings, San Francisco, California

April 16-18, 1962: Meetings Cordilleran Section, The Geological Society of America, University of Southern California, Los Angeles, California

BIBLIOGRAPHY OF RECENT PUBLICATIONS

U. S. GEOLOGICAL SURVEY

Bulletin 1090: Iron and copper deposits of Kasaan Peninsula, Prince of Wales Island, Southeastern Alaska, by L. A. Warner, E. N. Goddard and others (Plates in separate book).....\$ 4.50

Bulletin 1104-B: Geology of the Bernal-Jalpan Area Estado de Queretaro, Mexico, by Kenneth Segerstrom.....\$ 1.00

Professional Paper 374-H: Stratigraphy of outcropping Permian rocks in parts of northeastern Arizona and adjacent areas, by C. B. Read and A. A. Wanek.....\$.65

MAPS:

Geologic Quadrangle (GQ) 142: Geology of the Valdez (A-5) Quadrangle, Alaska, by H. W. Coulter and E. B. Coulter.....\$ 1.00

Map I-340: Geologic map and section of the Fairbanks D-3 Quadrangle, Alaska, by Troy L. Pewe and Norman R. Rivard.....\$.50

AMERICAN ASSOCIATION OF PETROLEUM GEOLOGISTS BULLETIN, vol. 45, no. 12, December 1961.

Dip-slip versus strike-slip movement on San Gabriel Fault, Southern California, by Robert H. Paschall and Theodore Off.

Reservoir water resistivities and possible hydrodynamic flow in Denver Basin, by William L. Russell

Foraminiferal zonation in Matanuska Formation, Squaw Creek-Nelchina River area, South-Central Alaska, by Harlan R. Bergquist.

Clay-Mineral distribution in Permo-Pennsylvanian shales of Val Verde Basin and Yates-Todd Arch, Texas, by Drayton B. Speights and George Brunton.

ARIZONA BUREAU OF MINES, (University of Arizona, Tucson, Arizona)

County Geologic Map Series:

Coconino County (1960) \$1.00; Cochise County 1959 \$.75; Gila County (1959) \$.75; Graham-Greenlee Counties (one map) (1958) \$.75; Maricopa County (1957) \$.75; Mohave County (1959) \$.75; Navajo-Apache Counties (one map) (1960) \$1.00; Pima-Santa-Cruz Counties (one map) (1960) \$.75; Pinal County (1959) \$1.75; Yavapai County (1958) \$.75; Yuma County (1960) \$.75.

Map of known Metallic Mineral Occurrences in Arizona. (1961) \$.50.

Mining Districts of Arizona (1961) \$.50.

Map of known nonmetallic mineral occurrences in Arizona. (1961) \$.50.

CALIFORNIA OIL WORLD, Second Issue, vol. 54, no. 20, October 1961.

California Crude suffers deepest cuts, by Stark Fox.

WORLD OIL, vol. 103, no. 7, December 1961

Aeromagnetics develop new prospects and techniques (part 4), By W. P. Jenny

How to determine and remove diurnal effects precisely, by H. Wayne Hoylman

Modified slim hole program cuts costs, by H. J. Flatt

New method for estimating primary oil reserves, by Dr. William F. Stevens and Dr. George Thodos.

OIL AND GAS JOURNAL, vol. 59, no. 49, December 4, 1961

Giant fields from littler fields do grow, by Frank J. Gardner

Person field indicates tremendous potential of deep Edwards trend, by R. W. Knapp

Big compressors help air drilling, by Ed McGhee

Slim-hole completions save money, by Philip L. McLaughlin

OIL AND GAS JOURNAL, vol. 59, no. 50, December 11, 1961

California search goes on, by Carl Lawrence

Washington's Puget Basin will get wildcat

Piceance may become biggest gas producer in the Rockies, by Clark Millison

Bringing order to a disorderly transition

New mud cuts drilling costs, by J. L. Lummus, J. E. Fox, Jr. and D. B. Anderson

OIL AND GAS JOURNAL, vol. 59, no. 51, December 18, 1961

Dynamic approach to gas-pipeline analysis promises minimum operating costs, by E. H. Batey, H. R. Courts, and K. W. Hannah.

Old coal mine converted to gas storage, by W. B. W. B. Bleakley

Continuous dipmeter survey can be an important exploration tool, by J. D. Thompson

Dozen tests active in San Juan's Cha Cha Totah Gallup fields.

Needed: ground rules for study of crude vs. gas, by John C. Casper

OIL AND GAS JOURNAL, vol. 59, no. 52, December 25, 1961

World-wide oil, special attention

OIL AND GAS JOURNAL, vol. 59, no. 52, Dec. 25, 1961

World-wide oil, special section

Growing population and economy underline Philip-pines need for oil

Highlights of the exploration world in 1961, by Frank J. Gardner

Big year seen for Utah's Uinta

JOURNAL OF GEOPHYSICAL RESEARCH, vol. 66, no. 11, November 1961

Traveling pressure waves associated with geomagnetic activity, by Peter Chrzanowski, Gary Greene, K. T. Lemmon, and J. M. Young

Depth to sources of magnetic anomalies, by LeRoy R. Alldredge and Gerald D. Van Voories

Some characteristics of surface gravity waves in the sea produced by nuclear explosions, by William G. Van Dorn

A telemetering ocean-bottom seismography, by John Ewing and Maurice Ewing.

An evaluation of a signal-summing technique for improving the signal-to-noise ratios for seismic events, by L. H. Koopmans

Permeability measurements of rock salt, by Earnest F. Gloyne and Tom D. Reynolds

Tritium geophysics, by W. F. Libby

Books:

Field Geology, by Frederic H. Lahee. Sixth Edition. McGraw-Hill Book Co., Inc. 330 W. 42nd St., New York, 36, N.Y. 927 pages 641 ill. \$10.75

Introduction to Geophysical Prospecting, by Milton B. Dobrin. McGraw-Hill Book Co., Inc., 330 West 42nd st., New York 36, N. Y. Second Edition 446 pages, 295 ills. \$9.50

Physics and Geology by J. A. Jacobs, R. D. Russell and J. Tuzo Wilson. McGraw-Hill Book Co., Inc. New York, 424 Pages 165 ills. \$9.75

Petroleum prehistoric to petrochemicals, by G. A. Purdy. McGraw-Hill Book Co., Inc. New York, 492 Pages, 454 ills. \$16.00

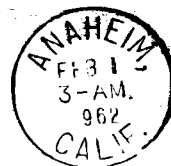
Mathematical Handbook for Scientists and Engineers, by Granino A. Korn and Theresa M. Korn. McGraw-Hill Book Co., Inc., New York, 943 Pages 110 tables. \$20.00

Volcanoes: in history, in theory, in eruption: By Fred M. Bullard. University of Texas Press, Austin, Texas. 456 Pages. \$7.50

PACIFIC PETROLEUM GEOLOGIST
PACIFIC SECTION, A.A.P.G.
P.O. BOX 17486, FOY STATION
LOS ANGELES 17, CALIFORNIA

Volume 16

Number 1



Richard L. Hester
Pauley Petroleum, Inc.
10000 Santa Monica Boulevard
Los Angeles 25, Calif.

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Form 3547 Requested

PACIFIC PETROLEUM GEOLOGIST

NEWS LETTER OF THE PACIFIC SECTION AMERICAN ASSOCIATION OF PETROLEUM GEOLOGISTS

Volume 16

February, 1962

Number 2

ASSOCIATION ACTIVITIES

ROBERT E. RETTGER - NEW A.A.P.G. PRESIDENT

Robert E. Rettger, division chief geologist, Sun Oil Co., Dallas Texas, will become the 46th president of The American Association of Petroleum Geologists on March 29. Serving with him on the 1962-63 Executive Committee of the world's largest geological organization will be Orlo E. Childs, director, exploration projects group, Phillips Petroleum Co., Denver, as vice-president; Mason L. Hill, manager of exploration, Richfield Oil Corp., Los Angeles, as past-president; Robert E. King, chief exploration geologist, American Overseas Petroleum Limited, New York, N. Y., as secretary-treasurer; and Grover E. Murray, Boyd professor of geology, Louisiana State University, Baton Rouge, in a re-elected term as editor.

The new slate of officers will assume the responsibility of directing the 15,900 member organization at the close of the 47th annual meeting of the Association, to be held at the Fairmont Hotel, San Francisco, California, March 26-29.

Retiring members of the present A.A.P.G. Executive Committee are past-president Ben H. Parker, Frontier Refining Co., Denver; vice-president J. Ben Carsey, consultant, Houston; and secretary-treasurer George V. Cohee, U. S. Geological Survey, Washington, D. C.

John L. Ferguson, consultant, served as chairman of the ballot committee. Other Tulsa members of the committee were Bill O. Andress, consultant; Robert Arndt, T. U. geology department; Edmund T. Benson, Service Pipe Line Co.; Garth Caylor, Oil Capitol Corp.; L. W. Clark, Amerada Petroleum Corp.; Noel Evans, consultant; and Andrew Gilmour, consultant.

PACIFIC SECTION ELECTION

Results of the balloting for Pacific Section officers are as follows:

President: Richard B. Haines (Continental)
Vice President: Spencer E. Fine (Richfield)
Secretary: Richard D. Stewart (Union)
Treasurer: Eugene R. Orwig (Mobil)

SPRING BARBECUE

The Annual A.A.P.G. Spring Barbecue will be held this year on Friday, June 1, 1962. Tentative plans are to hold the barbecue at Sunset Farms and the Golf Tournament at the Knollwood Country Club. Bill Castle has been appointed chairman.

SAN JOAQUIN GEOLOGICAL SOCIETY

On February 13th, the San Joaquin Geological Society was host to Dr. John C. Ludlum, A.A.P.G. Distinguished Lecturer from West Virginia University, who gave a talk on "Prospects and Structural Problems of Exploration for Natural Gas in the Appalachian Area."

Abstract:

Drilling during the current second phase of exploration and production in the Appalachian Basin has provided structural information which must be considered in the third phase of deep exploration which has recently been initiated. Classical textbook descriptions and generalizations are misleading unless qualified and modified in light of existing but poorly publicized and relatively new information.

There is a Siluro-Devonian mobile zone beneath the Appalachian Plateaus which approaches the structural pattern and complexity of the surface structures of the Valley and Ridge province to the southeast. The less-complex post-Devonian surface anticlines of the Plateaus therefore may not be reliable guides to the position of the disharmonic Siluro-Devonian structures. There is even the possibility that productive sub-surface highs will be found beneath surface lows to mark the terminal discovery period of second phase production.

Ramp-type grabens are along the axes of the Siluro-Devonian anticlines in some areas, whereas southeast-dipping thrust faults are characteristic of others. Experimental analogies exist for explaining the origin of these patterns from either lateral or vertical stresses.

There appears to be no sudden termination of "southern type" thrust faulting northeastward along the trend of the Appalachians in southeastern West Virginia or neighboring Virginia.

Conformity of Siluro-Devonian structures to the Cambro-Ordovician structures which are the main targets of the third phase exploration has not been established. With known vertical and lateral disharmonies, it appears that intelligent completion of prospecting of the Siluro-Devonian structures, and location of third phase prospects in the Cambro-Ordovician must depend on successful adaptation of geophysical prospecting to Appalachian conditions.

COAST GEOLOGICAL SOCIETY

The dinner meeting held on January 9, 1962, at the Wagon Wheel Junction had as speaker Walter K. Link. This outstanding lecture has been reviewed under the Los Angeles meeting announcement.

EXECUTIVE COMMITTEE, PACIFIC SECTION AMERICAN ASSOCIATION OF PETROLEUM GEOLOGISTS

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PACIFIC PETROLEUM GEOLOGIST

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Next Deadline

February 27, 1962

LOS ANGELES GEOLOGICAL FORUM

Mr. Walter K. Link, A.A.P.G., distinguished lecturer spoke before Association Members Monday evening, January 8th on "The Geology of the Amazon Basin of Brazil and Case History of Exploration 1954-1960." He then followed with a timely account of "The Operation of the Petrobras Brazilian Oil Monopoly."

Abstract:

Systematic exploration for oil in the Amazon basin of Brazil was begun in a large way with the formation of Petrobras in 1953 and which got underway in 1954. This has been actively pursued ever since. Prior to this time little was known of the Amazon geology except for paleontological studies of the Paleozoic areas on the north and south rims of the basin. These were started in the late half of the 1800's. A few shallow wells had been drilled on the Tapajos River on the south side of the basin and on the Monte Alegre Dome on the north side.

Under the direction of the Conselho Nacional de Petroleo, a government entity, some exploration was done in the forties and early fifties prior to the formation of Petrobras. Three wells were drilled in the Amazon Delta and two were drilling in the Amazon proper when Petrobras took over in 1954.

The Amazon basin is an east-west trending Paleozoic basin with Cambrian, Silurian, Devonian, and Pennsylvanian rocks. No Ordovician, Mississippian, Permian, Triassic or Jurassic has so far been recognized. Continental Cretaceous and Tertiary cover 95 per cent of the basin area and all except a narrow outcrop belt of Paleozoic on the north and south rims of the basin.

This huge basin appears to be structurally featureless, north-south trending positive areas, which are known as the Gurupa, Parintis Purus and Iquitos Arches interrupt the east-west depression at four to five hundred mile intervals. Except for the Monte Alegre Dome, which was caused by igneous intrusion, no local structure has been found by any of the exploration methods used including drilling. The geological history is one of a gentle breathing during Paleozoic time involving sediments that were deposited between two great crystalline shields known as the Guiana and Brazilian Shields.

Over \$150,000,000.00 have been spent on Amazon exploration since 1954 on surface geology, gravimeter work, airborne magnetometer surveys, seismograph surveys and drilling. Over 100 holes ranging in depth from 1500 to 4000 meters were drilled by the end of 1960. No commercial oil was discovered. All geophysical surveys are made impotent by the injection of great masses of igneous rocks and lava flows into the Paleozoic section. These flows are thought to be early Mesozoic in age.

Although the Paleozoic section is more than 15,000 feet thick in the center of the basin, the geological setup of source rocks, structure and reservoir rocks does not exist in the right combination of geological conditions and it is doubtful that the Amazon will ever be a large producer of Oil.

Abstract:

The Petrobras law was passed in Brazil in 1953 and gave the company an exploration monopoly. Prior to this law there was no oil law in Brazil.

Under the banner of "The Oil is Ours" Brazil passed this law and began to systematically explore the country. The writer was hired to set up an exploration department to do this job. Before this law was passed the Conselho Nacional de Petroleo was carrying on this work. The consulting firm of De Golyer and Macnaughton was used as exploration advisors, Drilling and Exploration to drill wells and develop the fields, United Geophysical, GSI and Ankanian were used for geophysical work.

The law was designed to create an oil company which would operate as a private enterprise and pay its own way. It was also supposed to be free of all political pressure. By the very nature of the setup whereby the president of the company was appointed by the president of the Republic, politics was bound to become important. During my six years and three months in Brazil the company had four presidents and a complete change of board members several times. When the writer left Brazil the board consisted of a president who is a Brigadier General, an economist with no oil or other business experience, a financial man who had never been in business and yet was head of accounting prior to his appointment to the board after a resignation, and a navy commander who had been running a boat on the artificial lake in Brazilia. It was composed of men who had no oil or business experience and was entirely a political board.

This company which now has a production of around 100,000 barrels per day in a small area has a payroll of permanent employees of more than 20,000 people not counting the contracted personnell of the contractors. These people work in exploration, refining and the fleet. They are not in marketing at this time.

The first two presidents of the company kept it out of politics. The third injected the company into politics in a big way and played on the strong nationalistic feelings of the nation. It is possible that this might be corrected under Brazil's economy minded new president, Jamio Quadros, and the president of the company, Geniosa Barroso, who was manager in the Bahia fields. He is the only president who ever had oil experience. All the other presidents were military men.

LOS ANGELES LUNCHEON MEETING

A well illustrated and informative analysis of the Timber Canyon Oil Field was presented by Mr. Spencer F. Fine, Richfield Oil Corporation, Thursday, January 4th at Rodger Young Auditorium. An abstract of Mr. Fine's talk published in the January 1961 P.P.G. is reprinted here.

Abstract:

Located approximately four miles north of Santa Paula at an elevation of about 2600 feet, Timber Canyon Field is one of the more unique fields of the Ventura Basin. The producing sands dip steeply northerly and are overturned, being part of the south flank of the Sulphur Mountain anticline. The sands also crop out updip from the producing wells and are oil-stained. There is a column of oil sand nearly a mile high, thus the reservoir is literally standing on end. The geology of the area is complex. A typical well may spud in Eocene, encounter the San Cayetano fault, where a Monterey fault sliver may be present, then drill in Pliocene of the north flank of the anticline before encountering the Sesar (?) fault, below which the "Santa Margarita" and producing basal Pico sands are overturned. About 500 bbls/day of 35 gravity oil is produced at the present time, and the principle mechanism of drainage may be gravity.

NOTICE

The A.A.P.G. Classification Committee and the Conservation Committee have announced their new list of California fields and pools effective January 1, 1962. Copies may be obtained by contacting M. C. Barnard, Jr., Richfield Oil Corporation, 555 South Flower Street, Los Angeles 17, or by phoning Madison 9-4111, Ext. 2312.

Members of the Classification Committee are:

| | |
|--------------------|--|
| M. C. Barnard, Jr. | - Richfield Oil Corporation |
| Harold Clark | - Conservation Committee of Calif. Oil Prod. |
| C. J. Edmundson | - Shell Oil Company |
| Irvin Frazier | - Texaco, Inc. |
| J. R. Jackson, Jr. | - Humble Oil & Refining Co. |
| W. O. Plant | - Union Oil Company |
| E. H. Rader | - Standard Oil Co. of Calif. |
| D. E. Ritzius | - Division of Oil and Gas |
| J. D. Traxler | - Signal Oil and Gas Company |
| M. T. Whitaker | - Mobil Oil Company |

PETROLEUM COURSE OFFERED

University of California Extension is offering a course in Introductory Petroleum Geology starting Tuesday, February 6th at 7:00 p.m. in Room 3656, Geology Building, U.C.L.A.

This course is an introduction to processes and materials of physical and historical geology with emphasis on application to petroleum. It is a study of the natural occurrence of petroleum and the geological principles, methods, tools and techniques by which it is found and produced.

The course is recommended for Engineers, Draftsmen, Landmen and Geologic Secretaries, or others in the oil industry who will benefit by increasing their understanding of geological exploration.

Three units of credit may be earned, and tuition is \$40.00. There will be 18 meetings. Richard L. Hester, Pauley Petroleum Inc., will be the instructor.

PACIFIC SECTION - BUSINESS MEETING

The Pacific Section of the A.A.P.G. will have a luncheon-business meeting in conjunction with the National Convention at the Jack Tar Hotel, San Francisco, Thursday, March 29, 1962.

Guest speaker will be Dr. Gary Higgins, Livermore Radiation Laboratories. Topic of speech will be, "Geologic and Seismic Aspects of the Nome Shot (Atomic Explosion in the Carlsbad, New Mexico Salt Caverns).

Tickets may be obtained at the Convention Ticket Sales Booth.

Members and wives invited.

PERSONAL ITEMS

Bob Anderson (Rheem's General Manager in Bakersfield) has been coerced by his family to attempt his first run down a ski slope at Yosemite. We presume ambulances and a health-and-accident insurance man will be standing by.

Tom Oldroyd (from United Geophysical to Mobil to Ferguson and Bosworth) is now a geologist with Sunray Mid-Continent in Bakersfield.

Gene Templeton (Sunray, Bakersfield) has been promoted to Senior Geologist.

"Brick" Robinson, Shell at Ventura, has moved to the Bakersfield office, and has a welcome mat out for house buyers in Ojai.

Don Scanlon, Union at Santa Paula, heard the call of the Northwest and has been transferred to the Washington office.

Charles Guion of Humble Oil Company in Sacramento has everyone curious as to "How is your car heater working these days???"

The recent "Bakersfield snowstorm" caught Ohio geologists Dick Atchison and Ed Miller and scout Dale Rodman on the Ridge Route. Luck and good looks, however, netted them one of the last available motel rooms.

Jack Kappeler is now District Exploitation Geologist at Oil Center for Tidewater Oil Company (Bakersfield).

J. Q. Anderson, geologist emeritus of Washington State, needed a designation for the formation which contained oil shows in the Ed Carr wells at Tapps Lake, Washington. He found the ditch samples to be lithologically similar to the "F.U.J.I.G.I.M." series of French West Africa, first described by Jean B. Senteur De Boue. An on-hand reporter for the Buckely, Washington, "News Banner" promptly printed an evening story describing the Fujigim series.

Dave Martin (former geologist with Mobil) now begins with Occidental in Bakersfield.

Tom Brady, geologist for Richfield in Bakersfield, is being transferred to Australia. As it is difficult to commute, Tom has been forced to resign his position as Vice-President of the San Joaquin Geological Society. Ed Karp (Kern Oil Co.) is temporarily "banging the gavel" in addition to his regular duties of "counting the pesos" and "pouring tequilla".

Stu Chuber (Franco Western in Bakersfield) is being transferred to Midland. Sneaky way to get out of your Toastmaster's Club speaking assignment, Stu!

Superior Oil's Pat Wright has almost literally been commuting between Bakersfield and the Northwest.

Arch Warren (Richfield, Bakersfield) hasn't quite postponed his Mt. Humphrey climb despite a recent foot operation. On his off-time, he's building crutches with built-in pitons.

It has been announced that Joe Schweitzer, Standard Oil, will be moved from La Habra to Ventura, along with his family and rather extensive household. The Southern California Motor Club has requested an injunction forcing the move to be made piecemeal and in the wee hours, to reduce a potentially dangerous traffic problem. Further, competent financial analysts are watching the situation closely--they regard such a major investment as evidence of (1) an improving industry profits picture, or (2) rampant financial irresponsibility on the part of Standard.

A large number of internationally famous ethnologists and social scientists are converging on the quaint little mountain town of Ojai, California. These eminent scientists are eager to make use of the opportunity to observe firsthand the impending moral, social, and economic collapse of the community. Civic chaos is expected when John Wilson, Standard Oil, an Ojai pillar for nine years or so, moves to his new job in Standard's Producing Department in La Habra. John has thoughtfully offered to delay leaving until the last social scientist (traveling from Kurdistan by yak) arrives.

Barney Barnard, chief scout for Richfield in Los Angeles, was snowbound for two days in Bakersfield, his old home town. He has been so "smog-washed", he referred to it as "being STUCK in Bakersfield".

Sam Brown of Buttes Gas and Oil tied the knot with Cece Halsted of San Francisco on December 9th, 1961. Sam and Cece vacationed in Mexico City and Puerto Vallarta, Mexico.

Rumors are that Ron Ackley of Exploration Logging in Sacramento is an expert sniffer of "Ground Round".

Paul Day and John Galloway of Gulf Oil Corporation, Sacramento, have been transferred to Gulf's new exploration office in Salem, Oregon.

NURSERY NEWS

Cal and Norma Thompson, Standard at Ventura, welcomed a 6 lb. 1/2 oz. baby boy, named John Kennon, on December 29, 1961.

Congratulations to Bill and Janet Osborn, Continental, Anchorage, on the arrival of William Leonard, 9 lbs., 6 oz., January 12.

CALENDAR

February 19, 1962: Monday evening, Mobil Auditorium, Mobil Building, Los Angeles, 7:00 p.m. The Los Angeles Geological Forum Meeting will be addressed by three speakers: Patrick J. Fazio (McCulloch Oil Corp.) on "Geology of the Los Medanos Gas Field", Alfred A. Hopkins (Sacramento Oil and Gas) on "Geology of the Grimes Area", and Robert N. Hacker (Lloyd Corporation) on "Geology of the Oxnard Oil Field".

An informal dinner will be held at Colombo's, 819 Figueroa, 5:30 p.m. promptly. \$3.00 with reservations not required.

February 28, 1962: Wednesday evening, Hotel El Tejon, Bakersfield, cocktails 6:30 p.m., dinner 7:30 p.m. Dr. A. I. Levorsen will speak on "Some Implications of Paleogeologic Maps of North America".

March 1, 1962: Thursday evening, Branner Club, Athenaeum, Cal. Tech. Dinner at 6:30 p.m. Talk by W. W. (Bill) Rubey entitled "Bannock-Absarsoka Overthrust Belt of Western Wyoming and Idaho." For reservations, call Lucy Birdsall, U.S.G.S., Los Angeles, RI 9-4711, Ext. 1255, before February 27, 1962.

March 5, 1962: Monday evening, 7:30-9:30 p.m., Room 56, Science and Engineering Building, Bakersfield College Campus. Biostratigraphy Seminar: "Cretaceous Megafossils, Distribution and Stratigraphic Zonation" by Dr. David Jones, U.S.G.S., Menlo Park, California.

March 26-29, 1962: A. A. P. G. - S. E. P. M. Annual meetings, San Francisco, California

April 16-18, 1962: Meetings Cordilleran Section, The Geological Society of America, University of Southern California, Los Angeles, California.

THE EARTH SCIENCES, THEIR VALUE TODAY-- Stanford University School of Mineral Sciences Lecture Series. (Winter Quarter 1962)

February 12, 1962: Delta influence on Cretaceous sedimentation and petroleum accumulation in the Rocky Mountain area, by Dr. Robert J. Weimer, Associate Professor of Geology, Colorado School of Mines, Golden, Colorado. Room 320 Geology Building, 4:00 pm.

February 20, 1962: California's water heritage - local feast vs local famine: A problem in resource management, by Arthur M. Piper, Division Hydrologist, U. S. Geological Survey, Menlo Park. Dinkelspiel Auditorium, 7:30 p.m. (Tuesday Evening Series Lecture.)

February 26, 1962: Implications of paleogeologic maps of North America, by Dr. A. I. Levorsen, Consulting Geologist, Tulsa, Oklahoma. Room 320 Geology Building, 4:00 p.m.

BIBLIOGRAPHY OF RECENT PUBLICATIONS

U. S. GEOLOGICAL SURVEY

Professional Paper 414-A: Interpretation of the composition and a classification of the chlorites, by M. D. Foster \$.30

Professional Paper 414-C: Some observations on the hydrochemistry and sedimentation of the Chamberlin Glacier area, Alaska, by Frank H. Rainwater and Harold P. Guy. \$.20

Professional Paper 354-J-K: *Lituyapecten* (New subgenus of *Patinopecten*) from Alaska and California AND Stratigraphic occurrence of *Lituyapecten* in Alaska by F. S. MacNeil and Don J. Miller. \$.60

Professional Paper 414-B: Mohr's theory of strength and Prandtl's compressed cell in relation to vertical tectonics by S.P. Kanizay. \$.20

Professional Paper 282-G: Factors controlling the size and shape of stream channels in coarse noncohesive sands, by M. G. Wolman and L. M. Brush, Jr. \$.35

Professional Paper 354-H: Foraminifera from Onotos Atoll, Gilbert Islands, by Ruth Todd . \$.35

Professional Paper 374-C: Jurassic (Bathonian or Early Callovian) ammonites from Alaska and Montana, by R. W. Imlay. \$.50

Professional Paper 374-D: Late Jurassic ammonites from the Western Sierra Nevada, California by R. W. Imlay. \$.45

Professional Paper 412: Salinity and hydrology of closed lakes, by W. B. Langbein. \$.60

Professional Paper 384-A: The serpentine-group minerals, by G. T. Faust and J. J. Fahey \$.65

Bulletin 1108-B: Geology of the Craig quadrangle, Alaska, by W. H. Condon \$ 1.00

Bulletin 1145: Bibliography of North American Geology, 1959. \$ 2.00

Bulletin 1146-C: Geophysical Abstracts 186: July-September 1961 \$.40

Bulletin 1028-S: Geology of Unalaska Island and adjacent insular shelf, Aleutian Islands, Alaska, by Harold Drewes, G.D. Fraser, G.L. Snyder, and H.F. Barnett, Jr. (price not yet known)

Circular 455: Annotated bibliography of water-use data, 1960, by Lois E. Randall. 14 pages. free

Water Supply Paper 1535-F: Solutes in small streams draining single rock types, Sangre de Cristo range, New Mexico, by J.P. Miller. \$.15

Water Supply Paper 1455-B: Summary of floods in the United States during 1955. \$.35

Topographic Instructions, Book 3, Chapter 3F6, ER-55 Plotter Procedures \$.45

MAPS:

Map I-325: Geologic map of Oregon west of the 121st Meridian, Prepared under the direction of Francis G. Wells \$ 2.00

Map 214-A: Geology of the northeastern Rub Al Khali quadrangle, Kingdom of Saudi Arabia, by R.A. Brankamp and L.F. Ramirez \$ 1.00

Map MF 206: Preliminary geologic map of Lincoln County, Nevada, by C.M. Tschanz and E.H. Pampeyan. \$ 1.00/set

Map OM 207: Map of New Mexico showing oil and gas fields, unsuccessful test wells, Precambrian rocks and pipelines, by S.D. Vlissides and R.A. Bieberman \$ 1.50

Map OM 210: Geologic map of the Lodoga quadrangle, Glenn and Colusa Counties, California, by R.D. Brown, Jr., and E.I. Rich. \$.50

Map GQ 157: Geology of the Bare Mountain Quadrangle, Nevada, by H. R. Cornwall and F. J. Kleinhampl. \$ 1.00

OPEN FILE

Geologic map of the Whiterock Spring Quadrangle, Nye County, Nevada, by E.N. Hinrichs and A.B. Gibbons. 1 sheet Inspection only.

TEI-773: Interim geological investigations in the U12e,06 Tunnel, Nevada Test Site, Nye County, Nevada, by W. L. Emerick, WITH a section on Gamma-Radioactivity, by C. M. Bunker. (42 pages, 4 figs., 4 tables.) Inspection only.

U. S. BUREAU OF MINES (Government Printing Office, Washington, D. C.)

Information Circular 8053: Lithium. A material survey, by Albert E. Schreck, 81 pages \$.50

Information Circular 8062: Petroleum refineries, including cracking plants in the United States, January 1, 1961, by C. E. Henning. 12 pages. \$.15

U. S. BUREAU OF MINES (Distribution Section, 4800 Probes St., Pittsburgh, Pennsylvania)

Report of Investigation 5866: The foam-drive process for increasing the recovery of oil, by A. N. Fried. 65 pages free

Report of Investigation 5881: Deformation of a borehole in rock, by Robert H. Merrill and Jon R. Peterson. 32 pages free

Information Circulars 8034: Bibliography of Bureau of Mines articles on thermodynamics of petroleum constituents and related compounds: January 1, 1944-December 31, 1960, by J.P. McCulloch. 49 pages. free

AMERICAN ASSOCIATION OF PETROLEUM GEOLOGISTS (Box 979, Tulsa 1, Oklahoma)

Lower Tertiary Biostratigraphy of California Coast Ranges, by V. Standish Mallory, 297 pages, 7 line drawings, 42 plates Foraminifera, 18 tables, index.

To members: \$11.00; non-members \$12.00 (Companion volume to Miocene stratigraphy of California, by Robert M. Kleinpell. Both volumes: to members, \$14.50; non-members, \$16.00.)

AMERICAN MINERALOGIST (Journal of the Mineralogical Society of America) vol. 46, nos. 11 and 12, November-December 1961.

Expandable chloritic clay minerals from carbonate rocks, by M.N.A. Peterson.

GEOTIMES, Vol. VI, no. 5, January-February 1962.

Mohole: con and pro. (letters to the editors)

AGI Data Sheet 31, Drilling data, by E. J.

Longyear and Eugene Pfeleider.

WESTERN OIL AND REFINING, vol. 58, no. 12, Dec. 1961

Alaska's promise, Oil, by Howard G. Vesper.

California: Production, by Bill Rintoul.

Natural gas: 1961 biggest year in history for Sacramento Valley. Onshore: San Joaquin Valley centre of drilling activity.

Refining review / 1961--Refiners emphasize modernization--petrochemical building program, by Dr. Clyde Berg.

PETROLEUM ENGINEER, vol. 34, no. 1, January 1962.

Tomorrow-mindedness is exploration, by Warren L. Taylor.

Where completion trends are taking us, by Weldon L. Porter.

New drilling ship is world's largest.

AMERICAN PETROLEUM INSTITUTE (1271 Avenue of the America, New York 20, New York)

Petroleum facts and figures, 1961 edition

OIL AND GAS JOURNAL, vol. 60, no. 1, Jan. 1, 1962

Cook Inlet acreage brings rash of bidders.

Analyzing yearly data for constant per cent decline, by K. E. Gray.

Dixie Pipeline was completed on schedule, by John P. O'Donnell.

OIL AND GAS JOURNAL, vol. 60, no. 2, Jan. 8, 1962.

Wilmington recovery costs 74 cents a barrel, by Carl J. Lawrence.

Circle Drilling's "land barge" speeds rigup and moves, by J.K. Salter and Z.S. Wyszynski.

What those new jet-fuel specs mean to refiners, by Kenneth Brooks.

Two-mile-high line goes on stream--on schedule, by W. B. Bleakley.

The "Toughest inch" of them all, by Paul Reed.

OIL AND GAS JOURNAL, vol. 60, no. 3, Jan. 15, 1962.

California's Lathrop gas field is living up to its early billing, by Carl Lawrence.

How explorationists can improve graphic presentations, by Peter B. Bike.

Six steps to better mud-pump drives, by Leonard G. Anderson.

Special Report: What it'll take for good pipeline construction year.

OIL AND GAS JOURNAL, vol. 60, no. 4, Jan. 22, 1962.

California gets new field, new look for '62, by Carl J. Lawrence.

Seismic costs can be cut in rugged areas, by Carl A. Willner.

New Hawaiian refinery completed by Carl J. Lawrence.

OIL AND GAS JOURNAL, vol. 60, no. 5, Jan. 29, 1962.

Federal offshore California lease sale is set for May 1.

The Appalachians' "second coming" may be near, by Frank J. Gardner.

No other deep wildcat arena can match Sooner Anadarko success, by John C. McCaslin.

Review-Forecast Special section. (Drilling, Production and reserves, Supply, Demand, Markets; Exploration--by areas).

CALIFORNIA DIVISION OF MINES AND GEOLOGY

Bulletin 178: Geology and mineral resources of the Corona South quadrangle, and Santa Ana Narrows area, Riverside, Orange and San Bernardino Counties, California, by Clifton H. Gray, Jr. . . . \$ 3.50

Special Report 66: An annotated bibliography of California Cretaceous microfossils, by Joseph J. Graham. . . . \$ 1.00

San Francisco Geologic sheet, of the State Geologic map (colored). . . . \$ 1.50

NEVADA BUREAU OF MINES (University of Nevada, Reno, Nevada)

Geology and mineral resources of Mineral County, Nevada, by Donald C. Ross.
(\$2.50, plus 15 cents for postage and handling.)

STATE OF WASHINGTON, Division of Water Resources (Olympia, Washington)

Water Supply Bulletin No. 16: Flowing artesian wells in Washington States, by Dee Molenaar. . \$.50

AMERICAN GEOPHYSICAL UNION, TRANSACTIONS, vol. 42, no. 4, December

Study of the Earth's deep interior, by V. V. Belousov.

Oceanography--A definition for academic use, by Dale F. Leipper.

Some hydrologic investigations in Africa, by J. Rodier.

AMERICAN JOURNAL OF SCIENCE, vol. 260, no. 1, January, 1962.

Iddingsitization and recurrent crystallization of olivine in basalts from the Simcoe Mountains, Washington, by Richard A. Sheppard.

Some relations between the phases anorthite, zoisite and lawsonite at high temperatures and pressures, by Carl W. F. T. Pistorius, George C. Kennedy, and S. Sourirajan.

Reorientation of convex shores, by William F. Tanner.

GEOLOGICAL SOCIETY OF AMERICA BULLETIN, vol. 72, no. 12, December 1961.

Petrology and structural geometry of pre-granitic rocks in the Sierra Nevada, Alpine County, California, by Ronald B. Parker.

Reconnaissance study of Quaternary faults in and south of Yellowstone National Park, Wyoming, by J. D. Love.

Upper Paleozoic stratigraphy of East-Central Idaho, by J. Philip Shannon, Jr.

JOURNAL OF GEOLOGY, vol. 70, no. 1, January 1962.

Pleistocene molluscan notes. 4 older terrace faunas from Palos Verdes Hills, California, by James W. Valentine.

Falling and climbing sand dunes in the Cronese ("Cat") Mountain area, San Bernardino County, California, by James R. Evans.

Interspecific associations in Pennsylvanian fossil assemblages, by Ralph Gordon Johnson.

Moment measures and the shape of size frequency distributions, by Richard B. McCammon.

Surface structural patterns obtained from strike-slip models, by William F. Tanner.

Convolute lamination in non-graded sequences, by R.H. Dott, Jr. and John K. Howard.

PETROLEUM ENGINEER, vol. 33, no. 13, December 1961.

Don't overlook permeability profiles, by
Wallace B. Johnson.

Frac plan pays off in gas storage, by D. M.
Ellington.

JOURNAL OF GEOPHYSICAL RESEARCH, vol. 66, no. 12,
December 1961.

An evaluation of uranium as a tool for studying
the hydrogeochemistry of the Truckee Meadows area,
Nevada, by Philip Cohen.

Local scour in rivers, by L. J. Tison.

Gravity anomalies in the Central Sierra Nevada,
California, by H. W. Oliver, L. C. Pakiser, and
M. F. Kane.

Depth and spacing of tension cracks, by Arthur
H. Lachenbruch.

A new borehole thermometer, by Ronald Doig,
V. A. Saull, and R. A. Butler.

GEOPHYSICS, vol. 26, no. 6, December 1961.

An aeromagnetic profile from Anchorage to Nome,
Alaska, by Elizabeth R. King.

WORLD OIL, vol. 154, no. 1, January 1962.

How to correct magnetic data for instrument
drift and diurnals (Part 5) by W.P. Jenny.

Gravity work may aid search for Trenton fract-
ure zones in the Michigan Basin, by Richard A. Pohly.

New table and graphs help solve rate of return
problems rapidly, by H.C. Goheen and Henry C. Chen.

Canada's northernmost wildcat project to
14,000 feet.

How to stimulate a well while drill stem test-
ing, by Don H. Flickinger.

PACIFIC PETROLEUM GEOLOGIST
PACIFIC SECTION, A.A.P.G.
P.O. BOX 17486, FOY STATION
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Volume 16

Number 2



Form 3547 Requested

Richard L. Hester
Pauley Petroleum, Inc.
10000 Santa Monica Boulevard
Los Angeles 25, Calif.

DA

PACIFIC PETROLEUM GEOLOGIST

NEWS LETTER OF THE PACIFIC SECTION AMERICAN ASSOCIATION OF PETROLEUM GEOLOGISTS

Volume 16

March, 1962

Number 3

ASSOCIATION ACTIVITIES

LEWIS G. WEEKS NAMED MEDAL RECIPIENT

LEWIS G. WEEKS, consulting geologist, Westport, Connecticut, has been chosen to receive the Sidney Powers Memorial Medal, highest honor in petroleum geology, as announced today by Mason L. Hill, President of The American Association of Petroleum Geologists. Mr. Weeks is the 15th recipient of this award, established in 1943 and given in recognition of distinguished and outstanding contributions to, and achievements in, petroleum geology. Formal presentation of the gold medal and scroll will be made Tuesday, March 27, 1962, at the 47th annual meeting of the Association in San Francisco.

FULLER TO RECEIVE AAPG'S PRESIDENT'S AWARD

John G. C. M. Fuller, research fellow in geology, University of Birmingham, Birmingham, England, has been selected to receive the President's Award, it was announced March 2, 1962, by Mason L. Hill, President, The American Association of Petroleum Geologists.

This award, consisting of a certificate and \$100 in cash, will be presented at the Association's 47th annual convention in San Francisco, California, on Tuesday, March 27, 1962.

Each year the President's Award is given to the author, or authors, under the age of 35, whose article in the Association's Bulletin of the preceding year, is judged by the Medal Award Committee to be the most significant contribution to petroleum geology.

Fuller's award-winning article, "Ordovician and Contiguous Formations in North Dakota, South Dakota, Montana, and Adjoining Areas of Canada and United States," appeared in the August 1961 Bulletin, p. 1334-1363.

AAPG HONORARY MEMBERS NAMED

MASON L. HILL, president of The American Association of Petroleum Geologists, announces the following recipients of honorary membership, to be formally presented Tuesday, March 27, 1962, at the 47th annual meeting of the Association in San Francisco, California: ROBERT H. DOTT, Executive Director, AAPG, Tulsa; MAURICE G. MEHL, emeritus professor, department of geology, Univ. of Missouri, Columbia; FRANK A. MORGAN, consultant, Los Angeles, Calif.; and CHARLES H. TAYLOR, consultant, Oklahoma City, Okla.

AGI LECTURES

Professor Alwyn Williams, The Queen's University, Belfast, Northern Ireland, will speak at USC under the Visiting International Scientist Program of the AGI. Professor Williams is distinguished for his studies of fossil brachiopods and for the application of paleontologic criteria in stratigraphic studies. All talks will be at 7:00 PM in Founders Hall, Room 129.

Monday, March 19 - Biometrics and Systematics.
Wednesday, March 21 - Quantitative Aspects of Evolution.
Friday, March 23 - Evolution of the Caledonian Geosyncline.

Founders Hall is located at the north end of University Avenue at Jefferson Blvd.

COAST GEOLOGICAL SOCIETY

On February 13th the dinner meeting of the Coast Society was held at the Wagon Wheel Junction. Mr. Bob Evanson of the U.S.G.S., presented an interesting account of the "Role of the United States Geological Survey". Following this talk, the movie "Invisible Oil Well" was presented showing Richfield's under-water well completion of the Rincon coast.

The review of U.S.G.S. activities was primarily limited to those of the Ground Water Branch. In an area such as Santa Barbara County, the U.S.G.S. has jurisdiction, while in other areas, a state agency or other governmental body may control affairs of a water basin or specific area.

Functions of the Ground Water Bureau are principally to determine the water capacity and safe yield of water basins. This requires knowledge of the geology of the surface and subsurface. Use of water measurements provides data for solution of the hydrologic equation to determine storage capacity and the coefficient of changes in storage.

Other activities of the agency may be quite varied. Local studies may be made to measure sea water encroachment in a coastal basin. Land subsidence is also subject to study in some California areas such as along the Delta-Mendota Canal.

Water development in many areas requires salt balance studies. Well spacing is another factor often given review by water control agencies. The Ground Water Branch has been making use of Analog Computer Model to study effects of rates of water pumping and other variables.

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PACIFIC PETROLEUM GEOLOGIST

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Next Deadline

MARCH 29, 1962

This U.S.G.S. agency is also concerned with water pollution, disposal of radio-active wastes, and oceanographic studies. With the growing national awareness of an increasingly severe water shortage, the Ground Water Branch has been given authority to expand to a significant degree.

LOS ANGELES EVENING FORUM MEETING

Excellent informative talks were presented to Association members, February 19th, at the Mobil Auditorium on the geology of the Los Medanos Gas Field, the Grimes Area, and the Oxnard Oil Field.

Patrick J. Fazio, McCulloch Oil Corp. began with a description of the recently discovered "Los Medanos Gas Field, Contra Costa County, California".

Abstract:

Located approximately 35 miles northeast of San Francisco, California, the Los Medanos Field was discovered in 1958. Subsequent development has revealed complex subsurface conditions. What appeared to be a simple anticline at the surface is apparently a drag fold overlying a zone of thrust faulting. Beneath this zone of thrust faulting is a northwesterly trending, asymmetric anticlinal fold with the steep flank to the southwest. The thrust zone, which appears to be as much as 700' thick, causes a repetition of approximately 2,000'. The throw and attitude of this thrust zone are not exactly known; however, it is believed that the zone trends in a northwesterly direction and dips to the northeast. Lithologic units within this zone of thrusting are

usually recognizable; however, the relationship of lithologic units within the zone is uncertain. Northeastly trending cross faults offset surface beds, the thrust zone, and horizons in the subsurface. These cross faults may or may not be barriers to production.

Eocene gas production has been established from sands within the Nortonville and from the Domengine sand, both above and below the zone of thrust faulting. Analysis of the gases produced suggests different sources for the gases below and above the thrust zone or emplacement of the gas above the thrust zone through leakage from reservoirs below the thrust zone. The Duarte No. 1, exploiting the Domengine sand below the thrust zone, is the largest dry gas well on record in the State of California from the standpoint of open flow potential and ability to deliver gas into the purchaser's lines. This well had a COF of 170 mmcf/day and produced nearly 1,300,000 mcf of gas during the first 30 days of production.

The Willow Pass Gas Field, located to the southeast of Los Medanos, and the recently discovered Avon area, approximately two miles west of Los Medanos, are undoubtedly related to Los Medanos, and future development may prove them to be a part of a large complex gas field.

Alfred A. Hopkins, president Sacramento Oil and Gas Company, then presented his views on "The Grimes Gas Field Complex", Sacramento Valley, California.

Abstract:

How does \$3,000 per day minimum guaranteed income sound to you? This figure represents approximately the Cameron Oil Company net profits return for their investment in the Grimes Gas Field in Sutter and Colusa Counties, California, and all for production from only 16 wells out of a total of 24 completions at the present time.

In a restricted sense the Grimes Gas Field refers to the gas production discovered and developed by the Cameron Oil Company on a 1200 acre block farmed out by the Franco Western Oil Company, and would sense it would include gas production established at West Buttes, Marysville Buttes, West Grimes, East Grimes, Grimes By-Pass, Arbuckle, Buckeye, and the Kirk and East Kirk gas fields. In a very loose sense, i.e. the "Grimes Gas Field Complex" will include all parts of the Sacramento Valley where even one sand member is developed within the Upper Cretaceous Forbes shale and is locally trapped. "Grimes" was selected because the name is commonly known and closely associated with the development of what could become the largest complex stratigraphic gas field in the state.

Although the first F-zone gas production was established in the Sacramento Valley prior to 1938 in the Marysville Buttes Field, real interest in the potential of the Forbes shale did not take place until the Beehive Bend discovery by Sunray in 1953. This was followed in a few years by Gulf's Arbuckle discovery and in 1959 the discovery of the Grimes Field by Arthur A. Cameron. The discovery well "Armstrong" No. 1 tested the interval 6552-6568 for an estimated 3,000 MCF/day and the interval 6568-6588 for an estimated 5,000 MCF/day flowing with good pressures. Rig difficulties prevented the testing of good showings from 7120 to 7520 and the well was completed in the Armstrong sand from 6550 - 6590. The follow up well "Helen McLaughlin" No. 1 tested six zones for a cumulative production of 30,000 MCF/day.

To date twenty-four wells have been successfully completed with no dry holes, and a minimum of sixty locations appear assured, possibly twice that number. The first sixteen wells approved by contract with P.G. & E. are rated collectively at an open flow potential of 236,100 MCF/day.

The prolific production of the Grimes Field can be attributed primarily to a pile up of F-zone sands accentuated to a degree by areal uplift resulting from the Sutter and Colusa Buttes intrusions and associated folding around these volcanic plugs. However, the synclinal location of much of the Grimes production indicates that stratigraphic shale-outs provide the trap for most of the production. Faulting is not proven to be significant.

Extreme lateral variations in numbers and thicknesses of F-zone sands occur between existing fields, and it is believed that the only tool of any consequence for determining the relative number of productive sands developed between these areas and in unexplored parts of the Sacramento Basin is a re-evaluation of reflective seismic records. Can seismic reflections from below the Kione sand be correlated with F-zone sand development and possibly be isopach by numbers of reflections?

Areas of probable future F-zone production appear to be:

1. Extension of the Grimes Field to the north and south to connect with Kirk and Marysville Buttes.
2. The Grimes By-Pass area to the west and along strike to the south into the Sutter Basin.
3. Belt between Grimes By-Pass and Sacramento east of the River where west-plunging anticlines such as the Sutter Basin nose, Nicolaus nose and the Natomas or Elkhorne nose may be in combination with eastward F-zone sand pinch-outs up these structures.
4. Between Bee Hive Bend and Sutter Buttes where local structural bowing occurs.
5. Concentration of F-zone sands along Dunnigan Hills--Winters trend.
6. Southern Sacramento Basin where good F-zone prospects exist from 11,000 - 16,000 feet.
7. East of Corning and southward through Hamilton City and Llano Seco.

It is nearly impossible to estimate the reserves of an F-zone sand due to its highly lenticular nature and near absence of past production histories. At Marysville Buttes most of the wells completed from 1938 through 1947 are now on compressors but their records show in several cases cumulative productions of over three billion cubic feet of gas, although never subjected to extremely high flow rates. Because of the lenticularity of F-zone sands and varying gas-water interface levels, wise production practices should probably include maintaining well regulated and moderate daily takes from individual wells.

Robert N. Hacker, Lloyd Corporation, Ltd., concluded the talks with a thorough account of the "Geology of the Oxnard Oil Field", Ventura County, California.

Abstract:

The Oxnard Oil Field, is located east of the City of Oxnard in Ventura County, California. The field was discovered in 1937 and produces from five zones:

1. Fractured Miocene (Modelo) Shales and Volcanics of the Topanga sequence.
2. McInnes Zone (Sespe) below the Top Sespe angular unconformity.
3. Lenox Zone (Middle Sespe)
4. Livingston Zone (Lower Sespe)
5. Eocene Zone (Las Lajas)

The Oxnard Field is a northwest dipping homocline with major northeast-southwest trending predominantly left lateral faults that have been cut and offset by a series of minor northwest-southeast trending predominantly right lateral faults. Closure in the Sespe is affected by beds buttressing updip against the major faults as well as the Post-Oligocene unconformity.

The field has over 1500 proved acres and has produced over twenty million barrels since 1937. Gravities range from eight degrees or less in the Miocene to thirty-six degrees in the Eocene.

The following is an interpretation of the Geologic History of the Oxnard Field Area:

1. Deposition of the marine Lower and Middle Eocene with a transition to deposition of non-marine Middle Eocene and Oligocene Sespe formation with an eastern source for the sediments.
2. Uplift and erosion of Top Sespe.
3. Submersion and deposition from the east of the overlapping Topanga Volcanics sequence in Relizian and Saucian time culminated by flows of the Conejo Volcanics.
4. Deposition of the Modelo shales in Mohnian time with continued deposition in the region into the Delmontian.
5. Major predominantly left lateral movement of the Simi Fault Complex placing the area in strain, so to speak, followed by predominantly right lateral movement of the cross faults or adjustment faults accompanied by uplift.
6. Erosion of part of the Modelo and younger Miocene shales followed by submersion and deposition of the Lower Pliocene Vaca Tar Sand in Topographic lows associated with the faulting.
7. Westward regional tilting, submersion and onlap deposition from the west of the Pico Formation in Pliocene time. It is suggested that the oil migrated into the area after this regional westward tilting.
8. Further westward regional tilting and regressive deposition of marine-Saugus to Recent river gravel deposits.

LOS ANGELES LUNCHEON MEETING

An interesting and beautifully illustrated travelogue on Australia was given by Lester D. Brockett, Richfield Oil Corporation, at Rodger Young Auditorium, Thursday, March 1. A group of colored slides were shown taken during a short visit to the major cities of Australia and a plane trip over the interior. Descriptions of the physiography and geology were presented along the way and brief summary was made of the geology and exploration activity in some of the major sedimentary basins.

Special mention was made of the Great Artesian Basin and its sub-basins including an area 1,000 miles long and 800 miles wide. Here relatively flat-lying mesozoic rocks overly deformed Paleozoic marine and non marine rocks which crop out on the west. The recent discovery in December of apparently the first commercial oil in Australia 200 miles west of Brisbane has stirred up much interest in this basin. Union Oil Company "Union-Kern County Land-Australian Oil and Gas Moonie" No. 1 flowed 47° gravity oil at the rate of 1765 B/D with 175 MCF of gas on a 58 minute formation test from intervals 5808 - 5814 and 5818 - 5839. The day before this talk was presented it was announced that "Moonie" No. 2, 7/10 mile southwest of No. 1, had tested for 2592 B/D rate during a 49 minute drill stem test from intervals 5651 - 5675 and was drilling ahead to a 5800' objective.

Twenty miles to the north a sub-commercial 60 B/D well had been found last year by this group followed by a dry hole. Farther north Roma is the site of a proven gas field.

PERSONAL ITEMS

Bob Morrison of Richfield in Ojai has been transferred to Bakersfield. His first trip over was much befogged and no doubt quite a shock from sunny Ojai.

Carl Stehle, Jr. of Vaca Oil noted difficulty keeping a pipeline operating during the recent rain. The several feet of water around the boiler made all but the most indefatigable workmen chicken out.

Bob Yeats of Shell in Ventura has thrown his hat into the ring and will be a candidate for the City Council of Ojai.

The annual field trip of Standard's petroleum geology class is said to have provided excellent meteorological observations. Motoring to Ventura County during the wettest weekend in recent history, Professor John Harbaugh and his students were initially sidetracked from traveling up South Mountain. Guided by Mr. C. M. "Kit" Carson, the party then proceeded up Santa Paula Canyon to make several short stops at "alleged" exposures of graded-bedding, turbidity current deposits and oil seeps. The rain kept pouring so the next visit at the Richfield Ojai office was extended by viewing the latest industry movies.

As other well known exposures around Ojai were not discernible, the next stop was to have been the Ventura Avenue landslide area. Partway up the hill a fallen pepper tree and mudslides were encountered. Even the able guide, Mr. H. H. "Hank" Neel, and his jeep could not traverse these newly deposited features. As the motorcade returned to highway travel the slogan became "Wait until next year, or rather late spring".

Quentin Van Camp, Mobil geologist, formerly stationed in Ventura, Los Angeles, and Lafayette, Louisiana, has recently departed for Tripoli, Libya as an employee of Mobil International.

Continental's Western Region exploration department has been reorganized with the following personnel changes: George Berry and Roger Dungan have been promoted to the newly created positions of Division Manager of Exploration at Los Angeles and Bakersfield respectively. Bob Kelly has been assigned to the position of Division Geologist, Los Angeles. Paul Siemon continues as Division Geologist, Bakersfield.

Now it can be revealed---Mr. Jean B. Senteur de Boue was recently evicted from 2407 Bronson Ave., West Los Angeles. Local de Boue fans didn't realize that he had been staying in this area until the drilling contractor had to have all the wine bottles hauled away (to return the drill site to Freeway standards). The "dark doves" in the area will mourn Mr. de Boue's return to the Coastal Area.

Bill Sax (Union) has been transferred from Bakersfield to the company's headquarters in Los Angeles to become geophysical coordinator.

Lowell Redwine (formerly District Geologist for Honolulu in Bakersfield) has opened an office as Consulting Geologist. Clients may reach him at 3120 18th Street, Bakersfield (Telephone: FAirview 3-1317).

Bill Bedford (Texaco, Bakersfield) has been feted at a number of going away parties and poker games due to a two week delay in his transfer to Alaska. Should a further delay occur, Bakersfield will be worn out and one Wes Bruer wiped out.

Bob Steinert (Shell paleontologist at Bakersfield) is sporting a broken toe, thus becoming the latest casualty of lunchtime volley ball games at the Shell yard. Boy--that "Mollusc Mob" plays rough!

Here's a shoe from another foot! Jimmy Walker (Shell seismologist) has been transferred from Farmington to Bakersfield.

Dick Stewart, formerly L. A. Basin district geologist for Union Oil Company at Santa Fe Springs, has been transferred to Union's Foreign Exploration group in Los Angeles under John Hazzard. Jack Van Amringe has been assigned the duties of district geologist at Santa Fe Springs and will be joined by Jerry Miller, recently transferred from the foreign group.

Hal Lian, Union's Division Geologist at Anchorage, has been promoted to Area Manager of Alaskan operations.

Ray A. Burke was recently elected Vice President in charge of Exploration and Production for Union Oil Company after the resignation of Basil Kantzer. Prior to this appointment Mr. Burke was Chief Geologist, Gulf Coast Division, Manager of Operations West Texas Division, and most recently Director of Exploration in Los Angeles. John Sloat, formerly Union's geophysical coordinator, has been appointed Director of Exploration. Bill Sax, division geophysicist in Bakersfield, has been transferred to Los Angeles as geophysical coordinator.

CALENDAR

March 14, 1962: Wednesday, 7:00 p.m., California Association of Engineering Geologists, Calif. Div. Highways Building, Basement Hearing Room, 120 S. Spring Street, Los Angeles. Speakers: Mel Bliss and Bill Melbourne, "Hillside-Urban development in the City of Los Angeles". Supplemented with the film "Castles in the Air."

March 20, 1962: Tuesday evening, American Petroleum Institute, Lakewood Country Club, 3101 Carson Ave., Lakewood, cocktails 5:30 pm, dinner 6:30 pm. Meeting will be addressed by M. Dudley Hughes, (Director, Petroleum Subsidence Control Operations, Long Beach Harbor Department) on "Wilmington Oil Field Offshore Extension," and a film by Jack A. Reed II (Humble Oil and Refining Company) entitled "Trouble Lurks Below",--dealing with taming a blow-out in South Texas.

Send reservations to Sam W. Gray, Visco Division, Nalco Chemical Co., Box 127, Anaheim, California.

March 26-29, 1962: A.A.P.G. - S.E.P.M. Annual meetings, San Francisco, California.

April 2, 1962: Monday evening, 7:30-9:30 p.m., Room 56, Science and Engineering Building, Bakersfield College Campus. Biostratigraphy Seminar: "Thickness of Modern Sediments" by Mr. D.G. Moore, U. S. Navy Electronics Laboratory, San Diego, Calif.

April 10, 1962: Tuesday evening, Hotel El Tejon, Bakersfield, cocktails 6:30 p.m., dinner 7:30 p.m. The San Joaquin Geological Society will be addressed by three speakers: Patrick J. Fazio (McCulloch Oil Corp.) on "Geology of the Los Medanos Gas Field", David C. Callaway (Great Basins Petroleum Co.) on "Geology of the Area from Compton Landing to Beehive Bend", and John Thomson (Consultant) on "Geology of the Kione 'Formation'".

April 16-18, 1962: Meetings Cordilleran Section, The Geological Society of America, University of Southern California, Los Angeles, California.

April 17, 1962: BRANNER CLUB BANQUET. For data on this, please use the information supplied by Dr. Merriam of S. C.

April 17, 1962: Tuesday evening, Miramar Hotel, Santa Barbara, social hour 6:30 p.m., dinner 7:30p.m. Mr. Finn Bronner of General Electric will speak on "Geology of the Moon". This will be the annual "Ladies Night" meeting. Wives or lady friends are encouraged to attend.

BIBLIOGRAPHY OF RECENT PUBLICATIONS

U. S. GEOLOGICAL SURVEY

Professional Paper 260-Z: Fossil algae from Eniwetok, Funafuti and Kita-Daito-Jima, by J. Harlan Johnson \$.65
Professional Paper 335: Characteristic Lower Cretaceous megafossils from Northern Alaska, by Ralph W. Imlay. \$ 2.50

Professional Paper 338: Geology and ore deposits of East Shasta copper-zinc district, Shasta County, Calif., by J. P. Albers and J. F. Robertson. \$ 5.00

Professional Paper 367: Landslides along the Columbia River Valley, Northeastern Washington, by Fred O. Jones, Daniel R. Embody and Warren L. Peterson \$ 1.75

Bulletin 1110-A: Lead-zinc deposits of the Boquirá district, State of Bahia, Brazil, by R. F. Johnson \$ 1.00

Bulletin 1142-H: Future petroleum producing capacity of the United States, by A. D. Zapp \$.20

Water Supply Paper 1329-B: Waterpower resources of the Wilson River basin, Oregon, by D. W. Neal, with a section on Geology, by D.L. Gaskill .. \$.55

Water Supply Paper 1369-D: Flow through openings in width constrictions, by Jacob Davidian, P. H. Currigan, Jr., and John Shen \$.45

Water Supply Paper 1319: Compilation of records of surface waters of Hawaii through June, 1950. \$ 2.25

Water Supply Paper 1539-W: Hydraulics of river channels as related to navigability, by W. B. Langbein. \$.20

Water Supply Paper 1547: Inventory of published and unpublished sediment-load data, United States and Puerto Rico, 1950-1960 \$.50

Water Supply Paper 1576-B: Geology and ground water of the Red Lake area, Navajo Indian Reservation, Arizona and New Mexico, by J. P. Akers, N. E. McClymonds and H. W. Harshbarger. \$.45

Water Supply Paper 1616: Ion-exchange minerals and disposal of radioactive wastes--A survey of literature, by B. P. Robinson. \$.55

Circular 456: Estimated use of water in the United States, 1960, by K. A. Mackichan and J. C. Kammerer. 44 pages Free

MAPS:

Tectonic map of the United States. Prepared by the U.S.G.S. and A.A.P.G., George V. Cohee, Committee Chairman. Scale 1:2,500,000, size 41 x 54, 2 sheets \$4.50/set

GP 309: Natural gamma aeroradioactivity of parts of the Los Angeles region, California, by K. G. Books. \$.50

GQ 159: Geology of the Des Moines quadrangle, Washington, by H. H. Waldron \$ 1.00

Map I-341: Reconnaissance traverse across the eastern Chugach Mountains, Alaska, by Earl E. Brabb and Don J. Miller \$.50

Map I-219-B: Geographic map of the South Central Rub Al Khali quadrangle, Saudi Arabia, by Leon F. Ramirez, Edward L. Elberg and Hans H. Helley. \$ 1.00

OPEN FILE REPORTS: (Inspection only)

TEI-782: Frequency of earthquakes for selected areas in the western United States for a period 1945-59, by W. S. Twenhofel, R. A. Black, and D. F. Balsinger. 37 pages, 17 figs.

TEI-796: Preliminary evaluation of the seismicity, geology and hydrology of the northern Sand Springs Range, Churchill County, Nevada, as a possible site for Project Shoal, by W. S. Twenhofel, J. E. Moore, and R. A. Black. 20 pages, 10 figs., 1 table.

Preliminary interpretation of an aeromagnetic map of the Albany-Newport area, Oregon, by R. W. Bromery. 12 pages, 1 fig.

Aeromagnetic map of part of the Pend Oreille area, Idaho, by J. L. Meuschke, W. C. McCaslin, and others. 1 map (2 sheets)

U. S. BUREAU OF MINES (Distribution Section, 4800 Forbes St., Pittsburgh, Penna.)

Report of Investigation 5882: Seismic methods of detecting and delineating subsurface subsidence, by Leonard Obert and Wilbur I. Duvall. 28 pages, 19 figures. Free.

Report of Investigation 5800: Subsurface saline water sources for water-flooding in North Texas, by Frank Parrish, Jr., and Thomas M. Garland. 59 pages, 52 figures. Free.

STATE OF NEVADA DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES (Carson City)

Water Resources Bulletin No. 18: A summary of the hydrology of the Las Vegas Ground-water basin, Nevada, with special reference to the available supply, by Glenn T. Malmberg, 1961.

Ground-water Resources - Information Series, Report 1: The ground-water situation in Nevada, 1960, by O. J. Loetz, and G. T. Malmberg. 1961. \$1.00

ARIZONA STATE LAND DEPARTMENT (Phoenix, Arizona)

Water Resources Report No. 10L Annual report on ground water in Arizona, Spring 1960 to Spring 1961, by Natalie D. White, R. S. Stulik, E. K. Morse, and others

NEVADA BUREAU OF MINES (Mackay School of Mines, University of Nevada)

Report 1: An inventory of fluorspar occurrences in Nevada, by Robert C. Horton \$.50

AMERICAN JOURNAL OF SCIENCE, vol. 260, no. 2, February, 1962

Fluid pressure in thrust faulting, a corollary, by Lucian B. Platt.

GEOLOGICAL SOCIETY OF AMERICA BULLETIN, vol 73, no. 1, January, 1962

Analysis of Basin-Range structure, south-central Oregon, by Fred A. Donath

Alteration effects at Tuba dike, Cameron, Arizona, by Jonathan Barrington and Paul F. Kerr.

Mode of formation of marine fossil assemblages of the Pleistocene Millerton Formation of California, by Ralph Gordon Johnson.

Lower Cambrian-Precambrian succession, White-Inyo Mountains, California by C. A. Nelson.

AMERICAN ASSOCIATION OF PETROLEUM GEOLOGISTS, BULLETIN, vol. 46, no. 1, January 1962.

Large lateral displacement on Garlock Fault, California, as measured from offset dike swarm, by George I. Smith.

Distribution of hydrocarbons in petroleum, by E. G. Baker.

Hydrocarbon fluorescence and migration of petroleum, by Robert E. Riecker.

Pennsylvanian and Lower Permian of northern Denver Basin, Colorado, Wyoming, and Nebraska, by John H. Hoyt.

Zonation of Ordovician and Silurian graptolites of northern Yukon, Canada, by D. E. Jackson and A. C. Lenz.

AMERICAN ASSOCIATION OF PETROLEUM GEOLOGISTS, BULLETIN, vol. 46, no. 2, February 1962.

Permian system of Colorado Plateau, by D. L. Baars.

GEOLOGICAL SOCIETY OF AMERICA BULLETIN, vol. 73, no. 2, February 1962.

Sedimentology and oceanography of coastal lagoons in Baja, California, Mexico, by Fred B. Phleger and Gifford C. Ewing.

Post-Pliocene uplift of the Sierra Nevada, California, by Daniel I. Axelrod.

Comparison of the ocean floor with the lunar surface, by P. A. Chenoweth.

Tushar uranium area, Marysville, Utah, by Martin W. Molloy and Paul F. Kerr.

Alegria-Vaqueros (Oligocene-Miocene) sequence near Gaviota, California, by G. C. Greender.

PETROLEUM ENGINEER, Vol 34, no. 2, February, 1962.

Fizz flood plant attracts attention, by Lowell A. Murphy.

Flow tests find formation damage limits, by James E. Cornett.

Cost control through performance evaluation, by Wilson J. Bentley.

JOURNAL COLLOIDAL SCIENCE, vol 16, no. 5, Oct. 1961.

The Government's helium conservation program and its impact on the natural gas industry, by H. P. Wheeler, Jr.

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Number 3



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NEWS LETTER OF THE PACIFIC SECTION AMERICAN ASSOCIATION OF PETROLEUM GEOLOGISTS

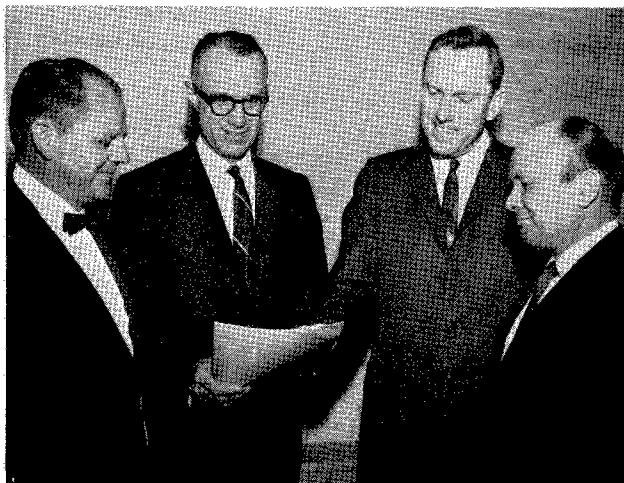
Volume 16

April, 1962

Number 4

ASSOCIATION ACTIVITIES

PACIFIC SECTION OFFICERS



Left to right: Spence Fine, Richfield, Vice President; Dick Haines, Continental, President; Dick Stewart, Union, Secretary; Bob Orwig, Mobil, Treasurer.

NATIONAL NOMINATIONS

Suggested nominees for Association officers, including national president, vice president, secretary-treasurer and Bulletin editor for 1963-64 must be in the hands of Nomination Committee Chairman, Ben Parker, P. O. Box 508, Golden Colorado, by June 1, 1962.

Suggested nominations must be accompanied by a letter summarizing qualifications.

PETROLEUM ENGINEER for CALIFORNIA BOARD OF EQUALIZATION

Senior position involving research and valuation required for equalization of assessment of petroleum and mining properties.

\$9,852 - \$11,976

Requires four years of experience in valuation or development and exploitation of petroleum properties and college specialization in petroleum or geological engineering. Applications will be accepted through May 4, 1962.

Contact: John Sheehan, State Personnel Board,
107 South Broadway, Los Angeles 12, California.
MA 0-2830.

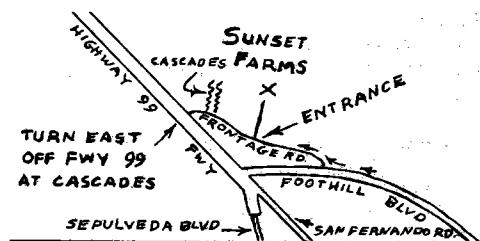
1962 APPOINTMENTS

Dick Haines, newly installed president of the Pacific Section, announces the following appointments:

Coastal Representative: Robert H. Paschall (Signal)
Alaska Representative: Harrison C. Jamison (Richfield)
Sacramento Petroleum Asso: William J. Edmund (E. L. Doheny Opr.)
Forum Chairman: John L. Elliott, Jr. (Humble)
Asst. Forum Chairman: John Terpening (Mobil)
Distinguished Lecturer Chairman: Aden W. Hughes (Goodkoff and Hughes)
Projectionist: Joseph F. Arndt (Richfield)
Picnic and Golf Chairman: William G. Castle (Richfield)
General Chairman, Annual Meeting: R. R. Knapp (Standard)
Christmas Dance Chairman-1962: Robert Herron (Signal)
Luncheon Speakers Program: Spencer F. Fine (Richfield)
Boy Scout Program: Ben Lupton (Mobil)
Subcommittee Basement Rocks: E. L. Miller (Ohio)
Lateral Faulting Comm: Richard F. Walters (Humble)
National Convention Policy Comm: W.R. Moran (Union)
Classification Comm: M. C. "Barney" Barnard (Richfield)
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Transportation: Homer Steiny
Publication Sales: Harry G. Stuvelling, Jr. (Pacific Log Exch.-Comet Reproduction)
Membership Sec: Priscilla Metcalf (Richfield)

SPRING BARBECUE

The Annual A.A.P.G. Spring Barbecue will be held this year on Friday, June 1, 1962 at Bob Symond's Sunset Farms, 16301 Foothill Boulevard, San Fernando, California.



Golf or field trip in the morning and barbeque with liquid refreshments in the afternoon

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|----------------------|------------------|
| Coast | Allen Hanson |
| Alaska | Robert Kenyon |
| Los Angeles | John Van Amringe |
| Northwest | M. B. Greene |
| Sacramento | Dorman Graves |
| San Francisco | David Pfeiffer |
| San Joaquin | Gordon J. Welsh |
| Membership Secretary | Gene Moore |

Next Deadline

April 30, 1962

A.A.P.G. CROSS SECTION

New cross section No. 14, "Los Angeles Basin - Beverly Hills to Newport" is now available.

All cross sections may be ordered from Harry Stuvelling, Jr., Pacific Log Exchange, 1515 East Washington Blvd., Whittier, Calif. Remittance in full must accompany order. Price: \$2.00 postpaid.

No. A.A.P.G. Sections

- 1 Sacramento Valley - South (2 sheets).
North side of Sacramento Valley through Rio Vista, Thornton and Lodi Gas Fields, including Mt. Diablo-South Sacramento Correlation Chart.
- 2 Ventura Basin - East (1 sheet)
Basement North of Oak Canyon Oil Field to Aliso Canyon Oil Field.
- 3 Los Angeles Basin (1 sheet)
Palos Verdes Hills to San Gabriel Mountains.
- 4 Salinas Valley (1 sheet)
San Antonio River northerly to San Andreas Fault, through San Ardo Oil Field
- 6 Sacramento Valley - North (2 sheets)
A. From T-23N, R-1W through R-16N, R-1E; and
B. Correlation Chart.

- 7 Ventura Basin - Central (1 sheet)
From Santa Ynez Fault north of Ojai to Western Santa Monica Mountains, through Ventura Avenue and West Montalvo Oil Fields.
- 8 San Joaquin Valley - South (1 sheet)
From San Andreas Fault to Sierra Nevada Foothills, passing through Belgian Anticline, McKittrick, Elk Hills, Coles Levee, Fruitvale, Kern River and Round Mountain Fields.
- 9 Central San Joaquin Valley (1 sheet)
From San Andreas Fault to Sierra Nevada Foothills, passing through Coalinga, Gujarral Hills and Riverdale Fields.
- 10N Central San Joaquin Valley (1 sheet)
From Rio Vista to Riverdale through Rio Vista, McDonald Island, Tracy, Chowchilla, Gill Ranch, Raisin City, Helm and Riverdale Fields.
- 10S Central San Joaquin Valley (1 sheet)
From Riverdale to Tejon Ranch through Riverdale, Trico, Wasco, Rio Bravo, Greeley, Strand, Ten Section, Paloma, Wheeler Ridge, Grapevine and Tejon Ranch Fields.
- 11 West Side San Joaquin Valley (1 sheet)
From Coalinga to Midway-Sunset and across San Andreas Fault to southeast Cuyama Valley.
- 12 Santa Maria Basin (1 sheet)
From Lompoc to Nipomo Hills through Lompoc, Orcutt and Santa Maria Valley Fields.
- 13 Sacramento Valley - North-South (1 sheet)
From Redbluff to Rio Vista through Beehive Bend and River Island.
- 14 Los Angeles Basin - Beverly Hills to Newport (1 sheet)

PERSONAL ITEMS

Enthusiasm is generating in Bakersfield over the big annual Union-Standard Golf Tournament to be played the latter part of April. If Union wins, it will make three straight and they will retain permanent possession of the perpetual trophy. Chuck Cary (Union) and Bob Lindblom (Standard) are busy refiguring handicaps to give each team a pencil advantage.

Bob Maynard (District Geologist for Sunray, Bakersfield) claims the intermittent view he had of the Convention was not because of eye trouble but due to the revolving bar at the top of the Fairmont.

Frank Exum, Ohio, Los Angeles, former editor of the P. P. G., has been transferred to Ohio's Research Center, Denver, Colorado, on two year special assignment. The Exum's have purchased a home at 6820 So. Clermont Street, Littleton, Colorado, Phone 798-5807.

It has been unofficially rumored that Tod Harding, of Humble Oil Company in Bakersfield, is going to present a talk soon on "Geomorphic Features and Stream Capture in the vicinity of Rumsey Hills".

George Brown of Ohio Oil Company in Sacramento, nearly drowned in his tea when he became hopelessly entangled in the string to his tea bag recently.

On a recent ski trip to Squaw Valley, after one attempt, Mr. Bob Reedy of Signal Oil in Sacramento, assisted by Mr. Verne Jones of Exploration Logging, also of Sacramento, had a small accident. Chester who appears in the famous "Gun Smoke" and Bob now have something in common.

Signal Oil & Gas of Sacramento have moved their new office to 2224 Loma Vista Drive, Sacramento 25, California.

Rumor is going around that Mr. Bob Burns of Geological Exploration Inc., Alhambra, California, has taken up weight lifting. What's the story, Bob?

Mr. Verne Crackel, Gulf Oil Corporation, Salt Lake City, Utah, has been transferred to the Gulf Sacramento office. Lots of luck, Verne.

Mr. Bob Brown and Mr. Bob Lathrop of Cameron Oil Company in Sacramento have recently been transferred to Cameron's office in Oklahoma City.

Will Classen, Standard, Seattle, has been transferred to their Ventura office effective April 1, 1962.

John Lawrence, Shell, Seattle, was recently married to Judy A. Stevens of Redding, California.

Shell geologists, Seattle, are getting in condition for the coming field season by taking up the vigorous sport of dart throwing during their coffee breaks.

Don Olson, bachelor geophysicist (Union, Bakersfield) is currently on a three week jet tour vacation of the Orient, visiting Japan, Hong Kong, Bangkok, and Singapore. His buddies had pressed him for travel insurance naming them as beneficiaries, but as Don felt that the wrong sentiments would accompany such an arrangement, he declined. Now they are wondering if he will return with an Oriental bride.

Gulf has opened an office in Salem, Oregon, captained by Paul Day (Geology) and J. C. Galloway (Land).

Jim Wiley (Gulf Oil - Alaska) played host in some extremely cold weather to Bakersfield geologists Bob Johnston, Mick Lachenbruch, and John Gates on their recent Alaska tour.

Standard Oil (Bakersfield) held its Exploration Spring Golf Tournament on Saturday, March 17th, at the Kern River course. Thirty-two golfers participated under the chairmanship of Gordon Hardey. Flight Winners were John Tucker, Dale Kline, Carl Helms, and Bob Bryan.

Bill Edmundson (Reynolds and Edmundson, 1831 Truxtun Ave., Room 149, Bakersfield) has been appointed Vice-President of the San Joaquin Geological Society. One of Bill's responsibilities is to secure speakers for the Society meetings. Prospective orators may reach him at FAirview 2-0337.

CHANGE OF ADDRESS

Listed below are changes of address for those members listed in the latest directory.

ADDICOTT, WARREN O.
2811 - 20th Street
Bakersfield, Calif.

ARLETH, KARL
Room 1262

ARLETH, KARL H.
P. O. Box 1306, O.C.S.
Lafayette, Louisiana

AUGUST, JOHN J.
1736 Westwood Blvd.
Los Angeles, Calif.

BEALL, JOHN M.
Shell Oil Company
1008 W. 6th Street
Los Angeles 54, Calif.

BECKWITH, ROBERT W.
Box 912
Porterville, Calif.

BENZLEY, JAMES C.
Gulf Oil Corp. of Calif.
P. O. Box 1392
Bakersfield, Calif.

BIRD, CYRIL V.
Humble Oil & Refining Co.
218 Bernard Street
Bakersfield, Calif.

BROOKS, BRUCE D.
3915 E. Camino Ave.
Sacramento, Calif.

BRUNDALL, LAWRENCE (LARRY)
Geophoto Services, Inc.
P. O. Box 22196
Denver 22, Colorado

CARY, CHAS. W.
Union Oil Company of Calif.
2700 "F" Street
Bakersfield, Calif.

CASTRO, M. J.
15836 Cobblestone Road
La Mirada, Calif.

COLVIN, RODNEY G.
3732 Fairmount Street
Bakersfield, Calif.

COREY, W. H.
4957 Escobedo Drive
Woodland Hills, Calif.

COWELL, JAMES L.
Shell Oil Company
P. O. Box 999
Bakersfield, Calif.

DAUGHERTY, LLOYD F.
Shell Oil Company
P. O. Box 3397, Term. Annex
Los Angeles 54, Calif.

DAY, PAUL S.
Gulf Oil Corp. of Calif.
P. O. Box 2028
Salem, Oregon

DEMPSTER, RYLAND E.
Shell Oil Co.
1008 West 6th Street
Los Angeles 54, Calif.

DRYDEN, JACOB E.
Standard Oil Co. of Calif.
P. O. Box 3317
Ventura, Calif.

DUNWOODY, JOSEPH A.
2021 Kent Drive
Bakersfield, Calif.

DYK, ROBERT
145 S. Anita Ave.
Los Angeles 49, Calif.

EDWARDS, CHARLES D.
Suite 127, Mack Bldg.
1603 California Ave.
Bakersfield, Calif.

EGGLESTON, WILLIAM S.
2395 Ridgeway Road
San Marino, Calif.

ENGSTROM, DAVID B.
Standard Oil Prod. Dept.
Wagon Wheel Road
Oxnard, Calif.

ESPENSCHIED, ERNEST K.
3509 Century Street
Bakersfield, Calif.

ESTILL, WAYNE D.
3106 Linden Avenue
Bakersfield, Calif.

EKUM, FRANK A.
The Ohio Oil Co.
Denver Research Center
P. O. Box 269
Littleton, Colorado

FACKLER, JOHN H.
810 La Brea Drive, Apt. 1
Inglewood, Calif.

FELTS, WAYNE M.
Texaco, Inc.
424 5th Ave.
Anchorage, Alaska

FERGUSON, RICHARD M.
Box 96
Glendora, Calif.

FOLSOM, TOM
950 Fulton Ave.
Sacramento, Calif.

FRAMES, DONALD W.
913 Bunting Street
Bakersfield, Calif.

GENTRY, ALBERT W.
1124 N. Dowling Ave.
Anaheim, Calif.

GILLIES, WARREN D.
832 Arbor Ave.
Ventura, Calif.

HARE, DONALD S.
Faulley Pan Amer. Petro. Co.
Viene 26 - 101
Mexico 6, D.F.
Mexico

HARTMAN, DONALD G.
424 5th Avenue
Anchorage, Alaska

HAWKINS, RALPH D.
4723 N. Angus Street
Fresno 26, Calif.

HELMS, CARL JR.
3001 Idaho Street
Bakersfield, Calif.

HEMBRE, DONALD R.
6188 Wandermere Way
Littleton, Colorado

HICKERNELL, ROBERT L.
1717 Marshall Street
Bakersfield, Calif.

HINDLE, ROBERT J.
Sunray Mid-Continent Oil Co.
Box 2250
Casper, Wyoming

ISBERG, JOHN T.
The Superior Oil Co.
P. O. Box 600
Denver, Colorado

KERSLING, STUART A.
Texaco, Inc.
P. O. Box 3337
Ventura, Calif.

KINGSLEY, JOHN
Box 997
Chico, Calif.

KNAPP, ROBERT R.
3122 Inverness
Los Alamitos, Calif.

KNIGHT, FRED G.
The Ohio Oil Co.
Room 6037
539 S. Main St.
Findlay, Ohio

LAISING, BORIS
1939 N. Berendo St.
Los Angeles 27, Calif.

LONDON, ROBERT E.
Mobil Oil Co.
150 E. 42nd Street
New York 17, N. Y.

LEACH, JACK S.
421 Decatur
Apt. #2
Las Vegas, Nevada

LEVEL, HOWARD R.
359 Burl Avenue
Ventura, Calif.

MASTERMAN, DAVID S.
Humble Oil & Refining Co.
218 Bernard Street
Bakersfield, Calif.

McMICHAEL, LAWRENCE B.
P. O. Box 3495
San Francisco, Calif.

MEDITZ, RICHARD D.
3017 Harmony Drive
Bakersfield, Calif.

MILEY, ROY A.
Texaco, Inc.
P. O. Box 3337
Ventura, Calif.

MOORE, QUENTIN M.
2825 Christmas Tree Lane
Bakersfield, Calif.

NAHAMA, RODNEY
3920 Jewett Ave.
Bakersfield, Calif.

O'NEILL, THOMAS R.
20723 Lull Street
Canoga Park, Calif.

ORWIG, EUGENE R.
Mobil Oil Co.
P. O. Box 2122, Term. Annex
Los Angeles 54, Calif.

PARK, STAFFORD
P. O. Box 7033
Long Beach 7, Calif.

PARKER, FRANK S.
565 Berkeley Ave.
San Marino, Calif.

PHILLIPS, ROSS
806 S. Denver
Tulsa 19, Oklahoma

PICARD, ROY J.
P. O. Box 910
Morgan City, Louisiana

PICKETT, E. S.
516 W. Floral Drive
Whittier, Calif.

PIERCE, RICHARD L.
1608 Duke Drive
Bakersfield, Calif.

POLAND, JOSEPH F.
Federal Building
650 Capitol Ave.
Sacramento 14, Calif.

PONTIUS, DAVID C.
8555 E. Fairview Ave.
San Gabriel, Calif.

RECORD, WALTER R.
Iricon Agency
No. 1, Albemarle Street
London W.1., England

REDWINE, LOWELL E.
3120 Eighteenth Street
Bakersfield, Calif.

RENNIE, ERNEST W. JR.
Tidewater Oil Co.
Rt. 1, Box 197 X
Bakersfield, Calif.

RICCIO, JOSEPH F.
30414 Moonmist Drive
Rolling Hills, Calif.

SCHULTZ, LESLIE K.
Mobil Oil Co.
300 Pere Marquette Bldg.
New Orleans, Louisiana

SHEEHAN, JACK R.
Standard Oil Co.
P. O. Box 5278
Oildale, Calif.

SHELDON, THEODORE D.
10763 Wilshire Blvd.
Los Angeles 24, Calif.

SHEPHERD, GLENN L.
Cabeen Exploration Corp.
Jose Penna 975, Vicente Lopez
PCIA, Buenos Aires
Argentina

SHERBORNE, JOHN E.
1004 Summit Drive
Whittier, Calif.

SHOEMAKER, DAVID W.
3112 Cornell Street
Bakersfield, Calif.

SISK, THOMAS H.
Humble Oil & Refining Co.
218 Bernard Street
Bakersfield, Calif.

SMITH, JOHN W.
Humble Oil & Refining Co.
218 Bernard Street
Bakersfield, Calif.

TEN EYCK, WARREN E. (JACK)
27 Rees Cove, Beacon Bay
Newport Beach, Calif.

THOMPSON, CALVIN J.
Standard Oil Co. of Calif.
P. O. Box 3317
Ventura, Calif.

TURNER, ROY W.
801 Ojai Road
Santa Paula, Calif.

VAN GUNDY, C. E.
4501 Bellflower Blvd.
Long Beach, Calif.

VERNON, JAMES W.
6241 Kester Ave.
Van Nuys, Calif.

WANGSNES, ORRIN J.
2004 Duke Drive
Bakersfield, Calif.

WELLER, ARTHUR R.
Shell Oil Co.
1055 Dexter Horton Bldg.
Seattle 4, Washington

WENTS, JOHN H. JR.
Tidewater Canadian Oil, Ltd.
4th Floor Financial Bldg.
Regina, Saskatchewan,
Canada

WEST, JACK C.
5335 Kenwood Avenue
Buena Park, Calif.

WILLIAMS, JAMES J.
The Oasis Oil Co. Libya, Inc.
P. O. Box 395
Tripoli, Libya

Listed below are changes of address for those members not listed in the latest directory.

BURKE, RAY A.
Union Oil Center
P. O. Box 7600, Term. Annex
Los Angeles 54, Calif.

CROW, NEIL B.
1236 Berkeley Street
Santa Monica, Calif.

DIECKMAN, JOHN J.
Tidewater Oil Co.
Rt. 1, Box 197-X
Bakersfield, Calif.

GRESSER, DONALD W.
Shell Oil Company
1008 W. Sixth Street
Los Angeles 54, Calif.

KOOP, WALTER J.
Standard Oil Co. of Calif.
P. O. Box 5278
Oildale, Calif.

MOHAR, JOHN JR.
Tidewater Oil Co.
International E. & P. Div.
4201 Wilshire Blvd.
Los Angeles 5, Calif.

MILLER, GERALD M.
Union Oil Co. of Calif.
9645 S. Santa Fe Springs Rd.
Santa Fe Springs, Calif.

MORRIS, SPENCER L.
1025 Jones Street
San Francisco 9, Calif.

MYERSON, DEANNA J.
9937 Young Drive, Apt. D
Beverly Hills, Calif.

MCCOY, MARSHALL
P. O. Box 246
Manhattan Beach, Calif.

ROBINSON, B. BRICK
Shell Oil Co.
P. O. Box 999
Bakersfield, Calif.

THOMPSON, CRAIG D.
Tidewater Oil Co.
International Expl. & Prod.
4201 Wilshire Blvd.
Los Angeles 5, Calif.

TRAVERS, WILLIAM B.
Santa Fe Drilling Co.
P. O. Box 3021
Modesto, Calif.

YEATS, ROBERT S.
P. O. Box 691
Ventura, Calif.

ZABEL, MARTHA G.
Kern Oil Co.
900 Wilshire Blvd.
Los Angeles 17, Calif.

NURSERY NEWS

Conrad and Wanda Howard, Shell, Seattle, added a seven-pound six-and-a-half ounce girl, Vanessa Leigh, to their family on March 12, 1962.

CALENDAR

April 17, 1962: Tuesday, 7:30 p.m., Branner Club at Town and Gown Foyer on U.S.C. Campus (Immediately north of parking lot on Exposition Boulevard, about one block west of Hoover Boulevard). Talk entitled "The Scientific VS. the Engineering method in geologic investigation," by Professor J. Hoover Makin, University of Washington.

Tickets will be sold at G.S.A. registration desk at U.S.C.; or contact Lucy Birdsall, U. S. Geological Survey, RI 9-4711, Ext. 1255. Price \$3.50 No-Host Cocktail party at Julies, 3730 So. Flower Street, precedes the banquet (6:00 to 7:00 p.m.)

April 19, 1962: Thursday evening, Southern California Section, AIME, Rodger Young Auditorium. Cocktails 6:30 P.M., dinner 7:00 P.M., at 8:00 P.M. Mr. David D. Rabb, University of Calif. Lawrence Radiation Laboratory, will speak on "The Plowshare Program", the Atomic Energy Commission's name for a whole field of undertakings which contemplate the use of nuclear explosives for industrial and civil purposes. For reservations call The Engineer, Atlantic 2-7438.

April 23, 1962: Monday evening, Mobil Auditorium, Mobil Building, Los Angeles, 7:00 P.M. The Los Angeles Forum Meeting will be addressed by Dr. Manuel Mayuga, Long Beach Harbor Development, on "Recent Developments in Wilmington Oil Field, including discussion of water flood, subsidence abatement, geology, and reserves of the offshore."

May 7, 1962: Monday evening, 7:30-9:30 p.m., Room 56, Science and Engineering Bldg., Bakersfield College Campus. Biostratigraphy Seminar: "Studies of Living Foraminifera" by Dr. Jack Bradshaw, Scripps Institute, LaJolla, California. This will be the final seminar of the current schedule.

May 8, 1962: Tuesday evening, Hotel El Tejon, Bakersfield, cocktails 6:30 p.m., dinner 7:30 p.m. The San Joaquin Geological Society will be addressed by Frank Weagant (Franco-Western Oil Co.) on "Geology of the Grimes Gas Field."

JOURNAL CLUB PROGRAM, Stanford University School of Mineral Sciences, Lecture Series, Spring 1962, Monday, 4:00 p.m., Room 320 Geology Building. Come early for coffee:

APRIL 9, 1962: "Fossil water problems in the eastern Sahara," by Dr. Georg Knetsch, Professor, University of Wurzburg, German.

April 23, 1962: "Engineering geology of the Stanford Linear Electron Accelerator," Mr. Roger E. Skjei, Project Geological Engineer (Project M), Aetron-Blume-Atkinson, Palo Alto. "The Association of Garnet and Cordierite in high grade regional metamorphics," Mr. Peter William Hay, Geology Department, Stanford.

April 30, 1962: "Stratigraphy of Libya," Mr. John Lynn Redmond, Geology Department, Stanford.

May 7, 1962: "Igneous and matasomatic processes, Berkshire Hills, Mass.," Mr. Raymond Pestrong, Geology Department, Stanford.

May 14, 1962: "Petrology and sedimentation, Upper Cambrian Lamotte Sandstone, Missouri," Mr. Richard W. Ojakangas, Geology Department, Stanford.

BIBLIOGRAPHY OF RECENT PUBLICATIONS

CALIFORNIA DIVISION OF MINES AND GEOLOGY

Bulletin 178: Geology and mineral resources of the Corona South Quadrangle, and the Santa Ana Narrows area; and, Mines and mineral deposits of the Corona South Quadrangle, by Clifton H. Gray, Jr. \$ 3.50

Bulletin 181: Geologic guide to the Gas and Oil field of Northern California . . . \$ 8.00
Bulletin 182: Geologic guide to the Merced Canyon and Yosemite Valley, California. . . \$ 1.50
San Francisco Sheet, Geologic Map of California, compiled by Charles W. Jennings and John L. Burnett. \$ 1.50
Publications of the Division of Mines. \$ 1.00

CALIFORNIA JOURNAL OF MINES AND GEOLOGY, vol. 52, no. 3, July 1956 (reprint).

Lode gold mines of the Alleghany-Downieville area, Sierra County, California, by Denton W. Carlson and William B. Clark; and "History of borax production in the United States, by W. F. Ver Planck. \$ 1.00

U. S. BUREAU OF MINES (4800 Forbes Avenue, Distribution Section, Pittsburgh 13, Penna.)

Information Circular 8045: Trends in Alaska's mineral industry, by Alvin Kaufman Free

Information Circular 8059: Bureau of Mines publications on coal preparation 1910-1960, prepared by Albert W. Duerbrouck. Free

U. S. GEOLOGICAL SURVEY

Topographic Instructions chapter 3F6, "ER-55 Plotter Procedures" 49-page separate volume. \$.45

Water Supply Paper 1529: Waterpower resources near Petersburg and Juneau, southeastern Alaska, by F. A. Johnson. \$.45

MAPS:

Mineral Resource Map MR-14: Borates in the United States, exclusive of Alaska and Hawaii, by Ward C. Smith. \$.75

Atlas HA-31: Reconnaissance of ground water in the western part of the Mohave Desert region, California, by Fred Kunkel. \$.75

Map I-211-B: Geographic map of the southern Najd quadrangle, Kingdom of Saudi Arabia, by R. O. Jackson, R. G. Bogue, G. F. Brown, and R. D. Gierhart. \$ 1.00

Map I-215-B: Geographic map of the Eastern Rub Al Khali quadrangle, Kingdom of Saudi Arabia, by E. L. Elberg, R. D. Gierhart, and L. F. Ramirez. \$ 1.00

Map I-218-B: Geographic map of the Western Rub Al Khali quadrangle, Kingdom of Saudi Arabia, by R. A. Bramkamp, R. D. Gierhart, L. D. Owens, and L. F. Ramirez. \$ 1.00

Map I-220-B: Geographic map of the Southeastern Rub Al Khali quadrangle, Kingdom of Saudi Arabia, by L. F. Ramirez, E. L. Elberg, and H. H. Helley \$ 1.00

Map I-338: Geology of the Boxelder quadrangle, Montana, by R. M. Lindvall. \$.75

Map I-349: Geology of the Eagle Buttes quadrangle, Chouteau County, Montana, by R. M. Lindvall \$.50

OPEN FILE REPORTS: (Inspection only)

TEI 800: Ground water Test Well A, Nevada Test Site, Nye County, Nevada. A summary of lithologic data, aquifer tests and construction, by C. E. Price and William Thordarson.

TEI 803: Ground water Test Well D, Nevada Test Site, Nye County, Nevada, by William Thordarson, Murray S. Garber and George E. Walker.

TEI 780: Preliminary results of a survey for thick high-calcium limestone deposits in the United States, by R. E. Davis, W. R. Williams, R. B. Johnson, and W. L. Emerick, with a section on possible Alaskan sites for nuclear reaction experiment in limestone, by G. D. Eberlien. 45 p. 2 figs. 3 tables.

TEI 806: Interim geological investigations in the UI^{we}.03a and UI^{we}.03b tunnels, Nevada Test Site, Nye County, Nevada, by W. L. Emerick and D. D. Dickey, with a section on gamma-radioactivity by C. M. Bunker. 29 p., 6 figs., 5 tables.

Measured sections of some Triassic and Jurassic strata in the Slick Rock district, San Miguel and Dolores Counties, Colorado, by D. R. Shawe, G. C. Simmons, and N. L. Archbold. 55 p., 3 figs. (Denver and Salt Lake City)

Geology and fuel resources of the southwestern part of the Raton coal field, Colfax county, New Mexico, by A. A. Wanek. 1 map (6 pieces) (Denver and Salt Lake City)

THE ORE BIN, vol. 24, no. 2, February 1962 (State of Oregon, Dept. of Geology and Mineral Industries)

Some aspects of the regional geology of South-Central Oregon, by George W. Walker (Abstract)
Geology of the Spruce Mountain area, Elko County, Nevada, by George R. Harlow (Abstract)

Marine Jurassic outliers in the Juniper Mountain area of Northern Malheur County, Oregon, by M. S. Wagner and Howard C. Brooks (Abstract)

Oil and gas exploration in Oregon, by Vernon C. Newton, Jr. (Abstract)

NEVADA BUREAU OF MINES

Bulletin 58, Geology and mineral deposits of Mineral County, Nevada, by D. C. Ross. 98 p.

JOURNAL OF PALEONTOLOGY, vol. 36, no. 1, 1962.

Stratigraphic distribution of Middle Triassic ammonites at Fossil Hill, Humboldt Range, Nevada, by N. J. Silberling.

JOURNAL OF GEOLOGY, vol. 70, no. 2, March 1962

Age of the Rio Grande Valley in southern New Mexico, by Robert V. Ruhe

Accretionary lapilli in volcanic rocks of the western continental United States, by James G. Moore and Dallas L. Peck.

Transatlantic climatic agreement versus C14 dates, by Ernst Antevis.

Observation on algal biostromes in the Great Salt Lake, Utah, by Albert V. Carozzi.

SCIENCE, vol. 135, No. 3504, 23 February 1962

Preliminary geologic report on the 1961 U. S. Expedition to Bellingshausen sea, Antarctica, by Avery A. Drake, Jr.

SCIENCE, Vol. 135, no. 3507, 16 March 1962

Clay mineralogy, by R. E. Grim.

Surface textures of sand grains: An application of electron microscopy, by D. Krinsley and T. Takahashi.

Specific surface determination of expansible layer silicates, by M. H. Milford and M. L. Jackson.

Devonian plants from the type section of the Ghost River formation of western Alberta, by R. G. Greggs, D. C. McGregor, and G. E. Rouse.

OIL AND GAS JOURNAL, Vol. 60, No. 10, March 5, 1962

New production tool: Nuclear magnetism logging, by John Coolidge

CATC's new platforms work in 180-ft. water, by Ed. McGhee.

Failures don't faze operators in New Mexico, by Frank J. Gardner.

Steam flood promises big recovery in Texas field, by Robert J. Enright.

OIL AND GAS JOURNAL, Vol. 60, no. 11, March 12, 1962

New flowmeter gives water-injection profiles, by John K. Godbey.

Aliphatic solvents unit produces variety of closely cut products, by D. H. Stormont.

Plain talk about U. S. oil reserves, by Frank J. Gardner.

Look in the deeper basinal areas for more Kansas Arbuckle oil, by Daniel F. Merriam and Polly Smith.

OIL AND GAS JOURNAL, Vol. 60, No. 12, March 19, 1962

Kingfisher County play swings to the west, by Frank J. Gardner.

Independent, major team up in tricky Arkoma basin, by John C. McCaslin.

PACIFIC PETROLEUM GEOLOGIST
PACIFIC SECTION. A.A.P.G.
P.O. BOX 17486. FOY STATION
LOS ANGELES 17. CALIFORNIA

Volume 16

Number 4



Richard L. Hester
Pauley Petroleum, Inc.
10000 Santa Monica Boulevard
Los Angeles 25, Calif.

DA

Return Requested

PACIFIC PETROLEUM GEOLOGIST

NEWS LETTER OF THE PACIFIC SECTION AMERICAN ASSOCIATION OF PETROLEUM GEOLOGISTS

Volume 16

May, 1962

Number 5

ASSOCIATION ACTIVITIES

FRANK YULE MEMORIAL GOLF TROPHY

The Pacific Section of the American Association of Petroleum Geologists is pleased to establish a perpetual, annual golf award in memory of Frank Ingalls Yule, a former active member and cherished associate. The award is to be known as the "Frank Yule Memorial Golf Trophy" and will consist of a perpetual trophy and an individual trophy, awarded in accordance with the regulations stated below.

Frank Yule, his wife and three young children, died together on September 17, 1961, in a tragic automobile crash while returning from Bakersfield to their home in Taft. A graduate of geology from the University of Wisconsin in 1950, Frank was completing his tenth year with the Mobil Oil Company as a petroleum geologist. Golf was one of Frank's greatest loves and his ability was equal to his enthusiasm. He was chairman of the Section's Golf Committee several times and found time to prove his prowess to many of our members.

We are proud to establish the "Frank Yule Memorial Golf Trophy" in fond memory of a friendly, enthusiastic, professionally respected member.

REGULATIONS

1. Award to be made to the Pacific Section Member, competing in the sanctioned annual tournament, having the lowest, attested gross score.
2. The Pacific Section Executive Committee shall designate the tournament to be sanctioned.
3. Rules governing play are to be determined by the Golf Committee Chairman, taking into full account the local golf course rules in effect, and PGA and R and A regulations. A sudden death play-off will determine the award winner when required.
4. Two trophies will be presented to the winning member.
 - A. A large, perpetual trophy to be given after proper engraving is performed. This trophy to be kept by the winner until the next sanctioned tournament is scheduled. The winner will be responsible for safeguarding the trophy during his possession and for returning the trophy to the Golf Committee Chairman in advance of the next scheduled tournament.
 - B. A smaller trophy to be awarded to the winning member for his permanent possession.

The executive committee has designated the June 1 tournament to be the one sanctioned in 1962. Our thanks to Bill Edmund who is in charge of setting up this worthy memorial tribute.

A. A. P. G. NOMINATIONS

President Robert E. Rettger has named William R. Moran, Elliott H. Powers, James C. Scott, William E. Wallis and Ben H. Parker to the 1962-63 Nominating Committee of the American Association of Petroleum Geologists.

In accordance with provisions of the Constitution of the Association, the Nominating Committee is required to nominate two or more candidates each for president and vice president and one or more candidates each for secretary-treasurer and editor. It is anticipated that pursuant to custom the present secretary-treasurer will be nominated to succeed himself in order to provide for additional continuity within the Executive Committee.

The members of the Nominating Committee not only desire that the most capable members available for these offices be nominated, but also wish to make the nominating procedure as democratic as possible. With these two objectives in view, your assistance is requested in assuring the proposing of well qualified members who would be willing to accept nominations for the various offices.

It will be appreciated if you will bring the subject of possible nominees for A.A.P.G. offices before your Section or Society and individual A.A.P.G. members in your district. Your assistance is needed in informing the greatest possible number of Association members that suggestions from a Section, Local Society or individual member for possible candidates for specific offices will be welcomed by the Nominating Committee. If your group publishes a journal or news letter the inclusion in it of an announcement of this request for suggestions of nominees would be appreciated. Recommendations of possible nominees should be addressed to Ben H. Parker, Chairman Nominating Committee A.A.P.G., 4040 East Louisiana Avenue, Denver 22, Colorado, and must be received by June 1, 1962. A concise biography of each individual suggested, together with his record of service to the Association and his business and residence addresses and telephone numbers should be included with any recommendation submitted to the Nominating Committee.

EXECUTIVE COMMITTEE, PACIFIC SECTION AMERICAN ASSOCIATION OF PETROLEUM GEOLOGISTS

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PACIFIC PETROLEUM GEOLOGIST

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Assistant Editors:

Personal Items

Selected Bibliography

Cartoonists

Lucy Birdsall

Mort Kline

Harold Sullwold

Correspondents:

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San Francisco

San Joaquin

Membership Secretary

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John Van Amringe

M. B. Greene

Dorman Graves

David Pfeiffer

Gordon J. Welsh

Pat Metcalf

Next Deadline May 28, 1962

A. A. P. G. STAG SPRING PICNIC

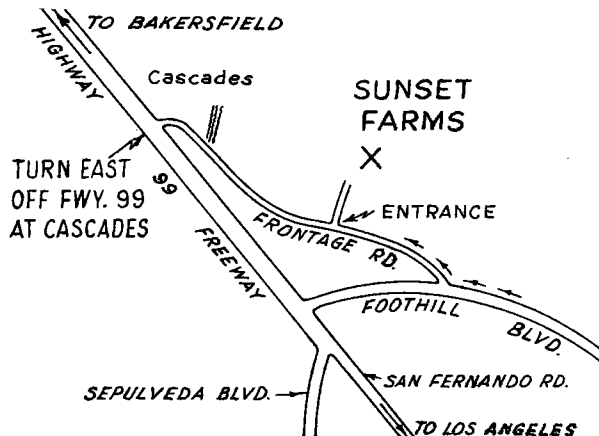
Field Trip: Tour of Aliso Canyon, Horse Meadows, Mission, and Cascade Fields, and a visit to turbidite exposures.

Assemble 9 A. M. at Zody's Parking Lot, southwest corner, Reseda and Devonshire, in the town of Northridge. Lunch and refreshments available for a buck.

Golf: Starting 8 A. M., Balboa Golf Course at Ventura Freeway and Balboa Streets. Fee \$3.50

Picnic: Afternoon, Sunset Farms, access from Foothill just north of intersection of highway 99 and Foothill Blvd. (2 miles NW of San Fernando). Fee \$3.50

Activities: Soft ball, volley ball, horseshoes, swimming (bring your own suit), horseback riding.



HOWARD STARK, NEW EDITOR

Howard Stark, Richfield, will assume the editorial duties of the Pacific Petroleum Geologist, May 1, 1962.

NATIONAL CONVENTION, LOS ANGELES, 1967

The report of the Convention Policy Committee, published in AAPG Bulletin Vol. 45, No. 7, p. 1283, sets forth several recommendations to the Executive Committee governing future national conventions. Article 7 of this report deals with criteria for selection of convention cities and a recommendation for the rotation cycle between these cities.

Following is the rotation cycle recommended:

| | |
|------|-------------|
| 1963 | Houston |
| 1964 | Toronto |
| 1965 | New Orleans |
| 1966 | St. Louis |
| 1967 | Los Angeles |
| 1968 | Dallas |
| 1969 | Denver |
| 1970 | New York |

The Pacific Section Executive Committee has formally invited the National Committee to consider Los Angeles and the Pacific Section host to the 1967 annual meeting.

ANNUAL CONVENTION

The Executive Committee has approved the dates of April 25-26, 1963, for the Pacific Section Annual Meeting to be held at the Biltmore Hotel, Los Angeles.

Robert Knapp, Standard, General Convention Chairman, is busy working on initial preparations.

COASTAL SOCIETY DINNER MEETING

An informative and beautifully illustrated talk on "Moon Rocks" was presented April 17th at the Miramar Hotel in Montecito. Sixty-two persons attended, including a liberal sprinkling of wives and lady friends. Mr. Finn Bronner of TEMPO Division of General Electric described the visual data acquired and research being conducted to develop ideas on the Moon's geology. Little hope was offered that the origin of its craters would soon be resolved, as to volcanic activity or meteoritic impacts being most responsible. Both famous and lesser known features were viewed in new blown-up slides that revealed detailed evidence for geologic conjecture. Effects of the sun's varying side lighting were described as revealing topography as "the shadows marched across the craters". Dark areas of the moon, the maria, under recent study, have been suggested in one of several ideas to be lava flows. Of the more rugged "mountainous" areas, little can be seen of structural trends. However, one escarpment at the edge of a mare has been thought to be along a fault of 10,000' displacement. Light colored streaks or "rays" were visualized as emanating from craters but little is known of their origin. Also, the possibility of a gaseous discharge from the Alphonsus crater was evidenced in a study of spectrographic plates a few years ago.

A number of the slides were of earth features, which might be compared with those of the Moon. The Barrington meteoritic crater in Arizona was viewed as were samples of meteorites, and meteoritic altered sediments. The sedimentary edges of this depression were described as having been doubled back following meteoritic impact, the force of which would have been about one and one-half megatons.

Other slides compared volcanic remnants, and recent volcanic eruptions in the Hawaiian Islands with possible ancient counterparts on the Moon. One brilliant slide showed a fire eruption reported to be 1900' high.

Mr. Bronner exhibited a number of maps showing topographic and possible features, recently put out by army, air force, or civilian space agencies. Some of these maps show relative ages of prominent features, or "Moon Rocks". For the doubtful lunar explorers-to-be, it may be reassuring to know that the U.S.G.S. is coming out with a preliminary "quad sheet".

LOS ANGELES GEOLOGICAL FORUM MEETING

Mr. Manuel N. Mayuga, Chief Petroleum Engineer for the Long Beach Harbor Department spoke before Association members Monday evening, April 23rd on "Recent Developments in the Wilmington Oil Field". Special mention was made of the geology and planned operations of the undeveloped offshore portion of the field.

Abstract:

The Wilmington Oil Field with its seven producing zones and tremendous thickness of oil sand, is recognized today as the largest oil field in California and one of the largest in the United States. It has a developed productive area of approximately 6,700 acres and an estimated undeveloped productive area of 6,500 acres. Cumulative production from the field through March 1962 has been approximately 919 million barrels of oil and 778 million MCF of gas and of these amounts, approximately 235 million barrels of oil and 286 million MCF of gas were produced from the tidelands of the City of Long Beach.

The water flood operations and the subsidence abatement program in the Wilmington Oil Field are meeting with great success. At the present time, three units (Fault Blocks II, III and IV) and two cooperative water floods (Fault Blocks I and VI) are in operation. Unitization of Fault Block V is in the negotiation stage and it is expected that this unit will be finalized within the next several months. At the present time, the southern portion of Fault Block I is under flood in the Ranger and Upper Terminal zones; Fault Block II and Fault Block III are under flood in the upper four (Tar, Ranger, Upper Terminal and Lower Terminal) zones; Fault Block IV is under flood in all but the 237 zone; Fault Block V is under flood in all zones, except the Ranger Zone north of Seaside Boulevard; and Fault Block VI is under flood in all zones.

As of March 1962 the field has 194 water injection wells with a combined injection rate of 500,000 barrels of salt water per day. The present capacity of the injection plant facilities is approximately 1,000,000 barrels per day. Total cumulative water injected to date (April 23, 1962)

is 490 million barrels. The present rate of production of the Wilmington Oil Field is 82,500 barrels of oil per day and of this amount 25,000 barrels per day are attributed to water flooding. It is estimated that approximately 17 million barrels of additional oil have been recovered to date due to water flood and of this amount 13 million barrels were produced from the Long Beach city tideland area. The City of Long Beach's tideland area is producing over 42,000 barrels of oil per day and of this amount 18,000 barrels per day is due to water flood.

The center of the bowl of subsidence at the western end of Terminal Island has sunk to approximately 27 feet to date, but the annual rate of subsidence at the center has decreased significantly from a maximum of 2.4 feet per year in 1952 to 0.5 feet per year in 1961. The overall area of subsidence has also been reduced from about 22 square miles to approximately 4 square miles. A large portion of the Long Beach Harbor and the Naval shipyard and the entire downtown area of the City of Long Beach have stopped subsiding. It is predicted that subsidence in the Wilmington Field will be entirely stopped or reduced to a very insignificant amount sometime in 1964.

Results of the seismic survey conducted by the City of Long Beach in 1954 in its offshore area indicated that the Wilmington Oil Field anticline extends southeasterly to an unknown distance beyond the Humble-Texas lease off Seal Beach. The undeveloped offshore and townlot areas of the field, between the Long Beach Harbor district and the Humble-Texas state lease, is estimated to be approximately 6,500 acres. The oil and gas initially in place in these undeveloped areas are estimated to be 2.86 billion barrels of oil and 585 billion cubic feet of gas. Based on a proposed 35 to 40 year development program under full pressure maintenance, it is estimated that the area has a recoverable reserve of 797 million barrels of oil and 163 billion cubic feet of gas with a gross value of 1,887 billion dollars. Approximately 628 production and 262 injection wells will be required to develop the area under the proposed program. Development will be from four, ten acre, carefully landscaped drilling islands located offshore from the City of Long Beach. All wells will be completed in concrete cellars below ground level. All oil and gas production from the drilling islands will be transferred through submarine pipelines to the Long Beach harbor district, where final dehydration and shipment will take place.

In order to insure an efficient pressure maintenance operation, the City of Long Beach will require that its tidelands area be developed as a single tract. The townlot area, which will be developed from the drilling islands, will probably be unitized with the City's tidelands.

ADDITIONAL COMMITTEE APPOINTMENTS

Meeting Chairman: Carroll Hoyt, Mobil
 Sub-Committee Basement Rocks: Edward L. Miller, Ohio
 PPG Editor: Howard Stark, Richfield
 San Joaquin Representative: James L. O'Neill, Consultant
 Publicity: Andrew R. Fish, Phillips
 Cross Section Committee: Edward A. Gribi, Jr., Consultant

HOMER STEINY AWARDED LIFE MEMBERSHIP

Homer Steiny was awarded a Life Membership for distinguished and loyal service at the San Francisco meeting. Mr. Steiny wishes express his appreciation to all members for this honor.

Following is his acceptance speech given at San Francisco.

"President Haines and fellow members of the Pacific Section of the American Association of Petroleum geologists:

It is with great reverence and humility that I heartily accept this--the highest honor of the Association.

It is great to be so honored. I never dreamed that such would happen to me and upon being advised of such, a week or so ago, by Irv Schwade, I was thrown into a mood of reflection. How Come? What gives? It seems in this reflection that my 40 or more years in the geology business have whisked by in a hurry. It, also, seems that I've always been on a committee of some nature. I remember of just being out of Stanford when I was appointed to serve on a committee to have a reception for J. P. Smith at the Gilmore Ranch. I remember of the Picnic Committee meeting on the Henley Ranch up Sespe Creek when we all had sleeping bags. Harry Johnson, on making an uncalled for inspection, noticed I had clean white sheets in my blanket roll and proceeded to call the attention of the entire meeting to this embarrassing feature. I still carry this grudge against Harry. The committees have been fun-- in addition to gathering what I always wanted as a boy--a million friends.

In all this--it has been my good fortune to admire and worship the antics and feats of many personalities such as: Harry Johnson, Ralph Arnold, Valentine Garfias, Bill Pemberton, Bob Moran, J. P. Smith, Chief Tolman, Dave Folsom, Frank Morgan, Bill Kew, Martin Van Couvering, Billy McLaine, R. P. McLaughlin, Joe Taff, Brick Elliott and many many others. From these, I think I acquired many of their better accomplishments and traits.

And now--further reflection--makes me give thanks to many people of which I would like to mention a few: Ansel Williams, Principle of Stockton High School, for recommending me to Stanford University, thanks to Stanford itself for the fine introduction to the facets of the geological business and giving me my membership card to the Geological Fraternity and to all that membership in the Stanford Family carries with it--thanks to the Zeta Psi Fraternity for developing within me a sense of security and belonging, which I did not have as a younger boy--thanks to my parents for deeding to me, an inheritance of splendid health for over 70 years and lastly to you good members of the Pacific Section, who are present here and to the many who are not present, I give great thanks for this honor that you have given to me."

LOS ANGELES DISTRICT REPRESENTATIVES

John D. Frick, Humble, has been elected to serve the remainder of the term vacated by Roger M. Dungan, resigned.

Harrison C. Jamison, Richfield, has been elected to serve the remainder of the term of Donald G. Herring, Jr., deceased.

PERSONAL ITEMS

Will Classen, Standard, has recently been transferred to Ventura from Seattle. He replaces Chuck Reynolds, who is taking a tour of duty in Australia.

Bill Osborn, Continental, Anchorage, has been transferred to Billings, Montana.

Bob Yeats, Shell-Ventura, must have topped the baby-kissing contest at Ojai as he won a seat in the city council election.

Harold Sugden, Tidewater-Ventura, has not been seen in his usual haunts due to a long bout with chicken pox. Later a checkup was required at the hospital, which finally brought him back to good skin-diving shape.

Kenneth G. Smith, Continental, Durango, has been transferred to Bakersfield.

It is rumored two eminent oil finders, Messrs. E. Dryden and H. Hahn of Ventura were a bit "hazy" on the latest "Moon" talk. No doubt their duties in making dinner and bar arrangements clouded reception of this sterling talk.

Art LeBlanc and Oleta Jones are new additions to Shell's paleontology department in Bakersfield. Oleta has returned to Shell after four years of service as an officer in WAAF. Art has been transferred from the Mid-Continent area.

John Castano, Shell-Seattle, was back in Bakersfield for a brief visit in March. Was that on company business, John, or to promote the World's Fair?

Stock market fever has hit the geological department of Ohio, Bakersfield, like an epidemic. The newly formed "Big M" investment club includes geologists Doug Hargrove, Fred Smith, Jr., Tom Roy, Henry Adams, Dick Atchison, and Ed Miller.

Paced by the team of Bob Lindblom (with tourney low gross score of 79) and Bob Ortalda, Standard Oil (Bakersfield) won a decisive victory in the annual golf match with Union Oil held April 28th at the North Kern links. It was "do or die" for the S-Oilers to win this one or relinquish permanent possession of the trophy to Union. Back to the handicap book, eh, Chuck?

Rumor has it that Vic Church and Fred Porter are going back to ping-pong unless they can "luck out" against Quentin Query and Darrel Kirkpatrick in their noontime doubles tennis match.

Jim Parkinson (Standard Oil) has been transferred from Alaska to Oildale just in time for summer.

Bill Bedford, recently transferred by Texaco from Bakersfield to Alaska, sends all his local friends best wishes for a real hot summer!

Don Olson, well liked geophysicist for Union Oil, no sooner returned to Bakersfield after a three-week vacation tour of the Far East than he was transferred to Toowoomba, Australia. How's that for timing?

Gerald Ganopok has resigned from Texaco to open a consulting office at 4213 Westwood Circle Anchorage, Alaska.

Franco-Western has been joined by geologist Jim McIntyre who will open an office in Anchorage, Alaska.

What Shell geologist in Bakersfield almost pinned his District Geologist to a fence post with a jeep?

Chuck Cary's financial losses in the recent Union-Standard golf tourney should be a significant item on his 1963 tax return.

NURSERY NEWS

Ed and Sue Dryden, Standard in Ventura, welcomed their fifth child, Glenn Lacey, born March 30th. This boy weighed in at 7 lbs. 2 oz., and brings the total of boys to four.

CALENDAR

May 8, 1962: Tuesday evening, Wagon Wheel Junction, El Rio, Social Hour 6:30 P.M., dinner 7:30 P.M. Mr. Bob Hacker of Lloyd Corp. will speak on "Geology of the Oxnard Plains Field".

May 21, 1962: Monday evening, 7:00 p.m. Town Meeting, Mobil Auditorium, 612 South Flower, Los Angeles. Two speakers: Tom Baldwin, Humble, on "California Offshore Geology and Exploration" and Dr. John Mero, Dept. Mineral Technology, UC, Berkeley, on "Economics of Phosphates and Other Non-Petroleum Minerals in the California Offshore".

June 1, 1962: Friday - Annual Spring picnic will be held at Sunset Farms, Sylmar (San Fernando) east of intersection Foothill Blvd. and Highway #99.

Field trip and Golf Meet at Balboa Course also to be held. Details will be announced on cards to be mailed to members.

JOURNAL CLUB PROGRAM: Stanford University School of Mineral Sciences, Lecture Series Spring 1962. Monday - 4:00 p.m. - Room 320, Geology Building

COME EARLY FOR COFFEE!!!

May 14, 1962: Petrology and sedimentation, Upper Cambrian Lamotte Sandstone, Missouri, by Mr. Richard W. Ojakangas, Geology Department, Stanford.

May 21, 1962: Rock Magnetism in Franciscan Peridotites, by Mr. Stephen Burch, Geology Department Stanford.

May 28, 1962: Late Jurassic Lithographic Limestones, Solnhofen, Lower Bavaria, by Mr. James W. Collinson, Geology Department, Stanford.

June 4, 1962: Plagioclase Twinning in Granitic Rocks of Yosemite Valley, California, by Mr. Frank C. Dodge, Geology Department, Stanford.

BIBLIOGRAPHY OF RECENT PUBLICATIONS

U. S. GEOLOGICAL SURVEY

- Professional Paper 354-I: Occurrence and Significance of Marine Animal Remains in American Coal Balls, by S. H. Mamay and E. L. Yochelson. . . . \$.50
- Water Supply Paper 1720: Quantity and Quality of surface waters of Alaska, 1960. \$.50
- Water Supply Paper 1476-H: Availability of Additional Water for Chiricahua National Monument, Cochise County, Arizona, by P. W. Johnson. . . \$.65
- Water Supply Paper 1498-E: The Effect of Bed Roughness on Depth-Discharge-Relations in Alluvial Channels, by D. B. Simons and E. V. Richardson. . . . \$.15
- Water Supply Paper 1580-A: Evolution of Methods for Evaluating the Occurrence of Floods, by M. A. Benson. . . . \$.20
- Professional Paper 272-D: Evaporation from the 17 Western states, by J. S. Meyers, with a section on Evaporation Rates by Tor J. Nordenson, U. S. Weather Bureau. . . . \$.75
- Professional Paper 356-D: Geology of Uranium in Coaly Carbonaceous Rocks, by J. D. Vine. . . . \$ 1.00
- Circular 462: A Bibliography of Maps of Civil War Battle Field Areas by Irwin Gottschall 33 pages. . . . Free
- Maps: MF 245 - Preliminary Geologic Map of the Unionville Quadrangle, Nevada, by R. E. Wallace, D. B. Tatlock, N. J. Silberling and W. P. Irwin. . . . \$.50
- MR 13: Copper in the United States, exclusive of Alaska and Hawaii, by A. R. Kinkle, Jr., and N. P. Peterson. . . . \$.75

OPEN FILE REPORTS (Inspection only):

TEI-791: Geologic summary of the Appalachian Basin, with reference to the Subsurface Disposal of Radioactive Waste Solutions, by G. W. Colton. 121 pages, 29 figs.

Preliminary Geologic Map of the Christian Quadrangle, Alaska, by W. P. Brosge' and H. N. Reiser. 1 map

Bedrock-surface map of the San Francisco North Quadrangle, California, by Julius Schlocker 1 map.

TEI-786: Test holes drilled in support of ground-water investigations, project Gnome, Eddy County, New Mexico, Basic data report, by James B. Cooper.

TEI-803: Ground water test Well "D", Nevada Test Site, Nye County, Nevada, by William Thordarson, Murray S. Garber, and George E. Walker.

TEI-807: Interbasin movement of ground water at the Nevada Test Site by Isaac J. Winograd.

BOOKS:

Glaciers by Robert P. Sharp. University of Oregon Press, Eugene, Oregon, 1960. 78 pages, 23 figs., 15 pls. \$ 1.25

Structural Methods for the Exploration Geologists, by Peter C. Badgley. Harper & Brothers, New York, 1959. \$ 7.50

Nine Glacier Maps, Northwestern North America American Geographical Society Special Publications 34, American Geographical Society, New York, 22 tex pages, nine pls., 14 figs. 1960 . . . \$ 3.00

Exploring Glaciers with a Camera, by A. E. Harrison. Sierra Club, San Francisco, Calif., 1960. 71 pages, 62 figs. \$ 1.95

Studies in Paleobotany, by Henry N. Andres, Jr. (with a chapter on palynology by Charles J. Felix). Wiley, New York, 1961. 487 pages. Illus. \$11.75

OIL AND GAS JOURNAL, vol. 60, No. 13, March 26, 1962

Circumpacific exploration (Selected abstracts for AAPG Convention, San Francisco)

Alaskan push awaits discovery of a new oil field, by John C. McCaslin.

California's oil giants--are there no more? by Frank J. Gardner

Uinta basin may prove a million-acre reservoir by Dorsey Hager & Debenneville K. Selley, Jr

Australia gets its foot in the door, by Peter B. Bike

Offshore is California's best bet, by Carl J. Lawrence

Sacramento Valley booms ahead by E. F. Reid, R. A. Teitsworth, and R. H. Vaughan

Geophysical offshore work in Washington and Oregon by Peter B. Bike

Pacific Northwest headed for active year by R. J. Deacon

One field, One giant--The story of Swanson River by L. J. Parkinson

Philippine oil search involves 30 companies and 20 million acres by Albert J. Froelich

What the biggest offshore sale means.

OIL AND GAS JOURNAL, Vol. 60, No. 14, April 12, 1962

Three pipelines span railroad on unusual bridge in Arizona

Diamond bits help reduce South Louisiana drilling costs by J. N. Pederson and Dan Grady

Argentine farmout pays off for Cabeen

Geologists told of manpower shortage (address by K. H. Crandall)

Zavala County: Most active drilling area in southwest Texas by Neil Williams

OIL AND GAS JOURNAL, Vol 60 No 15, April 9, 1962

Annual natural-gas, natural-gas-pipeline section

Forty new holes slated in search for Australian oil

Explorers find year-round Canada action feasible by R. H. Carlyle and R. J. Copeland

OIL AND GAS JOURNAL, vol 60, no 16, April 16, 1962

Unwanted gas strike widens Alaskan outlook by Frank J. Gardner

Pre-Pennsylvanian beds yield lion's share of oil in Lisbon area by John M. Parker

Local station automation on a gas pipeline

Automation for workover and well-service rigs by Frank M. Pool and R. W. Gerlich

New plastic checks sand production by H. H. Spain

OIL AND GAS JOURNAL, vol 60, no 17, April 23, 1962

Good place to look for oil: Southwest Utah, Northwest Arizona, by Glenn W. Sandberg and Thomas R. Lyons

Brighter hope now held for Turkish potential by Frank J. Gardner

New process promises low-cost hydrogen by J. B. Pohlenz and L. O. Stine.

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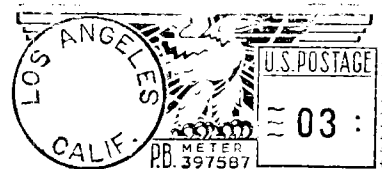
Volume 16

Number 5

Richard L. Hester
Pauley Petroleum, Inc.
10000 Santa Monica Boulevard
Los Angeles 25, Calif.

DA

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PACIFIC PETROLEUM GEOLOGIST

NEWS LETTER OF THE PACIFIC SECTION AMERICAN ASSOCIATION OF PETROLEUM GEOLOGISTS

Volume 16

June, 1962

Number 6

ASSOCIATION ACTIVITIES



IN MEMORIAM

Donald Grant Herring, Junior, Senior Geologist for Texaco in Los Angeles, died April 3, 1962 while undergoing surgery at the Good Samaritan Hospital, Los Angeles. Don was born January 12, 1918, on Cleveland Lane, Princeton, New Jersey, about half a block from Grover Cleveland's house and next door to the home Woodrow Wilson occupied while Governor of New Jersey.

Those who knew Don best, realized that his youth and academic career were greatly influenced by the tremendous love and respect he held for his father.

Don Grant Herring, Junior's first year of school, 1924, was spent at Miss Fines', a private school in Princeton. Boasting a student body with an exceptionally high I.Q., Miss Fines' Private School gave Don, Jr., an excellent start toward his ultimate scholastic excellence. In 1925, Don's father, his mother, born Jessie Woodward Markham, Don, two elder sisters, Jean and Patricia, and a younger sister, Josephine, now deceased, went to live in St. Jean-de-Luz, France. There Don attended a French Day School for six months and in 1926 the family moved to Burnham-On-Sea, Somerset, England. Here Don entered his third school, Naish House, which was a boarding school for boys, and continued in attendance 'till 1928, when he was 10 years old.

Prior to his admission to Lawrenceville where his father had gone to school, Don spent two years in Princeton Country Day School. While in Lawrenceville in December, 1930, Don contracted rheumatic fever. The damage done at this time by this disease was ultimately to end his life, but in spite of the extensive damage to his heart he went on to excel in football and the discus.

In Lawrenceville Don began to show the athletic prowess that would ultimately win him fame on the football field of Princeton and lead to records in the discus. Don was Head Boy of his Form one year, but subsequently lost out to a good friend who later also went to Princeton and became an All American football player. This man is Bob Goheen who is currently President of Princeton University. In his last two years at Lawrenceville Don made the Varsity Eleven at tackle. He was growing like a weed, was over 6 feet, 4 inches tall and weighed about 212 pounds. He was a champion at the discus and Captain of the Track Team. In his final spring season he, with two other very big New Jersey schoolboys, took turns on three successive Saturday track meets at breaking the world's scholastic record for the discus. Don got his Lawrenceville diploma in 1936, with Honors, and was admitted to Princeton with grades that the Dean of Admissions hopes for and seldom finds; although Don was admitted to Princeton in 1936, Don's father decided to have Don wait a year before entering because he was still growing fast and was only 18 years old.

Don decided he wanted to study Geology when he was only halfway through Lawrenceville. He found that the Princeton University Geology Department ran a summer camp at Red Lodge, Montana and that a few schoolboys were invited to come along, as well as all Ph.D. candidates and serious-minded undergraduates. While in Lawrenceville he spent the first two of six summers, working with Ph.D. candidates, learning to use the theodolite and the plane table. Later, while enrolled in Princeton as an undergraduate he spent the other four summers at the same camp. Don's six summer vacations developed in him an undying affection for the high-mountain country of Wyoming and Montana.

Don entered Princeton and in the spring of his freshman year (1938), competing for the Princeton Freshmen against his old friendly rival, The Hill School, he broke the Princeton discus record, thereby winning a Varsity P, the only way a freshman could do so. That fall, his sophomore year, he played almost every minute of every game, team-in with Captain Bob Tierney, to make a devastating pair of offensive tackles.

Don Herring was injured in the opening minutes of the third football game of his junior season (1939), against Brown. The program for that day's game listed him at 250 pounds. Actually he stripped at 278, stood 6 feet, 6 inches tall, with a chest of 52 inches unexpanded and a 34 inch waist. He had just been timed by AAU timers at 10.6 seconds running the hundred yard dash. All those magazines that pick All American prospects prior to the football season were unanimous in choosing him as a two time All American.

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| San Francisco | David Pfeiffer |
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| Membership Secretary | Pat Metcalf |

Next Deadline June 25, 1962

His injury to his leg eventually resulted in amputation. This, of course, terminated his athletic career as well as his R.O.T.C. The accident, plus the extraordinary newspaper notoriety that it brought, occasioned a deluge of mail. Over four thousand letters came, many from foreign countries, offering encouragement and advice from sympathetic people. The Notre Dame team had a special Mass said for Don and the President of Notre Dame wrote a letter to him.

The Amos Alonzo Stagg Award for "outstanding service in the advancement of the best interests of football", given by the American Football Coaches Association, was presented to Don in 1939. This was the first presentation of this award for outstanding contributions to football. Don richly deserved to be the first recipient of this award because of the example he set in good-sportsmanship and personal bravery in overcoming the handicap of leg amputation.

At graduation, Magna Cum Laude, from Princeton in 1941, Don received the highest rank given by the Geology Department for eight years past. He missed Summa Cum Laude by one-tenth of a point, and was the first choice of the Texas Company among all the young geologists graduating all over the United States.

Don Herring, Jr., was first employed by The Texas Company on June 30, 1941, and was assigned to the La Fayette, Louisiana, division where he worked until January 1, 1943. Throughout 1943 and 1944 he worked as a geologist in Shreveport, Louisiana and then Jackson, Mississippi. In November, 1944 he was transferred to Tallahassee, Florida as a geologist where he worked until March, 1946. At that time he was transferred back to Jackson, Mississippi where in September, 1947 he was promoted to District Geologist.

On October 30, 1948, Don married Lois Schultz whom he first met in 1944.

In August, 1950, Don was transferred to the Pacific Coast Division of Texaco with headquarters in Los Angeles. In 1953 he was promoted to Senior Geologist and had a large variety of assignments. He was sent to Libya in September, 1958 where he was in charge of accumulation of data to establish the subsurface section for Texaco. He returned in March of 1959 to resume his duties in Los Angeles. He was Supervisor of Texaco's Alaska Exploration Program. He continued in staff work specializing in Alaskan geology until the time of his death.

Don published an article in the California Division of Mines Bulletin 170 on the "Geology of the Honor Rancho Oil Field of Los Angeles County"

Don became a member of the American Association of Petroleum Geologists in 1943; he was a fellow of the Geological Society of America and a Member of the Exchange Club of Altadena. He served as President of the Princeton Club on the West Coast in 1952. Don was never too busy to sit down with these young men and draw upon his experiences to properly advise them in a prospective course of study or in their athletic career. Don dearly loved the good-fellowship of Geologic barbecues and field trips and when the singing started in the evenings he could always be depended upon to lend his voice.

In letters left to his wife and two children, Grant Herring, age 12 and Peggy Herring, age 9, Don requested cremation with the ashes to be kept in the cemetery at Hunt's House near his childhood home in Princeton and Princeton University which played such an important part in his father's life as well as his own.

There are few who knew him who do not feel a great loss with his passing. He gave something good to all who knew him, whether they were associated with him in his professional life, studied with him in school or played with him on an athletic field. His legions of friends and admirers share this feeling of loss with his family, and pass to them their deepest sympathies.

**CONTRIBUTORS INVITED TO SUBMIT PAPERS
FOR TECHNICAL PROGRAM AAPG,
NATIONAL CONVENTION, HOUSTON, 1963**

The Technical Program Committee, with Mr. H. S. McQueen of Houston as Chairman, continues to consider papers submitted for the National Meeting to be held in Houston, March 25-28, 1963, for which the theme selected is "Peep at the Deep" -- Deeper Geological and Geophysical Prospecting. It is hoped that potential contributors in the area of the Pacific Section will find an early opportunity to submit to the Committee for their consideration papers that seem consistent with the theme, or other papers that would be appropriately heard by the audience of a National meeting. The local member of the Technical Program Committee, Richard E. Faggioli, Humble Oil & Refining Company, 612 South Flower Street, Los Angeles 17, California, will be pleased to receive and promptly process any communications in this connection.

LOS ANGELES LUNCHEON MEETING

Dr. Frank Press of the California Institute of Technology Seismology Lab and a member of the President's science advisory committee discussed "The Problem of Atomic Bomb Explosion Detection, as Distinguished from Earthquakes Originating from Natural Causes" at a joint S.E.G. - A.A.P.G. Luncheon meeting, Friday, May 18 at Rodger Young Auditorium.

As a first step toward disarmament there is needed an adequate worldwide inspection system especially with regard to a nuclear test ban. United Nations scientists met in Geneva in 1958 to decide if there was adequate scientific knowledge which could detect clandestine nuclear tests. Although atmospheric testing can easily be detected, it was decided that there was a need for at least 180 control posts thru out the world which could detect a significant number of underground explosions in the 10 kiloton and greater range.

Even though shocks from large underground nuclear explosions could be detected by the seismograph, present data is inadequate to distinguish these disturbances from natural earthquakes. Suspected explosions would have to be investigated by teams in the field, and products of fission found to prove that the seismic reactions were nuclear. The U. S. felt that at least 20 inspections a year were needed. At that time the Russians agreed on no more than 2 or 3 but now they reject inspections altogether and contend that science now has advanced so far that any nuclear explosions can be detected.

The big problem for the seismologist now is collecting sufficient data from underground nuclear tests so that seismic waves from these explosions can be compared to wave characteristics of natural earthquakes. Research so far has led to the more detailed study of differences in shear wave energy levels, earthquake spectra, improving first motion studies and eliminating surficial noise.

Only after the natural earthquake can be clearly distinguished from the nuclear explosion by seismic means alone will the need for inspection teams be lessened.

INFORMAL LUNCHEONS

Many of the local groups have informal luncheons to which out-of-town visitors are always welcome.

The Santa Barbara geologists meet every Tuesday noon at the Gourmet Restaurant on State Street.

The Ventura group can be found every Thursday noon at the Swedish Kitchen on 101 highway in Ventura.

The Long Beach area oil group meets only the first Wednesday of each month. The current meeting place is the Elk's Club, but this may be temporary. Bruce Barron mails out notices of this meeting so anyone interested may contact him.

LOS ANGELES GEOLOGICAL FORUM MEETING

On May 21, Thomas Baldwin, Humble Oil and Refining Company, gave his fine talk, "California Offshore Geology and Exploration."

Abstract:

During the years 1948 to 1961 the oil industry spent more than \$150,000,000 exploring the submerged oil potential of offshore California. Seven oil or gas accumulations were discovered, but none appears to be of sufficient size to yield a significant profit to the operator. Prior to 1948 four giant California offshore oil fields (Elwood, Rincon, Wilmington, and Huntington Beach) had been developed with total estimated ultimate reserves exceeding 1,500,000,000 barrels. Published reports had outlined unexplored offshore basins with vast volumes of sediments. Producing fields onshore but close to the ocean are estimated to yield ultimate recoveries ranging from 150,000 to 550,000 barrels per acre.

Hypothetical offshore extensions of these producing trends led to enthusiastic multi-million-barrel estimates of the offshore potential. In 1953 the "Tide and Submerged Land Act" triggered a hectic exploration campaign. Sophisticated, costly tools were developed. Estimates indicate that 40,000 miles of seismic lines were shot. Several hundred coreholes were drilled. Bonus bids at State offshore sales reached new highs in 1958 when approximately \$55,000,000 was paid for five parcels of land at prices ranging up to \$6,175 per acre. Drilling during the following year resulted in four discoveries. From the oil finders' view, 1959 was a very successful year in California exploration history but from the economic viewpoint the results do not appear impressive.

Many major companies continue the offshore campaign with improved methods and tools, yet the California offshore potential remains largely unexplored. Economic development of this oil to serve our companies and the exploding West Coast population requires reassessment of exploration methods, more advancements in technology, less expensive drilling and completion techniques, a better understanding of offshore economics, and more realistic appraisals of individual prospects.

John Mero, Department of Mineral Technology, University of California, followed with an account of the "Economic Potential of the Nonpetroliferous Mineral Deposits of the California Offshore Area." Mr. Mero's abstract will appear in the July issue.

COAST GEOLOGICAL SOCIETY

The May 8th meeting of the Coast Geological Society featured Robert N. Hacker, Lloyd Corporation, Ltd., speaking on "Geology of the Oxnard Oil Field". This well presented talk included slides and explained the three-dimensional model showing the diverse faulting patterns of the Oxnard Field. An abstract of the lecture was given in the March issue of the P.P.G. newsletter. Bob Snow of Schlumberger also talked on the development of the wireline formation tester.

CHANGE OF ADDRESS

ADDICOTT, WARREN O.
345 Middlefield Rd.
Menlo Park, Calif.

BARGER, RALPH M.
1008 Eunice Court
Woodland, Calif.

BARRICK, MARY J.
26703 Shadow Wood Dr.
Palos Verdes, Calif.

BORETA, John
49 Rheem Blvd.
Orinda, Calif.

CHUBER, STEWART
3203 Apperson Dr.
Midland, Texas

CLASSEN, WILLARD J. Jr.
Standard Oil Co. of Calif.
231 N. Dos Caminos
Ventura, Calif.

DANEHY, EDWARD A.
1258 Manzano
Sunnyvale, Calif.

DAVIS, DONALD M.
315 Linwood
Apt. D
Monrovia, Calif.

DAY, PAUL S.
Gulf Oil Corp.
P.O. Box 2028
Salem, Oregon

ENGSTROM, DAVID B.
P.O. Box 1309
Oxnard, Calif.

HAMNER, ED J.
5104 Navarro Lane
Apt. D
Houston 27, Texas

HANEGAN, GUY L.
808 W. Avenue J-14
Lancaster, Calif.

HARRIS, PAUL B.
2 Fries Court
Houston, Texas

HORTON, ROBERT E.
500 Saratoga Bldg.
New Orleans, La.

HUGHS, WILLIAM J.
Texaco, Inc., Prod.
M. & S. Bldg.
424 - 5th Avenue
Anchorage, Alaska

JOHNSON, BILL J.
Humble Oil & Refining
612 S. Flower St.
Los Angeles 17, Calif.

JORDAN, LEE KNIGHT
1100 Real Road
Bakersfield, Calif.

LEDINGHAM, GLEN W.
Nigerian Gulf Oil Co.
Private Mail Bag 2469
Lagos, Nigeria
(Air Mail)

LLEWELLYN, J. T. LCDR
137 Lombardy Lane
Orinda, Calif.

MATJASIC, WALLACE L.
Route 1, Box 197-X
Bakersfield, Calif.

MILEY, R.A.
1004 June Street
Santa Paula, Calif.

MORRISON, ROBERT R.
Richfield Oil Corp.
P.O. Box 147
Bakersfield, Calif.

PHILLIPS, ROSS M.
Suite 10, Cameo Bldg.
3500 E. Coast Hiway
Corona del Mar, Calif.

RAEL, JOSE I.
501 West 9th
Amarillo, Texas

RITZIUS, D. E.
P.O. Box "N"
Taft, Calif.

SHUFORD, MARLENE
(Marlene Hyde)
1900 Crescent Ave.
Anaheim, Calif.

SISK, THOMAS H.
218 Bernard Street
Bakersfield, Calif.

SORGE, BART W.
4664 Encino Ave.
Encino, Calif.

SPEYER, D. L.
106 S. Harrington Dr.
Fullerton, Calif.

WEDDLE, HERMAN W.
1733 Camino Sierra
Bakersfield, Calif.

WEST, JOHN W.
119 - Real Road
Bakersfield, Calif.

Listed below are changes of address for
those members not listed in the latest directory.

ARNDT, JOE
Richfield Oil Corporation
5900 Cherry Avenue
Long Beach 5, Calif.

COX, JAMES R.
1103 Eye Street
Bakersfield, Calif.

DOBRIN, B. MILTON
United Geophysical Corp.
2650 East Foothill Blvd.
Pasadena, Calif.

LEVERETT, BENJAMIN D.
1731 28th Street
Bakersfield, Calif.

MOLLOY, MARTIN W.
4442 La Granada
La Canada, Calif.

NEELY, JOSEPH
612 S. Flower Street
Los Angeles 54, Calif.

NORMAN, CHARLES A.
2836 West 8th Street
Los Angeles 5, Calif.

SANDERS, RICHARD J.
1985 Jellison Street
Denver 5, Colorado

LETTERS TO THE EDITOR

The P.P.G. staff is starting this new feature. Letters may be on any subject, but for publication they must not be too lengthy and must be signed. The following letter from the editor's files is an example of proper length.

Dear Sir,

I had wrote to you, in Regards to Apromxely 10,000 Acres of Oil & Gas Leases I have under Lease on the Casper 88 Spacil Lease forms.

You will Probly Know the Two Structures I will Refure to below in this letter.

This is My Propishion. I am looking for Some One to Drill and Oil & Gas Well for one Half of the Acrage.

These Structures is as fine a looking Two Oil & Gas Structures as lays out of Dores. They Resemble the Signal Hill Structure of Long Beach, only sum larger in size. I would Drill this My-Self if I had the Monney.

I would Appresheate it a lott if you would Run down and take a Peek at this.

Please Excuse this little old Narrow Hotel Paper, as this is all I have got to-Night.

Very Truly Yours

CALIFORNIA DIVISION OF MINES NOTICE

Starting May 1, 1962, the California Division of Mines Office, located at 107 South Broadway, Los Angeles, will handle over the counter sales only.

All orders for publications and maps desired by mail should be directed to the San Francisco office.

A.A.P.G. CONVENTION PROGRAMS

The Pacific Section will have available additional copies of the program from the 1962 national convention. Anyone interested may contact the secretary, Dick Stewart.

DELINQUENT DUES

This will be the last copy of the P.P.G. sent to readers who are delinquent in their Pacific Section A.A.P.G. dues.

PERSONAL ITEMS

The financial wizard of Signal Oil and Gas, Doug Traxler, switched from stock trading to commodities shortly before the recent stock market crash. He is now renting jumping space on the top floor of the Signal building to distraught stock traders.

Keith Kallio was recently elected a vice-president of Pacific Log Exchange.

The comment that phosphatic nodules are accumulating in certain offshore areas faster than they can be recovered by present mining techniques caused Esquire Jean B. Senteur de Boue to leave a recent AAPG Forum with apprehension and misgivings. De Boue later made a clarifying statement at a nearby bar to the effect that if the depletion allowance is difficult for the Mega-thinkers to understand---what would they do with an ACCRETION ALLOWANCE?

Frank Smith, Standard Oil Company, Anchorage Exploration's acquisition from Ventura, is currently undergoing treatment for trauma derived from his initial inspection of the Anchorage housing situation. Standard is doing its part to ease the situation by keeping him out of the city as much as possible.

Associates of Gerry Ganopole in Anchorage have indicated that the appearance of his name as "Ganopok" in last month's PPG was more intentional than typographical. Their opinion has been strengthened by the recent revelation of his plans to open a branch office on the Moquawkie Reservation, and his increased interest in salmon prices, assumedly with an eye to the conversion of professional fee payments into something more readily negotiable.

Ed East, lately of Denver, has joined Union Oil's exploration staff in Anchorage. His co-workers are wondering whether his continuing smile indicates that he knows something they don't, or is a result of being on the expense account.

Eric C. Jacobsen, formerly of Standard Oil Company and more recently a Consulting Geologist has joined Bob Kassenbrock's Geologic Engineering Service.

Gene Borax, Union, has been doing field work in Burma for the last five months. He reports that a military escort is a necessary part of any field party in that area.

Bill Milam, Schlumberger - Ventura, has been transferred to Long Beach.

Siegfried Hamann, Shell - Ventura, is getting brain washed at the "Little Hague" in Houston.

Lauren Wright, formerly with the Division of Mines in Los Angeles, is now head of the Department of Geology at Pennsylvania State University. He was married to Myrtle Davies on May 4 at the home of Dick Jahns.

John Hazzard, Union - Los Angeles, is vacationing for two weeks in Hawaii.

What Richfield Chief Geologist was locked out of his hotel room in Dawson while clad only in his long underwear? What Richfield Geologist clad in his short underwear came to the rescue, and what do the belles of the Yukon think of this?

The Richfield geologists gathered in the Tejon area for a cool picnic. The liquid stimulants weren't enough to warm them. The gathering concluded with a field trip, led by Bill Poyner, through producing areas of Lockwood Valley and Frazier Mountain.

If you haven't paid your 1962 Pacific Section dues, this is your last issue.

Frank Smith, Standard - Ventura, is soon to join the northward trek of geologists to Alaska. His new home base will be Anchorage.

One of the newly-found dangers of overseas employment should now be evident to all die-hard bachelors. "Former stalwart" Jerry Williams, Oasis-Libya, has announced his engagement to Pat Kennedy of Ventura.

John Wilson, Standard - LaHabra, is reported to be quitting the oil patch and will be found closer to his home in Ojai.

Alfonso M. Escalante, Union Oil Company, has been transferred to the Santa Fe Springs office. A native of Costa Rica, Alfonso has been a geologist for Union in Costa Rica, Argentina, Guatemala and most recently in the Head Office foreign group.

CALENDAR

June 7, 1962: Thursday noon, Rodger Young Auditorium, R. D. O'camb, AAPG Distinguished Lecturer, will speak on "Growth Faults in Southern Louisiana." This will be the last luncheon meeting until September.

June 12, 1962: Tuesday evening, Santa Paula
Room of Ventura Womens' Center, 3451 Foothill
Road Ventura - Social Hour: 6:30 PM
Time: 7:30 PM Roast beef dinner
Program: Coast Geological Society will present
H. Allen "Pat" Kelly, consultant,
speaking on "Geology of the Philippines".

June 18, 1962: Monday evening, 7:00 PM,
Forum Meeting, Mobil Auditorium, 612 South Flower,
Los Angeles. Two speakers: Anthony Morris,
Pauley Petroleum, on "History and Development of
Santa Ana Oil Field, Tabasco, Mexico" and Phillip
Kistler on "Geology and Oil Prospects of Spain."
In addition a movie will be shown on oil explora-
tion in Pakistan. This will be the last Forum
meeting until September.

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Water Supply Paper 1619-U: Method of measuring soil moisture in the field, by A. I. Johnson.....\$.15
 Water Supply Paper 1719: Surface water supply of Hawaii 1959-60.....\$.75
 Water Supply Paper 1539-S: Water in the Coconino Sandstone for the Snowflake-Hay Hollow area, Navajo County, Arizona, by Phillip W. Johnson.....\$1.00
 Water Supply Paper 1580-C: Effect of reservoir storage on peak flow, by William D. Mitchell.....\$.15
 Annual report of the Director, U.S.G.S. (excerpt from Secretary's report) 1961.....free

OPEN FILE REPORT (Inspection only)

A new occurrence of beryllium minerals on the Seward Peninsula, Alaska, by C. L. Sainsbury. (Paper presented at the AIME meeting in Anchorage, Alaska, April 26-28, 1962)

U. S. BUREAU OF MINES, (Distribution Section, 4800 Forbes Avenue, Pittsburgh 13, Penn.)

Information Circular 8033: Mining and furnacing mercury ore at the New Idria Mine, San Benito County, Calif., by R. K. Linn and W. F. Dietrich. 36 pp., 14 figs.

Information Circular 8045: Trends in Alaska's mineral industry, by Alvin Kaufman. 43 pp., 6 figs.

Information Circular 8060: Vanadium. A materials survey, by Phillip M. Busch.

U. S. BUREAU OF MINES, (Order from the Government Printing Office, Washington, D. C.)

Report of Investigations 5907: Field test for germanium, by W. M. Dressel.....\$.10

Information Circular 8048: Bibliography of zirconium: Supplement to Information Circular 7771 and 7830, by Eleanor Abshire. 99 pp.\$.50

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Volume 16

Number 6

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U. S. BUREAU OF MINES, OPEN FILE REPORTS
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Preliminary studies on photoelastic stress analysis of rocks, by H. D. Hess and Harold W. Lynde, Jr.

Copper deposits in the Silver Creek mining district, Snohomish County, Washington, by Elwin A. Magill and J. C. Schlager.

Reconnaissance sampling of beach and river-mouth deposits, Norton Bay and Kotzebue Sound, Seward Peninsula, Alaska, by Robert V. Berryhill.

OIL AND GAS JOURNAL, Vol. 60, No. 20, May 14, 1962

USGS girds for monumental task--an atlas for all, by John C. McCaslin.

Log-derived data factors aid oil hunting, by Bob Jones.

Annual underground storage survey.

OIL AND GAS JOURNAL, Vol. 60, No. 21, May 21, 1962

How re-evaluating old exploration data found a new pool, by L. F. Ivanhoe.

Arkoma basin is no stand-pat game, by Peter B. Bike.

BOOKS

Francois Matthes and the marks of time. Yosemite and the High Sierra. Edited by Fritiof Fryxell. Sierra Club, San Francisco (Gillick Printing Company) 1962.....\$7.50

Petroleum exploration handbook, by Graham B. Moody, New York, McGraw-Hill, 1961. 835 p., figs. tables, 143 refs.

International Symposium on mining research, Vols. 1 and 2. George B. Clark, Ed. Pergamon, New York, 1962. 871 pp. illus.....\$30.00 per set.

REC'D JUN 14 1962



Richard L. Hester
 Pauley Petroleum, Inc.
 10000 Santa Monica Boulevard
 Los Angeles 25, Calif.

DA

PACIFIC PETROLEUM GEOLOGIST

NEWS LETTER OF THE PACIFIC SECTION AMERICAN ASSOCIATION OF PETROLEUM GEOLOGISTS

Volume 16

July, 1962

Number 7

ASSOCIATION ACTIVITIES



Bob Lindblom, winner of Frank Yule Golf Trophy.

A.A.P.G. SPRING PICNIC

On June 1, 312 hungry, and thirsty members converged on Sunset Farms for the annual picnic. The attendance was a sharp increase from last years low of 238. The consumption of beer and steaks proved that a little exercise will stimulate the appetite. The volume of beer served was nearly double the amount anticipated by the concession operator. Also twenty individuals ate two meals apiece, and the A.A.P.G. treasurer would like to collect.

Earlier in the day ninety-four dyed-in-the wool geologists viewed the complexities of the Aliso Canyon, Horse Meadows, Mission and Cascade Fields. A like number (ninety-four) of golfing geologists were at the same time playing the circuit at the Balboa Golf Course. Bob Lindblom, Standard, won the Frank Yule trophy with a low gross of 70. Jim Taylor, Shell, and Bob Ortalda, Standard, tied for low net with 70.

Bill Castle and his committee are due a vote of thanks for doing a fine job. The committee consisted of: Jim Saunders - Tidewater, Sam Tate - Humble, Pete Smith - Humble, Hank Charles - Humble, Mickey McNight - Johnston Testers, Spencer Fine - Richfield, Pete Hall - Richfield, Bill Poyner - Richfield, John Bullington - Tidewater, Homer Steiny - Consultant, Kit Carson - Consultant.



Field trip at Aliso Canyon field.

The following list of companies aided the Picnic Committee with their fine contributions:

Calif. Production Service
Cullen Information Service
Economy Blueprint
Exploration Logging
Formation Logging
Ford Alexander
Geological Engineering
Geological Exploration
Geolograph
Global Marine
Goudkoff and Hughes
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Hydro-Test Inc.
Johnston Testers
Lane Wells
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Munger
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Newhall Land & Farming
Newton Drilling
Pacific Log Exchange
Pacific Towboat and Salvage
Rapid Blueprint
Reese Sales Co.
Rocky Mountain Drilling
R & R Well Logging
Schlumberger
Security Engineering
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PACIFIC PETROLEUM GEOLOGIST

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NEXT DEADLINE JULY 27, 1962

COASTAL SOCIETY DINNER MEETING

Mr. H. A. "Pat" Kelly, consultant, spoke before the Coastal group in Ventura on June 12, 1962. Speaking on "Geology of the Philippines" he discussed regional geology and oil exploration activities in the many basin areas.

Abstract:

Recent discoveries in the Philippines, principally in the Cebu region, have been non-commercial. Structures found with oil shows to date may be described as too complex, or have had sands too "tight" to serve as good reservoirs. Many of the structures appear fairly simple on the surface, but when drilled to depth, faulting is encountered which reveals them to be quite different.

The Philippine Islands are geologically related to the Island of Borneo to the southwest. The dominant structural feature of the region is the Philippine Rift, which is a left lateral fault. Other minor faults parallel this major fault to considerable distances away, and complicate structural basins. Major basins are believed to have been formed beginning with the Oligocene. Folding and faulting have been described as predominately occurring during the Pleistocene. The best prospective reservoirs are believed to be formations of the Tertiary, although the Cretaceous has also been considered an objective in drilling.

Past exploration has utilized modern seismic techniques in some cases. It is advocated that more attention be given to determining sedimentation trends in order to locate better reservoir rocks. Future prospects will also improve if more structural control is acquired before drilling. Offshore areas are described as worthy of exploration effort and will then help fill in structural control in many areas.

SAN JOAQUIN GEOLOGICAL SOCIETY

At the evening meeting of the Society on May 8, in the El Tejon Hotel, Bakersfield, members were treated to an interesting talk by Frank Weagant, of Franco Western Oil Co., on the "Geology of the Grimes Gas Field."

Abstract:

The Grimes gas field was one of the first of a series of Cretaceous F-zone discoveries made in the Sacramento Valley after the discovery of the Arbuckle gas field. The field was discovered by the Cameron-Franco Western Armstrong No. 1 well in December of 1959.

ROCK UNITS

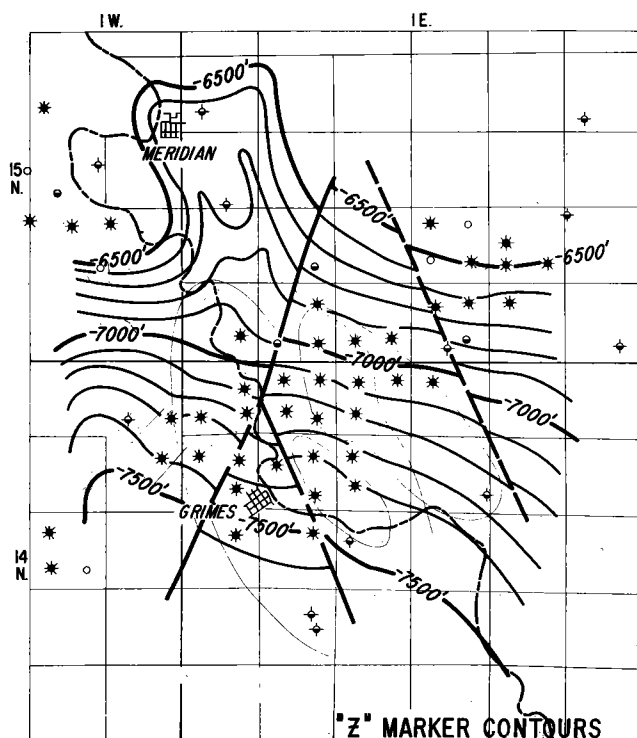
| Geologic Age | Formation | Thickness |
|---|---|------------|
| Pliocene to recent | Tehama | 1800-2000' |
| | Unconformity | |
| Eocene | Undifferentiated but includes Domingine equivalent. | 1000' |
| Eocene | Capay | 250' |
| | Unconformity | |
| Upper Cretaceous D-1 Zone | Starkey | 0- 200' |
| Upper Cretaceous D-2 Zone | Winters | 250- 300' |
| Upper Cretaceous E-Zone | Sacramento Shale | 200' |
| Upper Cretaceous E-Zone | Kione | 900-1000' |
| Upper Cretaceous F-Zone (F-1 and F-2 Zones) | Forbes | 3000-5500' |
| Upper Cretaceous G-Zone | Dobbins and Guinda | |
| Cretaceous | Basement | |

Geologic History

G-zone time: There was easterly transgression of G-zone seas with development of a basal conglomerate and sand. This transgression was followed by deposition of G-zone shales in a moderately deep water environment. Following deposition of the G-zone shales there was uplift and westerly tilt of the basin with probable withdrawal of the seas from the eastern part of the basin.

F-Zone time: Again there was easterly transgression of the seas. F-zone sediments were deposited on the G-zone shales by progressive easterly on-lap. The F-zone sediments were deposited in a broader and somewhat shallower environment than that accompanying the preceding G-zone sedimentation.

E-zone time: The E-zone began with the shallowing of the F-zone basin. The Kione formation sands are the near shore sands of this shallow water environment. The Sacramento shale was deposited after a brief transgressive-regressive episode following deposition of the Kione or alternatively after a sudden subsidence.



D-zone time: The Winters shales were deposited under gradually shallowing conditions following deposition of the Sacramento shale. The Starkey sands represent a further shallowing of the basin with near shore sands deposited by an oscillating shoreline.

Early Eocene time: The basin was uplifted, tilted southerly, and folded into a broad syncline with a north-south trending axis. Erosion then removed all Cretaceous and Paleocene sediments younger than those described above.

Eocene time: Erosion was followed by subsidence and deposition of the Capay, Domingene, and younger Eocene sediments.

Mio-Pliocene time: The Eocene was followed by a period of uplift and folding and then deposition of the non-marine sands and shales of the Pliocene Tehama formation.

F-zone Stratigraphy

An idea of the nature of F-zone sand environmental conditions can be gained by considering the geometry of individual sand lenses in the Grimes field.

Individual lenses vary greatly in thickness and areal extent but the general shape and orientation of all lenses is similar. Each of the sand bodies has a northwest-southeast orientation and the axis of greatest sand thickness trends roughly parallel with the depositional strike. These sands were probably developed by offshore currents of some sort, either by turbidity currents or longshore currents that winnowed and distributed the sands that were fed to the basin from the eastern highlands. Gas in the Grimes field has accumulated in these individual sand lenses. In some cases accumulation seems to be wholly controlled by sand configuration, but in other cases, faulting is one of the important trapping parameters.

Structure in the Grimes area

Basal Eocene structure: All the main structural elements of the general Grimes area, with the exception of the pre-Eocene fault pattern, show up on structure mapping of the lower Eocene, basal Capay horizon. The north-south-trending syncline that divides the Sacramento Valley gas basin into an eastern and a western flank is present between the West Grimes and Grimes gas fields. The south end of the intrusive-caused Colusa high is immediately north of the Grimes field. The Grimes area itself is a south-westerly-dipping homocline with a dip at the base of the Eocene of 120 ft/mile.

F-zone structure: The accompanying map shows the structure on an E-log marker within the producing portion of the F-zone. The faults shown can be recognized by stratigraphic offsets and pressure and production differences.

Reservoir and production information

There are 12 producing reservoirs in the main producing portion of the Grimes gas field. The down-dip limit of the best producing zone has not yet been found.

The Grimes field is divided into several producing blocks by the fault pattern.

Reservoir pressures in the Grimes area are higher than hydrostatic in general, although the highest reservoirs are essentially at hydrostatic.

In the Grimes area, 41 wells have been drilled, 4 of which are dry holes. Completion well costs vary between \$160,000 and \$210,000 and dry hole costs average about \$90,000 per well. The field has been on line since January 1, 1962. The calculated reserves per well for the Cameron-Franco Western area varies from about 3 1/2 million MCF to 18 million MCF.

AWARDS COMMITTEE

Arthur Huey, (Signal) has been appointed chairman of the Pacific Section awards committee. Russell Simonson, (Ohio), Harry Jamison, (Richfield), and Bill Edmund, (E. L. Doherty), will make up the balance of the group whose function will be to make nominations for the National A.A.P.G. Honorary Membership and the Sidney Powers Awards. Also candidates will be selected for the Pacific Section's recently established Life Membership award.

PACIFIC SECTION PUBLICATIONS

The following correlation sections are out of print:

2. Ventura Basin - East (1952)
3. Los Angeles Basin (1952)
4. Salinas Valley (1952)
5. Ventura Basin - West (1952)

Also the correlation sections #1 (Sacramento Valley-South) and #6 (Northern Sacramento Valley) are in short supply and soon will be out of print.

The Los Angeles and Ventura Basins Guidebook (1958) has been reduced in price to \$2.00 plus \$.50 mailing charge. This book is still available to students for one dollar.

Pacific Log Exchange handles the distribution of these publications.

LOS ANGELES FORUM

A large group filled the Mobil Auditorium on June 18, to hear some fine discussions of foreign geology. Anthony Morris, Pauley Petroleum, Inc., started the evening with "History and Development of the Santa Ana Oilfield, Tabasco, Mexico."

Abstract:

The Santa Ana Oil Field is located in the Gulf of Mexico, just offshore from the state of Tabasco, Mexico. It is some 1300 kilometers south of Houston, 3,000 southeast of Los Angeles, and 600 east of Mexico City.

The Santa Ana Field is in the deeper portion of the Salina basin, which is one of the numerous coastal sedimentary basins that border the Gulf of Mexico.

The Salina basin extends from Coatzacoalcos, more or less 100 kilometers east. It is separated from the Macuspana basin only by a slight thinning of the sediments over a gentle arch. The basin is characterized, as the name implies, by extensive salt-dome development. Only Tertiary rocks are considered of economic importance to date.

The strata of both the Salina and Macuspana basins thicken northward into the Gulf of Mexico, and present knowledge suggests a thickness in excess of 8,000 meters. The great bulk of oil production comes from Middle and Lower Miocene formations.

The Santa Ana field is 70 kilometers east of Coatzacoalcos and three kilometers seaward from the village of Santa Ana. The area was first defined by gravity meter in 1948. Incomplete knowledge of the basin was responsible for the inference that the Santa Ana area would have poor sand development. This idea was at least partially responsible for the hibernation of the prospect for the next ten years. In 1959, the offshore was reshot. All sources independently agreed on the general interpretation of a large, domal structure, centered approximately 5 kilometers offshore and 7 kilometers east of Santa Ana village. They also concurred in suggesting a large-scale fault, trending northeast, on the south side of the dome.

The first well was located at the crest of a bulge on the south side of the geophysical structure. It was drilled by a submersible barge, to a total depth of 3,003 meters. It was completed in June 1959, as a dual-zone producer, with initial production of 1550 B/D. In 1960, a 14-well platform was installed at the site of the discovery well. Core-hole drilling to establish future platform sites was undertaken by a floating drill vessel and by a jack-up tripod platform.

An unexpected storm caught the floating drill barge while anchoring and drove it aground, and the first storm of the 1961-62 season also damaged the jack-up barge. This made it clear that year-round drilling can be carried out only from multi-well platforms and that any kind of exploratory drilling equipment can operate safely only from the middle of April to the middle of September.

The core-hole work of 1960 outlined sufficient new productive area to set two additional platforms in 1961, and a 12-well extension was added to the original platform at the same time

the new platforms were installed. The complementary activity of constructing tank batteries, gathering lines, pipelines, separators and pump stations, was commenced in the fall of 1959 and is still in progress as production continues to increase.

Currently, 17,000 barrels per day of 31° oil is being shipped. Production is obtained from 55 zone completions in 25 wells. The deepest producing zone is at 2900 meters, the shallowest at 1050 meters, and the average productive sand thickness per well is 45 meters. Over 21 different zones have been discovered to date, nearly all of which are in the Middle or Lower Miocene. The oldest rocks penetrated are early Miocene in age, although Oligocene was identified in sheath material at the salt contact in two wells. Wherever possible, multiple-zone completions are made. Development is based on a 40-acre spacing program.

The attention moved from Mexico to Spain when Phillip Kistler, consultant, presented "Geology and Oil Prospects of Spain." Mr. Kistler's abstract will be in next month's issue of the P.P.G.

To conclude the evening, Tidewater's movie "Exploration in Pakistan" was shown. The efforts of the exploration teams in this remote region were very impressive.

LOS ANGELES LUNCHEON MEETING

"Growth Faults in Southern Louisiana" was the subject of a most interesting talk given by Mr. Raymond D. Ocamb, Distinguished Lecturer and President, Marshland Petroleum Corporation at the Rodger Young Auditorium, Thursday, June 7, 1962.

Abstract:

A detailed summary of the physical characteristics of over 1452 fault cuts representing 312 faults was given.

As a preface to the origin of South Louisiana faulting, a pre-Cenozoic history of the Gulf Coast was constructed. In this respect it is suggested that the basement rocks of the South Louisiana area were an extension of the continental area of North America and were not oceanic in origin. The area was positive through all of the Paleozoic and was not submerged by marine waters until after salt deposition. The first stages of geosynclinal development, the geology of the domeless area of central Louisiana, the Eocene fault trend and Oligocene domal trend were discussed.

Growth faults are defined as those faults which have a substantial increase in throw with depth and across which, from the upthrown to the downthrown block, there is great thickening of correlative section. Trend growth faults are regionally sustained growth faults. A theory of origin and development of these trend growth faults maintains that the faults originated as a result of folding and later developed their growth characteristics along an inner to middle shelf area (similar to our present continental shelf) in an environment of rapid, fairly shallow water deposition. Evidence for this concept was given in detail in which it was shown that growth faulting could have developed contemporaneously with sedimentation only in an environment where the sea floor was undergoing vigorous, nearly constant agitation by shallow water disturbing agents.

The economic implications of growth faulting with respect to the entrapment of gas and oil was given. Trend growth faults do not die out along their strike, but rather join with others in an unbroken, not en echelon, line. The downthrown beds of a growth fault having 800' or more of throw will invariably have an associated reversal in dip.

As these growth faults are regional in character and do not die out as do "anticlinal" faults along their strike, they may be projected with assurance along trend or between two known areas for additional oil and gas prospects.

MINERAL RESOURCES OF THE OCEAN OFF CALIFORNIA

John L. Mero

Abstract:

The ocean, as far as mineral resources is concerned, can be divided into five regions: 1) marine beaches; 2) the continental shelves; 3) seawater; 4) the deep sea floor; and, 5) the hard rock underlying soft sea-floor sediments. Studies have indicated that the mineral resources of these various regions are considerable and are relatively untouched. In recent studies, emphasis has been placed on the mineral resources of the deep ocean floor. Engineering calculations indicate that two of the materials found on the ocean floor are of immediate economic value, the phosphorite nodules and the manganese nodules.

Phosphorite nodules are found loose-lying at the surface of the sediments in certain environments of the near-shore areas of many continents and islands. Deposits in the Southern California area are estimated to contain about a billion tons of phosphorite. The U. S. Bureau of Land Management has established a system to allow leasing of these deposits and at least one company is currently laying plans to mine phosphorite from a lease it holds on about 30,000 acres of one of the deposits in the Southern California area. Engineering calculations indicate a mining and delivery cost of rock containing at least 32 percent P_2O_5 of about \$8 per ton at California points. The present cost of such rock at California points is about \$15 per ton.

Manganese nodules, generally found in all locations in the Pacific Ocean more than about 100 miles from the continental shore, contain economically significant amounts of manganese, nickel, cobalt, and copper as well as containing appreciable amounts of over 15 other industrially important metals. These nodules are found as loose-lying concretions at the surface of soft sea-floor sediments. Most commonly, the nodules are found in roughly spherical shapes averaging about two inches in diameter. Concentrations of these nodules average about 30,000 tons per square mile of ocean floor in the eastern Pacific. The amount of nodules on the Pacific Ocean floor has been estimated to be in excess of ten trillion tons. The nodules are indicated to be forming at a rate of about ten million tons annually with the amounts of manganese, nickel, cobalt, and other metals annually agglomerating in these nodules currently exceeding the annual rate of world consumption of these metals.

Engineering calculations indicate that many of the metals found in these nodules could be produced at from 50 to 75 percent of the present cost of producing these metals from land sources.

IN MEMORIAM

John M. Nisbet died at the age of 68 in his home in Upland, California after a two year illness. He was born in Illinois, but came to California as a boy in 1906. Following graduation from Stanford University in 1916 he was employed by Cities Service Oil Company. Numerous assignments gave him an active part in the early exploration of the Mid-Continent and Gulf Coast. In 1941 he became manager of the Geological and Land Departments of Cities Service, and a director of Empire Oil and Gas Company. In 1943 he was made a vice president and director of Cities Service. When John elected to retire in 1945 he returned to California and settled on a citrus ranch near Los Angeles. He was an early member of A.A.P.G. and maintained an active interest in geology as a consultant after retirement.

Survivors include his wife, Mary, a daughter, Mary and a son, John, Jr. John, Jr. is a geologist for Richfield Oil Corporation.

A.A.P.G. MATSON AWARD

Professor Eric A. Rudd, of the University of Adelaide, South Australia, has been selected as the 1962 recipient of The American Association of Petroleum Geologists' George C. Matson Award, made yearly in recognition of the best technical paper presented at the Association's annual meeting.

Ian Campbell, State Geologist of California and chairman of the 1962 Matson Award Committee, reported that Professor Rudd's paper "Sedimentary Basins and Exploration in Australia," was judged by the 20-man committee to be the most outstanding paper presented at the March 26-29 San Francisco meeting. Robert E. Rettger, president of A.A.P.G., will make the formal presentation of the award in Houston, Texas, March 26, 1963, at the 48th annual meeting of the Association, in joint session with the Society of Economic Paleontologists and Mineralogists.

Rudd has been a member of the Association since 1934, served on the 1961 Committee for Publication, and since 1959 has been an Associate Editor of the A.A.P.G. Bulletin. He will be the 6th recipient of the award, and is the first man from outside the United States whose name will be engraved on the cup.

FALL FIELD TRIP

Plans by the San Joaquin Geological Society for the joint Pacific Section AAPG-SEPM fall field trip to observe the San Andreas Fault in the vicinity of Carrizo Plains and Cholame Valley got off the ground over a sandwich and a beer at Luigi's in Bakersfield.

Under the direction of chairman Otto Hackel, the committees commenced formulating plans for the activities to begin with a Friday night dinner meeting October 19th with the field trip to follow on Saturday, October 20th. The timing is such that the trip will be conducted between the heat and the rain. In other words, shirt-sleeve weather with no precipitation to spoil your thirst. More to follow.

CHANGE OF ADDRESS

BEDFORD, JOHN W.
Texaco Inc.
424 - 5th Avenue
Anchorage, Alaska

NAGLE, HARRY E.
872 Via Ondulande
Ventura, Calif.

BRUER, WES
1831 Truxton Avenue
Bakersfield, Calif.

NAHAMA, RODNEY
Sunray Mid-Continent Oil Co.
930 Truxton Avenue
Bakersfield, Calif.

DUNGAN, ROGER M.
Continental Oil Co.
P.O. Box 1758
Bakersfield, Calif.

NISBET, JOHN M., Jr.
Richfield Oil Corp.
5900 Cherry Avenue
Long Beach 5, Calif.

ENGSTROM, DAVID B.
P.O. Box 1309
Oxnard, Calif.

NUNN, BERT P.
Strata-graphic Well Logging
P.O. Box 4520
Sacramento 25, Calif.

GANOPOLE, GERALD
4213 Westwood Circle
Anchorage, Alaska

PRICE, MAURICE C.
Shell Oil Co.
1008 West 6th St.
Los Angeles 54, Calif.

HARRIS, RICHARD C.
Hickok Road
East Corning
New York

RHODES, LELAND D., Jr.
4333 Rio Vista Avenue
Sacramento 21, Calif.

IVANHOE, L. F.
422 S. Pasadena Ave.
Pasadena, Calif.

SANDERS, RICHARD J.
4766 Lorraine Drive
San Diego, Calif.

JOHNSON, BILL J.
Humble Oil & Ref. Co.
612 So. Flower St.
Los Angeles 17, Calif.

SELTZER, ROBERT A.
Standard Oil Company
P.O. Box 250
Seattle, Washington

JOHNSON, JOSEPH A.
2201 Autumn Street
Bakersfield, Calif.

TAYLOR, EDWARD J.
1537 Stewart Road
Sacramento 25, Calif.

LaPERLE, GEORGE
P.O. Box 749
Bakersfield, Calif.

TOMKO, HENRY J.
640 Jilliene Way
Hayward, Calif.

MARRALL, GERALD E.
Union Oil of Spain
Apartado 445
Las Palmas de Gran Canaria
Spain

WALES, DARREN W.
Room 623 M.L.C. Bldg.
North Sydney, N.S.W.
Australia

PERSONAL ITEMS

Joe Kennedy, formerly in Bakersfield, has left Superior Oil's employ in Libya, to return to school in the United States.

Jerry Paulson is a new member of Standard's Oildale office. He received his M.S. degree from Minnesota. Welcome to the San Joaquin Valley, Jerry.

Kip Herring, graduate of San Diego State College, has been hired by Tidewater in Bakersfield.

John Gates, geologist-geophysicist for Gulf (Bakersfield) is in Alaska for the summer, doing geophysical work. He was solidly warned about mosquito swarms by cohorts Mick Lachenbruch and Bob Johnston but, at last contact, reports 65-degree mild weather and few bites.

Continental's Bakersfield office has received W. A. (Bill) Brandorff, a transfer from Casper.

Rod Nahama, former gay bachelor and money-making stock manipulator for Sunray (Bakersfield), has suffered crushing defeat in both fields. Financial pages explain the one, and Rods' new bride Lilly (nee Aboudara) accounts for the other. Rod and Lilly surprised all with a flight to Las Vegas, where they were married on June 15. Now begins the apartment hunting.

Bob Hindle (formerly with Sunray in Santa Maria, Los Angeles, and Newhall, and now District Geologist in Casper) was transferred on July 1 to Denver, as District Geologist.

Warren Stoddard (Richfield-Bakersfield) spent the first week of his vacation spelunking Crystal Cave at Sequoia and is now making a grain count of the beach sands at San Diego.

Rex Young, who has seen oil patch duty with Texaco, has been employed as a geologist by Richfields' Bakersfield office.

John Levorsen arrived at Richfields' Afton Community wildcat to do well sitting duty, just in time for a 24-hour rig repair job. An avid butterfly collector, no questions need be asked as to how John spent his free day.

Sixty-five Standard Oilers, Oildale, took part in the Exploration and Land Departments' annual spring stag barbecue at Kern River Golf Picnic grounds, on May 26. A golf tourney was held in the A.M., and flight winners were Bob Ortalda, Keith Berry, Tom Daly and Ted Rabey. Bob Lindblom had low gross score of 75. John Tucker made a sensational 75-yard hole-on-second-shot on No. 17 for a deuce. The East won the softball game for the 9th straight year, 7 to 4. Defensive play by Harold Deane and Milt Zeni, and home run hitting by Ned Snodgrass (Standard's answer to Frank Howard), assured the East's victory. Horseshoe champs were Greg Stanbro ("I'm just a country boy"), Earl Rogers and Ray Hicks. The weather was too cold and windy to determine a beer-drinking champ. Chairmen of the event were Gordon Hardey, Dale Kline, Milt Zeni and Ed Laskowski.

Pete MacMurrough has been transferred to Standard's Oildale office, from Seattle, Washington.

CALENDAR

The next Coast Society meeting will be in September, and will be announced later. Summer activity will include a barbeque at the Lagomarsino Ranch in Ojai. This will be held July 28th and reservations must be made by July 23rd through Ed Dryden, P.O. Box 3317, Ventura.

Al Scouler wins the Izaak Walton Award for the month for using a fly rod and 8-pound test line to land a 30-pound king salmon. The battle took Al back and forth for 58 minutes through the Anchor River in chest-high water - sans waders. His fellow Standard Oilers in Anchorage hope he soon takes it off display on his drafting table and puts it in his freezer.

With Dick Eckhart's transfer to Houston to be Gulf Coast Regional Geologist for Sunray, the Anchorage scene has developed several vacancies. Sunray is without a local representative, the Alaska Geological Society is without a secretary, and, perhaps most important, the Cook Inlet Navy has lost its foremost Master Mariner. Rumor has it that Dick's friends are sending him a personalized bucket for future sailings in the Houston Ship Channel.

In a recent Alaska Peninsula encounter between Jim Wylie and a 700-pound brown bear, both just out of hibernation, the intrepid Gulf geologist emerged the victor, having the edge of a 30-06 carbine. Jim's "bear skin" stories are becoming merged with those concerning the comely impresario of a secretarial service.

Ric Shoemaker has been trying to corner the domestic baleen market, and if his activity at Barrow is any indication, he will soon succeed. Persons desiring hand-woven baleen Brunton cases can contact him at Ohio's Anchorage office.

Many Alaskans are wondering why Canada closed the last stretch of the Alaska Highway shortly after Lum Lovely left for Las Vegas. Some are pretty sure they know why.

Jim Watkins, the roving Richfield paleontologist, recently piloted his VW microbus up the Alcan highway. He will spend the summer collecting wild tales in the north country.

Wayne Estill, formerly with Tidewater, has joined Intex Oil in Bakersfield.

Dr. V. L. Vanderhoof of Santa Barbara is taking a two months tour of museums throughout the East.

Finn Bronner, Santa Barbara, recently returned from a trip to the East where he attended seminars on lunar geology.

Continental Airlines is reported to be heavily supplementing their champagne stock, due to the announced departure of Bill Castle, Hal Hahn, John Bullington, and other scouts for their convention at Midland, Texas. How the organization managed to pick a dry county for a convention has caused much puzzlement in local circles.

Melvin Fisher recently joined Texaco in Ventura, after having completed scholastic work at Berkeley.

Texaco geologists in Ventura are fanning out to vacation areas. Jess Parsons will be seen around Balboa Island, Ralph Cahill is heading for the High Sierra, and will be followed in that direction by Mike Zaikowsky.

Bill Burton, recent graduate of U. of Washington and UCLA, has been employed by Humble and is presently working in Chico.

Our hats are off to a group of Texaco geologists from Long Beach, Ventura, Bakersfield and Los Angeles. Several weeks ago they devoted a Saturday to the application of a new coat of paint to the home of the late Don Herring, Jr. They were assisted by Bob Patterson of Pacific Oil-Well Logging, Inc.

Jack Barr, Standard, who has been senior staff assistant for exploration research at La Habra, is leaving for Houston for an assignment with Chevron Oil Company.

John Cochrane, Schlumberger, on a temporary assignment on the Kenai Peninsula, Alaska, is due to return to Long Beach in August.

Bob Manly, Standard - La Habra, attended the Third Annual Meeting of the Society of Professional Well Log Analysis in Houston. John Wells and John Walstrom, San Francisco, attended also.

Bill Brandorf, Continental, has been transferred to the Bakersfield office from Casper.

It would be appreciated by Richfield if certain oil scouts would play more golf at Recreation Park instead of just loitering.

Bob Erickson, Standard - Bakersfield, is being transferred to La Habra as Division Development Geologist with the producing department. George Webb will assume Bob's duties in Bakersfield.

Andy Alpha, Signal, received a vacation "call-of-the-wild" from Mohill, North Dakota, and is spending a few hours driving there.

Bob McConville, Signal-Maracaibo, recently vacationed in N.Y., L.A., and Bakersfield.

Mary Barrick, Richfield-Los Angeles, has elected to take early retirement.

Don Henriksen, Richfield-Canary Islands, was a recent vacationing visitor in California.

Ted Lee, Texaco-Los Angeles, was overheard at the Spring Picnic complaining of the lack of a creek.

Nat MacKevett, Shell - Ely, Nevada, is being transferred to Los Angeles.

Ward Abbott, Shell - Los Angeles, is being transferred to Shell's Northwest Division in Seattle.

Benny Troxel, Division of Mines - Los Angeles, is in Lima, Montana, serving as visiting professor at Penn State's summer camp.

Bob Streitz recently joined the Division of Mines office in Los Angeles and is working on urban geological mapping in cooperation with the Los Angeles County engineers.

Conrad Maher, recent graduate of U. of Minnesota, has been hired to work in Mobil's office in Los Angeles. His first assignment is with the offshore group.

Dorman Graves, Southland Royalty Co. - Sacramento, who is our correspondent for the Sac Valley, was married on June 1 to Nora Long of Midland, Texas. Could this explain a recent breakdown of communication from the gas country?

BIBLIOGRAPHY OF RECENT PUBLICATIONS

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Bulletin 1112-D: Distribution and thickness of Devonian rocks in Williston Basin and in Central Montana and North-Central Wyoming, by C. A. Sandberg. (Plates in separate book)..... \$2.50

Bulletin 1142-F: Geology of the magnesite belt of Stevens County, Washington, by Ian Campbell and J. S. Loofbourov, Jr..... \$1.25

Water Supply Paper 1475-J: Ground water in the Wupatki and Sunset Crater National Monuments, Coconino County, Arizona, by O. J. Cosner.. \$.55

Water Supply Paper 1598: Geology and ground-water resources of the Ahtanum Valley, Yakima County, Washington, by B. L. Foxworthy. --

Water Supply Paper 1475-K: Ground-water reconnaissance at Pinnacles National Monument, California, by R. E. Evenson..... \$.55

Water Supply Paper 1499-B: Water resources of the Tacoma area, Washington, by W. C. Griffin, J. E. Sceva, H. A. Swenson, and M. J. Mundorff. \$1.25

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Circular 457: Floods in Utah, magnitude and frequency, by V. K. Berwick. 24 pages..... Free

Circular 460-B: A national network of hydrologic bench marks, by L. B. Leopold. 4 pages.... Free

Circular 460-A: The man and the hill, by L. B. Leopold. 5 pages..... Free

Circular 463: Reports and maps of the Geological Survey released only in the open files. 1961. 14 pages..... Free

OPEN FILE REPORT (Inspection only)

TEI-802: Ground-water investigations of the Project Gnome area, Eddy and Lea Counties, New Mexico, by James B. Cooper.

TEI-808: Ground-water test well B, Nevada Test Site, Nye County, Nevada, by John E. Moore and Murray S. Garber.

TEI-810: Potential effects of Project Chariot on local water supplies, by A. M. Piper. 76 pages, 4 pl., 2 figs., 22 tables.

TEI-811: Porosity, density, and water content data on tuff of the Oak Spring Formation from the U12e tunnel system, Nevada Test Site, Nye County, Nevada by F. M. Byers, Jr. 27 p., 10 figs. 12 tables.

TEI-817: Outline of geology of the U12k and U12k.01 tunnels, area 12, Nevada Test Site, by Fred N. Houser. 36 p., 1 fig.

Geologic map of the Chandalar quadrangle, Alaska, by W. P. Brosge and H. N. Reiser. 1 map and section.

Preliminary map of geology of part of the lower Yukon-Norton Sound region, Alaska, by J. M. Hoare and W. H. Condon. 14 p., 1 map.

Preliminary geologic map of part of the Charley River quadrangle, east-central Alaska, by Earl Brabb. 1 map.

Mineral resources of Korea, by David Gallagher, Montis R. Klepper, William C. Overstreet, and Raymond D. Sample, with a section on the general geology of Korea by Choeng Chong Hi. (Menlo Park, California)

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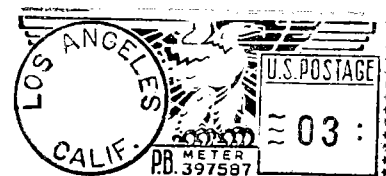
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PACIFIC PETROLEUM GEOLOGIST

NEWS LETTER OF THE PACIFIC SECTION AMERICAN ASSOCIATION OF PETROLEUM GEOLOGISTS

Volume 16

August, 1962

Number 8

ASSOCIATION ACTIVITIES

LOS ANGELES GEOLOGICAL FORUM MEETING

On June 18, Phillip S. Kistler, of Bear and Kistler, Consultants, gave a talk entitled "Geology and Petroleum Prospects of Spain."

Abstract:

At the present time there are no commercial oil or gas wells in Spain. However, the geological situation is favorable and there are many showings of oil and gas.

The topography of Spain is rugged and closely related to the geologic structure. Mountain uplifts have divided the sedimentary area into structural basins, generally filled with flat Tertiary nonmarine sediments and flanking foothill folded belts.

Mesozoic and older rocks are exposed on the basin flanks and in the mountain uplifts. In the westerly portion of the country, erosion has stripped off the sedimentary cover, exposing the dominantly crystalline basement rocks.

The oil prospects are largely confined to sediments older than the flat Miocene beds and younger than the metamorphosed Paleozoic rocks. Throughout the Mesozoic and into early Tertiary, the sediments were subjected to only mild epirogenic movements, and unconformities generally become apparent only by mapping on a regional scale. The sedimentary column should provide suitable reservoir beds in permeable limestones and sandstones almost everywhere. There are few richly organic shales in the section, and potential "source" rocks are mostly limited to limestones and marly shales.

The sedimentary mantle was intensely deformed by the Alpine orogeny which culminated in the Oligocene. The relatively uniform and undisturbed sedimentary area of Spain was divided by mountain uplifts into the structural basins that provide the present-day areas of petroleum interest. Although the mountain boundaries are often marked by thrust faults, there is relatively little faulting evident in the basins themselves.

Oil and gas showings are common in surface seepages and in wells throughout most of the sedimentary area of Spain and throughout most of the sedimentary column.

There have now been approximately 75 significant wells drilled, located on geologic data. Prior to 1960 most of the drilling was done by three main exploration groups: Valdebro, Ciepsa and Campsa. A new petroleum law went into effect in December, 1958, that encouraged several foreign companies to take permits. Under

the new program, increased activity began in 1960, and about 35 wells have been drilled under the new regulations.

Although exploration has not been intensive, the results have been discouraging so far, despite the many showings.

KANSAS FIELD CONFERENCE

The Kansas Geological Society announces the 27th. field conference to be held at Independence Kansas on September 13 and 14, 1962. The subject of the trip will be the "Geoeconomics of the Pennsylvanian Marine Banks in Southeast Kansas." This will include visits to the Pittsburgh, Stanton and Plattsburg Limestone outcrops. More information may be obtained by contacting the Geological Society, at 508 East Murdock, Wichita, Kansas.

ROCKY MOUNTAIN FIELD TRIP

The Rocky Mountain Association of Geologists will hold its 1962 Annual Field Trip beginning Thursday, September 13, and ending Saturday, September 15. The trip will cover the oil fields of northwestern Colorado, with emphasis on the practical approach to oil exploration. The transportation will be by bus with overnight stops at Steamboat Springs, Craig, and Glenwood Springs. Further information may be obtained from J. E. Deuth, Box 600, Denver, Colorado.

NEW MEXICO FIELD CONFERENCE

The Thirteenth Field Conference of the New Mexico Geological Society, in cooperation with the Arizona Geological Society, is scheduled for October 18-20. Gallup, New Mexico, is the place of registration on October 17. The Mogollon Rim is to be the area of study. The trip will be made in private cars; reservations are to be made individually. Further information may be obtained from the general chairman: WILLIAM R. SPEER, El Paso Natural Gas Products Company, Box 1560, Farmington, New Mexico.

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CHANGE OF ADDRESS

AMUNDSON, BURTON A.
2335 Moraga Street
San Francisco 22,
California

AYRES, THOMAS E.
P.O. Box 2025
Tyler, Texas

BORETS, JOHN
99 Rheem Blvd.
Orinda, Calif.

CEBULL, STANLEY E.
1003 Ordway Street
Albany 6, Calif.

DOBLER, IDA M.
2003 Francisco St.
Berkeley 8, Calif.

HOLZMAN, JACK E.
Shell Oil Company
33 Richards St.
Salt Lake City 1, Utah

KNIGHT, JACK W.
Knight & Miller
718 Colorado Bldg.
Denver 2, Colorado

LEACH, JACK S.
801 - 7th. St.
Apt. #5
Los Alamos, New Mexico

KRAETSCH, RALPH B.
Standard Oil Co.
P. O. Box 5278
Oildale, California

OSBORN, B. C.
P. O. Box 2548
Billings, Montana

OTTOMAN, ROBERT D.
8 Rosemary Circle
Chico, California

PRICE, MAURICE E.
Shell Oil Company
32722 Ithaca
Union City, Calif.

SCHOELLHAMER, JACK E.
420 Addison
Palo Alto, Calif.

SHELDON, THEODORE D.
2128 Benecia Avenue
Los Angeles 25, Calif.

WATERMAN, DOUGLAS R.
P. O. Box 606
La Habra, California

Listed below are changes of address for those members not listed in the latest directory.

FISH, JOHN L.
499 Park
Monterey, Calif.

FLETCHER, GERALD L.
Richfield Oil Corp.
555 South Flower St.
Los Angeles 17, Calif.

HAMMOND, JACKSON H.
Richfield Oil Corp.
5900 Cherry Avenue
Long Beach 5, Calif.

KIRSCHNER, C. E.
Standard Oil Company
P. O. Box 7-839
Anchorage, Alaska

LEVORSEN, ROBERT I.
Standard Oil Company
Box 606
La Habra, Calif.

ZABEL, MARTHA G.
7442 Ponce Avenue
Canoga Park, Calif.

SPECIAL CIVIL SERVICE EXAMINATION

The U. S. Civil Service Commission issued on May 25 announcement of an examination for Geologist, grades GS-9 to GS-15, \$6,435 to \$13,730 a year, in 13 optional fields of geology. Filing forms may be obtained from post offices, from the U. S. Civil Service regional offices, and from the U. S. Geological Survey and the U. S. Civil Service Commission, Washington 25, D. C. Applications are to be sent to the Executive Secretary, Board of U. S. Civil Service Examiners, Geological Survey, Washington 25, D. C. There is no closing date for this examination.

LETTERS TO THE EDITOR

Dear Center de Boo:

Due to the normal quantity of paperwork, I couldn't get this off to you. Also I was awaiting the arrival of USGS Prof. Paper 110 from an associate in Wildrose Canyon. I never received same so part of this will be based upon recall.

The oil seep on our claims (N2 of SW4 of NE4 Sec 7 T15S R35E) should not be there according to Knopf's map. He has mapped the area in question as Triassic or Cambrian metamorphic rocks. Of course Paleozoic limestones are present in the Inyo Mts. just to the east.

A reasonable explanation is suggested by Knopf's "Earthquake Fault" which could separate the marine limes of the Inyo Mts. and the schist exposed on our claims. Thus faulting would offer closure and also the avenue supplying the oil we found.

I hope this answers your questions as I will not be able to visit the area with you until the last of July.

Regards,

Benét

PERSONAL ITEMS

Dipley's Believe it or Not: Recently at Signal's cafeteria, John Crowell, Gordon Medaris, Bob Paschall and Bob Herron were having a light lunch on the terrace. From the gyrations and arm-waving that were the result of a lively discussion (about you know what), it was apparent to spectator geologists that 440' of left-lateral movement between the terrace and the building would place the participants near the centerline of the Harbor Freeway.

Bob Herron, of Signal, spent two weeks in the Northwest, with a salmon-fishing expedition off Vancouver as a highlight. - But why cracked crab for lunch?

Art Huey, of Signal, is in Europe, checking up on the girls with dark hair and light skin that we hear so much about.

The Salinas Valley Geological Society meets irregularly for lunch at the Bak Room, King City. They have formal dinners at Joe Guidott's Cafe in San Lucas, complete with several speakers on a variety of subjects ranging from agriculture to zoology. They hope to have J. B. S. de Boue at the next meeting, to speak on "The Accretion Allowance and Animal Husbandry."

Bob Patterson, Pacific Oil Well Logging, is resting at home after a "vacation" in a Long Beach hospital. The rumor may be true that a recent surprise anniversary party for Bob and Peggy was a strenuous affair.

Friends of Dick Thorup, Consultant, King City, will be saddened to learn of the passing of his wife, Kay. A memorial fund has been set up in her name to help continue civic projects in which she had an active interest, such as the new Mee Memorial Hospital.

John Forman, Mobil - Anchorage, was a recent visitor in Los Angeles.

Sid Warner, Phillips - Los Angeles, has been transferred to Libya.

Fred Gillig, Marathon (Ohio) - Tulsa, has been transferred to the Los Angeles office. Dick Stites is being transferred to the home office in Findlay, Ohio.

Bill Schetter, recent graduate of U. of Oregon, has been hired to work in Humble's Bakersfield office.

Ed (I am sorry to be going) Dryden took off from Ventura in a blaze of rapid preparations for an extended visit to Alaska. We are not certain yet whether he has organized any raffles with the local Eskimos while well-sitting.

Bill Holman recently visited Standard's Ventura Exploration Office with a definite gleam in his eye. Retirement is obviously to his liking, for he is able to cook up varied plans such as his current fishing sojourn in Oregon with Bill Barlow and Cal Thompson.

According to a recent article in the Sacramento Bee, the phone of Mr. Swiss Holmes of Shell Oil Company in Sacramento has been very busy lately with geologists from various companies calling to see what happened to their pay sections.

Texaco in Sacramento has a new geologist, Mr. Chuck Breitsprecher, who is a graduate of the University of Washington.

It is reported that Mr. Joe Ernst of Texaco in Sacramento is having trouble finding a soft seat after a recent trip to Kentucky.

Mr. Rowland Bain of Texaco in Sacramento has itchy feet again for San Francisco highlights, day or night. Better luck on your next visit, Rowland.

Mr. George Brown of Ohio Oil Company in Sacramento, a father-to-be and slightly nervous, has been making trial runs to the hospital at various hours in case of an emergency. Good luck!

Anyone interested in learning successful clam digging should contact geologist Fred Smith, Jr. and scout Dale Redman of Ohio's (excuse me, Marathon's!) Bakersfield office. These two were among a group of hardy souls who recently ventured onto the sands of Morro Bay in search of the elusive clams.

Hal Nelson, geologist from Carrberra Oil (Canada) has joined Superior's Bakersfield staff.

The golf bug has struck Marathon's (Ohio's) Bakersfield office. Geologist Doug Hargrove holds the only fatality so far - a fine iron that split in the middle. Was it a tree that jumped in the way, Doug?

Gene Templeton (Sunray DX - Bakersfield) recently returned with his family from a vacation in the Grass Valley area. He was so impressed with its attractions, both physical and spiritual, that he is returning for the second portion of his vacation. Lock the doors, boys, or we'll lose another geologist!

Dick Atchison, geologist from Marathon's Bakersfield office and only eight years removed from Texas, was set to do all his surface mapping by plane only; that is, until a fast flying jet narrowly missed his plane. Now Dick "picks em up an' lays 'em down" like the rest of us.

Pat Wright (Superior - Bakersfield) and Bill Horsley (Richfield - Bakersfield) were guests of Franco-Western's Stu Chuber (formerly in Bakersfield) at a meeting of the Permian group of the Toastmasters' Club in Midland. At the same meeting was Jerry Harris (former Shell geologist in Bakersfield, 1927-34).

Tom Rothwell, Richfield - Long Beach, made a business trip to Seattle for two weeks. The rest of the Richfield geologists are trying to find out how he managed to get this trip to the World's Fair at company expense.

The "boy wonder" of Richfield's - Los Angeles office, Jerry Fletcher, keeps a close watch on the Dow Jones averages, cotton futures, and real estate developments in the La Habra area. The news stories of Billy Sol and Eddy Gilbert have proven to Jerry that it is easy to make a fortune.

Bob Blaisdell of Standard, recently transferred from La Habra to Ventura, set a new record for selling his house down south. This was a bitter pill for Joe Schweitzer to swallow, but perhaps this provided the stimulus to make Joe do the same.

Bob Barnes of the Ventura Standard Office is impressed with the Army's efficiency, as they obviously appreciated his recent weeks of field experience. His upcoming two weeks of Army training at Camp Roberts include two days in camp and then back to the field—G. I. this time.

John Sisler has joined Shell Oil in Ventura and is working with the sub-surface drones there.

The Santa Paula office of the D.O.G. is losing two men. Carl Bloom is retiring and Charles Schultz is going to Santa Clara U. Warning! Look out coeds!!!

Warren Gillies, Texaco at Ventura, is heading south for a sojourn in Panama. His summer training with the Marine Reserves should be a big change from balmy Ventura.

Harry Williams is now scouting for Shell in Ventura, which gives Gene Johnson time to scout the offshore and seashore attractions.

One of Ventura's attractions is Roy Miley, Texaco, when seen wheeling around in his sporty new red M.G. All other dragsters are envious.

The Playboy Club has lost a good candidate with the passing bachelorhood of Don Hagen of Texaco, Ventura. Don married the former Sharon Mayo of Santa Maria on July 21, 1962.

A curious ceremony took place August 1st in Bakersfield when Ohio Oil changed its corporate name to Marathon. A group of silent men removed the long standing emblem "Gus the Greek" and replaced him with a big "M". Tom Roy put dubs on "Gus" to use as a hood ornament.

Arch Warne, Richfield - Bakersfield, temporarily lost his Brunton Compass while hiking in the Sierras. It seems that the animals are hungry this year and try to eat anything. Take some bacon rind along next time, Arch; it will save wear and tear on your Brunton.

The "double negative making an affirmative" theory was utilized by Doug Traxler in San Francisco recently. When parking on a narrow China Town street, Doug ended up with two wheels on the sidewalk. His wife warned, "You'll get a ticket for parking on the sidewalk." She was quite oblivious to the sign in front of the car which said, "No Parking at Any Time."

Milt Norton, Richfield's sportsman of the Far North, is having a hey-day, fishing the Anchor River. His only complaint is that the well-site work is interrupting his fishing.

NURSERY NEWS

Gordon Hardey (Standard-Oildale) and wife Eleanor became the parents of a girl, Allison, on May 21. She is their third child, all girls.

CALENDAR

August 8, 1962: Wednesday - Sacramento Petroleum Association Luncheon, Mr. Joe Parmenter of Brazos Oil & Gas Company in Sacramento will present a report entitled "Middle East Oil."

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Professional Paper 389: Geology and coal resources of the Cedar Mountain quadrangle, Iron County, Utah, by Paul Averitt. \$1.50

Professional Paper 342: Geology and ore deposits of the Globe-Miami district, Arizona, by N. P. Peterson. \$3.50

Professional Paper 406: The Eureka Mining District, Nevada, by T. B. Nolan. ----

Professional Paper 236-C: Foraminifera from the Arctic slope of Alaska, Part 3, Cretaceous Foraminifera, by Helen Tappan. \$1.50

Bulletin 1146-D: Geophysical Abstracts 187, October-December 1961. \$.40

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Water Supply Paper 1535-G: Rainwater as a chemical agent of geologic processes, a review, by Dorothy Carroll. ----

MAPS

Map I-354: Preliminary geologic map of Seattle and Vicinity, Washington, by Howard H. Waldron, Bruce A. Liesch, Donald R. Mullineaux, and Dwight R. Crandell. \$.50

Map C-51: Topographic and geologic map of the Knob Creek area, of the Wishbone Hill District, Matanuska Coal Field, Alaska, by F. F. Barnes. \$.50

Map MR-24: Gold in the United States, exclusive of Alaska and Hawaii, by A. H. Koschmann and M. H. Bergendahl. \$.75

Map MR-33: Gypsum and Anhydrite in the United States, exclusive of Alaska and Hawaii, by C. F. Withington. \$.75

Map MR-31: Talc and Soapstone in the United States, exclusive of Alaska and Hawaii, by A. H. Chidester and H. W. Worthington. ... \$.75

Map I-359: Geologic map of Lower Matanuska Valley, by F. F. Barnes. \$.50

Map MR-21: Epigenetic uranium in the United States, exclusive of Alaska and Hawaii, by A. P. Butler, Jr., W. I. Finch, and W. S. Twenhofel..... \$.75

Map MR-23: Manganese in the United States, exclusive of Alaska and Hawaii, by M. S. Crittenden and L. Pavlides..... \$.75

Map I-355 (LAC-57): Geologic map and sections of the Kepler Region of the moon, by R. J. Hackman..... \$1.00

Map MF-244: Preliminary geologic map and sections of the Wheeler Peak quadrangle, White Pine County, Nevada, by D. H. Whitebread, A. B. Griggs, W. B. Rogers, and J. W. Mytonn. \$.50

Map MF-247: Preliminary geologic map of the Nome C-1 quadrangle, Seward Peninsula, Alaska, by C. H. Hummel. \$.50

Map MF-248: Preliminary geologic map of the Nome D-1 quadrangle, Seward Peninsula, Alaska, by C. H. Hummel. \$.50

Hydrologic Atlas HA-54: Floods at Fremont, California. \$.75

OPEN FILE REPORTS: (Inspection only)

Preliminary report on ground-water conditions at Homer, Alaska, by R. M. Waller. 15 pages. (Anchorage, Alaska)

Map showing land subsidence in the Tulare-Wasco area, California, 1959-62, by B. E. Lofgren. (Sacramento, Calif.)

Empirical studies of water from "monolithologic terranes," by J. H. Feth. 39 p., 11 figs. (Menlo Park, Calif.)

TEI-813: Ground-water in the Climax Stock, Nevada Test Site, Nye County, Nevada, by G. E. Walker. 48 pages. 11 figs.

TEI-818: Ground water test well C., Nevada Test Site, Nye County, Nevada, by M. S. Garber and William Thordarson. 74 pages. 5 figs.

TEI-814: Interim geological investigations in the U12b.08 Tunnel, Nevada Test Site, Nye County, Nevada, by W. L. Emerick and F. N. Houser.

Water levels in observation wells in Santa Barbara County, California, in 1961, by K. S. Muir.

U. S. BUREAU OF MINES

Report of Investigations 5950: Bituminous coal deposits of the Matanuska Coalfield Alaska: Central and Western parts, Wishbone District, by Robert S. Warfield. free

Report of Investigations 5932: Analytical method for study of thermal degradation of oil shale, by John Ward Smith. free

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Aerogeology, by Dr. Horst von Bandat. Book Division, Gulf Publishing Company P. O. Box 2608, Houston 1, Texas. about \$14.00

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Economic of petroleum exploration, development, and property evaluation. International Oil and Gas Education Center, Dallas, Texas. 219 pp., Englewood Cliffs, New Jersey, Prentice-Hall, 1961.

Photogeology, by Victor C. Miller, assisted by Calvin F. Miller., New York. McGraw Hill Book Company, Inc., 1961. 248 pp., 260 figs.. \$13.50

Aerial photography, by A. I. Shershen. (Translated from Russian) Published for the National Science Foundation, Washington, D. C., and the Department of the Interior, by the Israel Program for Scientific Translations. (Available from the Office of Technical Service, U. S. Dept. of Commerce, Washington, 25, D. C.).....\$3.50

JOURNAL PALEONTOLOGY, vol. 35, no. 3, May 1961. New genera and sub-genera of Jurassic (Bajocian) ammonites from Alaska, by Ralph W. Imray.

Upper Triassic marine mollusks from the Natchez Pass formation in northwestern Nevada, by Norm J. Silberling.

A new species of Hadrosaurian dinosaur from the Cretaceous of New Mexico, by John H. Ostrom.

LOS ANGELES COUNTY MUSEUM CONTRIBUTION TO SCIENCE, No. 42, June 1961.

A new *Geomys* from the Vallecito Creek Pleistocene of California, with notes on variation in Recent and fossil species, by John A. White and Theodore Downs.

CALIFORNIA DIVISION OF MINES AND GEOLOGY

Special Report 70: Sand and Gravel Resources of the Kern River near Bakersfield, California, by Harold B. Goldman and Ira E. Lein.....\$1.00

Mineral Information Service, Vol. 15, No. 6, June 1962. Sanbornite from Rush Creek, Fresno County, by Robert A. Matthews and John T. Alfors.

Limestone resources of Southern California. Part 2, by Clifton H. Gray, Jr.

CALIFORNIA UNIVERSITY PUBLICATIONS, GEOLOGICAL SCIENCE, vol. 37, no. 3, 1961.

Foraminifera from the Sacate formation south of Rufugio Pass, Santa Barbara County, California, by Gordon R. Hornady.

U. S. BUREAU OF MINES, (Distribution Section, 4800 Forbes Ave., Pittsburgh 13, Penn.)

Report of Investigation 5866: The foam-drive process for increasing the recovery of oil.Free

Report of Investigation 5932: Analytical method for study of thermal degradation of oil shale, by John Ward Smith. 17 pp.Free

Report of Investigation 5950: Bituminous coal deposits of the Matanuska Coal field, Alaska; Central and Western Parts, Wishbone District, by Robert S. Warfield. 190 pp.Free
Report of Investigation 5962: Titaniferous magnetite deposits, Los Angeles County, Calif., by W. T. Benson, A. L. Engel and H. J. Heinen. 40 pp.Free

U. S. BUREAU OF MINES (Order from the Supt. Documents, Government Printing Office, Washington, D. C.)

Information Circular 8050: The Pacific Northwest ferroalloy industry, by Gary A. Kingston. 26 pp.\$.25

Information Circular 8060: Vanadium, a materials survey, by Phillip M. Busch. 95 pp.\$1.00

GEOLOGICAL SURVEY OF CANADA (Ottawa)

Index of publications of the Geological Survey of Canada (1845-1958), compiled by A. G. Johnston. 378 pp., index maps. 1961.

OIL AND GAS JOURNAL, vol. 60, no. 22, May 28, 1962.

Oil shows in arctic test give hope for reef pays, by W. B. Gallup.

Humble's gambling big stakes but at favorable odds, by Frank J. Gardner.

Special pipeline report.

OIL AND GAS JOURNAL, vol. 60, no. 23, June 4, 1962.

Closing the gap at Cedar Creek, by Frank J. Gardner.

Kingfisher still nation's busiest area.

Now—an entirely new approach to evaluation of compressor performance—Part 1, by Harrison R. Cooper.

CALIFORNIA OIL WORLD, vol. 55, no. 10, Second Issue, May 1962.

Use of the complex metal lignosulphonate drilling fluids in California, by James Stock and Robert V. Scott.

WESTERN OIL AND REFINING, vol. 59, no. 5, May 1962.

Lost Circulation Control, by B. F. Klein.

PETROLEUM ENGINEER, vol. 6, no. 34, June 1962.

Alaska: Wildcatting and thinking big.

Turbodrill successful in Aquitaine Basin, by B. Voog.

Philippine oil search continues.

Australia's pay promise soars, by John Scott.

AMERICAN JOURNAL OF SCIENCE, vol. 260, no. 6, June 1962.

Presentation of paleomagnetic data, polar wandering and continental drift, by D. van Hilten.

On the relative stability of talc, anthophyllite and enstatite, by W. S. Fyfe.

JOURNAL OF GEOPHYSICAL RESEARCH, vol. 67, no. 5, May 1962.

A field experiment with a rubidium-vapor magnetometer, by Stanley H. Ward and Kenneth A. Ruddock.

A statistical enquiry into the partial remagnetization of folded Old Red Sandstone rock, by K. M. Creer.

An analysis of cratering data from desert alluvium, by N. D. Nordyke.

Thermodynamic data on the formation of solid carbon and organic compounds in primitive planetary atmospheres, by Hans E. Suess.

PACIFIC PETROLEUM GEOLOGIST
PACIFIC SECTION. A.A.P.G.
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Volume 16

Number 8



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PACIFIC PETROLEUM GEOLOGIST

NEWS LETTER OF THE PACIFIC SECTION AMERICAN ASSOCIATION OF PETROLEUM GEOLOGISTS

Volume 16

September, 1962

Number 9

ASSOCIATION ACTIVITIES

SOUTHWESTERN REGIONAL MEETING

The 1962 convention of the Southwestern Federation of Geological Societies will be sponsored by the Dallas Geological Society in Dallas on October 3rd. to 5th. The meetings will be held at the Statler Hilton Hotel with the theme of "Exploration Case Histories." A pre-convention field trip is scheduled to Strawn, Texas and a post-convention field trip to Europe is available. More details are available from D. A. Zimmerman, Sun Oil Company, P.O. Box 2880, Dallas 21, Texas.

DINNER DANCES

Bob Herron, Chairman for the Annual Holiday Dinner Dance, has announced that it will be held on Friday, December 21 at the Huntington Sheraton Hotel in Pasadena. More details will be available later. With the elimination of the Fall convention, this dance becomes the only joint social affair of the AAPG, SEG and SEPM during the Fall season.

November 3 has been reserved by the Coast Geological Society for their annual Dinner Dance. The location and time will be announced when all arrangements have been completed.

ENGINEERING GEOLOGIST'S CONVENTION

The fifth annual meeting of the California Association of Engineering Geologists will be held in the Los Angeles area October 12 through 14. Headquarters for the event and site of the Friday afternoon general session, presentation of technical papers, and the evening banquet will be the Miramar Hotel in Santa Monica. The speaker at the evening gathering will be Dr. Jack Green of the Space Sciences Laboratory, North American Aviation Corporation. "Geology and Geologic Exploration of the Moon", will describe Dr. Green's recent work concerning the application of geology and geochemistry to the study of lunar and planetary environments and processes. The Saturday morning business meeting and the afternoon Symposium on "Engineering Geology of the Monterey Formation" will be held in the Geology Building at U.C.L.A. Sunday field trips to various sites of geologic and engineering interest will conclude the conventions activities.

FRANK YULE GOLF TROPHY

Frank Yule's mother wrote the following letter in appreciation for the letter and picture of the Golf Trophy sent to her by Bill Edmund:

Dear Mr. Edmund:

I just received your letter to-night as I have been out of town for a week. Your letter pleased me very much. Mr. Yule died June 26 but I know he would have been pleased with the "Frank Yule Memorial Golf Trophy." My husband loved to play golf altho he never started to play until he was fifty. He played a good game in spite of his late start but could never beat Frank. But he did teach Frank that sportsmanship counted more than winning. Frank's father never recovered from the shock of the death of Frank and his family. Many thanks also for letting a sorrowing mother know that her son had so many good friends and that he merited their esteem. I was glad that a good friend of Frank's won the 1962 tournament. Will you give him my congratulations? The perpetual trophy is beautiful.

Sincerely yours,

Mrs. Charles I. Yule

UNIVERSITY OF CALIFORNIA

RIVERSIDE

The year 1961-62 was another great year in the development of the Geology Department. Twelve students from as many colleges and universities scattered over the entire U.S. enrolled in the new graduate program at its inception. More than twenty students will pursue graduate work leading to either M.A. or Ph.D. degrees in geology this fall. Thus, U.C.R. has become, almost overnight, a significant new source in California of geological manpower trained to advanced levels.

The department has gained two new faculty members to permit the major expansion into graduate instruction and research. Professor George Tunell, for many years associated with the Los Angeles campus of the University of California, has been persuaded to transfer his research and teaching activities to Riverside. His addition to the staff will permit a further expansion of research on ore-

**EXECUTIVE COMMITTEE, PACIFIC SECTION
AMERICAN ASSOCIATION OF PETROLEUM GEOLOGISTS**

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forming fluids and geochemical processes, and the initiation of work in structural crystallography and geology of ore deposits. Seymour Schlanger also has joined the staff, coming to Riverside from the U.S. Geological Survey. Schlanger is a Johns Hopkins Ph.D., and is best known for his work in sedimentary petrology and sedimentation. He fills a sorely felt gap in the department and will provide much-needed guidance to students interested in sedimentary rocks and processes. The addition of Tunell and Schlanger brings to seven the total number of geologists on the Riverside staff. Five non-academic staff members support the work of the academic staff.

The undergraduate instructional program continues to be the backbone of the department, and the policy of emphasis on quality rather than quantity continues to pay, as measured by the unabated success of UCR geology graduates in open competition such as is provided by civil service examinations, on the job training programs and performance in other graduate schools.

Major new items of equipment acquired during the year for instructional and research use include a LaCoste and Romberg geodetic gravity meter, a Varian precession magnetometer, numerous new Zeiss and Leitz petrographic and binocular microscopes, and several items for core analysis and preparation.

Current activities of each of the staff members are as follows:

Frank W. Dickson, Department Chairman during the past year, received Fulbright and Guggenheim grants to enable him to pursue his studies of igneous petrology in Norway during the coming year and he is already happily and vigorously pursuing them in Oslo. Michael A. Murphy will replace him as Chairman during 1962.

Thane McCulloh is actively pursuing his L.A. Basin studies after having guided the summer field course for the first eight weeks of the summer.

Gordon Eaton is conducting a geophysical survey of Safford Valley, Arizona, in support of the U.S. Geological Survey's ground water program there.

Very little news has reached us from the interior of Australia from Richard Tedford except that he will be a little late returning this fall because of new and exciting discoveries of Tertiary marsupials.

UNIVERSITY OF OREGON

The geology department moved into a new wing of the Science Building early in September 1961. Considerable new equipment has been obtained. The department gained greatly in floor space including many areas for storage and offices for graduate students. Enrollment in the beginning classes for general students is considerably larger but it is difficult to say if many will become majors. We have approximately 20 graduate students. The first Ph.D. degree in geology at the University since 1932 was awarded to Dr. Larry Kittleman.

The geology summer camp was held this summer partly at Charleston on the coast and partly at Mormon Basin in northeastern Oregon. Fourteen students under the leadership of Dr. L. W. Staples attended. William Girard assisted.

Dr. Staples, in addition to summer camp is working with the Carmen-Smith dam project on the McKenzie River as consultant and continuing research on zeolites.

Mr. James C. Stovall was in charge of a NSF Summer Institute for grade school teachers interested in science.

Dr. Ewart M. Baldwin spent the summer mapping in the southern part of the Coos Bay coalfield for the Conservation Div. USGS. He is taking sabbatical leave for the fall term to summarize results of many years mapping in the southern part of the Coast Range.

Dr. Walter Youngquist taught the summer classes in geology and visited graduate students in the field.

Dr. Ernest Lund returned from a year's absence in Karachi, Pakistan where he was a Fulbright Professor. He returned by way of the Pacific.

Dr. Vern McMath attended the NSF Alpine Institute in Switzerland.

Dr. Alan Kays worked with the U. S. G. S. in the Klamath River area of northern California.

Dr. J. A. Shotwell assisted by Dr. Larry Kittleman continued their research in eastern Oregon in search for vertebrate fossils and endeavoring to decipher the environment of these fossils prior to their extinction.

UNIVERSITY OF WASHINGTONStaff Changes
Departures:

J. Hoover Mackin, Professor, has accepted a professorship at the University of Texas, and has moved there this summer.

Frank Beumann, Asst. Prof. of Seismology - has retired, effective July 1, 1962.

Ross Ellis, Asst. Professor of Geology - has accepted a teaching position at Western Washington State College (at Bellingham) effective September 1, 1962.

Persons added:

Earnest A. Kaarsberg, Acting Assoc. Prof. of Geophysics, effective March 15, 1962. Dr. Kaarsberg has a PhD from the U. of Chicago and BS and MS degrees from U. of Toronto. He will be giving courses in all aspects of geophysics.

Stephen C. Porter, Asst. Prof. in geology, effective Sept. 15. Dr. Porter has just received his Ph.D. from Yale. His speciality is glaciation and geomorphology.

Gerald K. Czamanske, Asst. Professor in geology, effective Sept. 15. Dr. Czamanske is a geochemist and will offer a full curriculum in that field. He will also be teaching the undergraduate "hard-rock" petrology course.

Allistair Sinclair, Asst. Prof. in geology, effective Jan. 1, 1962. His speciality is ore deposits, and he also will be giving the undergraduate course in mineralogy.

Other staff news:

Prof. V. Standish Mallory, promoted to full professor effective Sept. 15.

Prof. H. E. Wheeler - has been awarded a three-month National Academy of Science grant for study in Russia, as part of a new exchange program. Scheduled to leave Sept. 1, he still is awaiting a Russian visa.

Department NewsField Course:

Stan Mallory led the spring field course this year and had 9 juniors and seniors in the course. They spent 6 weeks in April and May in the Paskenta region of northern California, extending the work done there in the two previous field course seasons. Dr. Mallory and Dr. McKee hope to get something ready for publication on the area in the not too distant future.

In May the group spent three weeks working on igneous, sedimentary and metamorphic rocks in the Methow Valley region of the northern Cascade Range here in Washington.

Curriculum:

The past year has seen a great change in the degree requirements for undergraduates, both in the department and in the College of Arts and Sciences. We have reduced the number of required courses for our majors. After the winter qtr. of the Jr. year the student is free to choose freely from all of the remaining 400 level courses. This change allows greater flexibility on the part of the student in selecting a program, and enables him to take more courses in other fields. The College has broadened the requirements for courses outside of the major area of interest and has also increased the mathematics and foreign language requirements, and as a department we are pleased with these changes. Henceforth our BS degree will signify an excellent basis for the year or more of graduate work required for the advanced degree in geology. Our changes recognized the fact that the BS degree is no longer a professional degree, and cannot be if the student is to graduate in a reasonable length of time and get the broad background now needed for geology.

Student enrollmentUndergraduate:

Approximately 10 majors per year. Through advising, we are being fairly selective in whom we encourage to major or proceed. On the other hand, our beginning course for non-majors has 350 students per quarter (capacity), plus night school and summer school for a total of about 1,200 per year.

Graduate:

Approximately 30. All but three are from elsewhere, largely as the result of our requirement that no student can get three degrees from here. We strongly encourage our undergraduates to go elsewhere for their graduate work.

UNIVERSITY OF CALIFORNIALOS ANGELES

During the past year the Department of Geology has graduated the following members:
AB degree - 12; MA degree - 11; Ph.D. degree - 2.

K. D. Watson enters his third year as chairman of the Department. George Tunell has transferred to the University of California, Riverside. He is continuing his study of ore deposits. Dr. Tunell and Joseph Murdoch were highly honored to have minerals named for them this year -- Tunellite and Murdochite. They are both past presidents of the Mineralogical Society of America. Willis Popenoe will be on sabbatical leave but will be in residence this fall. John Christie attended the AGI International Field Institute in the Alps during July and August. Ronald Shreve continued his work on the Blue Glacier this summer. C. A. Nelson is due back in September from sabbatical leave in Norway. W. G. Ernst has been awarded an Educational Exchange Grant to study geology at the University of Tokyo, Japan, during the year 1962-63. Daniel I. Axelrod has recently

been engrossed in research on the Pliocene Climate of the Great Plains. Gerhard Oertel is engaged in the deformation of clay in a modeling apparatus pre-requisite to model studies of deformation of earth's crust. John Crowell, with Perry L. Ehlig and L. Gordon Medaris, is investigating the history of the San Gabriel fault zone -- all 90 miles of it from Frazier Mountain to Mt. Baldy. In addition, Dr. Crowell, with a group of four graduate students, is restudying the sedimentary structures in the Pico formation, Santa Paula Creek.

The Institute of Geophysics, with which the Department of Geology is closely associated, now includes a staff of Willard Libby as Director, David Griggs, Robert Holzer, George Kennedy, Gordon MacDonald, Willem Malkus, Clarence Palmer and Louis Slichter.

The UCLA Geology summer field camp for 1962 was held in the Inyo-White Mountains in conjunction with the field camp of the UC Berkeley campus. Twenty-seven students (13 from Berkeley, 7 from UCLA, 3 from UC Santa Barbara, and 4 from Long Beach State College) attended the camp which was under the direction of Dr. C. M. Gilbert (UCB), Dr. Charles E. Corbato (UCLA), and Dr. Donald W. Weaver (UCSB). Problems during the course included detailed mapping of the Poleta and Harkless formations (lower Cambrian) and regional mapping of the Precambrian and lower Cambrian formations of the White Mountains. Field trips were taken to White Mountain and to areas where the Bishop tuff is exposed. The campsite for the six-week course was at Cedar Flat near Westgard Pass.

For the fourth summer the Department administered an NSF Undergraduate Research Participation Program. Five students spent the summer in British Columbia in a continuation of the investigation begun three years ago on the structural and geochemical relations on the western margin of the Coast Range batholith under the direction of Donald Carlisle.

Several of our graduate students presented papers at the very successful Graduate Symposium held at UC Berkeley in May. They were Stanley S. Beus, Carl J. Bowser, Neville Carter, Briant Davis, E. D. Pittman and C. B. Raleigh.

The Geological Society of UCLA had another very active and interesting year. Members participated in several field trips and had numerous lectures by members within the department and from other departments and campuses. A gigantic effort was climaxed when the UCLA Geology Alumni List finally was completed and mailed. Any alumni not receiving their copy should write the department as soon as possible.

Various projects under way by our graduate students include: Bruce Blackerby; field mapping and petrography of volcanic rocks, west-central Santa Monica Mountains. John Warme; studying ecology of lagoon in Baja California. Doug Morton; field mapping of a portion of the northern part of the Southern California batholith. Robert Newton; working on synthesis and stability relations of lawsonite. Pow-Foong Fan; studying mineralogy of silt-size sediments and sedimentation studies along Santa Clara River. Neville Carter

is working with Dr. Christie and Dr. Griggs on experimental deformation of quartz. Mark Newton; (in Dr. Kennedy's lab) has been squeezing sea water to get equation of state for use in oceanographic research. M. C. Gilbert and Dr. Ernst are continuing work on hydrothermal investigation and synthesis of calcic amphiboles. Ed Pittman and Tom Ovenshine; the effect of rapids on pebble morphology, Merced River, California.

Several of our graduate students begin teaching this fall. They are Harvey Blatt, University of Houston; Briant Davis, South Dakota School of Mines; Lee Harvill, Rutgers University; and Stanley Beus, Arizona State College. Another graduate student, Jess Johnson, has obtained a research post with Dr. Bucot, at Cal Tech. Ronald Surdam, Randall Schmus, Takeo Susuki, Bruce Blackerby and Doug Morton received grants from the Geological Society of America for the coming year.

CHANGE OF ADDRESS

BLAISDELL, ROBERT C.
1337 Hanover Street
Ventura, California

CEBULL, STANLEY E.
2110 NE 89 Street
Seattle 15, Washington

CORDOVA, SIMON
4014 Stevely Ave.
Apt. 8
Los Angeles 8, Calif.

COX, MARGARET
6309 Belmar Ave.
Reseda, Calif.

DANEHY, EDWARD A.
720 Henrietta
Sunnyvale, Calif.

ERICKSON, R. C.
Standard Oil Co.
P. O. Box 605
La Habra, California

ESTILL, WAYNE D.
Intex Oil Co.
P. O. Box 1411
Bakersfield, Calif.

EYMAN, JAMES L.
3909 Henderson Way
Carmichael, Calif.

GARIEPY, GLEN
Marathon Oil Co.
P. O. Box 3128
Houston 1, Texas

GROSS, THOMAS C.
P. O. Box 5278
Oildale, Calif.

HALL, EDWARD A.
4824 Palm Drive
La Canada, Calif.

HAWKINS, RALPH D.
2257 Hillcrest Drive
Ventura, Calif.

HUGHS, WILLIAM J.
Texaco, Inc.
3350 Wilshire Blvd.
Los Angeles

JORDAN, LEE KNIGHT
3545 Brae Burn
Bakersfield, Calif.

LEACH, JACK S.
University of Calif.
Los Alamos Sci. Lab.
Group J-6
P. O. Box 1663
Los Alamos, New Mexico

LEE, H. WILLIAM
20244 Septo
Chatsworth, Calif.

MACKEVETT, NAT H.
5253 San Filiciano
Woodland Hills, Cal.

MARIANOS, ANDREW W.
P. O. Box 190
Newhall, Calif.

MAYER, EDWARD
3831 Fairmount St.
Bakersfield, Calif.

MOORE, QUENTIN M.
Margaritas 353-G
Colonia Florida
Mexico 20, D. F.

REDWINE, LOWELL E.
3120 Eighteenth St.
Bakersfield, Calif.

REEDY, ROBERT D.
2224 Loma Vista Dr.
Sacramento 21, Calif.

SCHOELLHAMER, JACK E.
7503 Spring Lake Dr.
Apt. B-2
Bethesda 14, Maryland

SCOTT, ROBERT N.
Consulting Geol.
2918 University Av.
Bakersfield, Calif.

SHELTON, RICHARD C.
Marathon Oil Co.
539 South Main St.
Findlay, Ohio

SORGE, BART W.
720 El Medio Ave.
Pacific Palisades,
Calif.

TEN EYCK, WARREN E.
717 Emerald Bay
Laguna Beach, Calif.

VAN GUNDY, C. E.
13751 St. Andrews
Seal Beach, Calif.

WEAGANT, FRANK E.
3612 Country Club
Bakersfield, Calif.

Listed below are changes of address for those members not listed in the latest directory.

CHAPMAN, ROBERT
Richfield Oil Corporation
555 South Flower Street
Los Angeles, California

TURNER, EDD R. JR.
Tidewater Oil Co.
4201 Wilshire Blvd.
Los Angeles 5, Calif.

COX, JAMES R.
4545 Bellflower Blvd.,
Apt. E
Long Beach, California

PERSONAL ITEMS

Marathon (Ohio) is closing their Ventura office, and Bill Yerington is being transferred to Los Angeles.

John Cochrane, Schlumberger, Long Beach, is back from a tour of duty in Alaska, with some interesting pictures of the Pan-Am well blowing wild.

Experimenting with waterflood techniques seems to be very popular with one Humble geologist in Bakersfield. He even used part of his vacation to observe the results of a project being conducted at his home.

John Hazzard, Union, Los Angeles, was, at last report, junketing in Hong Kong.

Mr. Vern Crackel, geologist formerly with Gulf in Sacramento, is opening a consulting office at 4617 Mulford Avenue, telephone 482-1314, Sacramento.

Mr. Jack Kearns, formerly with Gulf in Sacramento, is now employed by the State of Calif., in Sacramento.

Mr. Bob Nesbit, Gulf Oil Corporation, has been transferred to Gulf's office in Midland, Texas - the land of the "shifting sand and tumble weeds."

George Wheatley, raconteur, patron of the arts, gamesman extra-ordinary, and active wildcatter, is leaving Anchorage for undisclosed duties for Superior in England. Anchorage Petroleum Club domino fans are eager to explain George's approach to the game to his replacement.

Al Schlottman, Phillips, Anchorage, recently got time off the hard way, spending 1 1/2 days in a helicopter with a broken tail rotor, north of Mt. McKinley.

What two Union Oil Co. Foreign Operations Dept. geologists (whose initials are E. B. and R. D. S.) took a day (of their vacations, of course!) to go deep-sea fishing on August 23, and ended up (when they weren't bunked down) by chumming the fish in a rather unconventional way?

Gyula Kiss, Richfield palynologist, on another fishing trip found that he could not feed the fish and catch them too.

Kit Carson, consultant - Ventura, was seen sporting a cane recently. Now he needs only a bottle of Canadian Club to be a "Man of Distinction."

When one of the "troops" led Ben Ryan, Richfield - Anchorage, on a hunt for trophy heads, he found that the long cold winters had softened him up considerably.

Jim Mercier, Tidewater geophysicist, has returned from a tour of duty in the Canary Islands. He has been reassigned to the Bakersfield office.

Bob Bennett, Tidewater, has returned to production geology after a two-year stay in the Canary Islands. Bob will call Bakersfield home for the present.

Ed Dryden, sometime geologist for Standard-part-time bartender, spent a free vacation in Alaska.

Andy Vidos was back from Sumatra briefly. After a fling at chasing American girls, he is headed back.

A great many people were saddened to hear of the recent passing of Steve Rook. Steve was for many years deputy supervisor in the Santa Paula office of the D.O.G.

A great many chairs are being shuffled in the Continental offices but no official announcement could be made before this PPG deadline.

H. H. Neel, formerly general manager of the international exploration and production division of Tidewater, has announced his resignation. His future plans are indefinite.

Mr. Swiss Holmes, Shell Oil Company, Sacramento, says he only drinks Calso water with a twist - what about your recent accident - was the twist left out or what really happened, Swiss???

Mr. Ron Ackley, Exploration Logging, Sacramento, had a recent misfortune with his car while attending a movie - Ron, Second Street is a bad place to park...

John Forman's transfer from Mobil's Anchorage office to its California offshore program, has explained his keen interest in the Outfall Sewer Yacht Club. What else would? Local aesthetes greatly regret the loss of his talent, cornet, bass drum, and tambourine from the ranks of the Steinel Gespielmachers.

NURSERY NEWS

Congratulations to George and Joyce Brown, Marathon Oil Company, Sacramento on their new arrival, Daniel Glenn, weighing 5 lbs. 14 oz., July 27, 1962.

CALENDAR

September 6, 1962: Thursday noon, Roger Young Auditorium, 936 West Washington Blvd., Los Angeles. Speaker: Ted Off, Ojai Oil Co., on "Rhythmic Linear Sand Bodies Caused by Tidal Currents."

September 11, 1962: Tuesday evening, Ventura Women's Center, Foothill Rd., Ventura. Social Hour: 6:30 PM. Speaker: Siegfried Hamann, Shell Oil Co., on "Geology of Peru" and "Recent Developments in the Saticoy Field and Bridge Pool Areas."

September 17, 1962: Monday evening, 7:00 PM, Forum Meeting, Mobil Auditorium, 612 South Flower, Los Angeles. Speaker: Tennant Brooks, Ferguson and Bosworth, on "Oil Exploration and Politics in Thailand." The talk will be followed by a new U. S. G. S. movie, "Eruption of Kilauea, 1959-60."

OPEN HOUSE

The State Division of Mines and Geology extends a cordial invitation to all interested persons to attend an OPEN HOUSE, second floor, south wing, Ferry Building, San Francisco, on Sunday, September 23, 11:00 a.m. to 3:00 p.m.

Tours will be conducted to display the Division's newly remodeled quarters, its new research facilities, its extensive mineral display, its reference library, and the State geologic map in progress, as well as other items of interest to geologists, mining engineers, and the general public. Coffee and cookies will be served at the end of each tour.

REVIEWS OF RECENT PUBLICATION

Mineral Resource Data in the Western States: By W. B. Beatty. Stanford Research Institute, Menlo Park, California. 1962. 42pp. \$1.00

This book was compiled to serve as a reference and finding guide for the numerous private, state and federal sources of service and information on matters regarding mineral resources. The area covered includes the seven western states, Alaska, Hawaii, British Columbia and Baja California.

The lists of regional geologic maps and guide books should be of particular interest to the petroleum geologists.

Directory of Geoscience Films: Edited by Wakefield Dort, Jr. American Geological Institute, Washington 25, D.C. 1962. 63pp. \$1.00

This publication is an annotated listing of more than 500 educational films from the field of geology and related earth sciences. Every film has been reviewed and the annotation gives an indication of the scientific and technical quality of the film. The suitability of each film for various age levels is also indicated.

Dictionary of Geological Terms: AGI Glossary Project. Dolphin Books, Garden City, New York. 1962. 545pp. \$1.95

This dictionary is an abridged and revised edition of the Glossary of Geology and Related Sciences, 1960, published by the American Geological Institute. A team of geologists from Iowa State University helped in the preparation. The publication of this "pocket book" edition at a reduced price may interest many geologists, science teachers, and students.

BIBLIOGRAPHY OF RECENT PUBLICATIONS

CALIFORNIA DIVISION OF MINES

Special Report 69: Clay minerals in the playa sediments of the Mojave Desert, California, by John B. Droste. \$1.00

Special Report 67: Geology and mineral deposits of the Colfax and Foresthill quadrangles, Calif., by Deb K. Chandra. \$1.50

Mineral Information Service, vol. 15, no. 8, August 1962. The Portland Cement industry in California—1962, Part II; by Oliver E. Bowen and Clifton H. Gray, Jr.

Legal Guide for California Prospectors and Miners, Revised Edition, 1962. \$1.00

U. S. BUREAU OF MINES (Distribution Section, 4800 Forbes Street, Pittsburgh, Penn.)

Report of Investigation 5986: Reconnaissance studies of Alaska beach sands, Eastern Gulf of Alaska, by Bruce I. Thomas and Robert V. Berryhill. 38 pp. 13 figs. Free

Report of Investigation 5991: Investigation of mercury-antimony deposits near Flat, Yukon River Region, Alaska, 44pp. 8 figs. Free

Report of Investigation 6013: Inyo Beryl deposit, Inyo County, Calif., by W. T. Benson. 8 pp. 2 figs. Free

U. S. BUREAU OF MINES (Purchase from the Superintendent of Documents, Government Printing Office, Washington 25, D. C.)

Bulletin 599: Relative permeability studies: Gas-oil and water systems, by A. G. Loomis and D. C. Crowell. 39 pp. 25 figs. \$.30

U. S. GEOLOGICAL SURVEY

Professional Paper 260-AA: Some physical constants for the Marshall Islands area, by J. H. Swartz. \$.35

Professional Paper 450-C: Geological Survey Research 1962, short papers in geology and hydrology, Articles 60-119.

Bulletin 1166-B: Geophysical Abstracts 189, April-June 1962. \$.40

Water Supply Paper 1575: Quality of surface waters for irrigation, Western United States 1958. \$1.00

Circular 461: Explorations for water supplies on the Public Domain, 1960, by William S. Eisenlohr, Jr., and others.

MAPS

Map MF-251: Preliminary geologic map of the Panamint Butte Quadrangle, Inyo County, California, by W. E. Hall and H. G. Stephens. \$.50

Geologic Quadrangles (GQ) 167: Geology of the West Carlsbad Quadrangle, New Mexico, by Ward S. Motts. \$1.00

Hydrologic Atlas HA-61: Stream composition of the conterminous United States by F. H. Rainwater. \$1.50

OPEN FILED REPORTS (Inspection only)

Preliminary geologic map of the Strawberry Mine area, Madera County, California by Dallas L. Peck. 1 map. (Menlo Park, only)

TEI-809: Geology of the Williston basin, North Dakota, Montana and South Dakota, with reference to subsurface disposal of radioactive wastes, by Charles A. Sandberg. 148 p., 28 figs.

Bouguer gravity map of the Twin Buttes area, Pima and Santa Cruz Counties, Arizona, by Donald Plouff. 1 map.

Preliminary geologic map of the coastal part of the Point Dume quadrangle, Los Angeles County, California, by J. E. Schoellhamer, R. F. Yerkes, and R. H. Campbell. 1 map and expl.

Preliminary geologic map of the Umiat-Maybe Creek region, Alaska, by W. B. Brosge and C. L. Whittington. 1 map (3 sheets).

AMERICAN JOURNAL OF SCIENCE, vol. 260, no. 7, Summer 1962.

Petrology and diagenesis of Jurassic andesitic strata in Central Oregon, by William R. Dickinson

Precambrian and Cambrian rocks of South-central Esmeralda County, Nevada, by E. J. Moiola

Thermodynamic calculations on phase equilibria involving fused salts. Part II: Solid solutions and applications to the olivines, by R. S. Bradley

THE GEOLOGICAL SOCIETY OF AMERICA BULLETIN, vol. 73, no. 7, July 1962.

Photographic survey of sea floor on southwest slope of Eniwetok Atoll, by Carl J. Shipek

Rapakivi-type granitics in the Precambrian complex of Gold Butte, Clark County, Nevada

Recent lahars from Mount St. Helens, Washington, by D. R. Mullineaux and D. R. Crandell

Glaciation on the Coeur d'Alene District, Idaho, by Wakefield Dort, Jr.

THE GEOLOGICAL SOCIETY OF AMERICA BULLETIN, vol. 73, no. 8, August 1962.

Stages of diagenesis in the development of sandstones, by E. C. Dapples

Late Pleistocene glacial sequence for the west side of Iztaccihuatl, Mexico, by Sidney E. White

Case-hardening effect on unconfined compressive strength and elastic modulus of Iron Canyon Agglomerate, California

BOOKS

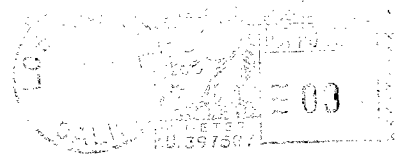
Colorado-Nebraska Oil and Gas Field Volume, 1961. John M. Parker, editor, and others. Rocky Mountain Association of Geologists. 396 pages.

Guidebook along U. S. Highway 40 between Sacramento and Reno, and portions of Dixie Valley and the Sand Springs Range, in Nevada. Philip A. Lydon, editor. Geological Society of Sacramento, c/o Department of Geological Sciences, University of California, Davis, California.

PACIFIC PETROLEUM GEOLOGIST
PACIFIC SECTION, A.A.P.G.
P.O. BOX 17486, FOY STATION
LOS ANGELES 17, CALIFORNIA

Volume 16

Number 9



Richard L. Hester
Pauley Petroleum, Inc.
10000 Santa Monica Boulevard
Los Angeles 25, Calif.

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PACIFIC PETROLEUM GEOLOGIST

NEWS LETTER OF THE PACIFIC SECTION
AMERICAN ASSOCIATION OF PETROLEUM GEOLOGISTS

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1962

Volume 16

October, 1962

Number 10

ASSOCIATION ACTIVITIES

LOS ANGELES LUNCHEON MEETING

Mr. Ted Off, Ojai Oil Company, Ventura, gave a very interesting paper on "Rhythmic Linear Sand Bodies Caused by Tidal Currents," at Rodger Young Auditorium, September 6.

ABSTRACT:

A study was made of bathymetric charts of those coastlines characterized by large vertical tidal ranges (greater than 10 feet). In these areas tidal currents are strong (1-5 knots) and may significantly affect sedimentation. Two characteristic types of sand accumulation were found which appear to be formed by these tidal currents. Both exhibit wave-like profiles, and are of a scale significant to oil exploration.

The first type is here called "tidal current ridges." These are a rhythmic series of ridges oriented parallel with a tidal current. They are 25-100 feet high, 5-40 miles long, and spaced 1-6 miles apart. Most are composed of sand, but some may be mud or silt. Their spacing is proportional to the depth of water and current velocity. This suggests that their origin is related to the similar problem of the hydraulic geometry of stream channels. Although best developed in the Bay of Korea and the Gulf of Cambay, these ridges appear to be present wherever tidal current velocities range between 1 and 5 knots and a supply of sediment is available.

The second type is sand waves. These are large ripple marks oriented perpendicular to the current direction. Recent evidence by European oceanographers has indicated that, whereas in rivers these waves are fairly small-scale features, in the open ocean they commonly have heights greater than 25 feet. Cartwright and Stride have shown a wide distribution of sand waves of this size, particularly in the North Sea. Their relationship to tidal current ridges is not known, although they appear to occur in the same environment.

Since tidal currents are now significant in shallow ocean areas, their effect should be visible in a large percentage of the shallow-water deposits of the geologic past. In particular it is suggested that some of the lenticular sands of the Chester Series of Illinois, of the Cardium Formation of Canada, and of the Clinton sands of Ohio show tidal current effects. The rhythmic pattern of tidal current ridges and sand waves should be considered in the study of the distribution of these and other shoestring sands.

COASTAL GEOLOGICAL SOCIETY MEETING

The first fall meeting of the Coastal Section was held September 11, 1962 in Ventura. The talk given by Siegfried Hamann was on the topics: "Recent Developments of the Saticoy Field," and "Geology of Peru". These subjects were very ably described and illustrated by superb slides.

ABSTRACT: Saticoy Field

Since discovery by Shell Oil Company in May 1955, the Saticoy Field has produced over 28.5 million barrels of oil, and an ultimate production of 50 million barrels is anticipated. Daily production in December 1961 averaged 12,300 barrels/day.

Wells produce from the many steeply dipping sands of Pliocene age on the southern limb of the Santa Clara syncline. Some twenty separate sands are productive. Limits of production are very irregular, as sands may silt-out laterally or up-structure. There is also minor faulting, which forms anomalies, along with lenticularity variations. The main southerly barrier is the Oak Ridge thrust fault. Although not yet established, this major feature is believed to possibly form the eastern limit of the field, where it is presumed to truncate the synclinal axis. Dips vary from 40° to vertical, and the production area of about 1000 acres is limited to an areal band 1000' to 1500' wide.

Deviated wells are generally required to drain several oil sands, in order to get a commercial well. Extreme control is needed to get within the narrow productive limits of each sand. In locating offset wells it is often impossible to effect the typical 330' direct setback, as productive limits almost parallel some property lines. Offset wells are then better placed along the strike of the producing sands.

Spacing of wells has almost ceased to be done on strictly an acreage basis. The characteristics and origin of each productive sand have been the prime consideration. Each unit is seen as an accumulation of a number of sand bodies, each a graded bed, up to one or two feet thick. These are visualized as deposits of turbidity currents situated in deep-water environment.

Water-table anomalies are believed to be explained in part by the lack of lateral continuity of the sands and inability of water tables to adjust to uplifting of the beds. Oil productivity also has varied greatly in neighboring

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Next deadline October 22, 1962

wells. This has affected the location of later wells to be drilled, and there now seems to be a correlation between spacing distance and percent of ultimate recovery.

ABSTRACT: Geology of Peru

The detailed geology of Peru is still relatively unknown, although governmental petroleum and mining groups are now active in different areas. The Andes Mountains divide the country into three zones, geologically and also culturally, as far as climate and stage of development.

The Pacific coastal area is generally a low relief desert that supports its population only near rivers or irrigation developments. The main coastal feature is a long, narrow batholith, often topped by roof pendants of Mesozoic sediments or marine terraces. The Cordillera de la Costa is found at the lower half of the Peruvian Coast, and at the extreme north, and also shows up as islands out into the Pacific Ocean. There is a Tertiary basin on the northern coast where oil fields are situated.

The Sierra region takes in the Andes, or the three parallel chains of mountains, of which it is comprised. The tops of these mountain chains are often high peneplains deeply cut by rivers. This region and the coast are seismically active. Earthquakes will often disturb glacial deposits, and any water contained behind terminal moraines may then be released to cause floods such as Peruvians recently experienced. The ancient Inca

empire flourished in this high region and many evidences of this remain. Both Mesozoic and Paleozoic rocks make up the three portions of the Andes, with older rocks being more prevalent to the east. Mineral deposits of lead, copper, and silver are mainly associated with early Tertiary igneous intrusions in the western chain of mountains.

The third area is the low-lying jungle or part of the Amazon Basin. This eastern area is found to have marine sediments covered by thick continental debris from the Andes. There are two small commercial oil fields in this region, Ganso Azul and Maquia, and the area is considered to have much promise.

FRESNO STATE COLLEGE

E. G. Cserna worked most of the summer in the Sierra Madre Oriental, out of San Luis Potosi, on a stratigraphic and structural problem for the Instituto de Geologia de la Universidad Autonoma de Mexico. Geological sightseeing trips included an extra-curricular climb to the summit of Popocatepetl and a visit to Paricutin and Parangaricutiro.

Seymour Mack taught summer school in Fresno and did work on ground-water studies along the west side of the San Joaquin Valley - with respect to changes in quality induced by elevation of the Coast Range. He also completed and submitted "Post Storm King Dikes in the Hudson Highlands of New York," for early publication by New York Academy of Science.

C. N. Beard spent time at his Huntington Lake cabin in the adjacent Sierra, and did some work on an article dealing with the origin of high-altitude pot-hole-like features in the central Sierra Nevada range, an article for future publication.

George Stanley spent the summer in Fresno, some of it on further settlement of the Department in its new quarters, now past the first year of occupation, but most of it in office work on Quaternary Lake Cahuilla of Salton Basin. He also spent a few days in La Jolla, conferring with Carl Hubbs and planning continuation studies of same.

Geology at this college has started the school year (on our new campus) in the most organized and settled condition in a decade, and with a new secretary, Mrs. Alice Anderson. Fortunately for the Geology Department, Mrs. Anderson is familiar with the displaying of rocks and minerals, having won first place for the Fresno Gem and Mineral Society this summer in the display of minerals and lapidary work at the California Federation of Mineralogical Societies Annual Fair. This was the third consecutive first-place award for the Fresno society.

Six of our Geology majors were enjoyably benefitted by the summer field geology course with Lloyd Staples, University of Oregon.

LOS ANGELES GEOLOGICAL FORUM MEETING

An interesting and enlightening talk on the "Oil Exploration and Politics in Thailand" was given by Mr. Tennant J. Brooks, Ferguson & Bosworth, on the evening of September 17 at the Mobil auditorium.

ABSTRACT:

The first commercial oil production in Thailand was discovered in late September, 1958. This work was directed by Refining and Associates, of Long Beach, California. Mr. Frank Rieber, Consulting Engineer, was in charge of exploration and engineering in the Fang Basin of Northwestern Thailand.

The discovery well, located near surface oil seepages, was drilled to 664 feet and completed in very porous Miocene lacustrine sands, not far beneath Recent river-channel deposits. The Refining and Associates contract with the Defense Energy Department of Thailand required the drilling of 30 wells and building a 1,000 barrel-a-day oil refinery. This company actually drilled 57 wells, of which 23 were completed as commercial wells. Obviously, Refining and Associates more than fulfilled their contract agreement and deserve recognition for a job well done. Present daily production is about 250 barrels.

Thailand is located on the Indo China Peninsula, bordered on the west by Burma and the Andaman Sea, on the north by the Shan States of Burma and Laos, and on the east by Laos and Cambodia. Historically, Thailand and the surrounding nations have been populated by many intermittent migrations which can be traced back to many centuries B.C., and always resulted in peoples from central and southern China migrating further to the south. Apparently, even in ancient times no one was enthusiastic about going to Siberia. The people arriving in later migrations are now known as the Thai, Cambodians and Vietnamese. As these later migrations developed, earlier tribes were forced back into the mountainous areas and away from the fertile flood plains. Such tribes as the La Hue, who live in the mountains west of Chiang Mai, and the Meo from the mountain borders northwest of Fang, display characteristics thought to be related to Mongolia. Like similar tribes in Laos, Viet Nam and Cambodia, these people became isolated by heavy jungles, difficult terrain and many rivers. Often villages in such countries must be moved every year or two because the relatively poor soils soon become depleted. This isolation was not without some merit, as the tribes had never previously become acquainted with a tax collector. While we were exploring for oil in Thailand, many villagers who lived in the border areas between China and Burma were forced to revolt, due to excessive taxes imposed by the Chinese Socialists-Communists. These people moved into the Shan States, where they have been settled by their Burmese neighbors.

To understand the background of politics in Thailand and surrounding nations, it is necessary to refer back to 1954 when the United States Government first guaranteed the neutrality of Laos. Since this time our firm intentions have often been expressed by the several administrations in Washington. However, in January of this year,

Mr. Averill Harriman, as personal representative of our current executive department, discontinued all economic and military aid to the pro-western government of Laos. This commitment was abrogated because the pro-western prince refused to join a coalition government in which the Communist prince would seize control of the army and police force.

If Mr. Harriman's requirements had been met, the many millions of dollars of military aid provided by our taxes would obviously have become the property of the Socialist-Communist forces. This problem recently deteriorated to the point where the United States rushed 2,000 Marines into the Korat Plateau to prevent the successful invasion of eastern Thailand. During this deployment of troops, it was interesting to note that our Marines were operating along the west border of the Mekong River without ammunition. Ammunition was, of course, available at camps and supply depots. The Thai Government had recently inaugurated a determined effort to provide a water supply for the Korat Plateau, but it appears likely that the usual methods of infiltration by the Communists had already taken effect.

Following Mr. Brooks' talk a very vivid and descriptive movie was shown on "The Eruption of Kilauea, 1959-1960," put out by the U.S. Geological Survey.

CHANGE OF ADDRESS

AMUNDSON, BURTON
2321 2nd Avenue
Sacramento 18, Calif.

BARR, JOHN G.
Chevron Oil Company
P. O. Box 22227
Houston 27, Texas

BEACH, JOHN H.
21 La Rancherio
Carmel Valley, Calif.

BLAISDELL, ROBERT C.
5454 Hunter
Ventura, Calif.

GARIEPY, GLEN B.
Marathon Oil Co.
P. O. Box 3128
Houston 1, Texas

HARRIS, PAUL B.
4516 Cogswell Road
El Monte, Calif.

HAWKINS, RALPH D.
411 Citadel
Ventura, Calif.

HINDLE, ROBERT J.
101 University Blvd.
Denver 6, Colorado

HUGHS, WILLIAM J.
Texaco
Box 664
Anchorage, Alaska

IVANHOE, L. F.
511 Kirkwood Place
La Jolla, Calif.

LACHENBRUCH, MILTON C.
2402 Braun Court
Golden, Colorado

MACKEVEIT, Nat H.
5253 San Filiciano
Woodland Hills, Calif.

NEUFARMER, LEO R.
1020 Holcombe, #904
Houston, Texas

PALEN, FRANK S.
212 Monte Vista
Bakersfield, Calif.

PASCHALL, ROBERT H.
460 Lovella Way
Sacramento, Calif.

RANKIN, WILBUR D.
3713 Chevy Chase Drive
Pasadena, Calif.

RITZIUS, D. E.
Box 67
Santa Paula, Calif.

SPECHT, GLEN W.
C/O Humble Oil & Ref.
612 S. Flower St.
Los Angeles 17, Calif.

Listed below are change of addresses for those members not listed in the latest directory.

FISH, JOHN L.
136 No. San Marino Ave.
San Gabriel, California

GAUL, GEORGE H.
P. O. Box 2341
Santa Rosa, Calif.

JOINT AAPG-SEPM FALL FIELD TRIP

The joint AAPG-SEPM field trip will be hosted by the San Joaquin Valley Geological Society on October 19 and 20. The field trip will be conducted along the San Andreas fault, in the vicinity of Carrizo Plains.

The program will include a dinner meeting on October 19, with refreshments commencing at 6:00 P.M. and dinner at 7:00 P.M., in the Spanish Ballroom of Hotel El Tejon, Bakersfield.

Keynote speaker will be Dr. Clarence R. Allen, of the California Institute of Technology. Dr. Clarence A. Hall, Jr., of UCLA, will discuss "Displaced Molluscan Provinces."

Discussing the geology and leading the field trip will be Rod Cross, Gerald Fletcher, Jack Vedder, Tom Dibblee and Otto Hackel.

A comprehensive guidebook, containing a regional map of portions of the Temblor and Caliente Ranges by Tom Dibblee, will be available.

A.A.P.G. ANNOUNCES

1962-63 OFFICER NOMINATIONS

B. W. Beebe, independent geologist, Boulder, Colo., and John Campbell Sproule, J. C. Sproule & Associates, Calgary, Alta., Canada, head the slate of officer nominations submitted by the A.A.P.G. nominating committee, as announced today by A.A.P.G. president Robert E. Rettger, Sun Oil Co., Dallas. Other officer nominees are, for vice-president, Parke A. Dickey, Department of Earth Sciences, University of Tulsa, Tulsa, Okla., and Thomas H. Philpott, Nilo Oil Co., New Orleans, La.; for secretary-treasurer, incumbent, Robert E. King, American Overseas Petroleum Ltd., New York, N.Y.; and for editor, John C. Hazzard, Union Oil Co. of California, Los Angeles, and John M. Parker, Kirby Petroleum Co., Denver.

Balloting will be by mail, and the winners will take office March 28, 1963, on the last day of the 48th annual meeting of the Association, to be held in Houston, Texas.

UNIVERSITY OF CALIFORNIA

SANTA BARBARA

Probably the most significant event in the life of our department this past year was the authorization to offer work toward the Masters and Doctors degrees. Although we are now permitted to begin these programs, we do not expect to accept any students until the autumn of 1963, at which time we hope to have the services of a distinguished senior professor.

Our three graduating seniors in 1962 performed gratifyingly well at the summer field camp, again held jointly with the Berkeley campus, in the Inyo-White Mountain area. Don Weaver was once again the Santa Barbara faculty representative at the camp. Our majors total about 35 at present, a figure which has not fluctuated much for the past two or three years.

Dick Fisher is continuing his work on the physical stratigraphy of the John Day area of Oregon, under an NSF grant. He also continues to bring recognition to himself and the department in his capacity as Secretary of the Cordilleran section of the Geological Society of America.

Frank Kilmer is putting the finishing touches on his dissertation on the stratigraphy and paleontology of the Cretaceous of northwestern Baja California.

Bob Norris spent the first half of the year in the New Zealand Oceanographic Institute in Wellington, where he was studying the sediments of the Chatham Rise under a Fulbright award. He is back on duty as Chairman and trying to find time to finish up the Chatham Rise report.

Don Weaver has had two bulletins published recently by the University of California Press, the first on Eocene Foraminifera from west of Refugio Pass, California, and the second on Upper Eocene Foraminifera from southeastern Santa Ynez Mountains, California. Another report, completed and soon to be published by the UC Press, will deal with the Oligocene biostratigraphy of the Santa Barbara embayment. Also, last year, 1961, Don attended the first AGI International Field Institute in the British Isles, one of 30 American geologists to be selected.

Bob Webb continues to direct an experimental program for training college teachers, supported by a Ford Foundation grant, and is presently at work (with Joseph Murdoch) on another supplement to the State Division of Mines bulletin on the Minerals of California. During the past summer he taught elementary geology in an accelerated program for high school students and managed also to work in a tour including the upper Michigan peninsula and Jasper National Park.

Bill Wise is completing a study on celadonite and low-grade metamorphism in the lower Tertiary rocks of southern Washington. He is also beginning a joint research project with C. A. Hopson on the Mt. Hood - Mt. Ranier area, under an NSF grant for \$20,000.

OREGON STATE UNIVERSITY

The staff of the Department of Geology, Oregon State University, has been engaged in a variety of geologic activities during the summer and preceding year.

Dr. I. S. Allison has continued his research on "Pluvial Fort Rock Lake, Lake County Oregon." In addition, he is co-author of a new text in the general field, of which his part of the manuscript is now complete.

Dr. William H. Taubeneck has again spent the summer in the field, adding to the data previously obtained relative to the "Evolution of the Wallowa Mountains, Northeastern Oregon." The work this summer has been directed toward the Wallowa batholith and satellitic stocks.

During the year, Dr. Jon C. Cummings completed a study of estuary and marine sediments of Coos Bay, Oregon.

The State Department of Geology and Mineral Industries continued to support the paleontological studies of Dr. David A. Bostwick. During the latter part of the summer Dave will be in the field, collecting from localities in northeastern Oregon.

The summer field course for major students was conducted by W. D. Wilkinson and Keith F. Oles. Camp was established at Mitchell, Oregon, June 12 and continued until July 20. The students upon return to the campus completed their geologic reports by July 31.

The Departments of Geology, Meteorology, and Oceanography, supported by a grant from the National Science Foundation, conducted a six weeks' course in earth sciences for gifted high school juniors and seniors. Two weeks were devoted to each of the areas. Dr. Cummings presented a concentrated lecture laboratory survey of geology during the first week. During the second week the group went on an extended field trip from the Oregon coast through the Cascade Mountains into central Oregon. On the return trip they visited Newberry Crater and Crater Lake. While most of the group were young men from the Northwest, there were representatives from New York state, Texas, and Hawaii. The group and the instructor felt that it was a very worthwhile experience. Through such programs it is believed that the earth sciences will become better known in the high schools, both as cultural and professional occupations.

In this same vein, the Department, under the direction of Dave Bostwick, presented three advanced courses for high school teachers. The courses were exceptionally well received.

Several graduate students have been engaged in field work as part of their training for various advanced degrees. Mr. McKnight is continuing his work on the Cretaceous sediments of central Oregon. Mr. Glenn has extended his work on the Pleistocene history of the northern part of the Willamette Valley. Mr. White is compiling the geology of the Picture Gorge quadrangle in central Oregon. Mr. Clifford Balster, through the support

of U.S.D.A., is doing an extensive study of soils and related geomorphology in the central Willamette Valley.

The Department staff and students are looking forward to a profitable and challenging year, both in classes and projected research projects.

AIME LECTURE SERIES

The California Coastal Section of the Society of Petroleum Engineers, A.I.M.E., is conducting a lecture series on "Formation Evaluation."

Core analysis, log evaluation, formation testing, and development planning will be some of the subjects covered. The lectures are held on Wednesday evenings from 7:00 to 9:00 P.M., in the gymnasium of Cabrillo Junior High School, Ventura.

For more information, contact Bob Misbeek, Richfield - Ojai.

LOS ANGELES COUNTY MUSEUM

The Department of Mineralogy at the Los Angeles County Museum is attempting to build a research library. The following publications are needed:

Publications of the Geological Society of America, prior to 1954.

Journal of Sedimentary Petrology, any issues.

Bulletin, American Association of Petroleum Geologists, vol. 1 through 6, 20-23, 26-37.

Anyone wishing to contribute any of the above publications should contact Robert Gaal, Curator of Mineralogy (Richmond 8-2194, Ext. 39), in care of the Library, 900 Exposition Boulevard, Los Angeles 7.

NORMAN C. SMITH APPOINTED ASSISTANTTO AAPG EXECUTIVE DIRECTOR

Robert E. Rettger, President of the American Association of Petroleum Geologists, announced today that Norman C. Smith, consulting geologist of Dallas, Texas, has accepted the new position of Assistant to the Executive Director of AAPG, and will join the staff at Association Headquarters, Tulsa, September 4.

This action by the Executive Committee will enable Executive Director Robert H. Dott to devote more time to handling the growing volume of work connected with the Association's special publications--occasional books and symposia published in addition to the monthly Bulletin. No further change in headquarters personnel or operations is contemplated at this time.

CITY OF LOS ANGELESCIVIL SERVICE EXAMINATION

The City of Los Angeles is seeking experienced geologists to perform technical investigations into the characteristics of subsurface geologic structures.

Graduation from a recognized four-year college, with specialization in geology, and three years of professional geological experience, is required, according to Joseph W. Hawthorne, General Manager, Civil Service Department.

The current salary range is \$677 to \$971 a month.

Applications must be filed by mail or in person at Room 5, Los Angeles City Hall, or at the Information Window in the lobby of Van Nuys Branch City Hall, by 5:00 P.M., Tuesday, October 23, 1962. A competitive examination will be held on November 3, 1962.

Additional information and applications can be obtained at these locations and at the Information Window, Room 402, San Pedro Branch City Hall, West Los Angeles Branch City Hall, Westchester Branch City Hall, or by calling MADison 4-5211, Ext. 2441, or writing to Room 5, City Hall, Los Angeles 12.

PERSONAL ITEMS

Mr. H. K. Armstrong, a director of State Exploration Company and a well-known veteran independent petroleum engineer and geologist who has been active for more than 40 years, passed away Saturday, September 15, in Mercy Hospital, Bakersfield, after a short illness.

Bob Orwig, Mobil - Los Angeles, back from a recent trip to Alaska, reports that Bob Ohrenschall, Shell - retired, is building a cabin on the outskirts of Fairbanks. Mr. Ohrenschall's address is Farmer's Loop Road.

Wayne Felts, Texaco - Los Angeles, has been promoted to Assistant to the Division Manager of the producing department and will be transferred to Anchorage, Alaska. Paul B. Harris will assume Wayne's former duties as Division Geologist. Mr. Harris has worked in Long Beach, Los Angeles, Bakersfield, Denver and, most recently, Houston.

Carrol Hoyt, Mobil - Los Angeles, was recently assigned to their Alaskan District.

Superior has transferred Warren Hagist from its Denver office to Anchorage, where he is now District Geologist.

Don Bruce has resigned as Chief of the Petroleum Branch of Alaska's Division of Mines and Minerals, effective October 31. His future plans are undisclosed.

Humble is stealthily moving back into the Alaskan scene. Dean Morgridge has returned as a short-term, insisting that this stint is essentially a vacation, and Bob Walker has returned to the land detail on a rather more permanent basis, having increased his family by one during his New Mexico stay.

Recent transfers for Sinclair include Victor H. Howard from Ardmore as district Geophysicist, and G. L. Scott from Houston as Senior Geophysicist.

Carrol Hoyt and Bob Orwig have completed a three week inspection tour of Alaska, having been accompanied for one week by other Mobil explorationists Joe Neely and Paul Moody from L. A., and Dan Richardson, from Oklahoma.

Bill Van Alen neatly absolved himself of any connection with Pan Am's latest blowout by taking a timely three week tour of the U.S., whirlwinding from New York to San Diego to Seattle in the process. He is preparing a monograph entitled "How to See the Century 21 Exposition in Two Hours."

Mr. and Mrs. Bill Hughes became parents of twin boys on September 19, 1962. Since Bill was doing field work for Texaco in Alaska at the time, and the new mother was in Los Angeles, the communications problem has prevented agreement on names. The newest Hugheses weigh "about six and seven pounds," according to Dad.

Bob Ottenstein has returned to Standard's Anchorage R & R section, having been overcome by Kansas City's 96° heat.

Jim Wylie, Gulf, Anchorage, is back in the bear-dispatching business again, having turned a black bear into the world's largest pin cushion with his bow and arrow.

What Anchorage geologist was recently seen responding to the signs of impending cold weather by stealing wood for his fireplace from a newly completed house? Good ol' Dirty Ernie, still trying the informal approach to the cost of living problem.

Howard Level is now working as an instructor at Ventura College.

John Curran is devoting time to teaching at University of California at Santa Barbara.

Dr. Norris has just returned to Santa Barbara from a 15 month leave of study in New Zealand.

Robert Gaal has recently been appointed Curator of Mineralogy, at the Los Angeles County Museum.

John Sisler, Shell - Ventura, married the former Miss Patricia Yeager. The ceremony was held at Corpus Christi, Texas, on August 4.

Bob Paschall has resigned from Signal Oil & Gas Company, having accepted the position of Senior Petroleum and Mining Appraisal Engineer with the State Board of Equalization. His new home address will be 460 Lovella Way, Sacramento.

Don Hagen, Texaco-Ventura, is reported to be slimming down his sports activities, due to the responsibilities of marriage. His married cohorts are now relieved not to have a bachelor kidding them about their financial restrictions.

Recent transfers from Gulf Oil's Bakersfield office are Bob Johnston to New Orleans, Mick Lachenbruch to Denver and John Gates to Houston, (like seeds broadcast to a gale). Remaining to hold the fort are Jim Benzley and Gordon Bell.

Occidental (Bakersfield) has hired a new engineer, Ed Mayer (formerly with Humble).

Frank Reynolds (Sunray DX - Bakersfield) and family spent their vacation in the bluegrass country of Kentucky. Frank had earlier sent his wife and older daughter on a trip to Hawaii. From "Poi" to "Paducah" on Sunrays' salary, Frank?

Padding against the future are geologist Gene Templeton and Engineer Dick Brazier of Sunray (Bakersfield). Both are studying to obtain teaching credentials.

Dana Detrick (Shell geologist - Bakersfield) spent a fuzzy week touring central and northern California winery counties. He is now a stockholder in Martin Rey of Saratoga and tells a glowing tale of their harvest festival champagne breakfast.

Phil Ryall (Shell geologist - Bakersfield) packed into a prime deer-hunting area of the Sierras last week, but his only apparent accomplishment was allowing his horse to fall on him.

Doug Hargrove (Marathon District Geologist - Bakersfield) will soon be setting the style in hatwear in Tulsa, Oklahoma. At a recent party given to commemorate his transfer to Tulsa, Doug was presented with an "oil finders' cap" - a flak hat decorated with appropriate petroleum and geologic map symbols.

The longest playoff in Kern County golf history was recently completed when Marty O'Keefe beat Jack Cunningham on the 72nd hole for first place in the 3rd flight of a recent Standard Oil tourney.

Marshal Ayres (Standard - Oildale) shook up the Bakersfield Petroleum Bowling League by establishing a 201 average after one night's bowling. The IRS is investigating his winnings.

Bob Lindblom (Standard - Oildale) tied for low net in the guest flight of the recent 1st annual San Joaquin Valley AIME golf tourney at the Buena Vista course.

Brian Krogseng (from the University of Minnesota) has recently been employed as geologist for Standard in Oildale.

Pete Miller, graduate paleontologist from the University of Minnesota, has joined Standards' Oildale office.

Jim Watkins, Richfield - Long Beach, has just returned from the north country, sporting a 3-months' growth of beard. Jim made the trip in his micro-bus and was mistaken for a Dukhobor on several occasions.

Miss Maria Chierici, Italian paleoecologist studying in the Southern California areas, was a guest at the Coast Geological Society's September dinner meeting. Maria also cruised to Santa Barbara via station wagon and lunched with Richfield and local round-table geologists at Les Gourmets Restaurant.

NURSERY NEWS

John Eke (Texaco - Bakersfield) and wife Betty welcomed a daughter, Jocelyn Elizabeth, 5 lbs., 10 1/2 ounces, born September 25, 1962.

Mary Barrick, formerly of Richfield - Los Angeles, became the mother of a girl, Catherine Crane, on September 5, weighing in at 7 lbs., 11 oz. Mary reports that she is very happy in her new job.

Twin boys were born to Mr. and Mrs. Bill Hughes, Texaco - Anchorage. William Frederick, 7 lbs., and Douglas Bogard, 6 lbs., 6 oz., arrived September 19.

CALENDAR

October 4, 1962: Thursday noon, Roger Young Auditorium, 936 West Washington Blvd., Los Angeles. Speaker: Everett L. Jones, Consulting Geologist, on "Problems of Reserve Analysis in Allocation Valuation."

October 9, 1962: Tuesday night, Ventura Womens' Center, Foothill Road, Ventura. Social hour: 6:30 P.M. Dinner: 7:30 P.M. Dr. Robert M. Norris will speak on "Geology of New Zealand."

October 12 to 14, 1962: Convention of California Association of Engineering Geologists, Miramar Hotel, Santa Monica. Technical session, Friday afternoon; Annual banquet, Friday night; Symposium, Saturday afternoon; Field trips, Sunday morning.

October 15, 1962: Monday evening, 7:00 P.M., Forum meeting, Mobil Auditorium, 612 South Flower, Los Angeles. Speakers: Glenn Brown, State of Calif. Division of Water Resources, on "Ground Water Investigation of Mogadiscio, Somali Republic, East Africa," and Elmer Marliave, Ground water consultant, on "Ground Water Investigations in Sudan and Tunisia."

October 19, 1962: Friday, Pacific Section S.E.P.M., business meeting and election of new officers; Spanish Ballroom, El Tejon Hotel, Bakersfield, 5:30 P.M. (Just prior to the AAPG-SEPM-SJGS San Andreas Field Trip Dinner Meeting).

October 19, 1962: Friday evening, Pacific Section Joint AAPG-SEPM dinner meeting, 7 P.M. Spanish Room of Hotel El Tejon, Bakersfield. Speakers: Dr. C. R. Allen and Dr. C. A. Hall, Jr.

October 20, 1962: Saturday, San Joaquin Geological Society field trip along the San Andreas Fault in the vicinity of Carrizo Plains.

October 30, 1962: Tuesday evening, 6:30 P.M., Branner Club, Hall of Associates, Cal Tech, Pasadena. Speaker: Gordon Eaton, Professor of Geology at the University of California at Riverside, will discuss vulcanism immediately following the new U.S.G.S. movie, "The Eruption of Kilauea, 1959-1960."

November 3, 1962: Saturday night, Mar Monte Hotel, Santa Barbara, California (Continental Terrace Room). Annual Coast Geological Society Dinner Dance. Social hour: 7:00 P.M. Dinner: 8:00 P.M. Price: \$7.50 per couple for prime rib dinner and champagne cocktails. The Glenn Henry Trio will furnish cocktail music. Reduced rates - \$11.00 double - offered to out-of-town guests, by Mar Monte Hotel for those spending the night.

BIBLIOGRAPHY OF RECENT PUBLICATIONS

U. S. GEOLOGICAL SURVEY

Bulletin 1031-F: Geologic investigations of proposed powersites at Sheep Creek, Carlson Creek, and Turner Lake, Alaska, by George Plafker. \$1.00

Bulletin 1104-C: Geology of south-central Hidalgo and northeastern Mexico, Mexico, by Kenneth Segerstrom. \$1.00

Bulletin 1135-A: Oxidized zinc deposits of the United States, Part 1: General geology, by A. V. Heyl and C. N. Bozion. \$1.25

Bulletin 1148: Summary of rock salt deposits in the United States as possible storage sites for radioactive waste materials, by W. G. Pierce and E. I. Rich. \$1.25

MAPS

Map MF-254: Preliminary geologic map of the Independence quadrangle, Inyo County, California, by Donald C. Ross. \$.50

Map I-356: Preliminary geologic map of the Valdez-Tiekel Belt, Alaska, by H. W. Coulter and E. B. Coulter. \$.50

Map GP-212: Geologic interpretation of the aeromagnetic map of the Lebanon quadrangle, Linn and Marion Counties, Oregon, by R. W. Bromery. \$.50

Map HA-55: Summary of occurrence of ground water on the Papago Indian Reservation, Arizona, by L. A. Heindl, O. J. Cosner, H. G. Page, C. A. Armstrong and L. R. Kister. \$.50

BOOKS

On the morphology and classification of the Brachiopod suborder Chonetoida, by Helen M. Muir-wood. British Museum (Natural History), London, 1962. (Available from British Information Service, New York). \$22.00

Volcanoes, on history, in theory, in eruption, by Fred M. Bullard. University of Texas Press, Austin, 1962. \$7.50

Volcanoes in Action, by Lynn and Gray Polle. McGraw-Hill, New York, 1962. \$3.00

The Orion Book of Volcanoes, by Haroun Tazieff, translated by Arthur Tannenbaum. Orion Press, New York, 1962. \$6.95

PACIFIC PETROLEUM GEOLOGIST
PACIFIC SECTION. A.A.P.G.
P.O. BOX 17486. FOY STATION
LOS ANGELES 17, CALIFORNIA

Volume 16

Number 10



Richard L. Hester
Pauley Petroleum, Inc.
10000 Santa Monica Boulevard
Los Angeles 25, Calif.

DA

PACIFIC PETROLEUM GEOLOGIST

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1962

NEWS LETTER OF THE PACIFIC SECTION AMERICAN ASSOCIATION OF PETROLEUM GEOLOGISTS

Volume 16

November, 1962

Number 11

ASSOCIATION ACTIVITIES

COASTAL GEOLOGICAL SOCIETY

The Coastal Section meeting in Ventura on October 9, 1962, had Dr. Robert Norris of U.C.S.B., as speaker. His subject, "Casual Observations on the Geology of New Zealand," was covered during a year's leave of absence from Santa Barbara to study under a Fulbright award. Although his research was principally on the sea-floor geology off the eastern coast, Dr. Norris made a discerning reconnaissance of the islands' geology and their natural beauty, gathering many excellent slides.

ABSTRACT:

The geology of New Zealand was divided into two parts: that of North Island and South Island.

The prominent geologic features include a "Graywacke" belt extending from north to south down the central portion of both islands. The "Graywackes" are composed of Permian through Jurassic shales and sandstones. To the west of this belt, particularly on North Island, there is a thick section of relatively undifferentiated "monotonous" Tertiary sediments, primarily shales and clays.

The most prominent structural feature of the country is a major right-lateral fault, which extends from the southwest coast to the north-central tip of South Island, then disappears under the bay separating the two islands. It is thought to have a displacement of approximately 300 miles, based on an unsubstantiated correlation of Paleozoic rocks found both on the northern and southern tips of South Island.

Undoubtedly, the most important geologic feature of the country is the extensive volcanism. Volcanic activity is restricted to North Island, where numerous currently active and dormant volcanos and cinder cones exist. The city of Auckland, in the northern part of the island, is studded with cinder cones. A current topic of discussion and study is whether or not the possibility exists that Auckland may some day rise in a cloud of volcanic debris.

The most extensive volcanic area is found in the central portion of North Island. It is here that great thicknesses of soft welded tuff are overlain by a few feet of pumice. It is believed that a series of gigantic eruptions in historical time covered an 8,000-square-mile area with pumice. It is in this area that New Zealand's largest paper mill derives its power from steam wells drilled into the tuff. Concern arose over this procedure when it was discovered that while the pressure increased over the years, the water level in the wells decreased. Dr. Norris pointed out that while there are numerous streams and lakes in the area,

there are apparently some impermeable horizons in the rhyolite tuff that prevent ground water from replenishing the subsurface water supply. As a result of a concentrated effort by a number of New Zealand's worried geologists, the company is presently injecting water back into the wells to maintain the original level.

Mt. Egmont, an active volcano, is located near the west coast of North Island. It is a relatively symmetrical mountain, with extensive andesite (?) flows overlying Tertiary sediments. It is interesting to note that New Zealand's only oil field is located on the northern flank of the mountain and in 1957 produced 240,000 Imperial gallons of crude oil from two wells drilled into the south flank of the mountain, and there is a reported 100 MMCF per-day potential from the Tertiary rocks in that area. Dr. Norris stated that gas lines may be run to both Auckland and Wellington, the capitol, from this field.

In general, the surface relief of New Zealand is great. The elevation ranges from sea level to about 12,000'. North Island is predominantly rugged hills and mountains, with some rolling countryside on the Pae (Northland) and at isolated areas along the coast. South Island has the greatest expanse of flat land, the Canterbury Plains, located along the east coast. The southeast coastal area has Southern California-type rolling hills and brown grass. A high range of mountains, the New Zealand Alps, runs down the west-central portion of the island. These mountains are composed of "Graywackes," and separate the eastern plains from the west coast and its fjord-type topography. Glaciers are common in the mountains, with one found at an elevation as low as 700'.

NEW OFFICERS

The following are the newly elected officers of the Coastal Geological Society for the 1962-1963 term: President - Carlton (Kit) Carson, consultant. Vice President - Roger Alexander, Standard Oil Co. Secretary - Don Hagen, Texaco, Inc. Treasurer - Harold Sugden, Tidewater Oil Co.

The recently elected officers of the Alaska Geological Society are: President - Chuck Kirschner, Standard Oil. Vice-President - George Moerlein, Bear Creek Mining Co. Secretary - Ben Ryan, Richfield Oil. Treasurer - Dick Lyon, Union Oil.

The Pacific Section of the S.E.P.M. held its annual meeting on October 19, at the El Tejon Hotel in Bakersfield. Elected as new officers were A. W. (Andy) Marianos, President; Max B. Payne, Vice President; F. W. (Ted) Bergen, Secretary; Paul Weisendunk, Treasurer.

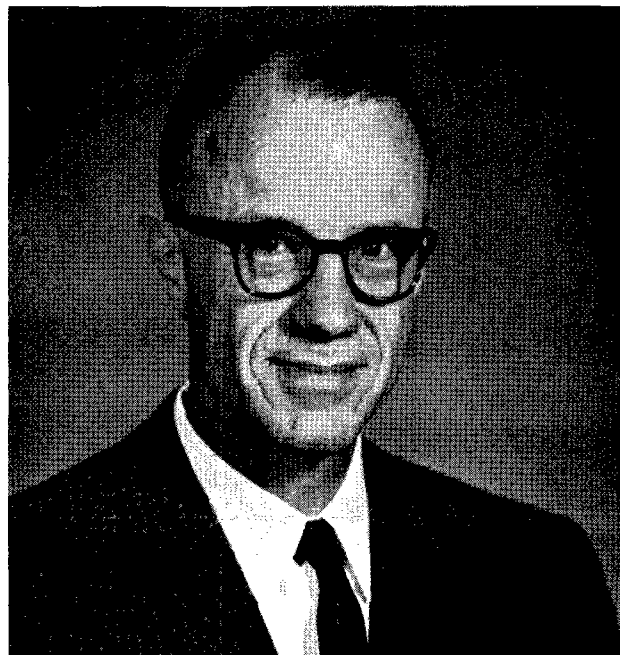
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PACIFIC PETROLEUM GEOLOGIST

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BIOGRAPHY OF RICHARD B. HAINES

The election of Richard B. (Dick) Haines to the presidency of the Pacific Section of the A.A.P.G. was a fitting reward for his many years of service to the association. In addition to numerous committee jobs, Dick has held the offices of Coastal Representative, District Representative for National A.A.P.G., Editor of "Pacific Petroleum Geologist" in 1955, and Treasurer of the Pacific Section in 1960.

Dick was born in Kansas City, Missouri, and was graduated from high school in Burlington, Kansas, in 1926. His interest in geology was aroused at the University of Wichita, and when the family moved to California in 1928 he enrolled at U.C.L.A. Dick found that jobs in geology were practically nonexistent in 1931 when he was graduated from U.C.L.A. His first job reflects his resourcefulness — he was hired by a collection agency to collect delinquent bills! Perhaps because he was too light for the job, he left to work in the property department of various movie studios. In 1935, Dick worked in the testing lab of the U. S. Engineers office. This was followed by a job as surveyor for Rieber Laboratory. In 1937, Dick began his career with Continental Oil Company as a field geologist. Successive advancements followed, with positions in Bakersfield between 1944-1948, and Ventura from 1948 to 1953. In 1953, Dick was transferred to Los Angeles as Regional Geologist for the Western Region.

The year 1937 was also important, in that he married Aileen Bergquist, a graduate of the University of Minnesota. They have a son, Robert (21), who is a senior at Whittier College, and a daughter, Joan (18), a sophomore at Fullerton Junior College.

Dick's main hobbies are trout fishing and photography. It was quite fortunate when Continental began exploration work in Alaska, as it afforded an excellent opportunity to practice both of them.

Dick's current job is Division Geologist of the Pacific Coast Division of Continental's Rocky Mountain Region, with offices in Bakersfield.

LOS ANGELES GEOLOGICAL FORUM MEETING

The November Forum Meeting will be held in the Mobil Auditorium, Mobil Building, Los Angeles, at 7:00 P.M., November 26, 1962. Bennie W. Troxel, Senior Mining Geologist, California Division of Mines and Geology, will discuss "Fault Patterns of the Northern Mojave Desert and Southern Basin and Range Provinces." The broad fault pattern in the Trona quadrangle will be emphasized.

George I. Smith, Geologist with the U.S.G.S., concentrating on the Lava Mountains, the saline deposits of Searles Lake, and general reconnaissance in the Mojave Desert, will discuss "Possible Left-Lateral Displacement on the Garlock Fault." Dike-swarm evidence suggesting 40 miles of displacement along the fault will be presented, and dating of the most-recent fault movement in the Searles Lake area will be discussed.

This meeting will be of interest to all students of the structure of California.

GEOLOGY OF CARRIZO PLAINS

AND SAN ANDREAS FAULT, 1962

Corrections:

Plate I, Geologic Map
In S/2 of T. 32 S., R. 20 E
Mp should be Mh

Plate I, Geologic Sections
A-A' Ks should be Kp
B-B' Ks should be Kp

LOS ANGELES LUNCHEON MEETING

Mr. Everett L. Jones, consulting geologist, formerly with the Internal Revenue Service, Los Angeles, gave a talk Thursday, October 4, at Rodger Young Auditorium, on "Problems of Reserve Analysis in Allocation Valuation."

ABSTRACT:

Mechanical energy and transportation are the two factors largely responsible for the America we know today, and petroleum has made the development of both possible. Without oil, modern mass production and the whole machine-age economy would grind to a sudden halt. If the oil industry had contributed nothing to our civilization but "lubricants," it would have been the outstanding development of the ages.

Evolutionary processes have, in the decade from 1930 to 1940, converted oil in the ground from a hazardous and highly speculative risk into a stabilized bankable commodity. We see today the ready and eager employment of millions of dollars of loanable bank and insurance funds in the capture and transposition of a fugitive asset hidden deep in the earth beyond the sight or touch of man.

A discussion was given on the use of "Fair Market Value" in oil financing. Some new suggested rates of depreciation were discussed, pertaining to the oil and gas industry, as well as the importance of the depletion allowance and its relation to the many other minerals which get allowances ranging from 27 1/2 percent to 5 percent.

Many times the tax departments of oil companies do not take full advantage of the company geologist's education and experience in many tax matters. Some of the problems include preparing estimates of oil and gas reserves for use by the company tax department in computing cost depletion and unit depreciation. The geologist can help determine when royalties owned by the company have become worthless, by an examination of the results of drilling in the area. They can further determine whether leases retained where geological and geophysical exploration has incurred are being retained as a result of the survey or as protection acreage.

UNIVERSITY OF CALIFORNIALA JOLLA

BRAMLETTE, M. N. - has now retired from the Professorship at Scripps Institution but is continuing his studies of coccolithophoridae.

CURRAY, J. R. - is working in collaboration with D. G. Moore of the U. S. Navy Electronics Laboratory. They have made extensive subsurface studies with a Sonoprobe and an Arcer, finding out about the thickness of recent sediments and the underlying structures of the shelf and slope off western Mexico and in the Gulf of Mexico. A not-

able find has been their discovery of what appeared to be salt domes under the slopes off Corpus Christi.

FISHER, R. L. - has continued his studies in deep-sea trenches, obtaining much new information on the depth, character of the walls, and sediments of the bottom of the west Pacific trenches. He is also in over-all charge of the Scripps Institution Indian Ocean expeditions, and Chairman of Geological Studies for the International Investigations of this ocean.

GOLDBERG, E. D. - spent five months in Berne, Switzerland. He has been continuing X-ray studies of minerals of deep-sea clays, determining their land source for both the Pacific and Atlantic.

INMAN, D. L. - has returned recently from field work on the beaches and nearshore sediments along the north and west coast of Kauai. He spent six months in England at the Hydraulic Research Station, Wallingford, investigating dynamics of sedimentation.

MENARD, H. W. - has started a year working in England with the Geophysics Department at Cambridge University. Menard has just completed his part in a round-the-world expedition on the Horizon, in which he investigated the Mediterranean Sea.

NAYUDU, Y. R. - has been investigating cores taken by both Scripps Institution and the University of Washington, looking for lithologic and biologic changes at depth in the cores. He is finding indications of climatic changes, including the change from the Recent to the Wisconsin, and also hopes to be able to recognize the Pliocene and Pleistocene contact in some of the cores.

PHLEGER, F. B. - has continued his research of the lagoons on the west coast of Baja California. He published a recent paper on the subject with Gifford C. Ewing, in Geol. Soc. America, Vol. 73, p. 145.

RIEDEL, W. R. - has greatly increased his knowledge of the extensive Tertiary formations found near or at the deep ocean floor in the central and western Pacific. He has just returned from an extensive cruise in that area.

SHEPARD, F. P. - His activities have included an expedition to Cape San Lucas, Baja California, during which he obtained a core with coarse sand and gravel at a depth of 1200 fms. in the outer San Lucas Canyon, and dredgings revealed evidence of deep weathering of the granite walls of the canyons. A cruise on the Baird around Hawaii investigated the submarine canyons north of the cliffed coasts of Molokai and Kauai. Four months were spent working with the Institute of Geophysics at the University of Hawaii, making preliminary studies of the beaches of the Hawaiian Islands. Has just completed reading proof of the second edition of "Submarine Geology."

van ANDEL, Tj. H. - is editing a book on the Gulf of California, which is nearing completion. This will relate various API studies of the Gulf by Scripps Institution staff with other Gulf studies by the faculty at Scripps. He is working in collaboration with J. R. Curray and John Veevers, in completion of their studies of the continental shelf off northwestern Australia.

UNIVERSITY OF CALIFORNIABERKELEYDepartment of Paleontology

During his past sabbatical year, Professor D. E. Savage worked with Mr. Donald Russell, a former graduate student in this department, on the "Nonmarine Stratigraphy and Vertebrate Paleontology of the Upper Paleocene and Lower Eocene of the Paris Basin," an N.S.F. project, co-sponsored by the Museum of Paleontology of the University of California and the Laboratoire de Paléontologie of the Muséum National d'Histoire Naturelle (Paris).

During this second year of the three-year project, the two paleontologists were successful in finding remains of fossil mammals previously unknown in Europe. They now have a much stronger basis for comparison of European and North American nonmarine faunas and resulting geochronological correlations. Another facet of Professor Savage's activities was the collection of green-sand samples from the Paleocene and Eocene of France for Potassium-argon studies being undertaken at the University. The first results of these studies by Evernden, Curtis, Savage and James, have been pre-printed and are now awaiting publication.

Mr. Louis Grivetti has completed an M.A. thesis on the Recent intertidal foraminifera of the Farallon Islands. He now holds a commission in the U.S. Public Health Service as a plankton specialist and is stationed in Cincinnati. Mr. Donald Steinker, holder of a graduate research appointment in the Museum of Paleontology, has succeeded in establishing a discorbid foraminifer in laboratory cultures and is in the process of determining their life history and range of variation in controlled lineages. Dr. Zach Arnold has completed a manuscript on the biology of the miliolid foraminifer Spiroloculina antillarum and has submitted it for publication.

SACRAMENTO GEOLOGY SOCIETY

On October 9, Dr. R. F. Walters of Humble Oil Company in Chico, California, gave a speech on "Lateral Faulting in California" and Mr. D. M. Hill, Department of Water Resources in Sacramento, discussed "The Aspects of Crustal Strain and Fault Movement" in California. Also, a Density Log was displayed by the Schlumberger Corporation of Sacramento.

CHANGE OF ADDRESS

| | |
|--|---|
| BRUCE, DONALD D. Skelly Oil Co. P. O. Box 1314 Anchorage, Alaska | LIAN, ERNEST B. Marathon Oil Co. P. O. Box 193 Bakersfield, Calif. |
| CREED, JAMES G. 5455 Wilshire Blvd. c/o Arcady Oil Co. Los Angeles 36, Calif. | NAIR, JACK D. Phillips Petroleum Co. 3600 Wilshire Blvd. Los Angeles 5, Calif. |
| ECKHART, RICHARD A. Sunray Oil Co. Box 22363 Houston 27, Texas | NESBITT, ROBERT A. c/o Gulf Oil Corp. P. O. Drawer 1150 Midland, Texas |

FERNANDEZ, ALFRED P.
488 Valera Avenue
Pomona, California

FOWLER, WILLIAM A., JR.
3600 Wilshire Blvd.
Room 1720
Los Angeles 5, Calif.

GRIVETTI, REX M.
4910 Abbeyville Ave.
Woodland Hills, Calif.

HARDING, MAYNARD W.
Phillips Petroleum Co.
3600 Wilshire Blvd.
Los Angeles 5, Calif.

HARRIS, PAUL B.
7458 Gazette Avenue
Canoga Park, Calif.

HAWKINS, RALPH D.
c/o Shell Oil Co.
P. O. Box 691
Ventura, California

LAUGHLIN, DWIGHT J.
c/o Continental Oil
P. O. Box 431
Midland, Texas

PARKER, FRANK S.
639 North Lake Ave.
Pasadena, Calif.

PRICE, WILEY R., JR.
230 Orchid Lane
Long Beach 5, Calif.

RIVEROLL, DAVID D.
250 East Center St.
Covina, California

STEIN, RAYMOND O., JR.
Consultant
305 Northwood Dr.
Modesto, California

VAN GUNDY, C. E.
Apt. 3-G
13751 St. Andrews
Seal Beach, Calif.

VAUGHAN, FRANCIS E.
766 So. Fair Oaks
Pasadena, Calif.

Listed below are changes of address for those members not listed in the latest directory.

JENKINS, E. L.
824 Moreno Ave.
Palo Alto, Calif.

NORMAN, CHARLES A.
P. O. Box 1506
Shreveport, La.

PERSONAL ITEMS

Mr. Dough Carriger, Petroleum Engineer, with Texaco, has been recently transferred from their Bakersfield office to their Sacramento office.

Mr. Jim Eyman, Geologist, formerly with Gulf Oil Corporation, in Sacramento, is opening a consulting office at 3909 Henderson Way, Carmichael, California. His telephone number will be IVanhoe 9-3730.

Is Union getting desperate for a new discovery? John Hazzard was recently observed consulting the Delphi oracle in Greece.

Schlumberger recently added an engineer to their Long Beach District. He is Rudy Aguillar, who transferred from Abilene.

Byron Anderson, Mobil - Los Angeles, has been assigned to the Alaskan District. He is a recent transfer from Oklahoma.

Jack Durrie, Tidewater - Ventura, maintains that flu germs thrive too well in the dark environs of Bakersfield hostelryes. The "bugs" made it difficult for him to give attention to the full scope of the recent valley field trip.

Buzz Welsh, Sunray DX - your San Joaquin correspondent, could obtain absolutely no news this month. Everyone contacted was either in conference, recuperating from the recent San Andreas Fault field trip, or down at the Enlistment Office.

Remember to circle December 21 on your calendar because that is the date for the Pacific Section Christmas Dinner Dance.

Don Bruce has gone to work for Skelly Oil in Anchorage, as a senior geologist.

Bill Yerington, Marathon - Ventura, is slowly undertaking the move to the company's Los Angeles office. He is also engaging in that sideline many geologists periodically enter—that of real estate hawking of the old homestead.

David McCulloch Anderson, prominent consulting geologist passed away October 16, 1962. Anderson was of the class of '21 of Stanford University, formerly affiliated with Union Oil Company of California, chief geologist for Jergens Oil Company, credited with the discovery of the Newport Beach oil field.

Those with the true exploration spirit have discovered that it is Ron Anejo (not Ron Heck) and Tequila that keep Tony Morris going on his alleged business trips to Mexico.

Bob Paschall, State of California, returned to Smogville and renewed acquaintances at the recent Pacific Section Forum meeting. Unbiased observers agree that he carries a relaxed look. The Sacramento atmosphere seems to be agreeing with him.

Our British cousins of B. P. (Alaska) (Inc.) are setting a fine precedent in establishing exploration offices. They have set up new offices in Palos Verdes to handle Alaskan operations. The cold weather of Anchorage doesn't bother them and they don't even have to fight the freeways.

Jean B. Senteur De Boue, local geological consultant, returned to a former area of interest last month, namely Searles and Mono Lakes, where he had previously written a monograph on micro-organisms in lake-playa deposits of the Owens Valley (ibid 1956.) His previous studies were of Coccolithophoridae in Dinoflagellidae. This animal, which is ordinarily covered by an envelope of cellulose, usually inhabits marine waters but has been found in land locked situations by Senteur De Boue.

Lou Martinez, long established in Mexico with Compania Independencia Mexicana, is now a permanent cliff dweller in Westwood. He has been transferred to Pauley Petroleum Incorporated.

The current geologic D.J. average has recently been treated to a definite up-swing since both Ron Heck (nee Sunray DX) and Quentin Moore (nee Mobil Oil) of Pauley Petroleum Inc. have removed the shadow of the Bakersfield finance companies from their portals.

Ed Hall, Union Oil, Los Angeles, has been appointed to replace Bob Paschall as Coast Representative on the Executive Committee.

Tennant Brooks will be the recipient from "The Cost Plus Ten Percent Shoppe" in San Francisco, of one gift-wrapped package of individually dipped and ribboned "road apples" complete with doilies from a Mr. Fenwick P. Snerd, Esq.

The F. B. I. has been engaged by T. B. to find out which so-called friend (?) was behind such a fabulous gift.

Dave Riveroll resigned from Continental Oil and is doing consulting work.

Jim Laughlin, Continental, has been transferred from the Los Angeles to the Midland, Texas office.

Chuck Norman, Continental, has moved from Los Angeles to Shreveport, Louisiana.

L. F. (Buzz) Ivanhoe has just returned from Israel where he spent the month of September as an oil-exploration advisor. During the summer he was the mining engineering consultant for United Electro Dynamics of Pasadena on the Atomic Energy Commission, Tatum, Mississippi Salt Dome, Dribble (VELA) project. Buzz is now at Scripps Institute of Oceanography.

THIS SPACE WAS RESERVED FOR THE SAN FRANCISCO AND NORTHWEST CORRESPONDENTS.

NURSERY NEWS

Don Hartman, Texaco, Anchorage, is the proud father of an adopted baby boy.

Bob Badger, Pauley Petroleum, Los Angeles and wife, Corrine, welcomed their first child, a daughter, Betsy, weighing 5 lbs. 15 1/2 oz., born October 1, 1962.

CALENDAR

November 13, 1962: Tuesday night, San Joaquin Geological Society, El Tejon Hotel, Bakersfield, Calif. Cocktail Hour: 6:30 P.M., Dinner 7:00 P.M. John B. Ivey will speak on, "A Comparison of Geomorphic Techniques Used in the Great Valley of California and Other Areas."

November 26, 1962: Monday night, 7:00 P.M., Forum Meeting at the Mobil Auditorium, Mobil Building, Los Angeles. Speakers: Bennie W. Troxel, California Division of Mines and Geology, will discuss "Fault Patterns of the Northern Mojave Desert and Southern Basin and Range Provinces," and George I. Smith, U.S.G.S., will discuss "Possible Left-Lateral Displacement on the Garlock Fault."

December 12, 1962: Wednesday night, San Joaquin Geological Society, El Tejon Hotel, Bakersfield Calif. Cocktail Hour: 6:30 P.M., Dinner 7:30 P.M. Speakers: Edward A. Gribb, Jr., Consultant, will speak on, "Salinas Basin Oil Province," and Victor H. Church, Consultant, will speak on, "King City Oil Field."

December 6, 1962: Thursday noon, Roger Young Auditorium, 936 West Washington Blvd., Los Angeles. Speaker: Dr. Robert M. Norris on "Geology of New Zealand."

JOURNAL CLUB PROGRAM - STANFORD UNIVERSITY

November 12, 1962: Monday, 4:00 P.M., Room 320, Geology Building, (coffee at 3:45). "Basal Thrust in Southern Death Valley and Vicinity, California," C. T. Wrucke, Graduate Student; and "Structural Geology of a Portion of the Stillwater Range, Nevada," Chapman Young, Graduate Student.

November 19, 1962: Monday, 4:00 P.M., Room 320, Geology Building, (coffee at 3:45). "Petrology and Magnetic Properties of the Cazadero Ultramafic Mass," Clark Blake, Graduate Student; and "Hydrodynamic Oil Traps," Al Breitanbach, Graduate Student.

November 26, 1962: Monday, 4:00 P.M., Room 320, Geology Building, (coffee at 3:45). "Possible Role of Photogeology Among the Rice Paddies of Taiwan and the Tropical Rain Forest of Brazil," Dr. Arthur Howard, Professor.

December 3, 1962: Monday, 4:00 P.M., Room 320, Geology Building, (coffee at 3:45). "A Progress Report on a Layered Sphere Model Study," Victor G. Gregson, Graduate Student; and "The Gualala Formation North of Fort Ross, California," Carl Wentworth, Graduate Student.

BIBLIOGRAPHY OF RECENT PUBLICATIONS

U. S. GEOLOGICAL SURVEY

Professional Paper 403-B: Marine geology of Guam, by K. O. Emery. \$1.25

Professional Paper 426: Data on uranium and radium in ground water in the United States, 1954 to 1957, by R. C. Scott and F. B. Barker. \$1.25

Bulletin 1147-A: Reconnaissance study of uranium deposits in Arizona, by H. C. Granger and R. B. Raup. \$.25

Water Supply Paper 1544-C: Methods of flow measurement in well bores, by E. P. Patten, Jr., and G. D. Bennett. \$.20

MAPS

Atlas HA-61: Stream composition of the conterminous United States, by R. H. Rainwater. \$1.50 per set

OPEN FILE REPORT (Inspection only)

Investigation of ferruginous bauxite deposits on Kauai, and a reconnaissance of deposits on Maui, by S. H. Patterson. 336 p., 7 pl., 5 figs., 10 tables.

CALIFORNIA DIVISION OF MINES AND GEOLOGY (Mail orders to Ferry Building, San Francisco, Calif.).

Geologic map of California: CHICO sheet, scale 1:250,000, 1962. \$1.50

U. S. BUREAU OF MINES (Order from the Government Printing Office, Washington 25, D. C.).

1961 List of Bureau of Mines Publications and Articles: January 1 to December 31, 1961, a Bureau of Mines Special Publication. . . . \$.60

Information Circular 8109: Mining and furnacing methods and costs, Abbott Mine, COG Minerals Corp., Lake County, Calif., by A. C. Johnson and F. D. Hanson. \$.60

Information Circular 8112: Industrial silica deposits of the Pacific Northwest, by George J. Carter, Hal J. Kelly, and Edward W. Parsons. \$.40

U. S. BUREAU OF MINES (Distribution Section, 4800 Forbes Ave., Pittsburgh 13, Penn.).

Report of Investigations 5990: Chemical and galvanic corrosion properties of high-purity vanadium, by Charles B. Kenahan, David Schlain, and Walter L. Acherman.

OIL AND GAS JOURNAL, vol. 60, no. 40, October 1, 1962.

Santa Monica Bay may be leased soon.
Wildcatters still bet on Washington, by Frank J. Gardner.

Is the Cambrian a good habitat for oil in the Permian basin? by W. Floyd Wright.

How Shell and Blue Water drilled afloat, by Ed McGhee.

OIL AND GAS JOURNAL, vol. 60, no. 41, October 8, 1962.

First federal lease sale off California set.
Another 1 1/2 billion bbl in Wilmington field.

How the radio-frequency method works as an exploration tool, by William D. Owens.

OIL AND GAS JOURNAL, vol. 60, no. 42, October 15, 1962.

Oil may not be a graybeard after all, by Frank J. Gardner.

The Edwards of the Greater Person area: Big potential, big problems, by L. L. Jones.

Dutch gas—growing energy force in western Europe.

OIL AND GAS JOURNAL, vol. 60, no. 43, October 21, 1962.

Oil-sand find improves Arctic prospects.

Sooner depth records falls again.

Walnut shells for Meramec fractures, by B. G. Alexander and J. M. Wagner.

GEOLOGICAL SOCIETY OF AMERICA, vol. 73, no. 9, September 1962.

Petrology and structure of the southern Wet Mountains, Colorado, by Robert E. Boyer.

Permian rocks of parts of Nevada, Utah and Idaho, by Harold J. Bissell.

Lava tree molds of the September 1961 eruption, Kilauea Volcano, Hawaii, by James G. Moore and Donald H. Richter.

Bearing strength and other physical properties of some shallow and deep-sea sediments from the North Pacific, by David G. Moore.

GEOTIMES, vol. VII, no. 3, October 1962.

Good lantern slides: A three-way responsibility, by Roy L. Ingram.

Problems of professional standards.

NEW YORK ACADEMY SCIENCE ANNALS, vol. 91, art. 2, 1961.

Geochronology of rock systems. Conference editor, J. Laurence Kulp.

NATIONAL ACADEMY SCIENCE PROCEEDINGS, vol. 47, no. 11, November 15, 1961.

Woodring Conference on major biologic innovations and the geologic record, by Preston E. Cloud, Jr., and Philip H. Abelson.

PETROLEUM TODAY, vol. 3, no. 1, Fall 1961.

Life in outer space, Edwin Diamond.

JOURNAL OF PALEONTOLOGY, vol. 35, no. 5, September, 1961.

LISCOMBEA, a new Silurian tabulate coral genus from New South Wales, Australia, by June R. P. Phillips Ross.

Revised indentifications of some Mississippian corals described in U.S.G.S. Bulletin 1071-F, by William J. Sando.

The stratigraphic occurrence of some Lower Mississippian corals from New Mexico and Missouri, by Arthur L. Bowsher, Sr.

New occurrences of LEPTODUS (Brachiopoda) in the Permian of the western United States, by J. Thomas Dutro, Jr., and Ellis L. Yochelson.

The first American record of LANTANOTHERIUM Filhol, by S. David Webb.

Next deadline November 26, 1962.

PACIFIC PETROLEUM GEOLOGIST
PACIFIC SECTION, A.A.P.G.
P.O. BOX 17486, FOY STATION
LOS ANGELES 17, CALIFORNIA

Volume 16

Number 11



Richard L. Hester
Pauley Petroleum, Inc.
10000 Santa Monica Boulevard
Los Angeles 25, Calif.

DA

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PACIFIC PETROLEUM GEOLOGIST

NEWS LETTER OF THE PACIFIC SECTION
AMERICAN ASSOCIATION OF PETROLEUM GEOLOGISTS

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Volume 16

December, 1962

Number 12

ASSOCIATION ACTIVITIES



P.P.G. STAFF

SELECTED PAPERS PUBLISHED

The San Joaquin Geological Society has published volume I "Selected Papers Presented to San Joaquin Geological Society." This 64-page publication includes five articles that were originally presented before the Society at past meetings. The five articles are:

Late Mesozoic Stratigraphy of the Sacramento Valley, by Stewart Chuber.

Stratigraphy of the Late Upper Cretaceous in the Sacramento Valley, by William F. Edmondson.

Geology of the Kione Formation, by John M. Thomson.

Grimes Gas Field, by Frank Weagant.

Distribution of Upper Miocene Sands and their Relation to Production in the North Midway Area, Midway Sunset Field, California, by David C. Callaway.

Copies are still available and can be ordered from the San Joaquin Geological Society, P. O. Box 1056, Bakersfield, California. Cost, including mailing, is \$2.00 per copy.

ALASKA GEOLOGICAL SOCIETY

The Alaska Geological Society's November meeting featured a stimulating talk by James R. Wylie III, Alaska Senior Geologist for Gulf Oil Corporation. In his talk, entitled "Exploration and Conservation," Wylie pictured the general expansion of governmental control in most phases of personal and corporate activity, and stressed the role played by citizens in the relinquishment of individual liberties. The population expansion and technological advances have combined to present America with more people with more leisure time, and thus an increasing demand for space for recreational activity. Additionally, such industries as mineral extraction and logging desire public lands for their own use, and conservationists wish it to be set aside unused.

Pointing to its successful application on the Kenai National Moose Range, Wylie praised the principle of multiple use, indicating many areas in which lands can be commercially developed in a manner compatible with or even beneficial to conservationists aims. Noting Alaska's spirit of individual freedom, and her need for economic development, Wylie called for individual action reflecting our ability as explorationists to cooperate with conservationists, promoting the maximum development of public lands.

In addition to Mr. Wylie's talk, the group viewed two films: "Road to MIS," depicting the origins of British Petroleum, and "Arctic Island Wildcat," which showed the methods employed by Peter Bawden Drilling Co. to move a drilling rig from Alberta to Melville Island.

MEMORIAM

Mr. Claude H. (Hank) Charles, Jr., a scout for Humble Oil & Refining Company in Los Angeles for the last seven years, passed away October 22, 1962, at his home at 11653 Morrison Street, North Hollywood, of a hemorrhage of the stomach. Hank was born in Moline, Illinois, the 18th of December, 1920.

He is survived by his wife, Edyth, a son, Lawrence H.; and a daughter, Lynne; also by his mother and father, the Claude H. Charles, Senior.

Hank was Second Vice President of the International Oil Scouts Association for the year 1960. He was also Past President of the Los Angeles Basin Oil Scout Association.

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PACIFIC PETROLEUM GEOLOGIST

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Next deadline January 2, 1963

PACIFIC SECTION CANDIDATES

The Pacific Section nominating committee (Irv. Schwade, Chairman; members, Harvey Lee, Frank Parker, Harold Rader, and R. R. Simonson) is pleased to announce that the following members have consented to become candidates for the offices indicated, for the one-year term beginning with the close of the 1963 Spring convention.

President

John E. Kilkenny, Union Oil
Harold H. Sullwold, Jr., Consultant

Vice-President

William J. Edmund, E. L. Doheny
Louis J. Simon, Texaco

Secretary

John D. Frick, Humble Oil
Arthur O. Spaulding, City of L. A.

Treasurer

Thomas R. O'Neill, Shell Oil
Milton T. Whitaker, Mobil Oil



Newly elected officers, Coast Geological Society, for 1963. Picture taken at the society's Annual Installation Dinner Dance, Mar Monte Hotel, Santa Barbara, California, November 3, 1962.

Center: President, Carlton M. "Kit" Carson - Consulting Paleontologist.

Right: Vice President, Roger G. Alexander - SOCO of California.

Left: Treasurer, Harold Sugden - Tidewater Oil Company.

Not Present: Secretary, Donald Hagen - The Texas Company.

FIELD TRIP GUIDEBOOKS AVAILABLE

On October 20, more than 200 geologists attended a field trip to the San Andreas Fault and the Carrizo Plains. The field trip, which was hosted by the San Joaquin Geological Society, was preceded by a dinner meeting in Bakersfield the previous night. A steak bar-B-Q at the Ernest Still Ranch concluded the trip.

To supplement this field trip a 52-page guidebook was printed that presents the most thorough and up-to-date geologic coverage of the area available. Included with the guidebook is a regional map of the Caliente and Temblor Ranges, compiled by T. W. Dibblee, Jr.

These guidebooks can be ordered from the San Joaquin Geological Society, P. O. Box 1056, Bakersfield, California. Cost, including mailing, is \$3.00 per copy.

DINNER DANCE

The Pacific Section of the A.A.P.G., S.E.P.M. and S.E.G. will hold the Annual Christmas Dinner Dance this year on Friday, December 21, in the Viennese Room of the Huntington-Sheraton Hotel in Pasadena.

There will be a cocktail party and dinner followed by dancing to the music of Carroll Wax and his orchestra. Reservation cards will be mailed to all members in a few days. The price this year will be \$15.00 a couple. The reservation chairman is Jack Shepard, Texaco, 3350 Wilshire Blvd., Los Angeles.

LOS ANGELES FORUM

The Pacific Section was honored, at the November 26 Forum meeting, to have present both candidates for national AAPG, B. W. Beebe and John C. Sproule.

The speakers of the evening were: Bennie Troxel, California Division of Mines and Geology, on "Fault Patterns of the Northern Mojave Desert and Southern Basin Range Provinces," and George Smith, U. S. Geological Survey, on "Possible Left-Lateral Displacement on the Garlock Fault." The abstract of Mr. Smith's talk will appear at a later date.

FAULT PATTERNS OF THE NORTHERN MOJAVE DESERT AND SOUTHERN RANGES PROVINCES

ABSTRACT:

The compilation of the Trona sheet of the Geologic Map of California has recently been completed.

The most significant structural element shown on the Trona sheet is the Garlock fault zone, two-thirds of which is on the Trona sheet; in some areas it is a single fault and in others it consists of several branches. Many of the other structural features appear to be related to the Garlock fault. Two possible northeast-trending ancestral branches of the Garlock fault have been suggested. One projects through the topographically low areas occupied by Layton Pass in the southern Slate Range and Wingate Wash between the Panamint and Owshead Mountains, and the other is the Owl Lake fault in the Owshead Mountains. The southern parts of the Panamint Valley-Brown Mountain fault zone and the faults along the southwestern Slate Range are concave eastward, suggestive of subsequent left-lateral movement along the Garlock.

The junction or merging of the Death Valley and Garlock fault zones in the Avawatz Mountains area has long been the subject of controversy. Neither fault zone can readily be traced eastward or southeastward with positive identification, although steeply-dipping-to-vertical fault zones have been recognized to the southeast. It has been pointed out recently by Jahns and Wright that much of the area within the Avawatz Mountains is a complex mosaic of wedges, bounded by faults which are parallel to one or the other of the main fault zones.

Topographic features apparently related to movement along the Garlock fault are: 1) the mountain ranges that are oriented parallel with the fault trace, 2) the bulge in the southern Slate Range near the fault, 3) the eastward deflection of southern Death Valley around the Avawatz Mountains, and 4) the depressions that lie along much of the Garlock fault zone.

Other structural trends and features of significance on the Trona sheet are:

1. The northwest-trending faults in the southwest quarter of the sheet (characteristic of much of the Mojave desert), as compared to the general lack of them farther east.

2. The faults in the Lava and Rand Mountains that are parallel to the Garlock fault and which truncate the northwest-trending faults.

3. The belt of low-angle thrust faults in the northeastern part of the sheet (usually younger rock over older).

4. The belt of regularly spaced east-trending faults south of the Avawatz Mountains, west of the Soda Mountains, and east of the northwest-trending faults.

5. The repetition south-southwestward of the fault pattern in the Avawatz Mountains (intersecting northwest- and east-trending faults).

6. The intersection of northwest-trending faults and the Sierra Nevada fault zone.

7. The intersection of north- and northwest-trending faults in Indian Wells Valley.

8. Remnants of an older northeast-trending set of faults.

9. The change in trend of the Garlock fault (ENE between Garlock and the Quail Mountains to E between the Quail and Avawatz Mountains).

10. The general pattern of northwest-trending faults in much of the area north of the Garlock fault.

CHANGE OF ADDRESS

BECKWITH, ROBERT W.
317 Gibson Street
Porterville, Calif.

CHAPPUIS, LOUIS C.
P. O. Box 5341
Tucson, Arizona

CORBY, GRANT W.
Merchants Petroleum
1636 W. 8th Street
L. A. 17, Calif.

CREED, JAMES G.
4503 Atoll Avenue
Van Nuys, Calif.

HENDRIKSEN, OSCAR H.
575 Amalfi Drive
Santa Monica, Calif.

JOHNSTON, ROBERT L.
P. O. Box 61590
New Orleans, La.

LIAN, ERNEST B.
Marathon Oil Co.
P. O. Box 193
Bakersfield, Calif.

NEEL, H. H.
936 Kenfield Ave.
L. A. 49, Calif.

PORTER, FRED C.
13554 Lucca Drive
Pacific Palisades
California

PRICE, MAURICE C.
5990 Hunter Street
Ventura, Calif.

SALVESON, JAMES O.
Exploration Dept.
Standard Oil Co.
P. O. Box 250
Seattle, Washington

SHELDON, THEODORE D.
415 Petroleum Club Bldg.
Denver, Colorado

SCOTT, ROBERT NEIL
Truxton Ave. Bldg.
Room 111
1107 Truxton Ave.
Bakersfield, Calif.

WATSON, C. P.
Merchants Petroleum Co.
1636 W. 8th Street
Los Angeles 17, Calif.

WINHAM, WILLIAM P.
47 Panorama Drive
Bakersfield, Calif.

SAN DIEGO STATE COLLEGE

For our first appearance in these columns, a few vital statistics may be of interest. Our staff, dates of arrival, academic backgrounds, and special fields of interest are as follows:

- | | |
|-----------------------|--|
| Baylor Brooks - | 1931 - Chicago, Oxford, U. of Arizona, Stanford; groundwater, geomorphology, engineering. |
| Ellis E. Roberts - | 1949 - Michigan Tech, Cal Tech, Stanford; mineralogy, mineral exploration. |
| Blakemore E. Thomas - | 1956 - Berkeley, Cal Tech; petroleum and base metal exploration. (current Department Chairman) |
| E. Dean Milow - | 1957 - San Diego State, Stanford; stratigraphy, sedimentology, Cenozoic of the Pacific Coast. |
| Gordon Gastil - | 1959 - San Diego State, Berkeley; regional structure, Precambrian geology. |
| Edwin C. Allison - | 1960 - San Diego State, Berkeley; paleontology, history of Baja California, Tertiary fauna of Pacific basin. |
| Allen M. Bassett - | 1961 - Amherst, Columbia; petrology, economic mineralogy, geology in secondary schools. |
| Richard L. Threet - | 1961 - U. of Illinois, U. of Washington; geomorphology, photogeology, field mapping techniques. |
| Richard W. Berry - | 1961 - Lafayette, Washington U. of St. Louis; exploration geophysics, geochemistry, clay mineralogy. |

On campus and available to our students are a specialist in palynology, a vertebrate paleontologist, and a geologic engineer.

Equipment

In addition to the usual comprehensive collections of rocks, minerals, fossils, and maps, the department is fortunate in having complete complements of Leitz petrographic and binocular microscopes with sufficient research models, vertical illuminators, photo attachments, and universal stages to accommodate our infant graduate program. For map preparation we have a Saltzman overhead projector, and through the cooperation of the Civil Engineering Department the use of microwave surveying gear and a complete photogrammetric laboratory including multiplex plotter. For special work in petrology, mineralogy, and sedimentology we have mechanical crushing, pulverizing, sieving, and gravity tabling equipment and an isodynamic separator. Our X-ray diffraction installation now has a proportional

counter diffractometer. A spectrometer for X-ray fluorescence analysis will be added this year. Geophysics studies are aided by an Askania magnetometer, a Worden gravimeter, and portable seismographic gear. Piers and part of the instruments are on hand for establishment of a seismic station. Through the cooperation of the Chemistry Department, our students have been using an emission spectrograph and comparator, radiochemistry laboratory, and infrared flame photometry. Neutron activation has been accomplished through arrangements with General Atomic Corporation.

A "teaching museum" is nearing completion. Vertebrate paleo murals are finished, display cases are being filled, and a relief-geologic map of the San Diego region will be completed as soon as Dean Milow stops visiting new road-cuts.

The A.B. degree in geology was inaugurated in 1955, the B.S. in 1958, and the M.S. in 1961. This year we have 84 undergraduate majors and 12 graduates. By college year, we have 17 Freshmen, 16 Sophomores, 21 Juniors, and 30 Seniors. On the basis of past experience we expect about 75 per cent of these to weather the storm and graduate in geology. Numbers of undergraduate majors over the past two years are as follows: Sept. 1960 - 86, Sept. 1961 - 53, Sept. 1962 - 84.

Last year we awarded 17 bachelor's degrees, and the previous year 14. Employment categories for these graduates are as follows: Graduate school - 9 (2 fellowships and 2 assistantships), petroleum geology - 6 (4 in '62), mining exploration - 1, geophysicist, USGS - 2, engineering geology-hydrology - 3, oceanography - 3, marine geophysics - 1, space geology, NASA - 1, armed forces - 2, aeronautics industry - 3.

Recent and Current Activities

An undergraduate NSF research project on radioactive age-dating of batholithic and pre-batholithic rocks in Southern California, directed by Gordon Gastil, was concluded early this year. Two papers resulting from this research were presented by undergraduates at the annual Cordilleran Section meeting of the GSA. A follow-up undergraduate project on radioactive dating and determination of lead-loss in zircons from a dynamothermal metamorphic halo in the White Mountains of California was conducted during the summer of 1961 as part of the department's Summer Field Course.

The 1962 Summer Field Course, attended by 12 students, was held in the Mogollon Rim country northwest of Globe, Arizona. Directed by Gordon Gastil, the six weeks of study involved application of magnetic and geochemical exploration survey techniques in addition to geologic mapping. Blake Thomas and Ellis Roberts gave part-time assistance in the field.

Allen Bassett and Dick Berry conducted an NSF Summer Institute in Geology for secondary school teachers of earth science and general science. Participants were enthusiastic, and recent reports indicate that their Jr. and Sr. High students are now getting the "word" on geology. Dick Berry has been cooperating with the Naval Air Station, North Island, in determination of seismic stability of piers used in inertial guidance research and in measurement of gravity.

He has finished his dissertation on geochemistry of bottom sediments in North Atlantic and Arctic ocean areas.

Ned Allison is completing his studies of the paleontology of the Alisitos formation (Lower Cretaceous) in Baja California. He has been involved in preliminary studies of fossiliferous dredged samples from the Hawaiian Island area and is gathering steam for a considerable project as more samples arrive.

Graduate student projects include studies of Upper Cretaceous micropaleontology in the Carlsbad area, geology of the continental slope off San Diego as shown by cores and dredged samples, paleontology and ecology of the continental slope, and source areas for the Poway conglomerate. Ellis Roberts and an advanced class have been utilizing the college IBM 1620 computer in experiments to determine the unit-cell dimensions of crystals from X-ray powder photograph measurements.

GEOLOGICAL SOCIETY OF SACRAMENTO

Dr. W. L. Norem, Richfield Oil Corporation, was the guest speaker at the November 13 meeting. His subject was, "Geological Palynology."

ABSTRACT:

In geological applications, palynology is the study of fossils that are so small they must be examined with a compound microscope. Pollen and spores are the most important members of this group.

These tiny reproductive organs are produced in vast numbers by plants growing on land, and are carried into the depositional areas by wind and water. Because it comes from a source outside the depositional area, the composition of the spore and pollen flora is not affected by the ecological conditions of the aquatic environment. Therefore, the plant microfossils often can be used to correlate sediments deposited in marine, brackish and nonmarine environments.

Plant spores became sufficiently varied in form early in Devonian or possibly Silurian time to be used for dating. From that time to the present, this fossil group provides a continuous record wherever conditions favored preservation. Each Period appears to be characterized by a more-or-less distinctive microfossil assemblage, with evolution providing less and climate providing more variation within the shorter time units. The continuous change imposed by evolution and climate on the plant microfossil record makes easy the recognition of relative age.

Plants do not appear to have been affected by the same catastrophic events that periodically wiped out entire faunas of animals, leaving room for the rapid evolution of new groups. The plant fossil record is not marked by these major time horizons. The transition from one plant group to the next in time was more gradual and may not have been synchronous in different parts of the world. Changing climates caused the expansion and contraction of ecological zones that may have favored one evolutionary group more than another, but

relic floras may have persisted in favored localities.

NORTHWEST GEOLOGIC SOCIETY

The Northwest Geologic Society held their monthly meeting at the Poodle Dog Cafe in Pife, Washington, on Friday evening, November 16. Stephen C. Porter, Asst. Prof. in geology, gave a talk entitled "Glaciation of Arctic Alaska." Dr. Porter recently received his Ph.D. from Yale University.

ABSTRACT:

The Brooks Range of arctic Alaska is a high, rugged chain of mountains extending from Cape Lisburne on the Bering Sea, east to the Canadian Boundary, a distance of 600 miles. North of the Brooks Range lie the Arctic Foothills and the Arctic Coastal Plain, two regions of low relief. Existing glaciers are limited mainly to the eastern part of the range and lie in protected cirques on high peaks. Most are small and show evidence of modern recession.

Glacial deposits mantle the floors of broad U-shaped valleys in the range and extend both north and south of the range as broad lobate bodies. Some ancient moraines reach to within several miles of the present coast in the eastern Brooks Range, but north of the central Brooks Range a wide expanse of nonglaciated terrain stretches to the Arctic Ocean. The youngest moraines within the range lie in contact with existing glaciers or lie in cirques now devoid of glacier ice.

Evidence of eight successive late-Pleistocene glacial advances was found in the north-central Brooks Range. Ice of the earliest advance of the Itkillik glaciation flowed north from an ice divide south of the present stream-drainage divide and buried valleys to a minimum depth of 2,000 feet. Several subsequent readvances built prominent end moraines across major valleys.

Until recently, glacial chronologies for northern Alaska were based primarily on position of moraines and on physical characteristics of drift bodies. More recently, radiocarbon dates on organic matter associated with drift sheets have made it possible to date the younger glaciations. The dates indicate that substages of the Itkillik glaciation are correlative with substages of the classical Wisconsin glaciation of central North America. The Alapah Mountain and Fan Mountain glaciations, which were restricted to the higher parts of the range, were post-hypsothermal events.

The radiocarbon-dated late-glacial chronology of the Brooks Range makes it possible to place limiting dates on archeological sites within the range. The geologic history of several archeological sites at Anaktuvuk Pass indicates that cultural evidence of man in the Brooks Range probably covers a maximum temporal span of about 7,000 years. The wide nonglaciated region north of the range and the coextensive submerged portion of the continental shelf could have provided a likely avenue of emigration for early man across arctic Alaska.

LOS ANGELES LUNCHEON MEETING

"Sacramento Valley Round Up," a summary of recent developments, activities, economics and marketing conditions, was presented by Eugene F. (Bud) Reid, Vice President and Exploration Manager, Occidental Petroleum Corporation, at Rodger Young Auditorium, November 1.

ABSTRACT

The Sacramento Valley is a very important part of the Exploration scene in California today. It is a basin with an areal extent of some 205 miles long and 50 miles wide, which yields virtually all dry gas from a thick section of Eocene, Paleocene and Cretaceous sedimentary rocks. Due to the constantly rising demand for gas in the growing California cities, the attractive price at the well head, and the success of several operators in locating new fields, exploration for gas in the Valley has been steadily increasing notably since 1957. During the first 9 months of 1962, a total of 269 wells were drilled and 121 were completed as gas producers. This compares with 306 wells drilled in the whole year of 1961, of which 133 were completed. During 1961, a total of 2,022,000 feet of hole was drilled, of which 892,000 was completion footage. In the first 9 months of 1962, a total of 1,905,000 feet have already been drilled, with 860,000 feet completed for production.

Some of the new fields discovered since 1960 included, from north to south: Kirkwood (Kione Sand), Ash Creek (F Zone), Hamilton Bend (F Zone), Butte Sink (Kione), Grimes (F Zone), Woodland (Winters), Poppyridge (F Zone), Lindsay Slough, Mulligan Hill, Brentwood (Martinez), Oakley (Martinez), Lathrop (Winters), Vernalis Southwest area (Moreno).

Part of the Sacramento Valley included within Townships 14 to 17 North and Ranges 2 West to 2 East, including the Grimes and Marysville Buttes fields, is an area of intense "F" zone activity. A total of 90 wells have been drilled in the first 9 months of 1962, 61 of which have been completed as gas wells. The Grimes field itself has 7800 productive acres to date and an estimated reserve of 400 million MCF of gas.

Lathrop field, discovered in October 1961 by Occidental Petroleum, is the most-significant find of late and is considered to be the second largest dry-gas field in the State. Fifteen wells have been completed, nine dually from as much as 600 feet of net gas sand. The field so far includes 2300 productive acres with an estimated 721 million MCF recoverable gas reserves.

The Cretaceous "F" zone, to which much of the late activity has been focused, consists of very thin lenticular sands that are very difficult to interpret on the electric log. The use of mud-logging has been very effective in finding thin "F" zone gas sands. Because of the sporadic distribution of these sands, Occidental's success has been due in large part to the drilling of numerous wells.

Marketing gas found in the Sacramento Valley is almost as much of a problem as finding the gas itself. As the Pacific Gas and Electric Company is the sole buyer, the sale of gas is entirely

dependent upon this one company's needs. They are reluctant to hook up new fields, especially large ones, because of the already large supply of gas available for the northern California area.

Gas withdrawal follows the ups and downs of usage. In July about 1,131,000 MCF/day is used, while in December 3,392,000 MCF/day is consumed, or about a three-fold increase from summer to winter. Therefore, P.G. & E. requires a three-fold delivery capability over the average minimum daily guarantee stated in the contract. A company must be able to deliver three times the minimum daily guarantee, so that a company is able to contract for no more than one-third of the field's daily potential.

P.G. & E. pays 30 cents/MCF for gas over 990 B.T.U., 26-1/2 cents/MCF at Lathrop with 880 B.T.U. gas. This compares with 10 cents/MCF in Oklahoma. However, gathering and transportation of out-of-state gas accounts for two-thirds of the cost and therefore costs as much or more than California gas at the state line.

There are two possible ways to solve the gas marketing problem. The producer must now sit on the gas and wait for a hook-up with P.G. & E. However, there is a large market need in southern California where gas could be brought in, or the producer could find a single large customer for his gas. These are problems which the California Gas Producers Association are presenting to the Federal Power Commission.

The Sacramento Valley remains a very good place to look for and find profitable gas production.

PERSONAL ITEMS

John Harper, Standard - Oildale has been the guide on some recent field trips of the Bakersfield Sierra Club.

The following are the newly elected officers of the San Joaquin Geological Society: President - Alvin A. Almgren, Union Oil Co.; Vice President - Daniel B. Flynn, M&M & M Oil Co.; Secretary-Treasurer - Ernest W. Rennie, Jr., Tidewater Oil.

These officers were introduced to the Society at its November meeting and will serve for the next twelve months.

D. Keith Murray has opened offices in Denver, Colorado, as an independent consulting geologist. He was formerly with Clark Oil & Refining Corp. and Shell Oil Company.

Bill Davidson and Darrell Helmut, Standard Oil Co., Salt Lake City, have been transferred to Standard's Anchorage office as development geologists. Bill is now learning the ways of the Far North, with Darrell and family due to follow suit around the first of the year.

Robert Shull has been transferred to Standard's geophysical department in Seattle, and is due to leave Anchorage upon completion of some rather-pressing real estate problems.

Frank Smith is on a four-week tour at Standard's San Francisco office, attending a Formation Evaluation Seminar.

A quick convalescence is wished for Don Hagen of Texaco, Inc., Ventura. Discovery of a bad ulcer condition resulted from a hospital exam following an auto accident. Mel Fisher has also been recuperating from the same accident. Looks like the doctors tried to drum up some extra business in your case, Don!

Harry Nagle, Standard - Ventura, has been motoring to New York City and vicinity. It is reported he is trying to nurse a second 100,000 miles out of his Packard. He also expects a lot of goodies from Santa, since his wife cashed in on a grocery-buyer's "punch-card" lottery.

Howard Kinzey, Shell Oil, has been recently transferred from Bakersfield to Ventura.

A game group of U. of C. - Berkeley students, led by Dr. Fred Berry, made a tour of the Ventura area during November 16 to 18. Itinerary was the eastern Ventura Basin on Friday, guided by Sig Hamann and Ted Off. Saturday, the group covered the area from Sulphur Mountain to Point Mugu, accompanied by Roger Alexander, Oscar Weser and Harry Hansen. The final go-round Sunday was to the Ventura Field with Harry Whaley, and out to the Rincon Island.

Contrary to the popular belief that deer season is over, Standard scout "Red" Pope of Ventura, recently "bagged" a nice buck on Highway 399. His car made quite a lethal weapon, but is scratched from duty after the encounter.

Charlie Fulmer, formerly with Standard Oil Company of California, is presently employed by Boeing Co., Seattle, as a research geophysicist.

Spencer J. Reber, district geologist in Washington-Oregon for Standard Oil Company during the past two years, has recently been transferred to Bakersfield where he has been assigned to sub-surface work as Senior Exploration Geologist. Mr. Jim Salvesson, from the Los Angeles office, replaces Spence as District Geologist.

Max Greene, former Northwest correspondent, has been exiled to Fairbanks for failing to send in any news. Let this be a lesson for the San Francisco correspondent.

Stan Schindler returned from a 10-week course in Houston, which included a short trip to the Bahamas. Nice work if you can get it.

Harold Sugden, Tidewater - Ventura, is rumored to have bought his new house in order to carry on his landslide study at home. The new challenge is a small earth-slippage in the backyard, with a possible left-lateral movement of the fence.

Thirty-six (36) golfers from the Standard (Oildale) exploration department braved high winds and cold temperatures to play in the annual Turkey Tourney held at the North Kern links on Saturday, November 17, 1962. Flight turkey winners were Roy Wilks, Keith Beny, Ted Robey and Roger Canady. Twelve other turkeys were also given away. Low-gross winner was Bob Lindblom. The chairmen of the event were Bob Lindblom and Roy Wilks.

The Standard (Oildale) Explorers bowling team is in a bad losing streak in the local Petroleum league, winning only 3 out of 24 games. Milt Zeni and Bob Ortalda are threatening to come out of "retirement."

Friends in Standard's Anchorage office report that Orrin Gilbert has all but given up his Ham gear, preferring to spend his occasional days off in more-productive pursuits, such as potting plants and working on the furnace.

Bill Hughs is now firmly established in Alaska for Texaco, having moved his family from Southern California to a sumptuous dwelling in Anchorage's South Addition.

Also in new surroundings is Don Hartman, Texaco, Anchorage. Don reports that the recent acquisition of Daniel Vincent used up the remaining space in the duplex.

Tom Marshall, newly appointed State Petroleum Geologist for Alaska, has the only sail-driven icebreaker in Alaska. He was seen during the early days of November, clearing a path for a drag race with Bill Van Alen, Pan Am, Anchorage.

In other action by the state of Alaska, Gordon Herried was transferred from Juneau to Anchorage, retaining his title of State Mining Geologist, and Kenneth Davison was appointed State Petroleum Engineer.

Sinclair Oil and Gas has turned its Alaska District into a Division. David L. Dobie, formerly Assistant Manager of Sinclair's Tulsa Division, is Manager of the new Division. Roger Gahring has been promoted to Division Exploration Superintendent, and Ernie Bush is now District Geologist.

Al Schlottman has returned to Phillips' Anchorage office, having completed a whirlwind three weeks through Germany, Austria, Switzerland, Italy, and more, picking up a new VW in the process.

Wes Ellis, formerly with Pacific Oil Well Logging is now working with Bob Burns of Geological Exploration Company.

Bob Snow - Special Services Engineer for Schlumberger in Bakersfield, has been transferred to Alaska and will be Location Manager in Anchorage.

J. C. Swarbrick, Geologist for Shell Oil Company, has been transferred to Bakersfield from Farmington, New Mexico.

Lucius C. Geer, Acting District Geologist and Geophysicist in Corpus Christi for Union Oil Co. of California, has been appointed Division Geologist for Union Oil's Pacific Coast Division of Los Angeles.

P. W. Gester has been named Northern Calif. Division Superintendent of Exploration for Standard Oil Company of California - Western Operations, Inc. John H. Silcox has been named to replace Gester as Northern Division Geologist.

NURSERY NEWS

Dick Lyon, Union Oil, Anchorage, reports that his wife Barbara has brought the family son count up to two, with the arrival of 5 lb. 2 oz. Douglas Martin on October 26, 1962.

Bill Edmondson (Consultant, Bakersfield) and wife, Carolyn, are happy parents, with their first child, Lisa Lynn, 7 lbs., 2 1/2 ozs.

Sigfried Hamann, Shell - Ventura, and wife Elsa, added to their family a baby boy, Martin, weighing in at 7 lbs., 12 oz. This feat gives other Shell men something to aim at, as Sig now boasts of six boys and one girl.

Paul Moody - Mobil, Los Angeles, and wife Betty Jo, welcomed their first child, a son, Kevin, weighing 7 lbs. 9 ozs, born October 23, 1962.

CALENDAR

December 6, 1962: Thursday noon, Roger Young Auditorium, 936 West Washington Blvd., Los Angeles. Speaker: Dr. Robert M. Norris on "Geology of New Zealand."

December 11, 1962: Tuesday night, Coastal Geological Society, at the Ventura Womens' Center, on Foothill Road, Ventura. Cocktail hour: 6:30 P.M. Dinner: 7:30 P.M. Speaker: Roy Turner, consultant with Otto Hackel & Associates, will speak on, "Review and Current Developments of the Tapia Field and Vicinity."

December 11, 1962: Tuesday night, Sam's Rancho Villa, 2380 Fair Oaks Blvd., Sacramento, in the Continental Room. Geological Society of Sacramento - Ladies' Night. Cocktail Hour: 7:00 P.M. Dinner 7:45 P.M. Total price of dinner is \$3.50. Please do not send money with reservations. Speaker: Dr. Charles F. Park, Jr., Dean of the School of Mineral Sciences at Stanford University, who will show color slides, with commentary, on his recent trip to Australia. Reservations to: Dr. Emille A. Passagno, Secretary - Geological Society of Sacramento - c/o University of Calif. - Davis, California.

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December 14, 1962: Friday night, Northwest Geological Society will be held at the Poodle Dog Cafe, Fife, Washington. Speaker: Dr. M. Grant Gross, Professor of Oceanography at the University of Washington, will talk on "Radioactivity in the Columbia River Sediments." Cocktails and dinner will precede the meeting.

UNIVERSITY OF SOUTHERN CALIFORNIA

GEOLOGY MEETINGS

December 11, 1962: 4:30 P.M. in Room 210 at Founders Hall. Speaker: Dr. Jack Green will speak on, "Geochemistry of a Volcanic Moon."

December 18, 1962: 4:15 P.M., Tuesday, in Room 104. Geology "A", 855 West 37th Street. Speaker: Calvin Stevens, on "Sedimentary Patterns of the Permian in east-central Nevada."

January 8, 1963: 4:15 P.M., Tuesday, in Room 104. Geology "A", 855 West 37th Street. Speaker: Harold Palmer, on "Marine Geology and Current Patterns of Silver Bay, Sitka, Alaska."

BIBLIOGRAPHY OF RECENT PUBLICATIONS

U. S. GEOLOGICAL SURVEY

Professional Paper 341-A: Geology and ore deposits of the Nova Lima and Rio Acima quadrangles, Minas Gerais, Brazil, by J. E. Gair..... \$2.75

Professional Paper 341-B: Geology and ore deposits of the Cachoeira do Campo Dom Bosco, and Ouro Branco quadrangles, Minas Gerais, Brazil, by R. F. Johnson..... \$1.75

Professional Paper 411-D: Review of some elements of soil-moisture theory, by Irwin Remson and J. R. Randolph..... \$.35

Professional Paper 450-D: Geological Survey Research 1962, short papers in geology, hydrology and topography, Articles 120-179..... \$1.50



Richard L. Hester
Pauley Petroleum, Inc.
10000 Santa Monica Boulevard
Los Angeles 25, Calif.

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